JNU Publications for the month of October, 2025

Record 1 of 56

Title: Informal Women Workers in the Global South: Policies and Practices for the Formalisation of Women's Employment in Developing Economies

Author(s): Tripathy, S (Tripathy, Swetarani)

Source: FEMINIST ECONOMICS **DOI:** 10.1080/13545701.2025.2528930 **Early Access Date:** OCT 2025 **Published Date:** 2025 OCT 4

Times Cited in Web of Science Core Collection: 0

Total Times Cited: 0

Usage Count (Last 180 days): 0

Usage Count (Since 2013): 0

Cited References: Bakker Isabella., 1994, The Strategic Silence: Gender and Economic Policy
BENERIA L, 1992, WORLD DEV, V20, P1547, DOI 10.1016/0305-750X(92)90013-L
BENERIA L, 1981, J DEV STUD, V17, P10, DOI 10.1080/00220388108421795
CAGATAY N, 1995, WORLD DEV, V23, P1827, DOI 10.1016/0305-750X(95)90003-J
Elson D., 1991, MALE BIAS DEV PROCES, P164
Folbre N., 1995, Feminist Economics, V1, P73, DOI [DOI 10.1080/714042215, https://doi.org/10.1080/714042215]
Kesar S, 2023, REV DEV ECON, V27, P2438, DOI 10.1111/rode.13040
MacDonald M, 1998, FEM ECON, V4, P1, DOI 10.1080/135457098338536
Mezzadri A, 2020, GLOB LABOUR J, V11, P156
Nelson Julie., 1986, Feminism, Objectivity and Economics
Pujol M., 1997, Feminist Economics, V3, P119
Sanyal Kalyan., 2007, RETHINKING CAPITALIS
Strassmann D, 2008, FEM ECON, V14, P1, DOI 10.1080/13545700802028514

Cited Reference Count: 13

Accession Number: WOS:001589510200001

Language: English

Document Type: Book Review; Early Access

KeyWords Plus: GENDER

Addresses: [Tripathy, Swetarani] Jawaharlal Nehru Univ, Ctr Study Reg Dev, New Delhi 110067, India.

Corresponding Address: Tripathy, S (corresponding author), Jawaharlal Nehru Univ, Ctr Study Reg Dev, New Delhi 110067, India.

E-mail Addresses: swetar81_ssf@jnu.ac.in

Affiliations: Jawaharlal Nehru University, New Delhi

Publisher: ROUTLEDGE JOURNALS, TAYLOR & FRANCIS LTD

Publisher Address: 2-4 PARK SQUARE, MILTON PARK, ABINGDON OX14 4RN, OXON, ENGLAND

Web of Science Index: Social Science Citation Index (SSCI)

Web of Science Categories: Economics; Women's Studies

Research Areas: Business & Economics; Women's Studies
IDS Number: 8IO0J
ISSN: 1354-5701
eISSN: 1466-4372
29-char Source Abbrev.: FEM ECON
ISO Source Abbrev.: Fem. Econ.
Source Item Page Count: 6
Output Date: 2025-11-11

Record 2 of 56

Title: Stereoselective and Regioselective Synthesis of Chiral Dihydrofurocoumarins as Glycohybrids

Author(s): Kumari, P (Kumari, Priti); Tiwari, G (Tiwari, Ghanshyam); Narayana, C (Narayana, Chintam); Sagar, R (Sagar, Ram)

Source: ORGANIC LETTERS **DOI:** 10.1021/acs.orglett.5c03991 **Early Access Date:** OCT 2025 **Published Date:** 2025 OCT 28

Times Cited in Web of Science Core Collection: 0

Total Times Cited: 0

Usage Count (Last 180 days): 0

Usage Count (Since 2013): 0

Cited Reference Count: 0

Abstract: Herein, we report a new single-step process for the synthesis of chirally pure dihydrofurocoumarins, demonstrating high regio- and stereoselectivity. This method involves a diverse range of 4-hydroxy coumarin derivatives, which react with various d-glycals in the presence of ceric ammonium nitrate (CAN) at 90 degrees C to furnish dihydrofurocoumarins within 1 h in a good isolated yield. This developed method possesses several advantages such as its quick reaction time, wide substrate scope, and generation of two new chiral centers along with the inherited chirality of d-glycals, in the final products, enhancing their possible potential applications in medicinal chemistry, material science, and chemical biology.

Accession Number: WOS:001608241100001

PubMed ID: 41148148

Language: English

Document Type: Article; Early Access

Addresses: [Kumari, Priti; Tiwari, Ghanshyam; Narayana, Chintam; Sagar, Ram] Jawaharlal Nehru Univ, Sch Phys Sci, Glycochemistry Lab, New Delhi 110067, India.

Corresponding Address: Sagar, R (corresponding author), Jawaharlal Nehru Univ, Sch Phys Sci, Glycochemistry Lab, New Delhi 110067, India.

E-mail Addresses: ram.sagar@jnu.ac.in

Affiliations: Jawaharlal Nehru University, New Delhi

Publisher: AMER CHEMICAL SOC

Publisher Address: 1155 16TH ST, NW, WASHINGTON, DC 20036 USA

Web of Science Index: Science Citation Index Expanded (SCI-EXPANDED)

Web of Science Categories: Chemistry, Organic

Research Areas: Chemistry

IDS Number: 9KB8V

ISSN: 1523-7060
eISSN: 1523-7052
29-char Source Abbrev.: ORG LETT
ISO Source Abbrev.: Org. Lett.
Source Item Page Count: 5
Funding:

Funding Agency	Grant Number
Banaras Hindu University	NA
Jawaharlal Nehru University	NA

The authors thank Jawaharlal Nehru University (JNU) and Banaras Hindu University (BHU) for providing the required lab facilities to conduct this work. The authors are grateful to Ultra International and the Sanganeria Foundation for supporting lab furniture for the Glycochemistry Laboratory at JNU.

Output Date: 2025-11-11

Record 3 of 56

Title: Effects of pregnancy intention, interpregnancy interval and postpartum contraception uptake on child survival: insights from the Indian demographic health surveys

Author(s): Biswas, M (Biswas, Monirujjaman); Banerjee, A (Banerjee, Anuradha); Rana, MJ (Rana, Md Juel)

Source: BMC PREGNANCY AND CHILDBIRTH **Volume:** 25 **Issue:** 1 **Article Number:** 1074 **DOI:** 10.1186/s12884-025-08173-z **Published Date:** 2025 OCT 13

Times Cited in Web of Science Core Collection: 0

Total Times Cited: 0

Usage Count (Last 180 days): 0

Usage Count (Since 2013): 0

Cited References: [Anonymous], 2017, National Family Health Survey (NFHS-4) 2015-16
[Anonymous], 2005, Report of a WHO Technical Consultation on Birth Spacing
[Anonymous], 2017, National Health Policy
[Anonymous], 2013, PROGRAMMING STRATEGI
[Anonymous], 2012, Levels Trends in Child Mortality-Report 2012
[Anonymous], 2006, Technical Consultation Towards the Development of a Strategy for Promoting Optimal Fetal Development
Bakshi S., 2017, Soc Dev Issues, V39, P55
Bassani DG, 2010, LANCET, V376, P1853, DOI 10.1016/S0140-6736(10)61461-4
Bawah AA, 2016, STUD FAMILY PLANN, V47, P252, DOI 10.1111/sifp.67
Bbaale E, 2015, AFRICAN JOURNAL OF ECONOMIC REVIEW, V3, P1, DOI 10.22004/ag.econ.264367
Bbaale E, 2012, J INT DEV, V24, pS138, DOI 10.1002/jid.1762
Bhalotra S, 2008, J ECONOMETRICS, V143, P274, DOI 10.1016/j.jeconom.2007.10.005
Biswas M, 2023, PLOS ONE, V18, DOI 10.1371/journal.pone.0289701
Callahan RL, 2012, STUD FAMILY PLANN, V43, P213, DOI 10.1111/j.1728-4465.2012.00319.x
Chalasani S, 2007, IN M POP ASS AM, P29
Conde-Agudelo A, 2012, STUD FAMILY PLANN, V43, P93, DOI 10.1111/j.1728-4465.2012.00308.x
DaVanzo J, 2007, BJOG-INT J OBSTET GY, V114, P1079, DOI 10.1111/j.1471-0528.2007.01338.x
DaVanzo J, 2008, POP STUD-J DEMOG, V62, P131, DOI 10.1080/00324720802022089

den Draak M, Early life changes: transition in pregnancy and birth outcome in South India
Gaffield ME, 2014, GLOB HEALTH-SCI PRAC, V2, P4, DOI 10.9745/GHSP-D-13-00156
Gipson JD, 2008, STUD FAMILY PLANN, V39, P18, DOI 10.1111/j.1728-4465.2008.00148.x
GOLDMAN N, 1989, STUD FAMILY PLANN, V20, P147, DOI 10.2307/1966569
Habimana-Kabano I, 2016, J BIOSOC SCI, V48, P358, DOI 10.1017/S0021932015000231
Hussaini KS, 2013, MATERN CHILD HLTH J, V17, P646, DOI 10.1007/s10995-012-1041-8
IIPS ICF, 2021, National Family Health Survey (NFHS-5), 2019-21: India
Kapoor S, 2010, 6 ANN C GROWTH DEV M, P16
KOENIG MA, 1990, DEMOGRAPHY, V27, P251, DOI 10.2307/2061452
Koenig MA, 2010, INT J EPIDEMIOL, V39, P825, DOI 10.1093/ije/dyq066
Nyarko P, Immunization status and child survival in rural Ghana, DOI [10.31899/pgy6.1049, DOI 10.31899/PGY6.1049]
Paukku M, 2003, OBSTET GYNECOL, V101, P534, DOI 10.1016/S0029-7844(02)02717-5
Perin J, 2015, GLOBAL HEALTH ACTION, V8, P74, DOI 10.3402/gha.v8.29724
Raatikainen K, 2007, BMC PUBLIC HEALTH, V7, DOI 10.1186/1471-2458-7-268
RETHERFORD RD, 1989, DEMOGRAPHY, V26, P439, DOI 10.2307/2061603
Ross JA, 2001, INT FAM PLAN PERSPEC, V27, P20, DOI 10.2307/2673801
Rutstein SO, 2005, World health organization consultation and scientific review of birth spacing, V13
Saha UR, 2013, STUD FAMILY PLANN, V44, P45, DOI 10.1111/j.1728-4465.2013.00343.x
Singh A, 2013, MATERN CHILD HLTH J, V17, P493, DOI 10.1007/s10995-012-1023-x
Singh A, 2012, POP STUD-J DEMOG, V66, P223, DOI 10.1080/00324728.2012.697568
Singh S., 2009, ABORTION WORLDWIDE D
Smith GCS, 2003, BMJ-BRIT MED J, V327, P313, DOI 10.1136/bmj.327.7410.313
StataCorp L.P., 2007, Stata statistical software
Tsui AO, 2010, EPIDEMIOL REV, V32, P152, DOI 10.1093/epirev/mxq012
TU P, 1989, STUD FAMILY PLANN, V20, P332, DOI 10.2307/1966436
UNFPA (United Nations Population Fund), 2022, Seeing the Unseen: The Case for Action in the Neglected Crisis of Unintended Pregnancy

Cited Reference Count: 44

Abstract: BackgroundUnintended pregnancy and short Interpregnancy Interval (IPI) are believed to have detrimental effects on child survival. To reduce infant mortality through improved Family Planning (FP), a better understanding of factors driving pregnancy intention, IPI and postpartum contraception uptake and how this decision affects infant survival is needed. Thus, this paper aimed to examine the effects of pregnancy intention, IPI and postpartum contraception uptake on infant mortality in India.MethodsData were drawn from the 2015-16 and 2019-21 National Family Health Survey (NFHS). The main outcome measure was infant mortality. The key exposure variables were pregnancy intention, IPI and postpartum contraception uptake. To fulfil the study objective, a time-to-event approach was applied to the analysis using the Kaplan-Meier survival function, Log-Rank Chi-square test and Cox-Proportional Hazard (Cox-PH) model.ResultsThe results showed that the proportion of infants WHO died during the first year after birth declined by only 0.4%, from 3.8% in 2015-16 and 3.4% in 2019-21. The Cox-PH models revealed strongly significant associations between pregnancy intention, IPI, and postpartum contraception uptake with infant mortality in both NFHS rounds, even after controlling for socio-economic, demographic and program-related factors. Besides, mother's age at last birth, parity, antenatal visits, place and mode of delivery, postnatal check-up, breastfeeding, distance to nearest health facility, media exposure, level of education, religion, caste, wealth index, place and region of residence emerged as significant factors associated with infant mortality.ConclusionThe findings of this paper reinforced an inescapable need for implementing effective programmatic interventions for the quality of FP counselling and monitoring to enhance postpartum modern contraception uptake as a way of helping young women to avert unintended pregnancy and achieve optimal IPI that would eventually lead to improving child survival among infants in India.

Accession Number: WOS:001592904700004

PubMed ID: 41083950

Language: English

Document Type: Article

Author Keywords: Young women; Pregnancy intention; Interpregnancy interval; Postpartum contraception uptake; Infant mortality; India

KeyWords Plus: NEONATAL-MORTALITY; BIRTH INTERVALS; INFANT; MATLAB; FERTILITY; RISK

Addresses: [Biswas, Monirujjaman; Banerjee, Anuradha] Jawaharlal Nehru Univ, Ctr Study Reg Dev, New Delhi 110067, India.
[Rana, Md Juel] GB Pant Social Sci Inst, Prayagraj 21101, Utter Pradesh, India.

Corresponding Address: Biswas, M (corresponding author), Jawaharlal Nehru Univ, Ctr Study Reg Dev, New Delhi 110067, India.

E-mail Addresses: monwasman@gmail.com; banerjee.anb@gmail.com; jranajnu@gmail.com

Affiliations: Jawaharlal Nehru University, New Delhi

Author Identifiers:

Author	Web of Science ResearcherID	ORCID Number
Rana, Md Juel	AAE-5965-2020	

Publisher: BMC

Publisher Address: CAMPUS, 4 CRINAN ST, LONDON N1 9XW, ENGLAND

Web of Science Index: Science Citation Index Expanded (SCI-EXPANDED)

Web of Science Categories: Obstetrics & Gynecology

Research Areas: Obstetrics & Gynecology

IDS Number: 8NN8G

eISSN: 1471-2393

29-char Source Abbrev.: BMC PREGNANCY CHILDB

ISO Source Abbrev.: BMC Pregnancy Childbirth

Source Item Page Count: 16

Open Access: Green Submitted, gold

Output Date: 2025-11-11

Record 4 of 56

Title: Where Is Irrigation Headed in the Driest State of India? A Spatio-Temporal Analysis of Irrigation in Rajasthan, India

Author(s): Kiran, R (Kiran, Ravi); Punia, M (Punia, Milap); Mondal, M (Mondal, Monidip); Pramanik, S (Pramanik, Suvamoy)

Source: IRRIGATION AND DRAINAGE **DOI:** 10.1002/ird.70043 **Early Access Date:** OCT 2025 **Published Date:** 2025 OCT 20

Times Cited in Web of Science Core Collection: 0

Total Times Cited: 0

Usage Count (Last 180 days): 0

Usage Count (Since 2013): 0

Cited References: Agarwal A., 1999, Making Water Management Everybody's Business: Water Harvesting and Rural Development in India
Amal Kar Amal Kar, 2014, Agropedology, V24, P179
Angelakis AN, 2020, WATER-SUI, V12, DOI 10.3390/w12051285
Asoka A, 2017, NAT GEOSCI, V10, P109, DOI [10.1038/ngeo2869, 10.1038/NGEO2869]
Assistant Professor Swami Keshvanand Institute of Technology Management and Gramothan Jaipur (SKIT College) Ram Nagariya Rd Shivam Nagar Jagatpura Jaipur Rajasthan., 2020, International Journal of Recent Technology and Engineering (IJRTE), V8, P2430, DOI [10.35940/ijrte.f7938.038620, 10.35940/ijrte.f7938.038620, DOI 10.35940/IJRTE.F7938.038620]
Beero S. K., 2014, American International Journal of Research in Humanities, Arts and Social Sciences, V7, P43
Bhattacharya P, 2015, GROUNDWATER SUST DEV, V1, P155, DOI [10.1016/j.gsd.2016.04.004, 10.1016/j.gsd.2016.04.004, DOI 10.1016/J.GSD.2016.04.004, 10.1007/s11356-020-10362-6.]
Central Ground Water Board, 2019, Ground Water Year Book Rajasthan 2019-20
Central Ground Water Board, 2023, National Compilation on Dynamic Ground Water Resources of India, 2023
Dalin C, 2017, NATURE, V543, P700, DOI 10.1038/nature21403
Dangar S, 2021, J HYDROL, V596, DOI 10.1016/j.jhydrol.2021.126103
Deshmukh M. S., 2017, North Asian International Research Journal of Social Science Humanities, V3, P3
Devi C. V., 2018, International Journal of Rural Management, V14, P69, DOI [10.1177/0973005218765552, 10.1177/0973005218765552]
Directorate of Economics Statistics, 2023, Economic Review 2022-23
Ghosh S, 2017, IRRIG DRAIN, V66, P784, DOI 10.1002/ird.2151
Gleeson T, 2012, NATURE, V488, P197, DOI 10.1038/nature11295
Ground Water Department, 2022, Groundwater Level Scenario in Rajasthan-2021
India-WRIS, 2021, Major Medium Irrigation Projects in Area of Inland Drainage in Rajasthan Basin
Jana S. K., 2012, Land Bank Journal, V9, P41
Janakarajan S., 2006, Economic and Political Weekly, V41, P3977
Kiran R., 2021, Agrucultural Water Stress and Water Management in Rajasthan
Kiran Ravi, 2025, Journal of Land and Rural Studies, V13, P197, DOI [10.1177/23210249251328842, 10.1177/23210249251328842]
Kravchenko AN, 2003, SOIL SCI SOC AM J, V67, P1564, DOI 10.2136/sssaj2003.1564
Kumar MD, 2013, INT J WATER RESOUR D, V29, P557, DOI 10.1080/07900627.2012.743957
Kuriachen P, 2022, INT J WATER RESOUR D, V38, P480, DOI 10.1080/07900627.2021.1912715
Long D, 2016, SCI REP-UK, V6, DOI 10.1038/srep24398
MacDonald AM, 2016, NAT GEOSCI, V9, P762, DOI [10.1038/ngeo2791, 10.1038/NGEO2791]
Meghwal R, 2019, Remote Sensing in Earth Systems Sciences, V2, P260, DOI [10.1007/s41976-019-00026-6, 10.1007/s41976-019-00026-6, DOI 10.1007/S41976-019-00026-6]
Mehta P, 2024, NAT WATER, V2, P254, DOI 10.1038/s44221-024-00206-9
Meng JZ, 2021, ALEX ENG J, V60, P2013, DOI 10.1016/j.aej.2020.12.006
Mishra V, 2018, EARTHS FUTURE, V6, P1672, DOI 10.1029/2018EF000939
Modak TS, 2021, WATER INT, V46, P505, DOI 10.1080/02508060.2021.1922970
Mukherji A., 2016, Economic and Political Weekly, V51, P44
Narayanamoorthy A, 2007, IRRIG DRAIN, V56, P349, DOI 10.1002/ird.307
Narayanamoorthy A, 2011, IRRIG DRAIN, V60, P431, DOI 10.1002/ird.593
Palanisami K., 2022, Tank Irrigation in India: Future Management Strategies and Investment Options. NABARD Research and Policy Series No. 10/2022
Panda DK, 2022, EARTHS FUTURE, V10, DOI 10.1029/2021EF002513
Panda DK, 2021, HYDROL PROCESS, V35, DOI 10.1002/hyp.14003
Pandey A., 2011, India Infrastructure Report 2011: Water: Policy and Performance for Sustainable Development

Pandey R, 2016, IND STUD BUS ECON, P97, DOI 10.1007/978-981-10-0197-0_5
Pattnaik P. K., 2020, IoT and Analytics for Agriculture, V63, DOI [10.1007/978-981-13-9177-4, DOI 10.1007/978-981-13-9177-4]
Paudyal N. P., 2011, Geographical Journal of Nepal, V53-62, P53, DOI DOI 10.3126/GJN.V9I0.17471
Rawat S, 2014, INT J WATER RESOUR D, V30, P262, DOI 10.1080/07900627.2013.837361
Reddy VR, 2018, AGR WATER MANAGE, V209, P32, DOI 10.1016/j.agwat.2018.07.013
Ricciardi V, 2021, NAT SUSTAIN, V4, P651, DOI 10.1038/s41893-021-00699-2
Rivest M, 2012, J HYDROL, V416, P72, DOI 10.1016/j.jhydrol.2011.11.043
Rudic Z, 2019, OUTLOOK AGR, V48, P126, DOI 10.1177/0030727019831019
Sajid A. H., 2013, Canadian Biosystems Engineering, V55, DOI 10.7451/CBE.2013.55.1.1
Saleth R. M., 1996, Water Institutions in India: Economics, Law and Policy (Issue February)
Samberg LH, 2016, ENVIRON RES LETT, V11, DOI 10.1088/1748-9326/11/12/124010
Sarkar A, 2020, ENERG POLICY, V140, DOI 10.1016/j.enpol.2020.111437
Scanlon BR, 2023, NAT REV EARTH ENV, V4, P87, DOI 10.1038/s43017-022-00378-6
Sebastian J., 2022, Irrigation Management for Sustainable Agriculture, P87
Shah T., 2011, Indian Infrastructure Report
Shah T, 2007, AGRICULTURAL GROUNDWATER REVOLUTION: OPPORTUNITIES AND THREATS TO DEVELOPMENT, P7, DOI 10.1079/9781845931728.0007
Sidhu BS, 2020, WORLD DEV, V128, DOI 10.1016/j.worlddev.2019.104836
Sidhu BS, 2021, GROUNDWATER SUST DEV, V12, DOI 10.1016/j.gsd.2020.100498
Siebert S, 2010, HYDROL EARTH SYST SC, V14, P1863, DOI 10.5194/hess-14-1863-2010
Singh AP, 2021, ENVIRON DEV SUSTAIN, V23, P1844, DOI 10.1007/s10668-020-00654-9
Smilovic M, 2015, FOOD SECUR, V7, P835, DOI 10.1007/s12571-015-0477-2
Srivastava S. K., 2013, Agricultural Situation in India, V69, P13
Srivastava SK, 2014, IRRIG DRAIN, V63, P1, DOI 10.1002/ird.1779
Suresh A, 2020, CURR SCI INDIA, V118, P1163, DOI 10.18520/cs/v118/i8/1163-1168
Suresh A, 2019, INT J WATER RESOUR D, V35, P999, DOI 10.1080/07900627.2018.1504755
Sutradhar A., 2023, Spatio-Temporal Variations in Irrigation Development: Evidence From a Semi-Arid Region of Rarh Bengal, DOI [10.1007/s10668-023-02928-4, DOI 10.1007/S10668-023-02928-4]
Teshome A, 2020, MODEL EARTH SYST ENV, V6, P929, DOI 10.1007/s40808-020-00729-6
Vaidyanathan A., 2004, Economic and Political Weekly, V39, P2989
WAPCOS LTD, 2022, State Irrigation Plan (SIP) for Rajasthan Under PMKSY (2016-17 to 2022-23): A Journey to Water Security for all and for Ever

Cited Reference Count: 68

Abstract: The state of Rajasthan, with its arid and semiarid climate, has made significant advancements in irrigation after the green revolution. This research offers a comprehensive spatio-temporal analysis of irrigation development in Rajasthan, examining the dynamic shifts in irrigation patterns, sources and their compound annual exponential growth rates (CAEGRs), and assessing the impact of various sources of irrigation on the net sown area (NSA). Currently, almost three-fourths of irrigated areas use groundwater sources. Over the last decade, tubewell irrigation has expanded most rapidly (CAEGR: 2.5%), followed by canal irrigation (2.2%), whereas tank irrigation has sharply declined (-2.6%). Furthermore, tubewell irrigation utilization significantly impacts the NSA, especially during the Rabi season in western Rajasthan. However, this increase in groundwater irrigation has an environmental cost in terms of a significant decline in the groundwater level, particularly in districts with relatively high levels of tube-well irrigation. Business, as usual, is not sustainable, as depleting groundwater resources will adversely affect food security in the region. The Rajasthan experience emphasizes exploring the balance between short-term agricultural gains and the protection of critical ecosystems. It also offers vital lessons for dry and semiarid regions around the world that are facing similar challenges.

Accession Number: WOS:001597325900001

Language: English

Document Type: Article; Early Access

Author Keywords: canal irrigation; groundwater; irrigation utilization; net sown area; tubewell

KeyWords Plus: MICROIRRIGATION DEVELOPMENT; GROUNDWATER DEPLETION; INTERPOLATION

Addresses: [Kiran, Ravi; Punia, Milap; Mondal, Monidip; Pramanik, Suvamoy] Jawaharlal Nehru Univ, Ctr Study Reg Dev CSRD, Sch Social Sci, New Delhi, India.

Corresponding Address: Mondal, M (corresponding author), Jawaharlal Nehru Univ, Ctr Study Reg Dev CSRD, Sch Social Sci, New Delhi, India.

E-mail Addresses: monidip33@gmail.com

Affiliations: Jawaharlal Nehru University, New Delhi

Author Identifiers:

Author	Web of Science ResearcherID	ORCID Number
Pramanik, Suvamoy	GQY-7054-2022	

Publisher: WILEY

Publisher Address: 111 RIVER ST, HOBOKEN 07030-5774, NJ USA

Web of Science Index: Science Citation Index Expanded (SCI-EXPANDED)

Web of Science Categories: Agronomy; Water Resources

Research Areas: Agriculture; Water Resources

IDS Number: 8UA6C

ISSN: 1531-0353

eISSN: 1531-0361

29-char Source Abbrev.: IRRIG DRAIN

ISO Source Abbrev.: Irrig. Drain.

Source Item Page Count: 22

Output Date: 2025-11-11

Record 5 of 56

Title: Synergistic Ti₃C₂T_x MXene quantum dot/nanosheet Hybrid: Elevating supercapacitor performance

Author(s): Kumar, B (Kumar, Bheem); Rundla, A (Rundla, Avinash); Singh, M (Singh, Mahaveer); Rani, D (Rani, Divya); Kumar, P (Kumar, Pushpendra); Singh, K (Singh, Kedar)

Source: JOURNAL OF POWER SOURCES **Volume:** 652 **Article Number:** 237603 **DOI:** 10.1016/j.jpowsour.2025.237603 **Published Date:** 2025 OCT 1

Times Cited in Web of Science Core Collection: 2

Total Times Cited: 2

Usage Count (Last 180 days): 13

Usage Count (Since 2013): 13

Cited References: Ai FR, 2021, ACS APPL NANO MATER, V4, P8192, DOI 10.1021/acsanm.1c01425
Allah AE, 2019, NANO ENERGY, V65, DOI 10.1016/j.nanoen.2019.103991
Anasori B, 2017, NAT REV MATER, V2, DOI 10.1038/natrevmats.2016.98
Berdiyorov GR, 2016, APPL PHYS LETT, V108, DOI 10.1063/1.4944393
Chen YH, 2024, ENERG ENVIRON SCI, V17, P5613, DOI 10.1039/d4ee01831a
Chen YC, 2022, ENERG FUEL, V36, P2390, DOI 10.1021/acs.energyfuels.1c04104
Dollimore D., 1976, Surface Technology, V4, P121, DOI [DOI 10.1016/0376-4583(76)90024-8/A, DOI

10.1016/0376-4583(76)90024-8]
Einafshar E, 2023, TOPICS CURR CHEM, V381, DOI 10.1007/s41061-023-00439-4
Feng YF, 2020, CERAM INT, V46, P8320, DOI 10.1016/j.ceramint.2019.12.063
Garba MD, 2021, J ENVIRON CHEM ENG, V9, DOI 10.1016/j.jece.2020.104756
Hone F.G., 2021, Energy Storage Convers, P71, DOI DOI 10.1201/9781003145585-5
Hu CQ, 2023, APPL PHYS REV, V10, DOI 10.1063/5.0140861
Huang HJ, 2022, INORG CHEM FRONT, V9, P1171, DOI 10.1039/d1qi01528a
Humayun M, 2022, SMALL METHODS, V6, DOI 10.1002/smtd.202101395
Humayun M, 2022, J ENERGY CHEM, V66, P314, DOI 10.1016/j.jechem.2021.08.023
Iro ZS, 2016, INT J ELECTROCHEM SC, V11, P10628, DOI 10.20964/2016.12.50
Ke QQ, 2016, J MATERIOMICS, V2, P37, DOI 10.1016/j.jmat.2016.01.001
Kong N, 2022, ACS APPL MATER INTER, V14, P56877, DOI 10.1021/acsami.2c18559
Kumar P, 2016, ECS J SOLID STATE SC, V5, pQ3021, DOI 10.1149/2.0051611jss
Kumar P, 2015, NANOSCALE, V7, P8093, DOI 10.1039/c5nr00885a
Lai M, 2024, MATER TODAY NANO, V25, DOI 10.1016/j.mtnano.2023.100450
Lazanas AC, 2023, ACS MEAS SCI AU, V3, P162, DOI 10.1021/acsmeasuresciau.2c00070
Le TH, 2017, POLYMERS-BASEL, V9, DOI 10.3390/polym9040150
Li J, 2017, ADV ENERGY MATER, V7, DOI 10.1002/aenm.201602725
Li XL, 2022, NAT REV CHEM, V6, P389, DOI 10.1038/s41570-022-00384-8
Lin ZY, 2015, J MATER CHEM A, V3, P14096, DOI 10.1039/c5ta01855b
Liu P, 2023, CHEM ENG J, V477, DOI 10.1016/j.cej.2023.146913
Long MQ, 2022, MATER TODAY SUSTAIN, V19, DOI 10.1016/j.mtsust.2022.100163
Lu XC, 2022, ENERGIES, V15, DOI 10.3390/en15031191
Lukatskaya MR, 2017, NAT ENERGY, V2, DOI 10.1038/nenergy.2017.105
Ma R, 2021, J MATER CHEM A, V9, P11501, DOI 10.1039/d1ta00681a
Marwat MA, 2021, ACS APPL ENERG MATER, V4, P12007, DOI 10.1021/acsaem.1c02548
Ming J, 2016, ACS NANO, V10, P6037, DOI 10.1021/acsnano.6b01626
Naguib M, 2012, ACS NANO, V6, P1322, DOI 10.1021/nn204153h
Natu V, 2021, MATTER-US, V4, P1224, DOI 10.1016/j.matt.2021.01.015
Pradhan L, 2024, CHEM ENG J, V497, DOI 10.1016/j.cej.2024.154587
Priyanka, 2024, J PHYS CHEM C, V128, P19873, DOI 10.1021/acs.jpcc.4c05757
Priyanka AR, 2025, J POWER SOURCES, V632, DOI 10.1016/j.jpowsour.2025.236408
Radhakrishnan S, 2021, NANOTECHNOLOGY, V32, DOI 10.1088/1361-6528/abd05b
Raj KAS, 2020, RSC ADV, V10, P31712, DOI 10.1039/d0ra06773c
Sahoo R, 2016, CHEM COMMUN, V52, P13528, DOI 10.1039/c6cc05357b
Salim O, 2019, MATER TODAY CHEM, V14, DOI 10.1016/j.mtchem.2019.08.010
Shao H, 2019, ENERGY STORAGE MATER, V18, P456, DOI 10.1016/j.ensm.2018.12.017
Shen L, 2018, J MATER CHEM A, V6, P23513, DOI 10.1039/c8ta09600g
Shinde PV, 2021, J COLLOID INTERF SCI, V602, P232, DOI 10.1016/j.jcis.2021.06.007
Sun Y, 2020, J POWER SOURCES, V473, DOI 10.1016/j.jpowsour.2020.228609
Usman M, 2021, NANOMATERIALS-BASEL, V11, DOI 10.3390/nano11082029
Wang YB, 2022, CHEM ENG J, V450, DOI 10.1016/j.cej.2022.138398
Wei CL, 2023, ADV MATER, V35, DOI 10.1002/adma.202303780
Wu ZS, 2010, ADV FUNCT MATER, V20, P3595, DOI 10.1002/adfm.201001054
Xu SK, 2017, J MATER CHEM A, V5, P17442, DOI 10.1039/c7ta05721k
Xue Q, 2017, ADV MATER, V29, DOI 10.1002/adma.201604847
Yadav M, 2024, ACS APPL NANO MATER, V7, P9847, DOI 10.1021/acsanm.4c00316
Yang CZ, 2021, COORDIN CHEM REV, V435, DOI 10.1016/j.ccr.2021.213806
Yoon Y, 2018, ADV ENERGY MATER, V8, DOI 10.1002/aenm.201703173
Zhang ZR, 2020, ELECTROCHIM ACTA, V359, DOI 10.1016/j.electacta.2020.136960
Zhao CJ, 2016, ACS APPL MATER INTER, V8, P15661, DOI 10.1021/acsami.6b04767

Zhong C, 2015, CHEM SOC REV, V44, P7484, DOI 10.1039/c5cs00303b
Zhou CH, 2024, PARTICUOLOGY, V91, P50, DOI 10.1016/j.partic.2023.12.016
Zhou YH, 2020, ACS NANO, V14, P3576, DOI 10.1021/acsnano.9b10066
Zhu XX, 2020, SUSTAIN ENERG FUELS, V4, P3566, DOI 10.1039/d0se00448k

Cited Reference Count: 61

Abstract: Supercapacitors are promising energy storage devices, offering a unique combination of high energy and power densities. This study systematically investigated the synergistic effect of a Ti3C2Tx-MXene quantum dot (MQD)/ nanosheet hybrid on supercapacitor performance. Ti3C2Tx MQDs are synthesized through a two-step process: first, Ti3C2Tx MXene 2D sheets are prepared via acidic etching of precursor materials. A combined hydrothermal (water-based) and solvothermal (ethanol-based) treatment at 150 degrees C reduces the sheet size, producing MQDs. The electrochemical performance of the MQD/ nanosheet hybrid was evaluated via a three-electrode configuration with 1 M H2SO4 as the electrolyte. Galvanostatic charge-discharge (GCD) tests at current densities ranging from 1 to 5 Ag-1 revealed a significant improvement in the specific capacitance under all tested conditions. Similarly, CV at scan rates of 10-200 mVs- 1 demonstrated an enhanced charge storage capability and superior rate performance, which was attributed to the synergistic effects of the MQDs. EIS confirmed the reduced chargetransfer resistance and excellent capacitive behavior across a wide frequency range. The enhancement in the results is due to the high surface area, remarkable electrical conductivity, and abundant electrochemically active sites of the MQDs. This study highlights the potential of Ti3C2Tx MQD/nanosheet hybrids as high-performance materials for next-generation supercapacitors, paving the way for their integration into advanced energy storage systems.

Accession Number: WOS:001517300800004

Language: English

Document Type: Article

Author Keywords: MXene; Ti (3) C (2) T (x) QDs; Supercapacitors; Electrochemical properties; Energy storage

KeyWords Plus: ELECTRODES; COMPOSITE; SHEETS; DOTS

Addresses: [Kumar, Bheem; Rundla, Avinash; Singh, Mahaveer; Rani, Divya; Kumar, Pushpendra; Singh, Kedar] Jawaharlal Nehru Univ JNU, Sch Phys Sci, New Delhi 110067, India.

Corresponding Address: Kumar, P; Singh, K (corresponding author), Jawaharlal Nehru Univ JNU, Sch Phys Sci, New Delhi 110067, India.

E-mail Addresses: pushpendra@mail.jnu.ac.in; kedar@mail.jnu.ac.in

Affiliations: Jawaharlal Nehru University, New Delhi

Author Identifiers:

Author	Web of Science ResearcherID	ORCID Number
Garg, Divyani	X-7187-2019	
Singh, Kedar		0000-0002-3425-1970

Publisher: ELSEVIER

Publisher Address: RADARWEG 29, 1043 NX AMSTERDAM, NETHERLANDS

Web of Science Index: Science Citation Index Expanded (SCI-EXPANDED)

Web of Science Categories: Chemistry, Physical; Electrochemistry; Energy & Fuels; Materials Science, Multidisciplinary

Research Areas: Chemistry; Electrochemistry; Energy & Fuels; Materials Science

IDS Number: 4GG4V

ISSN: 0378-7753

eISSN: 1873-2755

29-char Source Abbrev.: J POWER SOURCES

ISO Source Abbrev.: J. Power Sources

Source Item Page Count: 13

Funding:

Funding Agency	Grant Number
UGC, New Delhi India	
DST-SERB, India	EEQ/2023/000546
DST SERB, India	EEQ/2021/000097

BK is gratefully acknowledging financial support from UGC, New Delhi India in the form of the UGC fellowship. P.K. is thankful to DST-SERB, India for financial support under project no. EEQ/2023/000546. K.S. is thankful to DST SERB, India for financial support under project no. EEQ/2021/000097. We also thank the Advanced Instrument Research Facility (AIRF) , JNU for providing advanced characterization facilities essential for this work. Additionally, we acknowledge CIF-SPS,

Output Date: 2025-11-11

Record 6 of 56

Title: Antibacterial and Antibiofilm Efficacy of Graphene Oxide Nanomaterials against Gram-Positive Bacteria: Mechanistic Approaches to Understand the Membrane Damage and Oxidative Stress in Cells

Author(s): Singh, A (Singh, Anjali); Mahapatra, SN (Mahapatra, Soumyasri Nikhilesh); Mitra, S (Mitra, Sayani); Yadav, N (Yadav, Nisha); Lochab, B (Lochab, Bimlesh); Mukhopadhyay, K (Mukhopadhyay, Kasturi)

Source: LANGMUIR **DOI:** 10.1021/acs.langmuir.5c03508 **Early Access Date:** OCT 2025 **Published Date:** 2025 OCT 28

Times Cited in Web of Science Core Collection: 0

Total Times Cited: 0

Usage Count (Last 180 days): 0

Usage Count (Since 2013): 0

Cited Reference Count: 0

Abstract: The global rise of antimicrobial resistance (AMR) underscores the urgent need for novel antibacterial agents, particularly those based on two-dimensional (2D) nanomaterials, such as graphene oxide (GO). In this study, GO was synthesized from graphite using an improved Hummer's method optimized for scalability, safety, and environmental sustainability. The protocol eliminates hazardous sodium nitrate and substitutes highly corrosive sulfuric acid with milder phosphoric acid, which serves dual roles as an oxidizing and intercalating agent. This facilitates edge and surface etching, resulting in an oxo-functionalized GO with high aqueous stability and uniform dispersion. The antibacterial efficacy of the synthesized GO was evaluated against two Gram-positive bacteria, Enterococcus faecalis (ATCC 29212) and Staphylococcus aureus (ATCC 29213). The concentration and time-dependent killing efficacy of GO demonstrated the rapid killing of 5 log10 CFU/mL bacterial cells at 200 mu g/mL within 1 h. The biofilm eradication potential of GO was explored, where similar to 92% reduction in biofilm cell viability was noted at 100 mu g/mL against both bacteria. The oxidative stress induction was assessed by Ellman's assay, and a concentration-dependent loss of glutathione was noted up to 36.01% at 200 mu g/mL. The membrane permeabilization ability was analyzed by the propidium iodide (PI) uptake assay, where significant permeabilization was observed at 50 mu g/mL or higher. The antibacterial mechanisms were further corroborated by atomic force microscopy and scanning electron microscopy, which revealed the morphological distortions attributed by the nanoknife-like edges of GO. The hemolytic assay against mice red blood cells indicated minimum to negligible toxicity of GO when tested up to 400 mu g/mL, confirming its safety toward mammalian cells. Overall, these findings reinforce the potential of this safely synthesized GO as a multifunctional nanomaterial with significant potential for biomedical applications like antimicrobial coatings and wound dressings and for environmental applications including water purification and disinfection.

Accession Number: WOS:001608255100001

PubMed ID: 41150896

Language: English

Document Type: Article; Early Access

Addresses: [Singh, Anjali; Mitra, Sayani; Mukhopadhyay, Kasturi] Jawaharlal Nehru Univ, Sch Environm Sci, Antimicrobial Res Lab, New Delhi 110067, India.
[Mahapatra, Soumyasri Nikhilesh; Yadav, Nisha; Lochab, Bimlesh] Shiv Nadar Inst Eminence, Sch Nat Sci, Dept Chem, Mat Chem Lab, Gautam Buddha Nagar 201314, Uttar Pradesh, India.

Corresponding Address: Mukhopadhyay, K (corresponding author), Jawaharlal Nehru Univ, Sch Environm Sci, Antimicrobial Res Lab, New Delhi 110067, India.

E-mail Addresses: kasturim@mail.jnu.ac.in

Affiliations: Jawaharlal Nehru University, New Delhi

Publisher: AMER CHEMICAL SOC

Publisher Address: 1155 16TH ST, NW, WASHINGTON, DC 20036 USA

Web of Science Index: Science Citation Index Expanded (SCI-EXPANDED)

Web of Science Categories: Chemistry, Multidisciplinary; Chemistry, Physical; Materials Science, Multidisciplinary

Research Areas: Chemistry; Materials Science

IDS Number: 9KC4D

ISSN: 0743-7463

eISSN: 1520-5827

29-char Source Abbrev.: LANGMUIR

ISO Source Abbrev.: Langmuir

Source Item Page Count: 12

Funding:

Funding Agency	Grant Number
Indian Council of Medical Research	35/10/2022-NANO/BMS

This study was supported by a grant from the Indian Council of Medical Research (ICMR, No. 35/10/2022-NANO/BMS) to K.M. and B.L. The authors would also like to acknowledge Advanced Instrumentation Research Facility, Jawaharlal Nehru University, New Delhi, India, for AFM analysis. We cordially thank Saroj K. Jha for his technical help during AFM image acquisition. The authors would also like to express their gratitude to Dr. Balaji Birajdar, Karambir Singh, and Abhimanyu, Special Centre for Nanoscience, Jawaharlal Nehru University, New Delhi, for their support and guidance during SEM analysis. We thank Dr. Madhuri Singh (SES, JNU) for letting us use the instruments obtained from her DST WOS-A (SR/WOS-A/LS-36/2018) grant. A.S. is thankful to NFSC for the Senior Research Fellowship and contingency. S.N.M. is thankful to the Shiv Nadar Institution of Eminence for the PhD fellowship.

Output Date: 2025-11-11

Record 7 of 56

Title: Socioecological Vulnerability to Climatic and Nonclimatic Stressors across Different Agroclimatic Zones in the Indian Himalaya

Author(s): Phartiyal, M (Phartiyal, Mahika); Sharma, S (Sharma, Sanjeev)

Source: WEATHER CLIMATE AND SOCIETY **Volume:** 17 **Issue:** 4 **Pages:** 593-611 **DOI:** 10.1175/WCAS-D-25-0004.1 **Published Date:** 2025 OCT

Times Cited in Web of Science Core Collection: 0

Total Times Cited: 0

Usage Count (Last 180 days): 1

Usage Count (Since 2013): 1

Cited References: Aase TH, 2013, MT RES DEV, V33, P4, DOI 10.1659/MRD-JOURNAL-D-12-00025.1
Adger WN, 2006, GLOBAL ENVIRON CHANG, V16, P268, DOI 10.1016/j.gloenvcha.2006.02.006
Arora R. K., 1995, Himalayan Biodiversity, V2, P39
Aryal S, 2018, ENVIRON DEV, V25, P73, DOI 10.1016/j.envdev.2017.09.001
Asfaw S, 2016, FOOD SECUR, V8, P643, DOI 10.1007/s12571-016-0571-0
Banerjee S., 2015, Handbook of Climate Change Adaptation, P151, DOI [10.1007/978-3-642-38670-1_99, DOI 10.1007/978-3-642-38670-1_99]
Berkes F, 1994, BEIJER DISCUSSION PA, V52
Bhatta Laxmi D., 2015, International Journal of Biodiversity Science Ecosystem Services & Management, V11, P145, DOI [10.1080/21513732.2015.1027793, 10.1080/21513732.2015.1027793]
Borah N., 2018, Glimpses of Traditional Societies and Their Knowledge Systems in Indian Himalayan Region
Census of India, 2011, National Population Register & Socio Economic and Caste Census
Chandra R, 2021, Asia-Pacific Journal of Rural Development, V31, P172, DOI [10.1177/10185291211069753, 10.1177/10185291211069753, DOI 10.1177/10185291211069753]
Chauhan N, 2020, ENVIRON DEV, V33, DOI 10.1016/j.envdev.2020.100506
Chauhan N, 2020, HUM ECOL RISK ASSESS, V26, P2628, DOI 10.1080/10807039.2019.1675494
Cutter SL, 2003, SOC SCI QUART, V84, P242, DOI 10.1111/1540-6237.8402002
Datta P, 2022, Environmental Challenges, V7, P100462, DOI [10.1016/j.envc.2022.100462, 10.1016/j.envc.2022.100462, DOI 10.1016/J.ENVC.2022.100462]
DES, 2022, Statistical diary 2021-22
DES, 2017, Statistical diary 2016-17
DHB, 2011, District Census Handbook
Eakin H, 2006, ANNU REV ENV RESOUR, V31, P365, DOI 10.1146/annurev.energy.30.050504.144352
Englund M, 2023, FRONT CLIM, V5, DOI 10.3389/fclim.2023.1038883
Fischer AP, 2018, LANDSCAPE URBAN PLAN, V177, P138, DOI 10.1016/j.landurbplan.2018.05.001
Ford JD, 2010, WIRES CLIM CHANGE, V1, P374, DOI 10.1002/wcc.48
Gairola S., 2008, AFR J PLANT SCI, V2, P42, DOI DOI 10.5897/AJPS.9000126
GALLOPIN GC, 1989, INT SOC SCI J, V41, P375
Gallopin GC, 2006, GLOBAL ENVIRON CHANG, V16, P293, DOI 10.1016/j.gloenvcha.2006.02.004
Gerlitz JY, 2017, CLIM DEV, V9, P124, DOI 10.1080/17565529.2016.1145099
Gerlitz JY, 2012, CAN J DEV STUD, V33, P250, DOI 10.1080/02255189.2012.689613
Ghimire Y. N., 2010, Householdlevel vulnerability to climate change in the mountainous regions of Nepal
Gopirajan ATS, 2021, HUM ECOL RISK ASSESS, V27, P1568, DOI 10.1080/10807039.2020.1861427
Grêt-Regamey A, 2012, MT RES DEV, V32, pS23, DOI 10.1659/MRD-JOURNAL-D-10-00115.S1
Gupta AK, 2020, ECOL INDIC, V109, DOI 10.1016/j.ecolind.2019.105787
Gupta AK, 2019, ECOL INDIC, V106, DOI 10.1016/j.ecolind.2019.105512
Hahn MB, 2009, GLOBAL ENVIRON CHANG, V19, P74, DOI 10.1016/j.gloenvcha.2008.11.002
Haridas MKM, 2018, CURR SCI INDIA, V114, P2504, DOI 10.18520/cs/v114/i12/2504-2512

Holand IS, 2011, NORSK GEOGR TIDSSKR, V65, P1, DOI 10.1080/00291951.2010.550167
International Centre for Integrated Mountain Development, 2011, INT C GREEN EC SUST
Jha SK, 2021, MITIG ADAPT STRAT GL, V26, DOI 10.1007/s11027-021-09974-1
Jha Shashidhar Kumar, 2021, Indian Forester, V147, P106, DOI 10.36808/if/2021/v147i2/154233
Kandel P, 2018, ECOSPHERE, V9, DOI 10.1002/ecs2.2121
Kelly PM, 2000, CLIMATIC CHANGE, V47, P325, DOI 10.1023/A:1005627828199
Khattri MB, 2021, International Journal of Anthropology and Ethnology, V5, DOI [10.1186/s41257-020-00039-w, 10.1186/s41257-020-00039-w, DOI 10.1186/S41257-020-00039-W]
Koirala S., 2015, M.S. thesis
Kok M, 2016, REG ENVIRON CHANGE, V16, P229, DOI 10.1007/s10113-014-0746-1
Konchar KM, 2015, J ETHNOBIOL, V35, P449, DOI 10.2993/0278-0771-35.3.449
Ks S, 2016, Journal of Geology & Geophysics, V5, DOI [10.4172/2381-8719.1000258, 10.4172/2381-8719.1000258, DOI 10.4172/2381-8719.1000258]
Kumar Gopendra., 2005, Geology of Uttar Pradesh and Uttaranchal, P383
Kumar P, 2021, SUSTAINABILITY-BASEL, V13, DOI 10.3390/su13147525
Liu JG, 2007, SCIENCE, V317, P1513, DOI 10.1126/science.1144004
Madhura RK, 2015, CLIM DYNAM, V44, P1157, DOI 10.1007/s00382-014-2166-9
Madhuri, 2014, JAMBA-J DISASTER RIS, V6, DOI 10.4102/jamba.v6i1.127
Maikhuri RK, 2017, INT J DISAST RISK RE, V25, P111, DOI 10.1016/j.ijdrr.2017.09.002
Maikhuri R. K., 2001, Environmentalist, V21, P23, DOI 10.1023/A:1010638104135
Mani S. C., 2013, Status paper on rice in Uttarakhand
Mukherjee A., 2016, Conservation Agriculture: An Approach to Combat Climate Change in Indian Himalaya, P257, DOI DOI 10.1007/978-981-10-2558-7_10
Nandy S. N., 2000, Indian Himalaya: A demographic database
Negi GCS, 2012, TROP ECOL, V53, P345
O'Brien K, 2007, CLIM POLICY, V7, P73, DOI 10.1080/14693062.2007.9685639
Ogra MV, 2015, EARTH SYST DYNAM, V6, P505, DOI 10.5194/esd-6-505-2015
Olsson L, 2018, ECOL SOC, V23, DOI 10.5751/ES-10333-230326
Ostrom E, 2009, SCIENCE, V325, P419, DOI 10.1126/science.1172133
Pal D. P., 2011, 19 INT INP OUTP C
Pandey R, 2017, ECOL INDIC, V79, P338, DOI 10.1016/j.ecolind.2017.03.047
Pandey R, 2015, Change and Adaptation in Socio-Ecological Systems, V2, DOI [10.1515/cass-2015-0003, 10.1515/cass-2015-0003, DOI 10.1515/CASS-2015-0003]
Pandey R, 2014, SMALL-SCALE FOR, V13, P267, DOI 10.1007/s11842-013-9253-3
Pandey R, 2012, MITIG ADAPT STRAT GL, V17, P487, DOI 10.1007/s11027-011-9338-2
Pandey R, 2015, APPL GEOGR, V64, P74, DOI 10.1016/j.apgeog.2015.09.008
Panthi J, 2016, REG ENVIRON CHANGE, V16, P1121, DOI 10.1007/s10113-015-0833-y
Pathak D., 2010, ICIMOD Tech. Rep. 5
Petrosillo I., 2015, Encycl. Ecol, V4, P419, DOI [DOI 10.1016/B978-0-12-409548-9.09518-X, 10.1016/B978-0-12-409548-9.09518-X]
Ramakrishnan PS, 2007, CURR SCI INDIA, V92, P308
Raushan R., 2015, J. Regional Dev. Plann., V4, P13
Rautela P., 2015, Int. J. Sci. Technol., V4, P395
Rawal RS, 2018, TROP ECOL, V59, P225
Revadekar JV, 2013, INT J CLIMATOL, V33, P199, DOI 10.1002/joc.3418
Sabin T P., 2020, Assessment of climate change over the Indian region: A report of the Ministry of Earth Sciences (MoES), Government of India, P207, DOI [10.1007/978-981-15-4327-2_11, DOI 10.1007/978-981-15-4327-2_11]
Sandhu H, 2015, AMBIO, V44, P297, DOI 10.1007/s13280-014-0569-9
Satendra A. K., 2014, Uttarakhand Disaster 2015
Scoones I., 1998, Working Paper - Institute of Development Studies, University of Sussex

Sekhri S, 2020, ECOL INDIC, V118, DOI 10.1016/j.ecolind.2020.106700
Sharma CM, 2009, MT RES DEV, V29, P308, DOI 10.1659/mrd.00018
SHM, 2019, Government of Uttarakhand
Shrestha UB, 2012, PLOS ONE, V7, DOI 10.1371/journal.pone.0036741
Gopirajan ATS, 2022, ENVIRON DEV SUSTAIN, V24, P1532, DOI 10.1007/s10668-021-01527-5
Shukla R, 2019, CLIMATIC CHANGE, V152, P103, DOI 10.1007/s10584-018-2314-z
Shukla R, 2018, DEV PRACT, V28, P318, DOI 10.1080/09614524.2018.1420140
Shukla R, 2016, APPL GEOGR, V74, P182, DOI 10.1016/j.apgeog.2016.07.013
Simane B, 2016, MITIG ADAPT STRAT GL, V21, P39, DOI 10.1007/s11027-014-9568-1
Simoes AF, 2010, ENVIRON SCI POLICY, V13, P801, DOI 10.1016/j.envsci.2010.08.005
Singh GS, 1997, J SUSTAIN AGR, V9, P25, DOI 10.1300/J064v09n02_04
Singh JS, 2006, CURR SCI INDIA, V90, P784
Singh RD, 2016, CURR SCI INDIA, V111, P398, DOI 10.18520/cs/v111/i2/398-403
Singh SP, 2015, MT RES DEV, V35, P401, DOI 10.1659/MRD-JOURNAL-D-15-00045
Solomon S, 2007, AR4 CLIMATE CHANGE 2007: THE PHYSICAL SCIENCE BASIS, P1
Sullivan C, 2005, WATER SCI TECHNOL, V51, P69, DOI 10.2166/wst.2005.0111
Suresh Babu K. V., 2016, Sustainable Dev. World Ecol., V17, P225
Tate E, 2012, NAT HAZARDS, V63, P325, DOI 10.1007/s11069-012-0152-2
Tewari VP, 2017, FOR ECOSYST, V4, DOI 10.1186/s40663-017-0100-4
Tiwari PC, 2000, LAND USE POLICY, V17, P101, DOI 10.1016/S0264-8377(00)00002-8
Tran LT, 2010, APPL GEOGR, V30, P191, DOI 10.1016/j.apgeog.2009.05.003
Tse-Ring K., 2010, Climate Change Vulnerability of Mountain Ecosystems in the Eastern Himalayas, P1
Turner BL II, 2003, P NATL ACAD SCI USA, V100, P8074, DOI 10.1073/pnas.1231335100
Uniyal A, 2013, CURR SCI INDIA, V105, P1472
Upgupta S, 2015, CLIM RISK MANAG, V10, P63, DOI 10.1016/j.crm.2015.08.002
Wasson RJ, 2013, QUATERNARY SCI REV, V77, P156, DOI 10.1016/j.quascirev.2013.07.022
Wester P, 2019, HINDU KUSH HIMALAYA ASSESSMENT: MOUNTAINS, CLIMATE CHANGE, SUSTAINABILITY AND PEOPLE, P1, DOI 10.1007/978-3-319-92288-1
WIDAMAN KF, 1993, MULTIVAR BEHAV RES, V28, P263, DOI 10.1207/s15327906mbr2803_1
Wu N, 2014, J MT SCI-ENGL, V11, P1342, DOI 10.1007/s11629-014-3038-9
Xu JC, 2009, CONSERV BIOL, V23, P520, DOI 10.1111/j.1523-1739.2009.01237.x
Yadav RP, 2017, INT J SUST DEV WORLD, V24, P545, DOI 10.1080/13504509.2016.1239233

Cited Reference Count: 109

Abstract: The socioecological systems (SESs) in the Himalayan region are highly diverse and complex due to spatial heterogeneity arising from variations in topography, ecology, climate, altitude, livelihoods, and sociocultural factors. Coupled social and ecological processes in these systems exhibit significant uncertainty. These uncertainties are making them vulnerable to internal fluxes and external climatic or nonclimatic perturbations. Research gaps were identified in the conceptualization, methodology, and the research area. This study focuses on Pithoragarh district, Uttarakhand, in the Indian Himalayan region. A multistage sampling method is used. The region and district were first selected and followed by agroclimatic zones in the district. Thereafter, villages were identified in each agroclimatic zone, a total of 400 households were surveyed across four agroclimatic zones: i.e., low-altitude (,1000 masl), midaltitude (1000-1500 masl), high-altitude (1500-2400 masl), and very-high-altitude zones (>2400 masl). Indicators of socioecological vulnerability were categorized into components adaptive capacity, sensitivity, and exposure using exploratory factor analysis. These were weighted by eigenvalues, and further, a socioecological vulnerability index was estimated using a linear factor model. The study revealed that high-altitude zones were most vulnerable (0.841), followed by very high (0.551), low (0.522), and middle zones (0.360). High sensitivity and exposure to extreme climatic events, combined with low adaptive capacity, were primary drivers of vulnerability in high-altitude zones. Instead of proposing a one-size-fits-all solution for the district, the study emphasizes understanding and addressing vulnerabilities at the microlevel across diverse agroclimatic zones.

Accession Number: WOS:001594007600001

Language: English

Document Type: Article

Author Keywords: Sampling; Adaptation; Agriculture; Anthropogenic effects/forcing; Community; Vulnerability

KeyWords Plus: SOCIAL-ECOLOGICAL SYSTEMS; ADAPTIVE CAPACITY; LIVELIHOOD DIVERSIFICATION; SUSTAINABLE DEVELOPMENT; LOCAL VULNERABILITIES; ECOSYSTEM SERVICES; WESTERN HIMALAYAS; UTTARAKHAND; PATTERNS; IMPACT

Addresses: [Phartiyal, Mahika; Sharma, Sanjeev] Jawaharlal Nehru Univ, Sch Social Sci, Ctr Study Reg Dev, New Delhi, India.

Corresponding Address: Phartiyal, M (corresponding author), Jawaharlal Nehru Univ, Sch Social Sci, Ctr Study Reg Dev, New Delhi, India.

E-mail Addresses: mahikaphartiyal96@gmail.com

Affiliations: Jawaharlal Nehru University, New Delhi

Publisher: AMER METEOROLOGICAL SOC

Publisher Address: 45 BEACON ST, BOSTON, MA 02108-3693, UNITED STATES

Web of Science Index: Science Citation Index Expanded (SCI-EXPANDED); Social Science Citation Index (SSCI)

Web of Science Categories: Environmental Studies; Meteorology & Atmospheric Sciences

Research Areas: Environmental Sciences & Ecology; Meteorology & Atmospheric Sciences

IDS Number: 8PE1N

ISSN: 1948-8327

eISSN: 1948-8335

29-char Source Abbrev.: WEATHER CLIM SOC

ISO Source Abbrev.: Weather Clim. Soc.

Source Item Page Count: 19

Output Date: 2025-11-11

Record 8 of 56

Title: Mitochondria and Lysosome-Targeted Luminescent Iridium(III) Probe for Selective Detection of Hg2⁺ in Aqueous Media and Living Cells

Author(s): Gautam, A (Gautam, Aryan); Chauhan, D (Chauhan, Deepika); Gupta, A (Gupta, Ajay); Kalpana, K (Kalpana, Km.); Sasmal, PK (Sasmal, Pijus K.)

Source: CHEMISTRY-AN ASIAN JOURNAL **DOI:** 10.1002/asia.70345 **Early Access Date:** OCT 2025 **Published Date:** 2025 OCT 24

Times Cited in Web of Science Core Collection: 0

Total Times Cited: 0

Usage Count (Last 180 days): 0

Usage Count (Since 2013): 0

Cited References: Agarwalla H, 2016, INORG CHEM, V55, P12052, DOI 10.1021/acs.inorgchem.6b02233
Alam P, 2014, DALTON T, V43, P16431, DOI 10.1039/c4dt02266a
Bera S, 2024, CHEM COMMUN, V60, P8314, DOI 10.1039/d4cc02026j
Cao HT, 2015, DALTON T, V44, P19997, DOI 10.1039/c5dt03129j
Ceccatelli S, 2013, J INTERN MED, V273, P490, DOI 10.1111/joim.12045
Chatterjee A, 2017, ANAL CHEM, V89, P12698, DOI 10.1021/acs.analchem.7b02663

Chauhan D, 2024, COORDIN CHEM REV, V520, DOI 10.1016/j.ccr.2024.216139
Cohen JT, 2005, AM J PREV MED, V29, P353, DOI 10.1016/j.amepre.2005.06.007
Coronado E, 2005, J AM CHEM SOC, V127, P12351, DOI 10.1021/ja0517724
Das B, 2024, COORDIN CHEM REV, V504, DOI 10.1016/j.ccr.2024.215656
Ding Y, 2019, IND ENG CHEM RES, V58, P7786, DOI 10.1021/acs.iecr.9b00987
Driscoll CT, 2013, ENVIRON SCI TECHNOL, V47, P4967, DOI 10.1021/es305071v
Eremina AA, 2020, INORG CHEM, V59, P2209, DOI 10.1021/acs.inorgchem.9b02833
Gautam A, 2025, INORG CHEM, V64, P2905, DOI 10.1021/acs.inorgchem.4c05064
Gautam A, 2025, CHEM-ASIAN J, V20, DOI 10.1002/asia.202401060
Gautam A, 2023, DALTON T, V52, P7843, DOI 10.1039/d3dt00628j
Goikhman MY, 2016, POLYM SCI SER B+, V58, P703, DOI 10.1134/S1560090416060063
Gong J, 2020, ORG BIOMOL CHEM, V18, P5238, DOI 10.1039/d0ob00507j
Gupta A, 2025, CHEM COMMUN, V61, P7305, DOI 10.1039/d5cc01124h
Gupta A, 2024, DALTON T, V53, P17829, DOI 10.1039/d4dt01571a
Gupta A, 2023, J MED CHEM, V66, P8687, DOI 10.1021/acs.jmedchem.3c00336
Gupta A, 2023, DALTON T, V52, P1188, DOI 10.1039/d2dt03554e
Gupta A, 2020, ACS APPL MATER INTER, V12, P35967, DOI 10.1021/acsami.0c11161
Jeong H, 2024, SCI TOTAL ENVIRON, V943, DOI 10.1016/j.scitotenv.2024.173574
Ji XT, 2024, CHEM SCI, V15, DOI 10.1039/d3sc06527h
Kamaljeet, 2023, Health Sci. Rev, V9
Kim KR, 2023, ANALYST, V148, P5619, DOI [10.1039/d3an01266b, 10.1039/D3AN01266B]
Kuang S, 2022, J AM CHEM SOC, V144, P4091, DOI 10.1021/jacs.1c13137
Kumari G, 2023, ADV HEALTHC MATER, V12, DOI 10.1002/adhm.202202411
Law ASY, 2021, J AM CHEM SOC, V143, P5396, DOI 10.1021/jacs.0c13327
Lee LCC, 2024, CHEM REV, V124, P8825, DOI 10.1021/acs.chemrev.3c00629
Lee MH, 2015, CHEM SOC REV, V44, P4185, DOI 10.1039/c4cs00280f
Liu J, 2025, SPECTROCHIM ACTA A, V337, DOI 10.1016/j.saa.2025.126098
Lo KKW, 2015, ACCOUNTS CHEM RES, V48, P2985, DOI 10.1021/acs.accounts.5b00211
Ma DL, 2019, METHODS, V168, P3, DOI 10.1016/j.ymeth.2019.02.013
Ma DL, 2017, CHEM SCI, V8, P878, DOI 10.1039/c6sc04175b
Ma DL, 2012, COORDIN CHEM REV, V256, P3087, DOI 10.1016/j.ccr.2012.07.005
MADSEN KM, 1980, KIDNEY INT, V18, P445, DOI 10.1038/ki.1980.157
Mei QB, 2015, TETRAHEDRON, V71, P9366, DOI 10.1016/j.tet.2015.08.075
Mitra S, 2022, J KING SAUD UNIV SCI, V34, DOI 10.1016/j.jksus.2022.101865
Muripiti V, 2024, RSC PHARM, V1, P403, DOI [10.1039/d4pm00005f, 10.1039/d4pm00005f]
Nesci S, 2016, CHEM-BIOL INTERACT, V260, P42, DOI 10.1016/j.cbi.2016.10.018
Oliveira Rogerio Adas Ayres de, 2021, Int J Environ Res Public Health, V18, DOI 10.3390/ijerph181910270
Pollard KM, 2019, BBA-GEN SUBJECTS, V1863, DOI 10.1016/j.bbagen.2019.02.001
Prasad P, 2021, CHEM COMMUN, V57, P174, DOI 10.1039/d0cc06037b
Qiu KQ, 2019, COORDIN CHEM REV, V378, P66, DOI 10.1016/j.ccr.2017.10.022
Ren AS, 2023, ANALYST, V148, P5882, DOI 10.1039/d3an01671d
Rhee H, 2018, DALTON T, V47, P3803, DOI 10.1039/c8dt00309b
Routray S, 2025, RSC ADV, V15, P9910, DOI 10.1039/d5ra01232e
Ru JX, 2014, INORG CHEM, V53, P11498, DOI 10.1021/ic501417s
Ru JX, 2015, ANAL CHEM, V87, P3255, DOI 10.1021/ac503878s
Shum J, 2019, INORG CHEM, V58, P2231, DOI 10.1021/acs.inorgchem.8b02979
Sicilia V, 2015, DALTON T, V44, P6936, DOI 10.1039/c5dt00087d
Singh N, 2021, J MED CHEM, V64, P17813, DOI 10.1021/acs.jmedchem.1c00956
Skiba J, 2017, MOLECULES, V22, DOI 10.3390/molecules22050809
Tonazzi A, 2015, CHEM RES TOXICOL, V28, P1015, DOI 10.1021/acs.chemrestox.5b00050
Wang RN, 2021, J AM CHEM SOC, V143, P20927, DOI 10.1021/jacs.1c09741

Wang X, 2024, CHEM REV, V124, P7106, DOI 10.1021/acs.chemrev.3c00776
Wu YQ, 2011, INORG CHEM, V50, P7412, DOI 10.1021/ic102082k
Wu YS, 2024, ACS OMEGA, V9, P5100, DOI 10.1021/acsomega.3c07047
Xiang HJ, 2017, ACS APPL MATER INTER, V9, P27553, DOI 10.1021/acsami.7b09506
Xu JR, 2019, SPECTROCHIM ACTA A, V219, P141, DOI 10.1016/j.saa.2019.04.043
Yan F, 2012, INORG CHEM COMMUN, V22, P178, DOI 10.1016/j.inoche.2012.05.056
Yang SY, 2024, CHEM SOC REV, V53, P5366, DOI 10.1039/d4cs00218k
Zhang ZM, 2022, SMALL, V18, DOI 10.1002/smll.202205026
Zhao Q, 2008, DALTON T, P3836, DOI 10.1039/b804858d
Zhao Q, 2007, ORGANOMETALLICS, V26, P2077, DOI 10.1021/om061031r
Zhou C, 2025, ANAL CHEM, V97, P13168, DOI 10.1021/acs.analchem.5c00971

Cited Reference Count: 68

Abstract: Mercury is one of the most toxic environmental elements and poses significant health risks to humans and other animals. Therefore, the selective detection of mercury in environmental and biological settings is of critical importance. This study presents an iridium(III) complex probe (Ir1), constructed with two cyclometalating 2-phenylquinoline ligands and an N,N-donor 2,2'-bipyridine-4,4'-diboronic acid as the ancillary ligand for "turn-off" luminescent sensing of Hg2+ ions. The boronic acid groups, strategically incorporated into the bipyridine ligand, serve as the reaction sites, enabling a rapid and selective transmetalation with Hg2(+), resulting in decreased luminescence. Ir1 shows a detection limit of 26.5 mu M toward Hg2(+) in aqueous media over a wide pH range (4-9) and retains selectivity in the presence of competing metal ions. Confocal fluorescence microscopy confirmed that Ir1 accumulates predominantly in the mitochondria and lysosomes of living cells, where it exhibits Hg2(+)-dependent luminescence quenching. This organelle-specific targeting is particularly relevant due to mercury's high affinity for thiol-rich proteins in these compartments, making Ir1 a valuable tool for intracellular mercury monitoring.

Accession Number: WOS:001599462600001

PubMed ID: 41136883

Language: English

Document Type: Article; Early Access

Author Keywords: Iridium; Living cells; Luminescence; Lysosome; Mercury; Mitochondria

KeyWords Plus: PHOSPHORESCENT CHEMODOSIMETER; FLUORESCENT-PROBE; IR(III) COMPLEX; MERCURY; HG2+; AGGREGATION; HG(II); SENSOR; METHYLMERCURY; CHEMOSENSORS

Addresses: [Gautam, Aryan; Chauhan, Deepika; Gupta, Ajay; Kalpana, Km.; Sasmal, Pijus K.] Jawaharlal Nehru Univ, Sch Phys Sci, New Delhi 110067, India.

Corresponding Address: Sasmal, PK (corresponding author), Jawaharlal Nehru Univ, Sch Phys Sci, New Delhi 110067, India.

E-mail Addresses: pijus@mail.jnu.ac.in

Affiliations: Jawaharlal Nehru University, New Delhi

Author Identifiers:

Author	Web of Science ResearcherID	ORCID Number
gautam, aryan	IQX-1697-2023	

Publisher: WILEY-V C H VERLAG GMBH

Publisher Address: POSTFACH 101161, 69451 WEINHEIM, GERMANY

Web of Science Index: Science Citation Index Expanded (SCI-EXPANDED)

Web of Science Categories: Chemistry, Multidisciplinary

Research Areas: Chemistry

IDS Number: 8XE3F
ISSN: 1861-4728
eISSN: 1861-471X
29-char Source Abbrev.: CHEM-ASIAN J
ISO Source Abbrev.: Chem.-Asian J.
Source Item Page Count: 12
Funding:

Funding Agency	Grant Number
SERB, DST	CRG/2023/005243
BRNS	

P.K.S. acknowledges SERB, DST (CRG/2023/005243) and BRNS (58/14/15/2023-BRNS/12127) for financial support. A. Gautam gratefully acknowledge the BRNS for fellowship.The authors thank AIRF, JNU for the instrumentation facilities. The authors sincerely thank Dr. Jaydeep Bhattacharya (SBT, JNU) for generously providing LysoTracker Deep Red.

Open Access: Bronze
Output Date: 2025-11-11

Record 9 of 56

Title: The temperature gradient driven Rayleigh-Taylor instability in thermally diffusive strongly coupled quantum fluids

Author(s): Sangwan, VK (Sangwan, Vinesh Kumar); Prajapati, RP (Prajapati, Ram Prasad)

Source: PHYSICS LETTERS A **Volume:** 557 **Article Number:** 130869 **DOI:** 10.1016/j.physleta.2025.130869 **Published Date:** 2025 OCT 15

Times Cited in Web of Science Core Collection: 0

Total Times Cited: 0

Usage Count (Last 180 days): 1

Usage Count (Since 2013): 1

Cited References: ATRAZHEV VM, 1995, PHYS PLASMAS, V2, P2624, DOI 10.1063/1.871227
Avinash K, 2015, PHYS PLASMAS, V22, DOI 10.1063/1.4928444
Bhambhu R, 2023, PHYS PLASMAS, V30, DOI 10.1063/5.0146337
Biferale L, 2018, PHYS REV FLUIDS, V3, DOI 10.1103/PhysRevFluids.3.092601
Biskamp D., 2003, Magnetohydrodynamics, P10
Boffetta G, 2012, J FLUID MECH, V690, P426, DOI 10.1017/jfm.2011.446
Cao JT, 2008, PHYS PLASMAS, V15, DOI 10.1063/1.2833588
CHANDRASEKHAR S., 1961, Hydrodynamic and hydromagnetic stability
Chao YC, 2021, PHYS REV FLUIDS, V6, DOI 10.1103/PhysRevFluids.6.064001
Chen F, 2016, FRONT PHYS-BEIJING, V11, DOI 10.1007/s11467-016-0603-4
Chen L, 2021, FRONT PHYS-BEIJING, V16, DOI 10.1007/s11467-021-1096-3
Cook AW, 2002, PHYS REV E, V66, DOI 10.1103/PhysRevE.66.026312
Das A, 2014, PHYS PLASMAS, V21, DOI 10.1063/1.4881468
Dolai B, 2017, PHYS PLASMAS, V24, DOI 10.1063/1.5000414
DUFF RE, 1962, PHYS FLUIDS, V5, P417, DOI 10.1063/1.1706634
Gan YB, 2019, FRONT PHYS-BEIJING, V14, DOI 10.1007/s11467-019-0885-4
Gan YB, 2022, J FLUID MECH, V951, DOI 10.1017/jfm.2022.844

Gan YB, 2018, PHYS REV E, V97, DOI 10.1103/PhysRevE.97.053312
Gerashchenko S, 2016, PHYS PLASMAS, V23, DOI 10.1063/1.4959810
Glazyrin SI, 2022, JETP LETT+, V116, P83, DOI 10.1134/S0021364022601208
Haan SW, 2011, PHYS PLASMAS, V18, DOI 10.1063/1.3592169
Horikoshi M, 2002, PHYS PLASMAS, V9, P3536, DOI 10.1063/1.1487381
Hoshoudy GA, 2009, PHYS LETT A, V373, P2560, DOI 10.1016/j.physleta.2009.05.036
Hu SX, 2010, PHYS REV LETT, V104, DOI 10.1103/PhysRevLett.104.235003
ICHIMARU S, 1987, PHYS REP, V149, P91, DOI 10.1016/0370-1573(87)90125-6
ICHIMARU S, 1982, REV MOD PHYS, V54, P1017, DOI 10.1103/RevModPhys.54.1017
Joshi B, 2024, COMPUT FLUIDS, V284, DOI 10.1016/j.compfluid.2024.106442
Kaw PK, 1998, PHYS PLASMAS, V5, P3552, DOI 10.1063/1.873073
KOMORI A, 1978, PHYS REV LETT, V40, P768, DOI 10.1103/PhysRevLett.40.768
Lafay MA, 2007, EPL-EUROPHYS LETT, V79, DOI 10.1209/0295-5075/79/64002
Lai HL, 2016, PHYS REV E, V94, DOI 10.1103/PhysRevE.94.023106
LINDL J, 1995, PHYS PLASMAS, V2, P3933, DOI 10.1063/1.871025
Mishra SK, 2018, ASTROPHYS J, V856, DOI 10.3847/1538-4357/aaae03
Momeni M, 2013, PHYS PLASMAS, V20, DOI 10.1063/1.4817744
Porth O, 2014, MON NOT R ASTRON SOC, V443, P547, DOI 10.1093/mnras/stu1082
Prajapati RP, 2016, PHYS PLASMAS, V23, DOI 10.1063/1.4941593
Rayleigh L., 1883, Proceedings of the London Mathematical Society, P170, DOI [10.1112/plms/s1-14.1.170, DOI 10.1112/PLMS/S1-14.1.170]
Remington BA, 2019, P NATL ACAD SCI USA, V116, P18233, DOI 10.1073/pnas.1717236115
Rigon G, 2019, PHYS REV E, V100, DOI 10.1103/PhysRevE.100.021201
Sengupta A, 2023, PHYS FLUIDS, V35, DOI 10.1063/5.0135692
Sengupta A, 2023, COMPUT FLUIDS, V252, DOI 10.1016/j.compfluid.2022.105773
Sengupta A, 2022, PHYS FLUIDS, V34, DOI 10.1063/5.0091109
Sgattoni A, 2015, PHYS REV E, V91, DOI 10.1103/PhysRevE.91.013106
SLATTERY WL, 1980, PHYS REV A, V21, P2087, DOI 10.1103/PhysRevA.21.2087
Srinivasan B, 2012, PHYS REV LETT, V108, DOI 10.1103/PhysRevLett.108.165002
TAYLOR G, 1950, PROC R SOC LON SER-A, V201, P192, DOI 10.1098/rspa.1950.0052
Tremblin P, 2021, ASTRON ASTROPHYS, V653, DOI 10.1051/0004-6361/202140417
Wang LF, 2012, PHYS PLASMAS, V19, DOI 10.1063/1.4737162
Wani R, 2022, SCI REP-UK, V12, DOI 10.1038/s41598-022-15725-2
Wei T, 2012, PHYS REV E, V86, DOI 10.1103/PhysRevE.86.046405
Wei YK, 2022, PHYS REV E, V105, DOI 10.1103/PhysRevE.105.015103
Zhdankin Vladimir, 2023, Physical Review Research, DOI [10.1103/physrevresearch.5.043023, 10.1103/PhysRevResearch.5.043023]
Zhou Q, 2016, J FLUID MECH, V786, DOI 10.1017/jfm.2015.673
Zhou Y, 2019, PHYS PLASMAS, V26, DOI 10.1063/1.5088745

Cited Reference Count: 54

Abstract: We have investigated the temperature gradient driven linear Rayleigh-Taylor (R-T) instability in a thermally diffusive strongly coupled quantum fluid in the incompressible limit. The heat diffusion equation, incorporating a temperature gradient, is coupled with a gravitating quantum fluid. The dispersion relation of the R-T instability is analyzed in both kinetic and hydrodynamic regimes. In both limits, the temperature gradient enhances the growth of the R-T instability in diffusive quantum plasma. It is found that the propagating transverse shear wave mode in strongly coupled fluid turns into R-T instability in the presence of a finite temperature gradient. There exists a critical temperature threshold beyond which the system becomes R-T unstable. In the kinetic regime, instability is inevitable, although viscosity and thermal diffusivity act to suppress the instability. Similarly, viscosity and thermal diffusivity exhibit dissipative effects in the hydrodynamic limit and can even completely suppress the growth rate in the higher wavenumber limit.

Accession Number: WOS:001560910700001

Language: English

Document Type: Article

Author Keywords: Quantum plasmas; Temperature gradient; R-T instability; Thermal diffusivity; Strong coupling effects

KeyWords Plus: INERTIAL CONFINEMENT FUSION; PLASMAS; PHYSICS

Addresses: [Sangwan, Vinesh Kumar; Prajapati, Ram Prasad] Jawaharlal Nehru Univ, Sch Phys Sci, New Delhi 110067, India.

Corresponding Address: Prajapati, RP (corresponding author), Jawaharlal Nehru Univ, Sch Phys Sci, New Delhi 110067, India.

E-mail Addresses: rpprajapati@mail.jnu.ac.in

Affiliations: Jawaharlal Nehru University, New Delhi

Author Identifiers:

Author	Web of Science ResearcherID	ORCID Number
Prajapati, Ram	AEC-6869-2022	

Publisher: ELSEVIER

Publisher Address: RADARWEG 29, 1043 NX AMSTERDAM, NETHERLANDS

Web of Science Index: Science Citation Index Expanded (SCI-EXPANDED)

Web of Science Categories: Physics, Multidisciplinary

Research Areas: Physics

IDS Number: 6SK6U

ISSN: 0375-9601

eISSN: 1873-2429

29-char Source Abbrev.: PHYS LETT A

ISO Source Abbrev.: Phys. Lett. A

Source Item Page Count: 9

Funding:

Funding Agency	Grant Number
Anusandhan National Research Foundation (ANRF), New Delhi	CRG/2022/000591
Inter-University Centre for Astronomy and Astrophysics (IUCAA), Pune	
Council of Scientific & Industrial Research (CSIR), New Delhi	09/0263 (15428) 2022-EMR-I

The authors would like to thank the reviewers for their constructive comments and valuable suggestions, which have greatly improved the quality and clarity of this manuscript. This work is supported by the Anusandhan National Research Foundation (ANRF), New Delhi, under core research grant No. CRG/2022/000591. The author, RPP, gratefully acknowledges the Inter-University Centre for Astronomy and Astrophysics (IUCAA), Pune, for awarding him the visiting associateship. The author, VKS, acknowledges the Council of Scientific & Industrial Research (CSIR), New Delhi, for awarding him the senior research fellowship (File No. 09/0263 (15428) 2022-EMR-I).

Output Date: 2025-11-11

Record 10 of 56

Title: Unlocking the Versatility of Meso-substituted Heterocyclic BODIPY: A Comprehensive Review Across Diverse Applications

Author(s): Kashyap, S (Kashyap, Shivam); Singh, A (Singh, Ankita); Narang, U (Narang, Uma); Kumar, V (Kumar, Vinod)

Source: CHEMISTRYSELECT **Volume:** 10 **Issue:** 38 **Article Number:** e04534 **DOI:** 10.1002/slct.202504534 **Published Date:** 2025 OCT

Times Cited in Web of Science Core Collection: 0

Total Times Cited: 0

Usage Count (Last 180 days): 1

Usage Count (Since 2013): 1

Cited References: Ahmed S, 2020, J MOL GRAPH MODEL, V100, DOI 10.1016/j.jmgm.2020.107631
Alamiry MAH, 2012, RSC ADV, V2, P4944, DOI 10.1039/c2ra20219k
Allen JP, 2017, EUR J ORG CHEM, V2017, P476, DOI 10.1002/ejoc.201601280
Ayhan MM, 2022, MATER ADV, V3, P547, DOI 10.1039/d1ma00931a
Boens N, 2014, J PHYS CHEM A, V118, P1576, DOI 10.1021/jp412132y
Çakmak Y, 2015, NEW J CHEM, V39, P4086, DOI 10.1039/c4nj02393e
Can AS, 2022, ACS APPL POLYM MATER, V4, P1991, DOI 10.1021/acsapm.1c01856
Karanlik CC, 2024, PHOTOCHEM PHOTOBIOL, V100, P101, DOI 10.1111/php.13825
Chai ZY, 2025, DALTON T, V54, P674, DOI 10.1039/d4dt02655a
Chen YY, 2018, SPECTROCHIM ACTA A, V203, P158, DOI 10.1016/j.saa.2018.05.103
Chio TI, 2022, MOLECULES, V27, DOI 10.3390/molecules27082455
Dagnaw FW, 2021, DYES PIGMENTS, V189, DOI 10.1016/j.dyepig.2021.109257
Das S, 2023, BIOMOLECULES, V13, DOI 10.3390/biom13121723
Deng RH, 2025, SPECTROCHIM ACTA A, V343, DOI 10.1016/j.saa.2025.126626
Dong Y, 2021, J PHYS CHEM B, V125, P4779, DOI 10.1021/acs.jpcb.1c00053
Epelde-Elezcano N, 2016, RSC ADV, V6, P41991, DOI 10.1039/c6ra05820e
Fan GW, 2024, TALANTA, V268, DOI 10.1016/j.talanta.2023.125298
Gao H, 2020, J PORPHYR PHTHALOCYA, V24, P230, DOI 10.1142/S1088424619501104
Guo YT, 2019, MACROMOLECULES, V52, P8367, DOI 10.1021/acs.macromol.9b01525
Hernández-Contreras J, 2024, DYES PIGMENTS, V221, DOI 10.1016/j.dyepig.2023.111806
Hou JT, 2014, CHEM COMMUN, V50, P8640, DOI 10.1039/c4cc02673j
Huang PJ, 2021, J MOL STRUCT, V1246, DOI 10.1016/j.molstruc.2021.131281
Irfan A, 2020, MOL SIMULAT, V46, P1334, DOI 10.1080/08927022.2020.1820005
Ivaniuk K, 2020, DYES PIGMENTS, V175, DOI 10.1016/j.dyepig.2019.108123
Jiao SH, 2023, ANAL METHODS-UK, V15, P3149, DOI 10.1039/d3ay00660c
Jin Y, 2019, SPECTROCHIM ACTA A, V219, P569, DOI 10.1016/j.saa.2019.04.085
Karanlik CC, 2023, J MOL STRUCT, V1294, DOI 10.1016/j.molstruc.2023.136450

Karanlik CC, 2023, SPECTROCHIM ACTA A, V301, DOI 10.1016/j.saa.2023.122964
Karanlik CC, 2023, J PHOTOCH PHOTOBIO A, V438, DOI 10.1016/j.jphotochem.2023.114581
Karanlik CC, 2022, POLYHEDRON, V225, DOI 10.1016/j.poly.2022.116042
Khan TK, 2010, EUR J ORG CHEM, V2010, P2314, DOI 10.1002/ejoc.200901460
Kubota Y, 2019, NEW J CHEM, V43, P1156, DOI 10.1039/c8nj04672g
Kumarasamy K, 2024, METHODS, V223, P35, DOI 10.1016/j.ymeth.2024.01.002
Li FZ, 2021, DYES PIGMENTS, V195, DOI 10.1016/j.dyepig.2021.109736
Li G, 2017, SENSOR ACTUAT B-CHEM, V252, P127, DOI 10.1016/j.snb.2017.05.138
Li JC, 2025, ANAL CHEM, V97, P14168, DOI 10.1021/acs.analchem.4c06607
Li K, 2021, NAT COMMUN, V12, DOI 10.1038/s41467-021-22686-z
Liang YY, 2023, SPECTROCHIM ACTA A, V290, DOI 10.1016/j.saa.2022.122268
Liu RB, 2024, SPECTROCHIM ACTA A, V304, DOI 10.1016/j.saa.2023.123387
Loudet A, 2007, CHEM REV, V107, P4891, DOI 10.1021/cr078381n
Martínez-Bourget D, 2022, SPECTROCHIM ACTA A, V283, DOI 10.1016/j.saa.2022.121704
Ndung'U C, 2023, MOLECULES, V28, DOI 10.3390/molecules28124581
Ozcan E, 2019, CHEMPLUSCHEM, V84, P1423, DOI 10.1002/cplu.201900317
Ozdemir M, 2018, ADV ELECTRON MATER, V4, DOI 10.1002/aelm.201700354
Ozdemir M, 2017, NEW J CHEM, V41, P6232, DOI 10.1039/c7nj00266a
Pandey V, 2021, BIOORG CHEM, V106, DOI 10.1016/j.bioorg.2020.104467
Petrushenko IK, 2015, SPECTROCHIM ACTA A, V138, P623, DOI 10.1016/j.saa.2014.12.005
Poddar M, 2020, COORDIN CHEM REV, V421, DOI 10.1016/j.ccr.2020.213462
Porolnik W, 2025, BIOMEDICINES, V13, DOI 10.3390/biomedicines13020297
Prlj A, 2016, PHYS CHEM CHEM PHYS, V18, P32668, DOI 10.1039/c6cp06799a
Qin SC, 2022, DYES PIGMENTS, V203, DOI 10.1016/j.dyepig.2022.110345
Rajmohan R, 2019, ACS OMEGA, V4, P14458, DOI 10.1021/acsomega.9b01407
Sevgili Ö, 2021, MAT SCI SEMICON PROC, V130, DOI 10.1016/j.mssp.2021.105805
Sevinç G, 2019, J LUMIN, V211, P334, DOI 10.1016/j.jlumin.2019.03.058
Sharma R, 2016, NEW J CHEM, V40, P5855, DOI 10.1039/c6nj00118a
Sharma S, 2024, MATER ADV, V5, P3334, DOI 10.1039/d4ma00117f
Shi WJ, 2023, ANAL CHEM, V95, P9646, DOI 10.1021/acs.analchem.3c01409
Shi WJ, 2022, ANAL CHEM, V94, P14707, DOI 10.1021/acs.analchem.2c03094
Squeo BM, 2018, J MATER CHEM C, V6, P4030, DOI 10.1039/c7tc05900k
Su HH, 2022, DYES PIGMENTS, V203, DOI 10.1016/j.dyepig.2022.110341
Sultan S, 2025, CHEM COMMUN, V61, P1989, DOI 10.1039/d4cc05809g
Thumuganti G, 2019, NEW J CHEM, V43, P8735, DOI 10.1039/c9nj00550a
Umasekhar B, 2015, DALTON T, V44, P16516, DOI 10.1039/c5dt02634b
Wang DG, 2017, TETRAHEDRON, V73, P6894, DOI 10.1016/j.tet.2017.10.042
Wang M, 2018, ACS OMEGA, V3, P5502, DOI 10.1021/acsomega.8b00404
Wohlrábová L, 2023, ORG LETT, V25, P6705, DOI 10.1021/acs.orglett.3c02511
Xu J, 2016, BIOSENS BIOELECTRON, V75, P1, DOI 10.1016/j.bios.2015.08.007
Xu J, 2015, ANALYST, V140, P574, DOI 10.1039/c4an01934b
Xuan ST, 2017, J ORG CHEM, V82, P2545, DOI 10.1021/acs.joc.6b02941
Yan MM, 2022, TRAC-TREND ANAL CHEM, V157, DOI 10.1016/j.trac.2022.116771
Zatsikha YV, 2019, ORG LETT, V21, P5713, DOI 10.1021/acs.orglett.9b02082
Zhang J, 2018, SENSOR ACTUAT B-CHEM, V257, P1076, DOI 10.1016/j.snb.2017.10.133
Zong HH, 2020, MOLECULES, V25, DOI 10.3390/molecules25143232

Cited Reference Count: 73

Abstract: Meso-substituted heterocyclic BODIPY (boron-dipyrromethene compounds) dyes have become versatile substances with considerable potential in various applications. These derivatives possess distinct photophysical characteristics, such as elevated fluorescence quantum yields, excellent resistance to photodegradation, and adjustable absorption/emission wavelengths, rendering them very suitable for a wide range of applications. It mainly examines bioimaging using meso-substituted heterocyclic BODIPY dyes for cellular and molecular imaging. These dyes are preferred due to their exceptional brightness and specificity. Within the field of photodynamic therapy, these chemicals demonstrate potential in cancer treatment by utilizing their capacity to produce reactive oxygen species when exposed to light. Moreover, their utilization in chemosensing and environmental monitoring is emphasized, showcasing their effectiveness in detecting metal ions, explosives, and other dangerous compounds with great sensitivity and specificity. Additionally, advancements in synthetic strategies for these compounds are discussed, providing insights into the customization of their properties for specific applications. This review clarifies the diverse roles and creative applications of meso-substituted heterocyclic BODIPY in different scientific and technical domains.

Accession Number: WOS:001593973700001

Language: English

Document Type: Review

Author Keywords: Biomedical; Boron dyes; Fluorescent probe; Heterocyclic rings; Meso substituted BODIPY; Optoelectronic; Solar Cell

KeyWords Plus: MESO-POSITION; FLUORESCENT-PROBE; THIENYL BODIPY; DYES; DERIVATIVES; SERIES

Addresses: [Kashyap, Shivam; Singh, Ankita; Narang, Uma] Netaji Subhas Univ Technol NSUT, Dept Chem, Azad Hind Fauj Marg,Sect 3, New Delhi 110078, India.
[Kumar, Vinod] Jawaharlal Nehru Univ JNU, Special Ctr Nano Sci, New Delhi 110067, India.

Corresponding Address: Narang, U (corresponding author), Netaji Subhas Univ Technol NSUT, Dept Chem, Azad Hind Fauj Marg,Sect 3, New Delhi 110078, India.
Kumar, V (corresponding author), Jawaharlal Nehru Univ JNU, Special Ctr Nano Sci, New Delhi 110067, India.

E-mail Addresses: uma.narang@nsut.ac.in; kumarv@mail.jnu.ac.in

Affiliations: Netaji Subhas University of Technology; Jawaharlal Nehru University, New Delhi

Publisher: WILEY-V C H VERLAG GMBH

Publisher Address: POSTFACH 101161, 69451 WEINHEIM, GERMANY

Web of Science Index: Science Citation Index Expanded (SCI-EXPANDED)

Web of Science Categories: Chemistry, Multidisciplinary

Research Areas: Chemistry

IDS Number: 8PC8M

ISSN: 2365-6549

29-char Source Abbrev.: CHEMISTRYSELECT

ISO Source Abbrev.: ChemistrySelect

Source Item Page Count: 45

Funding:

Funding Agency	Grant Number
Department of Chemistry, Netaji Subhas University of Technology (NSUT), Dwarka, New Delhi, India	

The authors are grateful to the Department of Chemistry, Netaji Subhas University of Technology (NSUT), Dwarka, New Delhi, India, for providing the infrastructural facilities. The authors also acknowledge the continuous support and suggestions from Dr. Deepak Poddar.

Output Date: 2025-11-11

Record 11 of 56

Title: Ni2+mediated enhanced microstructural, optical, and electrical properties of 0.9KNbO3-0.1BaNi0.5Nb0.5O3-δ electro ceramics for photovoltaic applications

Author(s): Chahar, A (Chahar, Ankit); Tiwari, RP (Tiwari, Rajender P.); Takhar, D (Takhar, Devender); Yadav, S (Yadav, Surbhi); Singh, S (Singh, Satyendra); Birajdar, B (Birajdar, Balaji)

Source: CERAMICS INTERNATIONAL **Volume:** 51 **Issue:** 25 **Pages:** 44263-44271 **DOI:** 10.1016/j.ceramint.2025.07.156 **Published Date:** 2025 OCT **Part:** A

Times Cited in Web of Science Core Collection: 0

Total Times Cited: 0

Usage Count (Last 180 days): 0

Usage Count (Since 2013): 0

Cited References: Abhinay S, 2021, B MATER SCI, V44, DOI 10.1007/s12034-021-02432-3
Abhinay S, 2020, J SOLID STATE CHEM, V289, DOI 10.1016/j.jssc.2020.121362
Cao DW, 2012, NANO LETT, V12, P2803, DOI 10.1021/nl300009z
Chen J, 2018, J AM CERAM SOC, V101, P4892, DOI 10.1111/jace.15890
Feng ZY, 2009, J ALLOY COMPD, V480, pL29, DOI 10.1016/j.jallcom.2009.02.043
Garcia V, 2010, SCIENCE, V327, P1106, DOI 10.1126/science.1184028
Ghayour H, 2016, POWDER TECHNOL, V292, P84, DOI 10.1016/j.powtec.2016.01.030
Gourdain D., 1995, Ferroelectric-Paraelectric Phase Transition in KNb03 at High Pressure
Grinberg I, 2013, NATURE, V503, P509, DOI 10.1038/nature12622
Gupta R, 2020, MAT SCI SEMICON PROC, V105, DOI 10.1016/j.mssp.2019.104723
Hawley CJ, 2017, PHYS REV B, V96, DOI 10.1103/PhysRevB.96.054117
Ichiki M, 2004, APPL PHYS LETT, V84, P395, DOI 10.1063/1.1641528
Ichiki M, 2005, APPL PHYS LETT, V87, DOI 10.1063/1.2128479
Kantha P, 2018, INTEGR FERROELECTR, V187, P129, DOI 10.1080/10584587.2018.1444884
Kloxin AM, 2009, SCIENCE, V324, P59, DOI 10.1126/science.1169494
Kroutvar M, 2004, NATURE, V432, P81, DOI 10.1038/nature03008
Lee HJ, 2009, APPL PHYS LETT, V94, DOI 10.1063/1.3095500
Lombardi J, 2016, J MATER CHEM C, V4, P7989, DOI 10.1039/c6tc02327d
Luisman L, 2011, APPL PHYS LETT, V99, DOI 10.1063/1.3660255
Makovec D, 2008, CERAM INT, V34, P89, DOI 10.1016/j.ceramint.2006.08.008
Meng KK, 2017, APPL PHYS LETT, V110, DOI 10.1063/1.4979828
Nechache R, 2015, NAT PHOTONICS, V9, P61, DOI 10.1038/NPHOTON.2014.255
Nonaka K., EEct of Pb/(Zr+Ti) Molar Ratio on the Photovoltaic Properties of Lead zirconate-titanate Ceramics
Phougat N., 1999, Metallophthalocyanines as High-Dielectric Constant Materials
Pintilie L, 2007, J APPL PHYS, V101, DOI 10.1063/1.2560217
Qin M, 2008, APPL PHYS LETT, V93, DOI 10.1063/1.2990754
Raja S, 2017, AIP CONF PROC, V1832, DOI 10.1063/1.4980827
RAMADASS N, 1978, MATER SCI ENG, V36, P231, DOI 10.1016/0025-5416(78)90076-9
Rani J, 2012, APPL PHYS A-MATER, V108, P761, DOI 10.1007/s00339-012-6970-y
Rawat S, 2024, CERAM INT, V50, P44139, DOI 10.1016/j.ceramint.2024.08.263
Rawat S, 2023, MATER TODAY COMMUN, V37, DOI 10.1016/j.mtcomm.2023.106890
Rödel J, 2009, J AM CERAM SOC, V92, P1153, DOI 10.1111/j.1551-2916.2009.03061.x
Rosas BY, 2022, CRYSTALS, V12, DOI 10.3390/cryst12010035
Scott JF, 2000, APPL PHYS LETT, V76, P3801, DOI 10.1063/1.126786
Sharma S, 2022, MATER CHEM PHYS, V277, DOI 10.1016/j.matchemphys.2021.125512
Sharma S, 2021, OPT LASER TECHNOL, V141, DOI 10.1016/j.optlastec.2021.107148
Sharma S, 2018, PHYS STATUS SOLIDI A, V215, DOI 10.1002/pssa.201700452

SHOCKLEY W, 1961, J APPL PHYS, V32, P510, DOI 10.1063/1.1736034
Song BQ, 2017, J ALLOY COMPD, V703, P67, DOI 10.1016/j.jallcom.2017.01.180
Song Y, 2018, J SOL-GEL SCI TECHN, V87, P285, DOI 10.1007/s10971-018-4727-6
Sriphan S, 2018, J PHYS CONF SER, V1144, DOI 10.1088/1742-6596/1144/1/012018
Sriphan S, 2017, RESULTS PHYS, V7, P1550, DOI 10.1016/j.rinp.2017.04.029
Sumang R, 2020, RADIAT PHYS CHEM, V172, DOI 10.1016/j.radphyschem.2020.108834
Sun QZ, 2020, CERAM INT, V46, P9990, DOI 10.1016/j.ceramint.2020.01.101
Takhar D, 2025, ADV SUSTAIN SYST, V9, DOI 10.1002/adsu.202400583
Tiwari RP, 2024, J MATER SCI-MATER EL, V35, DOI 10.1007/s10854-024-13995-2
Tiwari RP, 2019, J AM CERAM SOC, V102, P4659, DOI 10.1111/jace.16330
Tyunina M, 1998, J APPL PHYS, V84, P6800, DOI 10.1063/1.369012
Wang FG, 2015, PHYS REV B, V91, DOI 10.1103/PhysRevB.91.165124
Wang XF, 2016, ADV ELECTRON MATER, V2, DOI 10.1002/aelm.201600228
Wu P, 2016, RSC ADV, V6, P82409, DOI 10.1039/c6ra15288k
Xue D., 1998, Linear and Nonlinear Optical Properties of Knbo 3
Yang SY, 2010, NAT NANOTECHNOL, V5, P143, DOI [10.1038/NNANO.2009.451, 10.1038/nnano.2009.451]
Yang SY, 2009, APPL PHYS LETT, V95, DOI 10.1063/1.3204695
Yin Y, 2021, J MATER CHEM A, V9, P7881, DOI 10.1039/d1ta00289a
Zhang X, 2020, CERAM INT, V46, P18026, DOI 10.1016/j.ceramint.2020.04.118
Zhou WL, 2014, APPL PHYS LETT, V105, DOI 10.1063/1.4896317

Cited Reference Count: 57

Abstract: Two different 0.9KNbO3-0.1BaNi0.5Nb0.5O3-delta ceramics, KBNNO-I and KBNNO-II, have been synthesized using NiO and Ni acetate, respectively, as Ni precursors. Their microstructure was investigated using XRD, Raman spectroscopy and TEM. In comparison to KBNNO-I, TEM revealed KBNNO-II to have larger grain size (100-300 nm) and no NiO impurities, in agreement with XRD results. This is also responsible for the lower band gap (2.48 eV), higher saturation polarization (10.54 mu C/cm2) and larger dielectric constant of KBNNO-II in comparison to KBNNO-I. The photocurrent density of KBNNO-II (46 mu A/cm2) is much higher than KBNNO-I (25 mu A/cm2). Our findings demonstrate that this impurity-free synthesis method retains favorable ferroelectric characteristics and significantly enhances optical absorption, making this lead-free, environmentally friendly ferroelectric material a promising candidate for photovoltaic applications.

Accession Number: WOS:001580999700004

Language: English

Document Type: Article

Author Keywords: Lead-free ferroelectrics; Photovoltaics; Microstructure; KNbO3 based electro-ceramics

KeyWords Plus: PEROVSKITE; KNBO3; ABSORPTION; EFFICIENCY; OXIDES

Addresses: [Chahar, Ankit; Takhar, Devender; Yadav, Surbhi; Singh, Satyendra; Birajdar, Balaji] Jawaharlal Nehru Univ, Special Ctr Nano Sci, New Delhi 110067, India.
[Tiwari, Rajender P.] Univ Delhi, Hansraj Coll, Dept Elect, New Delhi 110067, India.

Corresponding Address: Birajdar, B (corresponding author), Jawaharlal Nehru Univ, Special Ctr Nano Sci, New Delhi 110067, India.

E-mail Addresses: birajdar@jnu.ac.in

Affiliations: Jawaharlal Nehru University, New Delhi; University of Delhi

Author Identifiers:

Author	Web of Science ResearcherID	ORCID Number
Tiwari, Rajender	AAU-5616-2021	

Publisher: ELSEVIER SCI LTD

Publisher Address: 125 London Wall, London, ENGLAND
Web of Science Index: Science Citation Index Expanded (SCI-EXPANDED)
Web of Science Categories: Materials Science, Ceramics
Research Areas: Materials Science
IDS Number: 7WA4P
ISSN: 0272-8842
eISSN: 1873-3956
29-char Source Abbrev.: CERAM INT
ISO Source Abbrev.: Ceram. Int.
Source Item Page Count: 9
Funding:

Funding Agency	Grant Number
University Grant Commission govt. of India	
Inter-University Accelerator Center (IUAC) New Delhi and Advanced Instrumentation Research Facility (AIRF) JNU New Delhi, India	

University Grant Commission govt. of India is gratefully acknowl-edged for financial support. Inter-University Accelerator Center (IUAC) New Delhi and Advanced Instrumentation Research Facility (AIRF) JNU New Delhi, India, are acknowledged for providing the Transmission Electron Microscopy facility.

Output Date: 2025-11-11

Record 12 of 56

Title: Re-Os isotope constraints on the offshore extent of supra subduction zone along the NW continental margin of India

Author(s): Pandey, A (Pandey, Anju); Pandey, DK (Pandey, Dhananjai K.)

Source: REGIONAL STUDIES IN MARINE SCIENCE **Volume:** 87 **Article Number:** 104230 **DOI:** 10.1016/j.rsma.2025.104230 **Published Date:** 2025 OCT

Times Cited in Web of Science Core Collection: 0

Total Times Cited: 0

Usage Count (Last 180 days): 1

Usage Count (Since 2013): 1

Cited References: Ahmed Z, 1999, INT GEOL REV, V41, P739, DOI 10.1080/00206819909465167
Ahmed Z., 1991, Acta Mineralogica Pakistan, V5, P9
Alves S, 2002, EARTH PLANET SC LETT, V198, P355, DOI 10.1016/S0012-821X(02)00524-1
Anju P, 2015, GEOD GEODYN, V6, P409, DOI 10.1016/j.geog.2015.12.006
[Anonymous], 2016, P INT OCEAN DRILLING, V355, DOI [DOI 10.14379/IODP.PROC.355.2016, 10.14379/iodp.proc.355.2016, DOI 10.14379/IODP.PROC.355.101.2016]
Becker H, 2006, GEOCHIM COSMOCHIM AC, V70, P4528, DOI 10.1016/j.gca.2006.06.004
Bezard R, 2021, GEOCHIM COSMOCHIM AC, V292, P452, DOI 10.1016/j.gca.2020.10.009
BHATTACHARYA GC, 1994, EARTH PLANET SC LETT, V125, P211, DOI 10.1016/0012-821X(94)90216-X
Birck JL, 1997, GEOSTANDARD NEWSLETT, V21, P19, DOI 10.1111/j.1751-908X.1997.tb00528.x
Blusztajn J, 2000, CHEM GEOL, V168, P113, DOI 10.1016/S0009-2541(00)00186-8
Borg LE, 2000, EARTH PLANET SC LETT, V177, P301, DOI 10.1016/S0012-821X(00)00051-0

Boynton W.V., 1984, Rare earth element geochemistry, P63, DOI [DOI 10.1016/B978-0-444-42148-7.50008-3, 10.1016/B978-0-444-42148-7.50008-3]
Cande SC, 2010, GEOPHYS J INT, V183, P127, DOI 10.1111/j.1365-246X.2010.04737.x
Çelik ÖF, 2018, MINER PETROL, V112, P25, DOI 10.1007/s00710-017-0519-x
Chesley J, 2002, EARTH PLANET SC LETT, V195, P211, DOI 10.1016/S0012-821X(01)00580-5
Cohen AS, 1996, ANAL CHIM ACTA, V332, P269, DOI 10.1016/0003-2670(96)00226-7
Collier JS, 2008, EARTH PLANET SC LETT, V272, P264, DOI 10.1016/j.epsl.2008.04.045
Corfield RI, 2010, PETROL GEOSCI, V16, P257, DOI 10.1144/1354-079309-902
CREASER RA, 1991, GEOCHIM COSMOCHIM AC, V55, P397, DOI 10.1016/0016-7037(91)90427-7
Dale CW, 2008, CHEM GEOL, V248, P213, DOI 10.1016/j.chemgeo.2007.11.007
Dale CW, 2012, GEOCHIM COSMOCHIM AC, V89, P202, DOI 10.1016/j.gca.2012.03.025
Dilek Y, 2014, ELEMENTS, V10, P93, DOI 10.2113/gselements.10.2.93
Dilek Y, 2011, GEOL SOC AM BULL, V123, P387, DOI 10.1130/B30446.1
Drake C.L., 1982, AAPG Mem., P167, DOI [DOI 10.1306/M34430C9, 10.1306/M34430C9]
Escrig S, 2005, EARTH PLANET SC LETT, V235, P528, DOI 10.1016/j.epsl.2005.04.035
Escrig S, 2004, NATURE, V431, P59, DOI 10.1038/nature02904
Fitton JG, 2007, GEOL SOC AM SPEC PAP, V430, P387, DOI 10.1130/2007.2430(20)
FLOYD PA, 1978, CHEM GEOL, V21, P291, DOI 10.1016/0009-2541(78)90050-5
Gaina C, 2015, TECTONICS, V34, P875, DOI 10.1002/2014TC003780
Ganerod M, 2011, GEOL SOC SPEC PUBL, V357, P229, DOI 10.1144/SP357.12
Gannoun A, 2007, EARTH PLANET SC LETT, V259, P541, DOI 10.1016/j.epsl.2007.05.014
Geng HY, 2011, J ASIAN EARTH SCI, V42, P854, DOI 10.1016/j.jseaes.2011.01.006
Gnos E, 1998, TERRA NOVA, V10, P90
Gnos E, 1997, TECTONOPHYSICS, V271, P1, DOI 10.1016/S0040-1951(96)00249-1
Gopala Rao D., 1992, OCEANOGRAPHY INDIAN, P493
Hart SR, 1999, GEOCHIM COSMOCHIM AC, V63, P4059, DOI 10.1016/S0016-7037(99)00309-9
Hastie AR, 2008, LITHOS, V101, P323, DOI 10.1016/j.lithos.2007.08.003
Hauri EH, 1997, CHEM GEOL, V139, P185, DOI 10.1016/S0009-2541(97)00035-1
Hauri EH, 2002, PHILOS T R SOC A, V360, P2371, DOI 10.1098/rsta.2002.1073
Ishizuka O, 2011, EARTH PLANET SC LETT, V306, P229, DOI 10.1016/j.epsl.2011.04.006
Janousek V, 2006, J PETROL, V47, P1255, DOI 10.1093/petrology/egl013
Jung C, 2006, J PETROL, V47, P1637, DOI 10.1093/petrology/egl023
Kakar MI, 2012, GEOLOGY, V40, P1099, DOI 10.1130/G33270.1
Kakar MI, 2014, LITHOS, V202, P190, DOI 10.1016/j.lithos.2014.05.029
Khan M, 2007, J ASIAN EARTH SCI, V31, P112, DOI 10.1016/j.jseaes.2007.04.006
Kodaira S, 2011, EARTH PLANETS SPACE, V63, P963, DOI 10.5047/eps.2011.06.036
Kodaira S, 2010, J GEOPHYS RES-SOL EA, V115, DOI 10.1029/2009JB006968
Krishna MR, 2002, MAR GEOPHYS RES, V23, P25, DOI 10.1023/A:1021288003781
MAHMOOD K, 1995, TECTONOPHYSICS, V250, P169, DOI 10.1016/0040-1951(95)00017-5
Malod JA, 1997, MAR GEOL, V141, P221, DOI 10.1016/S0025-3227(97)00074-1
MCKENZIE D, 1971, GEOPHYS J ROY ASTR S, V24, P437, DOI 10.1111/j.1365-246X.1971.tb02190.x
Meisel T, 2001, GEOCHIM COSMOCHIM AC, V65, P1311, DOI 10.1016/S0016-7037(00)00566-4
Metcalf R.V., 2008, Suprasubduction zone (SSZ) ophiolites: Is there really an "ophiolite conundrum"?, 438. Ophiolites, Arcs, and Batholiths: A Tribute to Cliff Hopson: Geological Society of America Special, P191, DOI [10.1130/2008.2438(07, DOI 10.1130/2008.2438(07]
Miles PR, 1998, GEOPHYS J INT, V134, P876, DOI 10.1046/j.1365-246x.1998.00625.x
Minshull TA, 2008, NAT GEOSCI, V1, P463, DOI 10.1038/ngeo228
Misra AA, 2015, MAR PETROL GEOL, V59, P406, DOI 10.1016/j.marpetgeo.2014.08.019
Morishita T, 2011, GEOLOGY, V39, P411, DOI 10.1130/G31706.1
Nair N, 2021, GEOSCI FRONT, V12, DOI 10.1016/j.gsf.2020.11.008
Nakamura H, 2009, GONDWANA RES, V16, P431, DOI 10.1016/j.gr.2009.05.004

NORTON IO, 1979, J GEOPHYS RES, V84, P6803, DOI 10.1029/JB084iB12p06803
Pandey DK, 2020, GEOL MAG, V157, P834, DOI 10.1017/S0016756818000833
Pandey D.K., 2015, Preliminary Report, P355, DOI [10.14379/iodp.pr.355.2015, DOI 10.14379/IODP.PR.355.2015]
Pandey D.K., 2014, Expedition 355 Scientific Prospectus: Arabian Sea Monsoon, DOI [10.14379/iodp.sp.355.2014, DOI 10.14379/IODP.SP.355.2014]
Pandey DK, 2020, NAT COMMUN, V11, DOI 10.1038/s41467-020-16570-5
Pandey DK, 2019, NAT COMMUN, V10, DOI 10.1038/s41467-019-10227-8
Pearce J., 1982, ANDESITES, P525
Pearce JA, 2010, GONDWANA RES, V18, P60, DOI 10.1016/j.gr.2009.12.003
Pearce J.A., 1996, Trace element geochemistry of volcanic rocks: applications for massive sulphide exploration, P79
Pearce J.A., 1983, CONTINENTAL BASALTS, P158
Pearce J.A., 2003, Boulder. Geol. Soc. Am. Spec. Pap., V373, P269
Pearce JA., 1984, GEOLOGICAL SOC, V16, P77, DOI DOI 10.1144/GSL.SP.1984.016.01.06
Peucker-Ehrenbrink B, 2003, GEOCHEM GEOPHY GEOSY, V4, DOI 10.1029/2002GC000414
Peucker-Ehrenbrink B, 2012, GEOLOGIC TIME SCALE 2012, VOLS 1 & 2, P145, DOI 10.1016/B978-0-444-59425-9.00008-1
Plummer PS, 1996, TERRA NOVA, V8, P34, DOI 10.1111/j.1365-3121.1996.tb00723.x
Reagan MK, 2019, EARTH PLANET SC LETT, V506, P520, DOI 10.1016/j.epsl.2018.11.020
Reagan MK, 2017, INT GEOL REV, V59, P1439, DOI 10.1080/00206814.2016.1276482
Reagan MK, 2010, GEOCHEM GEOPHY GEOSY, V11, DOI 10.1029/2009GC002871
Rodriguez M, 2020, J ASIAN EARTH SCI, V191, DOI 10.1016/j.jseaes.2019.104225
Roy-Barman M, 1998, EARTH PLANET SC LETT, V154, P331, DOI 10.1016/S0012-821X(97)00180-5
Saccani E, 2015, GEOSCI FRONT, V6, P481, DOI 10.1016/j.gsf.2014.03.006
Schiano P, 1997, EARTH PLANET SC LETT, V146, P489, DOI 10.1016/S0012-821X(96)00254-3
Shervais JW, 2019, GEOCHEM GEOPHY GEOSY, V20, P314, DOI 10.1029/2018GC007731
SHERVAIS JW, 1982, EARTH PLANET SC LETT, V59, P101, DOI 10.1016/0012-821X(82)90120-0
Shirey SB, 1998, ANNU REV EARTH PL SC, V26, P423, DOI 10.1146/annurev.earth.26.1.423
SHIREY SB, 1995, ANAL CHEM, V67, P2136, DOI 10.1021/ac00109a036
SNOW JE, 1995, EARTH PLANET SC LETT, V133, P411, DOI 10.1016/0012-821X(95)00099-X
Stern RJ, 2012, LITHOSPHERE-US, V4, P469, DOI 10.1130/L183.1
STOREY M, 1995, SCIENCE, V267, P852, DOI 10.1126/science.267.5199.852
Sun S.-S., 1989, Geological Society of London Special Publication, V42, P313, DOI [DOI 10.1144/GSL.SP.1989.042.01.19, 10.1144/GSL.SP.1989.042.01.19]
Suzuki K, 2011, GEOLOGY, V39, P999, DOI 10.1130/G32044.1
Talwani M, 1998, MAR GEOPHYS RES, V20, P259, DOI 10.1023/A:1004674909280
Topuz G, 2018, CONTRIB MINERAL PETR, V173, DOI 10.1007/s00410-018-1506-x
Torsvik TH, 2013, NAT GEOSCI, V6, P223, DOI 10.1038/ngeo1736
Turner S, 2009, CHEM GEOL, V266, P187, DOI 10.1016/j.chemgeo.2009.05.027
van Hinsbergen DJJ, 2022, NATL SCI REV, V9, DOI 10.1093/nsr/nwac074
VOLKENING J, 1991, INT J MASS SPECTROM, V105, P147, DOI 10.1016/0168-1176(91)80077-Z
WALKER RJ, 1989, GEOCHIM COSMOCHIM AC, V53, P1583, DOI 10.1016/0016-7037(89)90240-8
Wang YJ, 2023, J GEOPHYS RES-SOL EA, V128, DOI 10.1029/2023JB026789
Whattam SA, 2011, CONTRIB MINERAL PETR, V162, P1031, DOI 10.1007/s00410-011-0638-z
WINCHESTER JA, 1977, CHEM GEOL, V20, P325, DOI 10.1016/0009-2541(77)90057-2
Woodhead J, 2004, EARTH PLANET SC LETT, V221, P309, DOI 10.1016/S0012-821X(04)00091-3
Woodland SJ, 2002, J PETROL, V43, P171, DOI 10.1093/petrology/43.1.171
Yang AY, 2013, LITHOS, V179, P28, DOI 10.1016/j.lithos.2013.07.020
Yang GX, 2022, EARTH-SCI REV, V232, DOI 10.1016/j.earscirev.2022.104129
Zaigham NA, 2000, GEOL SOC AM BULL, V112, P478

Cited Reference Count: 105

Abstract: The north-western continental margin of India (NWCMI) is juxtaposed with onshore supra-subduction zone (SSZ) type ophiolitic complexes (e.g. the Muslim Bagh and Bela) linked with protracted convergence between Indian and Eurasian plates. Prior studies envisaged that these N-S trending SSZ complexes, likely extend further south into the Arabian Sea. However, paucity of offshore basement sampling has impeded in-depth investigations into such propositions. In view of the recent findings from the scientific ocean drilling and coring in the Laxmi Basin (LB) of the northern Arabian Sea, here we assess offshore continuation of the onshore SSZ ophiolite complexes. We employ new geochemical and first report of Re-Os isotopic signatures of the LB basement from Site U1457 of the IODP Expedition 355. We report that the geochemical characteristics of the LB volcanics show unambiguous signatures of SSZ crust. These include low TiO2 (0.63-1 ppm), low Zr (<50 ppm), low Ti/V ratios (10-20) and uniform patterns of progressive depletion in high field strength elements, with typical negative anomalies of Nb and Zr, coupled with progressive enrichments in large ion lithophile elements (K, Rb, Sr and Ba). Using robust classification diagrams, the LB volcanics are categorised as forearc basalts (FAB) and boninitic FAB (B-FAB). The novel Re-Os isotope data from the Site U1457 show Re concentrations varying between 1.37 and 1.97 (ppb) and very low Os concentrations (0.06-0.18 ppb). The positive linear trend between suprachondritic Os-187/Os-188 ratios (0.1683-0.2484) with subduction derived fluid elements implies modification of original Os during subduction initiation process. Further, comparisons of ophiolites from NWCMI and Laxmi Basin allow us to infer that the onshore SSZ ophiolite belt continues into the Arabian Sea, at least till the LB. Our new findings would have significant implications towards paleo plate reconstructions of the final Gondwana dispersal.

Accession Number: WOS:001495238200001

Language: English

Document Type: Article

Author Keywords: Laxmi Basin; Re-Os isotope; IODP-355; Continental margin of India; Supra-subduction zone

KeyWords Plus: MUSLIM-BAGH OPHIOLITE; PLATINUM-GROUP ELEMENT; LAXMI BASIN; ARABIAN SEA; OSMIUM; ARC; MANTLE; RIDGE; SYSTEMATICS; INITIATION

Addresses: [Pandey, Anju] Gayatri Enclave, Navi Mumbai, India.
[Pandey, Dhananjai K.] Jawaharlal Nehru Univ, Sch Environm Sci, New Delhi, India.

Corresponding Address: Pandey, A (corresponding author), Gayatri Enclave, Navi Mumbai, India.

E-mail Addresses: dranjupandey@gmail.com

Affiliations: Jawaharlal Nehru University, New Delhi

Author Identifiers:

Author	Web of Science ResearcherID	ORCID Number
Pandey, Dhananjai	HTO-0167-2023	

Publisher: ELSEVIER

Publisher Address: RADARWEG 29, 1043 NX AMSTERDAM, NETHERLANDS

Web of Science Index: Science Citation Index Expanded (SCI-EXPANDED)

Web of Science Categories: Ecology; Marine & Freshwater Biology

Research Areas: Environmental Sciences & Ecology; Marine & Freshwater Biology

IDS Number: 2ZU8R

ISSN: 2352-4855

29-char Source Abbrev.: REG STUD MAR SCI

ISO Source Abbrev.: Reg. Stud. Mar. Sci.

Source Item Page Count: 13

Funding:

Funding Agency	Grant Number
ESSO-National Centre for Polar and Ocean Research, Goa (Ministry of Earth Sciences, India)	MoES/PO (Seismo) /3 (45) 2012

Gratefully acknowledge funding support from the ESSO-National Centre for Polar and Ocean Research, Goa (Ministry of Earth Sciences, India) through Grant no: MoES/PO (Seismo) /3 (45) 2012.

Output Date: 2025-11-11

Record 13 of 56

Title: MOSFET-Meminductor Emulator Circuit with Experimental Validation and Application in Adaptive Learning and Chua's Oscillator Circuit

Author(s): Gupta, RK (Gupta, Rahul Kumar); Saxena, V (Saxena, Varun); Choudhry, MS (Choudhry, Mahipal Singh)

Source: CIRCUITS SYSTEMS AND SIGNAL PROCESSING **DOI:** 10.1007/s00034-025-03363-8 **Early Access Date:** OCT 2025 **Published Date:** 2025 OCT 14

Times Cited in Web of Science Core Collection: 0

Total Times Cited: 0

Usage Count (Last 180 days): 1

Usage Count (Since 2013): 1

Cited References: Advanced Linear Devices Inc., ALD1117 EPAD ®Matched Pair N-Channel MOSFET Array Datasheet
Advanced Linear Devices Inc., ALD1116 EPAD ®Matched Pair P-Channel MOSFET Array Datasheet
Altman E. J., 1993, Journal of Circuits, Systems and Computers, V3, P63, DOI 10.1142/S021812669300006X
[Anonymous], 2019, KNOWM Datasheet Knowm Memristor
Azghadi MR, 2017, IEEE T BIOMED CIRC S, V11, P434, DOI 10.1109/TBCAS.2016.2618351
Babacan Y, 2018, ELECTRICA, V18, P36, DOI 10.5152/iujeee.2018.1806
Bhardwaj K, 2023, ANALOG INTEGR CIRC S, V114, P175, DOI 10.1007/s10470-022-02075-2
Bhardwaj K, 2022, ANALOG INTEGR CIRC S, V110, P409, DOI 10.1007/s10470-021-01976-y
Bhardwaj K, 2021, MICROELECTRON J, V114, DOI 10.1016/j.mejo.2021.105126
Bilotta E, 2005, INT J BIFURCAT CHAOS, V15, P253, DOI 10.1142/S0218127405012156
CA, 2018, Malibu, All-Memristor Architecture Could Enable Brain-Like Computers
CHUA LO, 1994, INT J CIRC THEOR APP, V22, P279, DOI 10.1002/cta.4490220404
CHUA LO, 1990, IEEE T CIRCUITS SYST, V37, P885, DOI 10.1109/31.55064
CHUA LO, 1971, IEEE T CIRCUITS SYST, VCT18, P507, DOI 10.1109/TCT.1971.1083337
Das R, 2024, ANALOG INTEGR CIRC S, V119, P475, DOI 10.1007/s10470-024-02257-0
Department of Physics Aristotle University of Thessaloniki The s saloniki GR - 54124 Greec, 2015, Journal of Engineering Science and Technology Review, V8, P157, DOI [10.25103/jestr.082.21, 10.25103/jestr.082.21, DOI 10.25103/JESTR.082.21]
Di Ventra M, 2009, P IEEE, V97, P1717, DOI 10.1109/JPROC.2009.2021077
Driscoll T, 2010, APPL PHYS LETT, V97, DOI 10.1063/1.3485060
Ersoy D, 2023, IEEE ACCESS, V11, P53290, DOI 10.1109/ACCESS.2023.3281200
Fouda ME, 2014, IEEE I C ELECT CIRC, P279, DOI 10.1109/ICECS.2014.7049976
Gupta RK, 2025, CHAOS SOLITON FRACT, V192, DOI 10.1016/j.chaos.2024.115964
Gupta RK, 2024, CIRC SYST SIGNAL PR, V43, P54, DOI 10.1007/s00034-023-02500-5
Hanbay D, 2008, EXPERT SYST APPL, V34, P2278, DOI 10.1016/j.eswa.2007.03.002

Hu M, 2014, IEEE T NEUR NET LEAR, V25, P1864, DOI 10.1109/TNNLS.2013.2296777
Itoh M, 2008, INT J BIFURCAT CHAOS, V18, P3183, DOI 10.1142/S0218127408022354
Konal M, 2020, AEU-INT J ELECTRON C, V126, DOI 10.1016/j.aeue.2020.153391
Korkmaz MO, 2023, AEU-INT J ELECTRON C, V158, DOI 10.1016/j.aeue.2022.154450
Kumar K, 2021, J COMPUT ELECTRON, V20, P1452, DOI 10.1007/s10825-021-01697-5
Lai Q, 2025, IEEE T NEUR NET LEAR, V36, P18805, DOI 10.1109/TNNLS.2025.3581229
Liang Y, 2014, IEEE T CIRCUITS-II, V61, P299, DOI 10.1109/TCSII.2014.2312807
Orman K, 2022, MICROELECTRON J, V125, DOI 10.1016/j.mejo.2022.105462
Pershin YV, 2010, ELECTRON LETT, V46, P517, DOI 10.1049/el.2010.2830
Pershin YV, 2010, IEEE T CIRCUITS-I, V57, P1857, DOI 10.1109/TCSI.2009.2038539
Petrovic PB, 2022, ANALOG INTEGR CIRC S, V110, P185, DOI 10.1007/s10470-021-01946-4
Rai SK, 2024, INTEGRATION, V96, DOI 10.1016/j.vlsi.2024.102165
Raj A, 2021, ANALOG INTEGR CIRC S, V107, P475, DOI 10.1007/s10470-021-01808-z
Romero FJ, 2021, AEU-INT J ELECTRON C, V133, DOI 10.1016/j.aeue.2021.153671
Romero FJ, 2020, ELECTRONICS-SWITZ, V9, DOI 10.3390/electronics9091407
Sah MP, 2014, CIRC SYST SIGNAL PR, V33, P2363, DOI 10.1007/s00034-014-9758-9
Setoudeh F, 2022, CHAOS SOLITON FRACT, V156, DOI 10.1016/j.chaos.2022.111814
Shankar C, 2025, J CIRCUIT SYST COMP, V34, DOI 10.1142/S0218126625501397
Sharma N, 2023, IEEE T CONSUM ELECTR, V69, P1124, DOI 10.1109/TCE.2023.3315337
Sharma N, 2023, IEEE T CIRCUITS-I, V70, P2098, DOI 10.1109/TCSI.2023.3241350
Sharma PK, 2023, IEEE CAN J ELECT COM, V46, P179, DOI 10.1109/ICJECE.2023.3261886
Singh A, 2022, J COMPUT ELECTRON, V21, P1026, DOI 10.1007/s10825-022-01889-7
Singh A, 2022, CIRC SYST SIGNAL PR, V41, P2322, DOI 10.1007/s00034-021-01886-4
Singh A, 2021, J CIRCUIT SYST COMP, V30, DOI 10.1142/S0218126621502194
Singh A, 2021, IJST-T ELECTR ENG, V45, P1151, DOI 10.1007/s40998-021-00440-x
Singh A, 2021, MIDWEST SYMP CIRCUIT, P1108, DOI 10.1109/MWSCAS47672.2021.9531754
Sozen H, 2020, J CIRCUIT SYST COMP, V29, DOI 10.1142/S0218126620502473
Sözen H, 2016, ANALOG INTEGR CIRC S, V89, P655, DOI 10.1007/s10470-016-0785-2
Srivastava P, 2024, IEEE ACCESS, V12, P9195, DOI 10.1109/ACCESS.2023.3344311
Srivastava P, 2020, CIRC SYST SIGNAL PR, V39, P5848, DOI 10.1007/s00034-020-01421-x
Strukov DB, 2008, NATURE, V453, P80, DOI 10.1038/nature06932
Taskiran ZGÇ, 2020, AEU-INT J ELECTRON C, V119, DOI 10.1016/j.aeue.2020.153180
Tatovic M, 2023, RADIOENGINEERING, V32, P568, DOI 10.13164/re.2023.0568
Thongdit Preecha, 2020, 2020 17th International Conference on Electrical Engineering/Electronics, Computer, Telecommunications and Information Technology (ECTI-CON), P51, DOI 10.1109/ECTI-CON49241.2020.9158116
Verma A, 2021, 2021 8 INT C SIGN PR, P720
Vista J, 2020, IEEE T COMPUT AID D, V39, P2020, DOI 10.1109/TCAD.2019.2950376
Wang FZ, 2023, MICROMACHINES-BASEL, V14, DOI 10.3390/mi14020486
Wu HG, 2024, CHAOS SOLITON FRACT, V188, DOI 10.1016/j.chaos.2024.115525
Xu Q., 2024, IEEE Transactions on Circuits and Systems I
Yadav N, 2023, J COMPUT ELECTRON, V22, P531, DOI 10.1007/s10825-022-01950-5
Yadav N, 2023, J CIRCUIT SYST COMP, V32, DOI 10.1142/S0218126623500317
Yadav N, 2022, SADHANA-ACAD P ENG S, V47, DOI 10.1007/s12046-021-01785-z
Yenpo Ho, 2009, Proceedings of the 2009 IEEE/ACM International Conference on Computer-Aided Design (ICCAD 2009), P485
Yildiz Hacer Atar, 2021, 2021 13th International Conference on Electrical and Electronics Engineering (ELECO), P24, DOI 10.23919/ELECO54474.2021.9677663
Yu DS, 2020, IEEE T CIRCUITS-II, V67, P1334, DOI 10.1109/TCSII.2019.2936453
Yuan F, 2020, INT J BIFURCAT CHAOS, V30, DOI 10.1142/S0218127420500236
Yuan F, 2019, CHAOS, V29, DOI 10.1063/1.5125673

Yuan F, 2019, NONLINEAR DYNAM, V96, P389, DOI 10.1007/s11071-019-04795-z
Yuan F, 2016, INT J BIFURCAT CHAOS, V26, DOI 10.1142/S0218127416501303
Zhai DD, 2020, J CIRCUIT SYST COMP, V29, DOI 10.1142/S0218126620500486
Zhang Y, 2021, HELIYON, V7, DOI 10.1016/j.heliyon.2021.e07601
Zhang Y, 2021, SOLID STATE SCI, V113, DOI 10.1016/j.solidstatesciences.2021.106541
Zhang Y, 2020, COMP MATER SCI, V179, DOI 10.1016/j.commatsci.2020.109583
Zhao Q, 2019, CHAOS, V29, DOI 10.1063/1.5081076

Cited Reference Count: 77

Abstract: A grounded meminductor emulator (MIE) with only five metal-oxide-semiconductor field-effect transistor (MOSFET) is proposed. Out of the five MOSFETs, three NMOS transistors and two PMOS transistors is proposed. The architecture uses an active gyrator topology in which one MOSFET (NMOS), which serves as a MOS capacitor, displays memory behavior and inductive properties as well. The MOS capacitor in the circuit eliminates the need for passive components. Its performance robustness has been validated through extensive analysis such as non-volatility test, thermal stability, tunability, Monte Carlo simulations, and process corner evaluations. Simulations are conducted using 90 nm GPDK CMOS technology on the Cadence Virtuoso Spectre (CVS) tool. The proposed design achieves a static power consumption of 2.52 mW, dynamic power of 3.23 mW (at +/- 0.8V, \documentclass[12pt]{minimal} \usepackage{amsmath} \usepackage{wasysym} \usepackage{amsfonts} \usepackage{amssymb} \usepackage{amsbsy} \usepackage{mathrsfs} \usepackage{upgreek} \setlength{\oddsidemargin}{-69pt} \begin{document}$$27<^>\circ \textrm{C}$$\end{document}, 0.2 \documentclass[12pt]{minimal} \usepackage{amsmath} \usepackage{wasysym} \usepackage{amsfonts} \usepackage{amssymb} \usepackage{amsbsy} \usepackage{mathrsfs} \usepackage{upgreek} \setlength{\oddsidemargin}{-69pt} \begin{document}$$V_{pp}$$\end{document}, & 100 KHz), and a silicon area of 80.5 \documentclass[12pt]{minimal} \usepackage{amsmath} \usepackage{wasysym} \usepackage{amsfonts} \usepackage{amssymb} \usepackage{amsbsy} \usepackage{mathrsfs} \usepackage{upgreek} \setlength{\oddsidemargin}{-69pt} \begin{document}$$\mu m<^>2$$\end{document}. It maintains stable operation up to 200 MHz and has been validated experimentally up to 850 kHz using ALD1116/1117 MOSFET arrays. The divergence between simulated (200 MHz) and experimental (850 kHz) bandwidths is attributed to discrete-prototype non-idealities: higher device capacitances in ALD arrays, SOIC lead parasitics, breadboard wiring capacitance, and measurement loading. Practical implementations in adaptive learning systems and chaotic oscillator circuit further demonstrate its applicability in well-known nonlinear circuits. A comparative assessment with existing meminductor emulators highlight the proposed meminductor emulator's superior efficiency and compactness.

Accession Number: WOS:001592807600001

Language: English

Document Type: Article; Early Access

Author Keywords: Meminductor; Memcapacitor; Memristor; MOSFET; Emulator; Floating design; Decremental configuration; Incremental configuration; gyrator

KeyWords Plus: MEMRISTOR; MEMCAPACITORS; SYSTEM

Addresses: [Gupta, Rahul Kumar; Choudhry, Mahipal Singh] Delhi Technol Univ, Elect & Commun Engn, Delhi 110047, India.
[Gupta, Rahul Kumar] JSS Acad Tech Educ, Elect & Commun Engn, C-20-1,Sect-62, Noida 201301, India.
[Saxena, Varun] Jawaharlal Nehru Univ, Sch Engn, New Mehrauli Rd, New Delhi 110067, India.

Corresponding Address: Gupta, RK (corresponding author), Delhi Technol Univ, Elect & Commun Engn, Delhi 110047, India.
Gupta, RK (corresponding author), JSS Acad Tech Educ, Elect & Commun Engn, C-20-1,Sect-62, Noida 201301, India.

E-mail Addresses: rahulkumargupta_2k21phdec08@dtu.ac.in; varunsaxena@mail.jnu.ac.in; msc_1976@yahoo.com

Affiliations: Delhi Technological University; Jawaharlal Nehru University, New Delhi
Author Identifiers:

Author	Web of Science ResearcherID	ORCID Number
Saxena, Varun	JFK-1186-2023	
Gupta, Rahul	HHS-6086-2022	

Publisher: SPRINGER BIRKHAUSER

Publisher Address: 233 SPRING STREET, 6TH FLOOR, NEW YORK, NY 10013 USA

Web of Science Index: Science Citation Index Expanded (SCI-EXPANDED)

Web of Science Categories: Engineering, Electrical & Electronic

Research Areas: Engineering

IDS Number: 8NK1I

ISSN: 0278-081X

eISSN: 1531-5878

29-char Source Abbrev.: CIRC SYST SIGNAL PR

ISO Source Abbrev.: Circuits Syst. Signal Process.

Source Item Page Count: 33

Output Date: 2025-11-11

Record 14 of 56

Title: Impact of titanium doping on structural, optical, magnetic and photocatalytic properties of ZrFe2O4 nanoparticles

Author(s): Kaur, N (Kaur, Navneet); Katoch, A (Katoch, Apoorva); Kaur, A (Kaur, Amanpreet); Singh, S (Singh, Satyendra); Kaur, R (Kaur, Raminder)

Source: JOURNAL OF SOLID STATE CHEMISTRY **Volume:** 350 **Article Number:** 125471 **DOI:** 10.1016/j.jssc.2025.125471 **Published Date:** 2025 OCT

Times Cited in Web of Science Core Collection: 1

Total Times Cited: 1

Usage Count (Last 180 days): 2

Usage Count (Since 2013): 2

Cited References: Akhtar MN, 2017, CERAM INT, V43, P17032, DOI 10.1016/j.ceramint.2017.09.115
Al-Kahtani AA, 2017, Journal of Biomaterials and Nanobiotechnology, V08, P66, DOI [10.4236/jbnb.2017.81005, 10.4236/jbnb.2017.81005, DOI 10.4236/JBNB.2017.81005]
Andersen HL, 2018, NANOSCALE, V10, P14902, DOI 10.1039/c8nr01534a
Anjum M, 2019, ARAB J CHEM, V12, P4897, DOI 10.1016/j.arabjc.2016.10.004
[Anonymous], 2012, Int. J. Mater. Sci. Electron. Res.
Augugliaro V, 2002, CHEMOSPHERE, V49, P1223, DOI 10.1016/S0045-6535(02)00489-7
Bokov D, 2021, ADV MATER SCI ENG, V2021, DOI 10.1155/2021/5102014
Cheng TC, 2009, SURF COAT TECH, V204, P1141, DOI 10.1016/j.surfcoat.2009.06.050
Das J, 2018, POWDER TECHNOL, V328, P1, DOI 10.1016/j.powtec.2017.11.057
Farooq H., 2012, J. Basic Appl. Sci., V8, P597
Fox M., 2003, OPTICAL PROPERTIES S
Frindy S, 2020, MATER DESIGN, V188, DOI 10.1016/j.matdes.2019.108461
Harzali H, 2018, J MAGN MAGN MATER, V460, P89, DOI 10.1016/j.jmmm.2018.03.062
Hassanien AS, 2015, J ALLOY COMPD, V648, P280, DOI 10.1016/j.jallcom.2015.06.231
Hazra S, 2014, J NANOSCI NANOTECHNO, V14, P1983, DOI 10.1166/jnn.2014.8745
Heryanto, 2019, Journal of Physics: Conference Series, V1317, DOI [10.1088/1742-6596/1317/1/012052,

10.1088/1742-6596/1317/1/012052]
Ismael M, 2021, SOL ENERG MAT SOL C, V219, DOI 10.1016/j.solmat.2020.110786
Joshi S, 2014, J MOL STRUCT, V1076, P55, DOI 10.1016/j.molstruc.2014.07.048
Kaur N, 2024, APPL PHYS A-MATER, V130, DOI 10.1007/s00339-024-07506-7
Kaur N, 2023, CHEMISTRYSELECT, V8, DOI 10.1002/slct.202300829
Kaur N, 2023, MATER LETT, V330, DOI 10.1016/j.matlet.2022.133236
Kavitha S, 2019, J ALLOY COMPD, V799, P147, DOI 10.1016/j.jallcom.2019.05.183
Khan K, 2014, MATER RES BULL, V50, P454, DOI 10.1016/j.materresbull.2013.11.018
2023, BIOINTERFACE RES APP, V13, P488, DOI [10.33263/briac135.488, 10.33263/BRIAC135.488, DOI 10.33263/BRIAC135.488]
Kumar D, 2020, SN APPL SCI, V2, DOI 10.1007/s42452-020-2491-z
Li FB, 2007, J HAZARD MATER, V149, P199, DOI 10.1016/j.jhazmat.2007.03.069
Li J, 2002, WATER SCI TECHNOL, V46, P207, DOI 10.2166/wst.2002.0479
Lu CC, 2016, RSC ADV, V6, P110155, DOI 10.1039/c6ra23970f
Patterson AL, 1939, PHYS REV, V56, P978, DOI 10.1103/PhysRev.56.978
Pereira LD, 2019, J IRAN CHEM SOC, V16, P2281, DOI 10.1007/s13738-019-01694-3
Perriat P, 1999, SOLID STATE IONICS, V117, P175, DOI 10.1016/S0167-2738(98)00262-8
Rafienia Mohammad, 2018, J Med Signals Sens, V8, P108, DOI [10.4103/2228-7477.232087, 10.4103/jmss.jmss_49_17]
Rahimi R., 2017, P 21 INT EL C SYNTH, DOI [10.3390/ecsoc-21-04819, DOI 10.3390/ECSOC-21-04819]
Reddy DHK, 2016, COORDIN CHEM REV, V315, P90, DOI 10.1016/j.ccr.2016.01.012
Salih SJ, 2023, HELIYON, V9, DOI 10.1016/j.heliyon.2023.e16601
Saremi A, 2024, SOLID STATE SCI, V148, DOI 10.1016/j.solidstatesciences.2023.107432
Sasaki S, 1997, ACTA CRYSTALLOGR B, V53, P762, DOI 10.1107/S0108768197007842
Shahid SA, 2013, J NANOMATER, V2013, DOI 10.1155/2013/517643
Sharma R, 2018, J ALLOY COMPD, V746, P532, DOI 10.1016/j.jallcom.2018.02.287
Shekofteh-Gohari M, 2017, CERAM INT, V43, P3063, DOI 10.1016/j.ceramint.2016.11.115
Shukla A, 2017, J MATER SCI-MATER EL, V28, P15380, DOI 10.1007/s10854-017-7423-3
Smit J., 1954, Advances in Electronics and Electron Physics, V6, P69, DOI [10.1016/S0065-2539(08)60132-8, DOI 10.1016/S0065-2539(08)60132-8]
Soufi A, 2021, APPL SURF SCI ADV, V6, DOI 10.1016/j.apsadv.2021.100145
Spaldin N., 2003, MAGNETIC MAT FUNDAME
Sridhar CSLN, 2019, MATER RES EXPRESS, V6, DOI 10.1088/2053-1591/ab5f95
Sundararajan M, 2017, CERAM INT, V43, P540, DOI 10.1016/j.ceramint.2016.09.191
Tauc J., 1972, Journal of Non-Crystalline Solids, V8-10, P569, DOI 10.1016/0022-3093(72)90194-9
URBACH F, 1953, PHYS REV, V92, P1324, DOI 10.1103/physrev.92.1324
Vadivel M, 2014, J MAGN MAGN MATER, V362, P122, DOI 10.1016/j.jmmm.2014.03.016
Valenzuela Raul, 2012, Physics Research International, DOI 10.1155/2012/591839
Waghchaure RH, 2022, INORG CHEM COMMUN, V143, DOI 10.1016/j.inoche.2022.109764
Wasim SM, 1998, J APPL PHYS, V84, P5823, DOI 10.1063/1.368851
Zak AK, 2011, SOLID STATE SCI, V13, P251, DOI 10.1016/j.solidstatesciences.2010.11.024
Zangeneh H, 2015, J IND ENG CHEM, V26, P1, DOI 10.1016/j.jiec.2014.10.043

Cited Reference Count: 54

Abstract: The present study investigates the photodegradation of methylene blue (MB) and rhodamine B (RhB) using [Zr1-xTixFe2O4 (x = 0.00, 0.01, 0.03, 0.05)] ferrite nanoparticles as stable photocatalysts under visible light irradiation. The synthesized ferrites are biocompatible, non-toxic, and cost-effective, making them suitable for environmental remediation applications. In this regard, FE-SEM, XRD, UV-Visible spectroscopy, PL, FTIR, VSM, and EDS illustrate the detailed composition and characterization of the existing photocatalyst. X-ray diffraction (XRD) was used to verify the formation of a ferrite phase, and calculations were made for the other crystallographic parameters and cation distribution, which revealed a size of about 19-15 nm. X-ray photoelectron spectroscopy (XPS) confirms that Ti ions primarily substitute into octahedral positions within an inverse spinel structure. Field emission scanning electron microscopy (FESEM) is used to determine the microscopic image of the samples, which showed the particle size varied between 22 and 16 nm. FT-IR characterization was carried out to figure out the functional groups encompassed in the material. The vibrating sample magnetometer (VSM) M-H curve revealed that titanium doping significantly influenced the material hysteresis loop as room temperature saturation magnetization decreased from 14 emu/g to 11 emu/g. UV-Vis and PL studies assessed the spectral properties and corresponding optical band gap. The bandgap of Ti-doped $ZrFe_2O_4$ nanoparticles was discovered to be 2.6-2.27 eV. The peak efficiency of photodecomposition for Methylene Blue (MB) and Rhodamine B (RhB) is observed to be 89 % and 94 % for x = 0.05, respectively. Under optimal operational conditions, the kinetic parameters associated with photodegradation and the experimental findings conform to the first-order kinetic model.

Accession Number: WOS:001511822000001

Language: English

Document Type: Article

Author Keywords: Nanoparticles; Hydrothermal; Magnetic; Organic dyes; Photocatalyst

KeyWords Plus: FERRITE NANOPARTICLES; DEGRADATION; DYES

Addresses: [Kaur, Navneet; Katoch, Apoorva; Kaur, Amanpreet; Kaur, Raminder] Punjabi Univ, Dept Phys, Patiala 147002, Punjab, India.
[Kaur, Navneet; Singh, Satyendra] Jawaharlal Nehru Univ, Special Ctr Nanosci, New Delhi 110067, India.

Corresponding Address: Kaur, R (corresponding author), Punjabi Univ, Dept Phys, Patiala 147002, Punjab, India.
Singh, S (corresponding author), Jawaharlal Nehru Univ, Special Ctr Nanosci, New Delhi 110067, India.

E-mail Addresses: satyambd@gmail.com; raminder_k_saini@yahoo.com

Affiliations: Punjabi University; Jawaharlal Nehru University, New Delhi; Special Centre for Nanoscience, Jawaharlal Nehru University

Author Identifiers:

Author	Web of Science ResearcherID	ORCID Number
Singh, Satyendra		0000-0001-9203-7879
Kaur, Raminder		0000-0002-9211-5010

Publisher: ACADEMIC PRESS INC ELSEVIER SCIENCE

Publisher Address: 525 B ST, STE 1900, SAN DIEGO, CA 92101-4495 USA

Web of Science Index: Science Citation Index Expanded (SCI-EXPANDED)

Web of Science Categories: Chemistry, Inorganic & Nuclear; Chemistry, Physical

Research Areas: Chemistry

IDS Number: 3YE4U

ISSN: 0022-4596

eISSN: 1095-726X

29-char Source Abbrev.: J SOLID STATE CHEM

ISO Source Abbrev.: J. Solid State Chem.

Source Item Page Count: 12

Funding:

Funding Agency	Grant Number
Department of Science and Technology (SERB) , New Delhi	CRG/2019/000445

The authors gratefully acknowledge the support from the Department of Science and Technology (SERB) , New Delhi, under the Core Research Grant Project (SERB sanction order no. CRG/2019/000445 dated December 18, 2019) .

Output Date: 2025-11-11

Record 15 of 56

Title: Spatio-temporal variation in hydrochemistry, environmental isotopes and its suitability for drinking and irrigation, National Capital Region, Delhi

Author(s): Gupta, S (Gupta, Shilpi); Nandimandalam, JR (Nandimandalam, Janardhana Raju); Pandey, A (Pandey, Amit)

Source: ENVIRONMENTAL EARTH SCIENCES **Volume:** 84 **Issue:** 21 **Article Number:** 613 **DOI:** 10.1007/s12665-025-12594-6 **Published Date:** 2025 OCT 21

Times Cited in Web of Science Core Collection: 0

Total Times Cited: 0

Usage Count (Last 180 days): 0

Usage Count (Since 2013): 0

Cited References: Abudaya M, 2013, strip, P3
Adedinni MO, 2023, SCI REP-UK, V13, DOI 10.1038/s41598-023-31948-3
Adimalla N, 2020, GROUNDWATER SUST DEV, V10, DOI [10.1016/i.gsd.2020.100334, 10.1016/j.gsd.2020.100334]
Ahamad A, 2019, QUATERN INT, V507, P352, DOI 10.1016/j.quaint.2018.06.011
Alam A, 2023, ENVIRON MONIT ASSESS, V195, DOI 10.1007/s10661-023-11294-7
Alam M, 2012, ENVIRON EARTH SCI, V66, P97, DOI 10.1007/s12665-011-1210-x
Alao JO, 2023, Case Studies in Chemical and Environmental Engineering, V8, P100523, DOI [10.1016/j.cscee.2023.100523, 10.1016/j.cscee.2023.100523, DOI 10.1016/J.CSCEE.2023.100523]
[Anonymous], 2021, Haryana Sub Regional Plan
[Anonymous], 2018, J Geophys Res Atmos
[Anonymous], 2005, STANDARD METHODS EXA, V21st
Ansari Md. Arzoo, 2023, Chemosphere, V340, P139898, DOI [10.1016/j.chemosphere.2023.139898, 10.1016/j.chemosphere.2023.139898]
Arimieari LW, 2020, Impact of open dumpsite leachate on groundwater quality in, P4
Arumugam T, 2023, ENVIRON MONIT ASSESS, V195, DOI 10.1007/s10661-022-10538-2
Asadi E, 2020, SUSTAINABILITY-BASEL, V12, DOI 10.3390/su12010177
Ashraf MA, 2013, ENVIRON SCI POLLUT R, V20, P4689, DOI 10.1007/s11356-012-1423-x
Astel A, 2006, WATER RES, V40, P1706, DOI 10.1016/j.watres.2006.02.018
Bajjali W, 2008, HYDROGEOL J, V16, P1193, DOI 10.1007/s10040-008-0284-3
Barnes KK, 2004, GROUND WATER MONIT R, V24, P119, DOI 10.1111/j.1745-6592.2004.tb00720.x
Belkhiri L, 2015, WATER RESOUR MANAG, V29, P2073, DOI 10.1007/s11269-015-0929-7
Beyene G, 2019, GROUNDWATER SUST DEV, V9, DOI 10.1016/j.gsd.2019.100216
Bhattacharya SK, 2003, GEOPHYS RES LETT, V30, DOI 10.1029/2003GL018453
BIS (Bureau of Indian Standards), 2012, IS10500
Bodrud-Doza Md, 2016, Water Science, V30, P19, DOI [10.1016/j.wsj.2016.05.001, 10.1016/j.wsj.2016.05.001]
Brown R.M., 1972, ENV SCI RES, V1, P173, DOI DOI 10.1007/978-1-4684-2856-8_15
Buvaneshwari S, 2020, SCI REP-UK, V10, DOI 10.1038/s41598-020-60365-z
Central Ground Water Board (CGWB), 2001, Annual report and other related reports
Chai YX, 2020, WATER-SUI, V12, DOI 10.3390/w12102792

Chaudhari SK, 2001, COMMUN SOIL SCI PLAN, V32, P2439, DOI 10.1081/CSS-120000383
Chaudhary R, 2021, ENVIRON SCI POLLUT R, V28, P28391, DOI 10.1007/s11356-021-12383-1
CRAIG H, 1961, SCIENCE, V133, P1702, DOI 10.1126/science.133.3465.1702
DANSGAARD W, 1964, TELLUS, V16, P436
DeGroot P.A., 2004, Handbook of stable isotope analytical techniques, VII.
Devic G, 2014, SCI TOTAL ENVIRON, V468, P933, DOI 10.1016/j.scitotenv.2013.09.011
DONEEN LD., 1964, NOTES WATER QUALITY, DOI DOI 10.4236/JACEN.2017.61001
EATON FM, 1950, SOIL SCI, V69, P123, DOI 10.1097/00010694-195002000-00004
Edition F., 2011, WHO CHRON, V38, P104, DOI DOI 10.1016/S1462-0758(00)00006-6
Egbueri JC, 2023, INT J ENVIRON AN CH, V103, P3324, DOI 10.1080/03067319.2021.1907359
Forstinus N, 2016, International Journal of TROPICAL DISEASE & Health, V12, P1, DOI [10.9734/ijtdh/2016/21895, DOI 10.9734/IJTDH/2016/21895, 10.9734/IJTDH/2016/21895]
Gabr ME, 2021, AIN SHAMS ENG J, V12, P327, DOI 10.1016/j.asej.2020.05.010
Ganiyu SA, 2018, APPL WATER SCI, V8, DOI 10.1007/s13201-018-0677-y
Gat JR, 2000, HYDROL PROCESS, V14, P1357, DOI 10.1002/1099-1085(20000615)14:8<1357::AID-HYP986>3.0.CO;2-7
GONFIANTINI R, 1978, NATURE, V271, P534, DOI 10.1038/271534a0
GREENWAY H, 1980, ANNU REV PLANT PHYS, V31, P149, DOI 10.1146/annurev.pp.31.060180.001053
Gulgundi MS, 2018, APPL WATER SCI, V8, DOI 10.1007/s13201-018-0684-z
Gungor A, 2016, Assessment of water quality in drainage canals of Carsamba Plain, Turkey, through water quality indexes and graphical methods
Guo YN, 2022, EXPOS HEALTH, V14, P885, DOI 10.1007/s12403-022-00464-6
Gupta S, 2022, AGU FALL M, pH14F
Gupta S, 2023, GROUNDWATER SUST DEV, V23, DOI 10.1016/j.gsd.2023.101032
Gupta S, 2023, URBAN CLIM, V49, DOI 10.1016/j.uclim.2023.101481
Gupta SK, 1987, Manag Saline Soils Waters
Hamidi MD, 2023, J HYDROL, V626, DOI 10.1016/j.jhydrol.2023.130187
Islam ARMT, 2018, ENVIRON DEV SUSTAIN, V20, P1935, DOI 10.1007/s10668-017-9971-3
Ismail E, 2023, WATER-SUI, V15, DOI 10.3390/w15162909
Baloch MYJ, 2021, WATER-SUI, V13, DOI 10.3390/w13233361
Joshi P, 2022, URBAN CLIM, V46, DOI 10.1016/j.uclim.2022.101309
Joshi SK, 2018, J HYDROL, V559, P835, DOI 10.1016/j.jhydrol.2018.02.056
Kamble BS, 2020, SN APPL SCI, V2, DOI 10.1007/s42452-020-2199-0
Karlik G, 2001, ENVIRON GEOL, V40, P725, DOI 10.1007/s002540000232
Kazakis N, 2017, ENVIRON EARTH SCI, V76, DOI 10.1007/s12665-017-6665-y
Keesari T, 2020, NAT RESOUR RES, V29, P1951, DOI 10.1007/s11053-019-09550-0
Kelley W. P., 1940, Proceedings of the American Society of Civil Engineers, V66, P607
Jahed GRJ, 2008, RES J CHEM ENVIRON, V12, P56
Kim JH, 2005, HYDROL PROCESS, V19, P1261, DOI 10.1002/hyp.5565
Knobeloch L, 2000, ENVIRON HEALTH PERSP, V108, P675, DOI 10.2307/3434890
Kruseman GP, 1997, Recharge of phreatic aquifers in (semi-)arid areas
Kumar B, 2010, WATER RESOUR RES, V46, DOI 10.1029/2009WR008532
Kumar M, 2019, ISOT ENVIRON HEALT S, V55, P254, DOI 10.1080/10256016.2019.1600515
Kumar VS, 2016, APPL WATER SCI, V6, P149, DOI 10.1007/s13201-014-0214-6
Lee KS, 2007, ENVIRON GEOL, V52, P853, DOI 10.1007/s00254-006-0527-3
Mahenthiran S., 2023, Journal of the Institution of Engineers (India): Series A (Civil, Architectural, Environmental and Agricultural Engineering), P831, DOI [10.1007/s40030-023-00767-0, 10.1007/s40030-023-00767-0]
Mikkelsen R., 2021, Improving Potassium Recommendations for Agricultural Crops, P47, DOI DOI 10.1007/978-3-030-59197-7_2

Nakhaei M, 2015, B ENG GEOL ENVIRON, V74, P233, DOI 10.1007/s10064-014-0577-9
Nijesh P, 2021, ENVIRON EARTH SCI, V80, DOI 10.1007/s12665-021-09410-2
Nosrati K, 2012, ENVIRON EARTH SCI, V65, P331, DOI 10.1007/s12665-011-1092-y
Paliwal K.V., 1967, Madras Agri J, V4, P646
Paliwal KV, 1972, N.D.W.T.C. eng 27086
Pandey A, 2023, J HYDROL, V617, DOI 10.1016/j.jhydrol.2022.129040
Pantha S, 2022, Environmental Challenges, V9, P100658, DOI [10.1016/j.envc.2022.100658, DOI 10.1016/J.ENVC.2022.100658, 10.1016/j.envc.2022.100658]
Patel PS, 2023, ENVIRON SCI POLLUT R, V30, P85046, DOI 10.1007/s11356-023-27605-x
Piper AM, 1944, EOS T AM GEOPHYS UN, V25, P914, DOI 10.1029/tr025i006p00914
Popescu LR, 2016, Applications of the mathematical model ANOVA in the area of an industrial platform for assessment of groundwater quality
Pradhan RM, 2022, WATER-SUI, V14, DOI 10.3390/w14030315
Rai SP, 2023, GEOSCI FRONT, V14, DOI 10.1016/j.gsf.2023.101676
Raju NJ, 2016, ENVIRON EARTH SCI, V75, DOI 10.1007/s12665-016-5979-5
Raju NJ, 2012, HYDROLOG SCI J, V57, P1433, DOI 10.1080/02626667.2012.715748
Ravikumar P, 2011, ENVIRON MONIT ASSESS, V173, P459, DOI 10.1007/s10661-010-1399-2
Rawat KS, 2018, APPL WATER SCI, V8, DOI 10.1007/s13201-018-0866-8
REINHARD M, 1984, ENVIRON SCI TECHNOL, V18, P953, DOI 10.1021/es00130a011
ROBBINS CW, 1984, IRRIGATION SCI, V5, P173, DOI 10.1007/BF00264606
Roy A, 2024, GEOSCI FRONT, V15, DOI 10.1016/j.gsf.2023.101721
Rufino F, 2019, ENVIRON MONIT ASSESS, V191, DOI 10.1007/s10661-019-7978-y
Saeedi M, 2010, ENVIRON MONIT ASSESS, V163, P327, DOI 10.1007/s10661-009-0837-5
Saghravani SR, 2024, GROUNDWATER SUST DEV, V24, DOI 10.1016/j.gsd.2023.101065
Saleh A, 1999, J ARID ENVIRON, V42, P195, DOI 10.1006/jare.1999.0511
Salman A, 2014, J ASIAN EARTH SCI, V79, P366, DOI 10.1016/j.jseaes.2013.10.008
Selvakumar S, 2017, APPL WATER SCI, V7, P411, DOI 10.1007/s13201-014-0256-9
Sethy SN, 2016, ENVIRON EARTH SCI, V75, DOI 10.1007/s12665-015-5049-4
Shammi M, 2016, SUST WAT RESOUR MAN, V2, P369, DOI 10.1007/s40899-016-0064-5
Sharma DA, 2017, APPL WATER SCI, V7, P3137, DOI 10.1007/s13201-016-0456-6
Singh M, 2024, J WATER HEALTH, V22, P52, DOI 10.2166/wh.2023.072
Sinha UK, 2008, GEOL SOC SPEC PUBL, V288, P121, DOI 10.1144/SP288.10
Smith MA, 1997, J ARCHAEOL SCI, V24, P773, DOI 10.1006/jasc.1996.0159
Srivastava PK, 2012, APPL GEOMAT, V4, P21, DOI 10.1007/s12518-011-0072-y
Srivastava SK, 2023, J GEOL SOC INDIA, V99, P120, DOI 10.1007/s12594-023-2274-4
Srivastava SK, 2008, ENVIRON GEOL, V53, P1509, DOI 10.1007/s00254-007-0762-2
Todd DK., 1959, GROUNDWATER HYDROLOG
Toumi N, 2015, ENVIRON MONIT ASSESS, V187, DOI 10.1007/s10661-014-4241-4
White PJ, 2001, ANN BOT-LONDON, V88, P967, DOI 10.1006/anbo.2001.1540
Wilcox L. V., 1955, Circular. United States Department of Agriculture, V969
Xiao Y, 2023, ENVIRON SCI POLLUT R, V30, P12428, DOI 10.1007/s11356-022-22841-z
Xu F, 2000, COGNITION, V74, pB1, DOI 10.1016/S0010-0277(99)00066-9
Yidana SM, 2010, ENVIRON EARTH SCI, V59, P1461, DOI 10.1007/s12665-009-0132-3
Richards L. A., 1954, Diagnosis and Improvement of Saline and Alkali Soils.

Cited Reference Count: 113

Abstract: The spatiotemporal variation of groundwater chemistry across the fastest developing urban agglomerate is of utmost importance. It is important to identify sources of contaminants, recharge sources, so that suitability can be ascertained. Hydrochemistry and isotopic analysis were done in parts of National Capital Region to establish spatiotemporal variation in hydrochemistry, isotopic ratios and their suitability for drinking and irrigation purposes. A total of 115 samples were collected and analyzed for hydrogeochemistry and 70 samples were collected and analysed for stable isotopic ratios (delta O-18 and

delta D) during pre-monsoon (May) and post-monsoon (November) seasons of 2017, respectively. Ca2+ >Mg2+ >Na+>K+ is the order of cation abundance (mg/l) and HCO3- >Cl- >SO42- >CO2- >F- in anion abundance in both seasons. Approximately 50% of groundwater samples in the pre-monsoon season and 35% in the post-monsoon season exhibited a dominant Ca-Mg-HCO3 hydrochemical facies. Significant seasonal variation was observed in the concentrations of Ca-2(+), Mg-2(+), Na+, HCO3-, Cl-, and SO42-. pH has shown significant temporal variations (p value < 0.05) between both seasons. However, significant spatial variation in the concentration of pH, EC, TDS, Hardness, Ca2+, Mg2+, Na+, HCO3-, SO42-, Cl- and F- have been analyzed by using ANOVA. No significant spatial differences have been observed in K+, CO2- and NO3- in alluvium and quartzite formation. Principal Component analysis signifies that all groundwater samples are influenced by 4 components i.e. dissolution and cation exchange process, extensive application of fertilizer, ion exchange process, and geo-genic salinity hazard. The Water Quality Index (WQI) indicates that, during the pre-monsoon and post-monsoon seasons, 67% and 74% of groundwater samples fell into the excellent category, 23% and 16% into the good category, 7% and 4% into the poor category, and 5% in both seasons were classified as very poor. Groundwater in the study area is generally characterized by higher hardness levels. Based on Residual Sodium Carbonate and Sodium Absorption Ratio, 97% and 98% of the groundwater samples were found to be suitable for irrigation. However, due to naturally occurring salinity, many samples, particularly in the western regions, exhibited potential salinity hazards. The isotopic composition of groundwater reveals distinct seasonal shifts, with pre-monsoon delta O-1(8) values showing enrichment due to extensive evaporation, while post-monsoon samples exhibit depletion, indicating direct infiltration of monsoonal precipitation. The pre-monsoon d-excess varies heterogeneously between 5 to -5 parts per thousand, reflecting significant evaporative losses before recharge. In contrast, the increased d-excess in the post-monsoon season suggests the dominance of fresh rainfall infiltration with minimal evaporation effects. The seasonal isotopic variations highlight the critical role of monsoonal recharge in sustaining groundwater resources while also exposing the aquifer system to contamination risks from anthropogenic activities such as landfill leachate and agricultural runoff.
These findings emphasize the need for sustainable groundwater management strategies, including the protection of recharge zones and the implementation of artificial recharge techniques to mitigate seasonal water quality deterioration.

Accession Number: WOS:001598209100007

Language: English

Document Type: Article

Author Keywords: Spatio-temporal variation; Hydrochemistry; Stable isotopic ratios; Water quality index; Irrigation index

KeyWords Plus: EXCHANGEABLE SODIUM PERCENTAGE; WASTE-DISPOSAL SITE; GROUNDWATER QUALITY; RIVER-BASIN; BHALSWA LANDFILL; DISTRICT; LEACHATE; RECHARGE; INDIA; AREA

Addresses: [Gupta, Shilpi; Nandimandalam, Janardhana Raju] Jawaharlal Nehru Univ, Sch Environm Sci, New Delhi 110067, India.
[Gupta, Shilpi] Cent Ground Water Author, CSMRS Campus,Olof Palme Marg, New Delhi 110016, India.
[Pandey, Amit] Natl Inst Hydrol, Roorkee, Uttarakhand, India.

Corresponding Address: Gupta, S (corresponding author), Jawaharlal Nehru Univ, Sch Environm Sci, New Delhi 110067, India.
Gupta, S (corresponding author), Cent Ground Water Author, CSMRS Campus,Olof Palme Marg, New Delhi 110016, India.

E-mail Addresses: shilpigupta997@gmail.com

Affiliations: Jawaharlal Nehru University, New Delhi

Publisher: SPRINGER

Publisher Address: ONE NEW YORK PLAZA, SUITE 4600, NEW YORK, NY, UNITED STATES

Web of Science Index: Science Citation Index Expanded (SCI-EXPANDED)

Web of Science Categories: Environmental Sciences; Geosciences, Multidisciplinary; Water Resources

Research Areas: Environmental Sciences & Ecology; Geology; Water Resources

IDS Number: 8VI3E

ISSN: 1866-6280

eISSN: 1866-6299

29-char Source Abbrev.: ENVIRON EARTH SCI

ISO Source Abbrev.: Environ. Earth Sci.

Source Item Page Count: 24

Output Date: 2025-11-11

Record 16 of 56

Title: Spatiotemporal variability and source attribution of PM2.5/PM10 ratios: Aerosol type classification and AQI evaluation across seventy monitoring stations in Delhi and Haryana, India

Author(s): Kumar, RP (Kumar, Ram Pravesh); Rana, R (Rana, Ravent); Choudhary, A (Choudhary, Arti); Singh, R (Singh, Ranjit)

Source: PHYSICS AND CHEMISTRY OF THE EARTH **Volume:** 140 **Article Number:** 104005 **DOI:** 10.1016/j.pce.2025.104005 **Published Date:** 2025 OCT

Times Cited in Web of Science Core Collection: 1

Total Times Cited: 1

Usage Count (Last 180 days): 5

Usage Count (Since 2013): 5

Cited References: [Anonymous], 2021, WHO Global Air Quality Guidelines: Particulate Matter (PM2.5 and PM10), Ozone, Nitrogen Dioxide, Sulfur Dioxide and Carbon Monoxide
[Anonymous], 2024, Hindustan Times26 November
Bamola S, 2024, URBAN CLIM, V53, DOI 10.1016/j.uclim.2023.101763
CAQM, 2023, Graded Response Action Plan (GRAP) for NCR-(Revised Schedule (October 2023)
Chen SY, 2023, ENVIRON RES LETT, V18, DOI 10.1088/1748-9326/acf479
Choudhary A., 2020, NAT ENVIRON POLLUT T, V19, P93
Choudhary A., Nat. Environ. Pollut. Technol., V21, DOI [10.46488/NEPT.2022.v21i03, DOI 10.46488/NEPT.2022.V21I03]
Choudhary A, 2022, RES J CHEM ENVIRON, V26, P164, DOI 10.25303/2612rjce1640176
Choudhary A, 2023, FRONT ENV SCI-SWITZ, V11, DOI 10.3389/fenvs.2023.1132159
Cohen AJ, 2017, LANCET, V389, P1907, DOI [10.1016/s0140-6736(17)30505-6, 10.1016/S0140-6736(17)30505-6]
CPCB, 2023, Annual Air Quality Report for Delhi-NCR
CPCB, 2020, National Ambient Air Quality Status & Trends 2019
CPCB, 2014, National Air Quality Index
CPCB, 2024, National ambient air quality standards
Davis M., 2013, Introduction to Environmental Engineering, VFifth
Diksha, 2024, PHYS CHEM EARTH, V135, DOI 10.1016/j.pce.2024.103678
Dutta S, 2021, AEROSOL SCI ENG, V5, P93, DOI 10.1007/s41810-020-00087-x
Edlund KK, 2021, INT J ENV RES PUB HE, V18, DOI 10.3390/ijerph18031359
Fan H, 2021, FRONT ENV SCI-SWITZ, V9, DOI 10.3389/fenvs.2021.692440
Foster A, 2011, ATMOS ENVIRON, V45, P1675, DOI 10.1016/j.atmosenv.2011.01.005
Gani S, 2020, ATMOS CHEM PHYS, V20, P8533, DOI 10.5194/acp-20-8533-2020
Garg A, 2021, J HAZARD MATER LETT, V2, DOI 10.1016/j.hazl.2020.100010

Garg A, 2020, J HEALTH POLLUT, V10, DOI 10.5696/2156-9614-10.27.200910
Gautam AS, 2021, ENVIRON DEV SUSTAIN, V23, P8774, DOI 10.1007/s10668-020-00994-6
Guo H, 2018, ATMOS CHEM PHYS, V18, P15219, DOI 10.5194/acp-18-15219-2018
Gupta L, 2023, ATMOS ENVIRON, V298, DOI 10.1016/j.atmosenv.2023.119614
Gurjar BR, 2016, ATMOS ENVIRON, V142, P475, DOI 10.1016/j.atmosenv.2016.06.030
Hama SML, 2020, SUSTAIN CITIES SOC, V54, DOI 10.1016/j.scs.2019.102003
Hassan MA, 2023, ATMOS ENVIRON, V294, DOI 10.1016/j.atmosenv.2022.119472
HSPCB, 2023, Winter action plan 2023-24 for state of Haryana
IMD, 2022, Annual report 2022
India State Level Dis Burden, 2019, LANCET PLANET HEALTH, V3, pE26, DOI 10.1016/S2542-5196(18)30261-4
Jena C., 2020, Atmos. Chem. Phys. Discuss., DOI DOI 10.5194/ACP-2020-673
Jena S, 2019, ENVIRON GEOCHEM HLTH, V41, P2731, DOI 10.1007/s10653-019-00329-z
Junger WL, 2015, ATMOS ENVIRON, V102, P96, DOI 10.1016/j.atmosenv.2014.11.049
Junninen H, 2004, ATMOS ENVIRON, V38, P2895, DOI 10.1016/j.atmosenv.2004.02.026
Kaushik CP, 2006, ENVIRON MONIT ASSESS, V122, P27, DOI 10.1007/s10661-005-9161-x
Kulkarni SH, 2020, ENVIRON SCI TECHNOL, V54, P4790, DOI 10.1021/acs.est.0c00329
Kumar A, 2020, SUSTAIN CITIES SOC, V52, DOI 10.1016/j.scs.2019.101801
Kumar A, 2016, HUM ECOL RISK ASSESS, V22, P1651, DOI 10.1080/10807039.2016.1209077
Kumar M., 2024, Tracing the hazy air 2024: progress report on national clean air programme (NCAP)
Kumar P, 2025, FRONT ENV SCI-SWITZ, V13, DOI 10.3389/fenvs.2025.1589991
Kumar P, 2020, J ATMOS SOL-TERR PHY, V209, DOI 10.1016/j.jastp.2020.105424
Kumar RP, 2024, Discover Geoscience, V2, DOI [10.1007/s44288-024-00043-z, 10.1007/s44288-024-00043-z, DOI 10.1007/S44288-024-00043-Z]
Kumar RP, 2024, ENVIRON RES, V255, DOI 10.1016/j.envres.2024.119141
Kumar RP, 2020, HUM ECOL RISK ASSESS, V26, P1285, DOI 10.1080/10807039.2019.1570077
Kushwaha R, 2012, NATL ACAD SCI LETT, V35, P497, DOI 10.1007/s40009-012-0085-z
Lelieveld J, 2015, NATURE, V525, P367, DOI 10.1038/nature15371
Mahato S, 2022, URBAN CLIM, V41, DOI 10.1016/j.uclim.2021.101082
Malyan SK, 2022, WATER-SUI, V14, DOI 10.3390/w14060970
Mezoue CA, 2023, ENVIRON MONIT ASSESS, V195, DOI 10.1007/s10661-023-11582-2
MoEF&CC, 2019, National Clean Air Programme
Nair M., 2021, Environ. Int., V156
Naqvi HR, 2021, ENVIRON POLLUT, V268, DOI 10.1016/j.envpol.2020.115691
Pandey A, 2021, LANCET PLANET HEALTH, V5, pE25, DOI 10.1016/S2542-5196(20)30298-9
Parivahan, 2024, Vahan Dashboard
PIB Delhi, 2023, National Clean Air Programme (NCAP) to improve air quality in 131 cities by engaging all stakeholders
Ravindra K, 2019, J CLEAN PROD, V208, P261, DOI 10.1016/j.jclepro.2018.10.031
Sathe Y, 2021, SUSTAIN CITIES SOC, V66, DOI 10.1016/j.scs.2020.102688
Saxena P, 2021, HELIYON, V7, DOI 10.1016/j.heliyon.2021.e06973
Sethi L, 2023, AEROSOL SCI ENG, V7, P396, DOI 10.1007/s41810-023-00189-2
Shaik DS, 2019, J ENVIRON MANAGE, V244, P328, DOI 10.1016/j.jenvman.2019.04.025
Sharma A., 2018, Curr. Sci., V115, P1797, DOI [10.18520/cs/v115/i10/1797-1804, DOI 10.18520/CS/V115/I10/1797-1804]
Sharma D, 2022, AEROSOL AIR QUAL RES, V22, DOI 10.4209/aaqr.210204
Sharma GK, 2022, J HAZARD MATER ADV, V6, DOI 10.1016/j.hazadv.2022.100078
Sharma RC, 2018, American Journal of Environmental Protection, V6, P14, DOI [10.12691/env-6-1-3, 10.12691/env-6-1-3, DOI 10.12691/ENV-6-1-3]
Sharma V, 2025, PHYS CHEM EARTH, V138, DOI 10.1016/j.pce.2024.103849
Sindhwani R, 2015, AEROSOL AIR QUAL RES, V15, P1681, DOI 10.4209/aaqr.2014.11.0271

Singh CP, 2011, J INDIAN SOC REMOTE, V39, P423, DOI 10.1007/s12524-011-0119-x
Singh D, 2022, SPAT INF RES, V30, P47, DOI 10.1007/s41324-021-00410-9
Singh T, 2023, SCI REP-UK, V13, DOI 10.1038/s41598-023-39471-1
Singh V, 2021, SCI TOTAL ENVIRON, V750, DOI 10.1016/j.scitotenv.2020.141461
Spandana B, 2021, ADV SPACE RES, V67, P3134, DOI 10.1016/j.asr.2021.02.008
Tian PF, 2018, ATMOS CHEM PHYS, V18, P7815, DOI 10.5194/acp-18-7815-2018
UNEP, 2021, Air Pollution Series Actions on Air Quality in Asia and the Pacific Executive Summary
UNEP, 2023, Air Pollution in Asia and the Pacific: Science-Based Solutions
Wang YQ, 2015, ATMOS CHEM PHYS, V15, P13585, DOI 10.5194/acp-15-13585-2015
WHO, 2022, Air Quality and Health
World Health Organization (WHO). International Health Regulations, 2005, ABOUT US, VThird
Xing YF, 2016, J THORAC DIS, V8, pE69, DOI 10.3978/j.issn.2072-1439.2016.01.19

Cited Reference Count: 80

Abstract: The present study examines PM2.5 and PM10 levels at 70 CAAQMS stations across Delhi and Haryana from 2020 to 2023. The aerosol-type classifications were employed based on PM2.5/PM10 ratios, revealing a significant source of particulate matter. PM2.5 levels increased from 84.31 mu g/m3 in 2020 to 154.64 mu g/m3 in 2023, while PM10 rose from 171.12 mu g/m3 to 268.46 mu g/m3, both exceeding NAAQS limits and posing risks to human health and the environment. The lower concentration in 2020 was linked to reduced activities during the COVID-19 lockdowns. Chandni Chowk had the highest PM2.5 levels in 2020, but by 2023, New Moti Bagh had become the most polluted. For PM10, Chandni Chowk recorded the highest concentration in 2020 and 2021, while Anand Vihar surpassed it in 2022 and 2023. Seasonal variation showed higher PM2.5/PM10 ratios in winter and postmonsoon, and lower ratios in the monsoon and pre-monsoon seasons due to climatic factors. Delhi has higher PM2.5/PM10 ratios than Haryana, likely due to greater vehicular density and industrial activity. PM2.5/PM10 ratio analysis reveals that mixed-anthropogenic type (IIb1) and mixed dust type (IIb2) dominate the aerosols in Delhi and Haryana. The AQI results reveal that PM2.5 is the dominant pollutant in Delhi and Haryana across all seasons (2020-2023), with the highest values during winter, 220 and 179 days and in post-monsoon, 280 and 302 days, respectively. The study emphasises the need for stricter emission controls, particularly in Delhi, and aligns with SDG 11, supporting urgent policies to combat air pollution and protect community health and the environment.

Accession Number: WOS:001517419500001

Language: English

Document Type: Article

Author Keywords: PM2.5/PM10 ratio; Spatiotemporal dynamics; Aerosol-type classification; Air pollution; AQI

KeyWords Plus: AIR-POLLUTION; PARTICULATE MATTER; QUALITY; IMPUTATION; MEGACITY; TRENDS; IMPACT; RISK

Addresses: [Kumar, Ram Pravesh; Rana, Ravent; Singh, Ranjit] Jawaharlal Nehru Univ, Sch Environm Sci, New Delhi 110067, India.
[Choudhary, Arti] Utkal Univ, Ctr Environm Climate Change & Publ Hlth, Bhubaneswar 751004, Odisha, India.

Corresponding Address: Kumar, RP (corresponding author), Jawaharlal Nehru Univ, Sch Environm Sci, New Delhi 110067, India.

E-mail Addresses: rpkumar@mail.jnu.ac.in

Affiliations: Jawaharlal Nehru University, New Delhi; Utkal University

Author Identifiers:

Author	Web of Science ResearcherID	ORCID Number
Kumar, Dr. Ram Pravesh	JCE-2078-2023	

Publisher: PERGAMON-ELSEVIER SCIENCE LTD

Publisher Address: THE BOULEVARD, LANGFORD LANE, KIDLINGTON, OXFORD OX5 1GB, ENGLAND

Web of Science Index: Science Citation Index Expanded (SCI-EXPANDED)

Web of Science Categories: Geosciences, Multidisciplinary; Meteorology & Atmospheric Sciences; Water Resources

Research Areas: Geology; Meteorology & Atmospheric Sciences; Water Resources

IDS Number: 4GK9S

ISSN: 1474-7065

eISSN: 1873-5193

29-char Source Abbrev.: PHYS CHEM EARTH

ISO Source Abbrev.: Phys. Chem. Earth

Source Item Page Count: 14

Funding:

Funding Agency	Grant Number
Scientific and Engineering Research Board, Department of Science and Technology, Government of India	EEQ/2021/000699
School of Environmental Sciences, Jawaharlal Nehru University, New Delhi, India	
Air Quality Monitoring Program of the CPCB, New Delhi	

We sincerely thank the Scientific and Engineering Research Board, Department of Science and Technology, Government of India, for financial support [EEQ/2021/000699] and the School of Environmental Sciences, Jawaharlal Nehru University, New Delhi, India, for providing the necessary infrastructure for this research. We also thank the Air Quality Monitoring Program of the CPCB, New Delhi, for providing freely available online data.

Output Date: 2025-11-11

Record 17 of 56

Title: Enhancement of microwave absorption in Ba-substituted Sr hexaferrites and GO nanocomposite: Structural, magnetic and electromagnetic properties

Author(s): Kaushik, S (Kaushik, Sanskriti); Dabla, M (Dabla, Manisha); Sharma, M (Sharma, Monika); Kuanr, BK (Kuanr, Bijoy K.)

Source: MATERIALS SCIENCE AND ENGINEERING B-ADVANCED FUNCTIONAL SOLID-STATE MATERIALS **Volume:** 323 **Article Number:** 118851 **DOI:** 10.1016/j.mseb.2025.118851 **Early Access Date:** OCT 2025 **Published Date:** 2026 JAN **Part:** B

Times Cited in Web of Science Core Collection: 0

Total Times Cited: 0

Usage Count (Last 180 days): 0

Usage Count (Since 2013): 0

Cited References: Ali I, 2013, J ALLOY COMPD, V547, P118, DOI 10.1016/j.jallcom.2012.08.122
Almessiere MA, 2020, J RARE EARTH, V38, P402, DOI 10.1016/j.jre.2019.06.007
Anjum S, 2017, OPTIK, V131, P977, DOI 10.1016/j.ijleo.2016.11.205
Assad H, 2021, J NON-CRYST SOLIDS, V560, DOI 10.1016/j.jnoncrysol.2021.120721
Batyuk L., 2018, MODELING OF DIELECTRIC PERMITTIVITY OF THE ERYTHROCYTES

MEMBRANE AS A THREE-LAYER MODEL, DOI [10.30525/978-9934-571-31-2_2, DOI 10.30525/978-9934-571-31-2_2]
Bose P., 2018, Inverse Hall-Petch Effect, V7, P13
BUSH GG, 1988, J APPL PHYS, V63, P3765, DOI 10.1063/1.340661
Cai WJ, 2024, RARE METALS, V43, P2769, DOI 10.1007/s12598-023-02592-7
Chen G, 2024, CELL REP PHYS SCI, V5, DOI 10.1016/j.xcrp.2024.102097
Cheng JY, 2022, ADV FUNCT MATER, V32, DOI 10.1002/adfm.202200123
Cheng YK, 2016, J SUPERCOND NOV MAGN, V29, P803, DOI 10.1007/s10948-015-3355-4
Danish M., 2024, Synthesis of M-type hexaferrite reinforced graphene oxide composites for electromagnetic interference shielding
Fernández CD, 2021, J PHYS D APPL PHYS, V54, DOI 10.1088/1361-6463/abd272
de Medeiros SASL, 2022, CERAM INT, V48, P8258, DOI 10.1016/j.ceramint.2021.12.030
Ding D, 2017, CARBON, V111, P722, DOI 10.1016/j.carbon.2016.10.059
Ding Y, 2016, SCI REP-UK, V6, DOI 10.1038/srep32381
Elansary M, 2020, RSC ADV, V10, P25239, DOI 10.1039/d0ra04722h
Geng X, 2015, CHINESE PHYS B, V24, DOI 10.1088/1674-1056/24/2/027803
Ghimire ML, 2020, Materials Sciences and Applications, V11, P474, DOI 10.4236/msa.2020.117033
Ghosh D, 2019, J PHYS CHEM LETT, V10, P5000, DOI 10.1021/acs.jpclett.9b02020
Goel S, 2021, J ALLOY COMPD, V875, DOI 10.1016/j.jallcom.2021.160028
Goel S, 2021, J SOL-GEL SCI TECHN, V98, P351, DOI 10.1007/s10971-021-05492-3
Goel S, 2020, MATER TODAY-PROC, V28, P1753, DOI 10.1016/j.matpr.2020.05.157
Goel S, 2020, MATER RES EXPRESS, V7, DOI 10.1088/2053-1591/ab6544
Grossinger R., 1981, Stat. Sol., V66
Guan Y, 2025, CHEM ENG J, V505, DOI 10.1016/j.cej.2025.159819
Hakeem AMA, 2022, PHYS SCRIPTA, V97, DOI 10.1088/1402-4896/ac48a9
Hakeem AMA, 2021, J ALLOY COMPD, V872, DOI 10.1016/j.jallcom.2021.159669
Handoko Erfan, 2018, Materials Science Forum, V929, P109, DOI [10.4028/www.scientific.net/msf.929.109, 10.4028/www.scientific.net/MSF.929.109]
He JZ, 2016, J MATER CHEM C, V4, P7130, DOI 10.1039/c6tc02020h
Hessien MM, 2008, J MAGN MAGN MATER, V320, P336, DOI 10.1016/j.jmmm.2007.06.009
Hwang J, 2020, APPL SCI-BASEL, V10, DOI 10.3390/app10186279
Iglesias TP, 2017, J APPL PHYS, V122, DOI 10.1063/1.4985839
Islam MR, 2024, RSC ADV, V14, P7314, DOI 10.1039/d3ra08878b
Jamwal U., 2025, Polarization and Ferromagnetism in Microwave-Absorbing Materials, DOI [10.5772/intechopen.1006874, DOI 10.5772/INTECHOPEN.1006874]
Jayakumar T, 2020, J SUPERCOND NOV MAGN, V33, P2451, DOI 10.1007/s10948-020-05493-3
Jeon S, 2019, APPL SURF SCI, V475, P1065, DOI 10.1016/j.apsusc.2019.01.017
Johra FT, 2014, J IND ENG CHEM, V20, P2883, DOI 10.1016/j.jiec.2013.11.022
Kaur P, 2025, MATER SCI ENG B-ADV, V313, DOI 10.1016/j.mseb.2024.117888
Kaur P, 2020, J ELECTRON MATER, V49, P1654, DOI 10.1007/s11664-019-07594-9
Kavinkumar T, 2015, RSC ADV, V5, P10816, DOI 10.1039/c4ra12766h
Ke Wu Sun, 2022, Modern Ferrites, P75, DOI [10.1002/9781118971499.ch5, DOI 10.1002/9781118971499.CH5]
Kishor G, 2022, CRYSTENGCOMM, V24, P5269, DOI 10.1039/d2ce00583b
Kreisel J., 1998, Raman Spectra and Vibrational Analysis of BaFe 12 O 19 Hexagonal Ferrite, V137, P127
Kumar N, 2023, CERAM INT, V49, P32458, DOI 10.1016/j.ceramint.2023.07.204
Kumar S., 2023, Dual-Band Microwave/Mm-Wave Absorption Properties of -Fe2O3 and Fe3O4 Nanoparticles for Stealth Applications, DOI [10.1007/s11664-023-10238-8, DOI 10.1007/S11664-023-10238-8]
Lee AY, 2021, APPL SURF SCI, V536, DOI 10.1016/j.apsusc.2020.147990
Li JS, 2017, SCI REP-UK, V7, DOI 10.1038/s41598-017-02639-7

Li J, 2024, MATERIALS, V17, DOI 10.3390/ma17215327
Lisjak D, 2004, J MATER RES, V19, P2462, DOI 10.1557/JMR.2004.0317
Liu RS, 2023, CERAM INT, V49, P1888, DOI 10.1016/j.ceramint.2022.09.153
Lu YZ, 2024, J ALLOY COMPD, V994, DOI 10.1016/j.jallcom.2024.174627
Lukichev AA, 2012, J NON-CRYST SOLIDS, V358, P447, DOI 10.1016/j.jnoncrysol.2011.10.022
Luo JH, 2017, RSC ADV, V7, P36433, DOI 10.1039/c7ra06800j
Marouani Y, 2021, RSC ADV, V11, P1531, DOI 10.1039/d0ra09465j
Matzui LY, 2019, NANOMATERIALS-BASEL, V9, DOI 10.3390/nano9121720
Md Said N.H., 2017, Synthesis and characterization, DOI [10.1063/1.5005764, DOI 10.1063/1.5005764]
Meng X., 2024, Progress and Challenges of Ferrite Matrix Microwave Absorption Materials, DOI [10.3390/ma17102315, DOI 10.3390/MA17102315]
Mishra B, 2019, MICROW OPT TECHN LET, V61, P1857, DOI 10.1002/mop.31812
Moon KS, 2019, J ALLOY COMPD, V771, P350, DOI 10.1016/j.jallcom.2018.08.306
Mosleh Z, 2016, J MAGN MAGN MATER, V397, P101, DOI 10.1016/j.jmmm.2015.08.078
Nakamura T, 2000, J APPL PHYS, V88, P348, DOI 10.1063/1.373666
Nguyen HH, 2020, CERAM INT, V46, P19506, DOI 10.1016/j.ceramint.2020.04.304
Onar Camlibel N., 2007, STRUCTURAL, THERMAL AND MAGNETIC PROPERTIES OF BARIUM - FERRITE POWDERS SUBSTITUTED WITH Mn, Cu OR Co AND X (X = Sr AND Ni) PREPARED BY THE SOL-GEL METHOD STRUKTURNE, TERMI^NE IN Achieving Stealthing Properties with Modification of Electrical, Magnetic
Padhy S, 2018, IEEE T ELECTROMAGN C, V60, P1734, DOI 10.1109/TEMC.2018.2805364
Pantola P, 2024, AIP ADV, V14, DOI 10.1063/9.0000807
Perumbilavil S, 2015, APPL PHYS LETT, V107, DOI 10.1063/1.4928124
Pullar RC, 2012, PROG MATER SCI, V57, P1191, DOI 10.1016/j.pmatsci.2012.04.001
Qin M, 2022, ADV SCI, V9, DOI 10.1002/advs.202105553
Rana K, 2023, J MAGN MAGN MATER, V587, DOI 10.1016/j.jmmm.2023.171289
Rehman KMU, 2017, J MAGN MAGN MATER, V426, P183, DOI 10.1016/j.jmmm.2016.10.001
Rini AS, 2019, Journal of Technomaterials Physics, V1, P132, DOI [10.32734/jotp.v1i2.1288, 10.32734/jotp.v1i2.1288, DOI 10.32734/JOTP.V1I2.1288]
Rostami M, 2016, J ELECTRON MATER, V45, P4154, DOI 10.1007/s11664-016-4635-x
Rowley SE, 2016, SCI REP-UK, V6, DOI 10.1038/srep25724
Sardar I, 2024, J RARE EARTH, V42, P1128, DOI 10.1016/j.jre.2023.05.010
Shah S, 2020, J SOL-GEL SCI TECHN, V93, P579, DOI 10.1007/s10971-019-05210-0
Shu RW, 2025, COMPOS PART A-APPL S, V188, DOI 10.1016/j.compositesa.2024.108558
Singh HK, 2022, MATER SCI ENG B-ADV, V284, DOI 10.1016/j.mseb.2022.115876
Singh J, 2021, J ALLOY COMPD, V855, DOI 10.1016/j.jallcom.2020.157242
Singh VP, 2018, World Journal of Condensed Matter Physics, V08, P36, DOI [10.4236/wjcmp.2018.82004, 10.1109/NEBEC.2015.7117154., DOI 10.4236/WJCMP.2018.82004, 10.4236/wjcmp.2018.82004]
Sista KS, 2021, J ALLOY COMPD, V853, DOI 10.1016/j.jallcom.2020.157251
Slimani Y, 2024, J ALLOY COMPD, V976, DOI 10.1016/j.jallcom.2023.173138
Su Y, 2025, CARBON, V231, DOI 10.1016/j.carbon.2024.119699
Sun Y., 2025, Effects of La-Mn co-substitution on the structure and magnetic properties of M-type strontium hexaferrites
Suo X, 2023, J SUPERCOND NOV MAGN, V36, P197, DOI 10.1007/s10948-022-06450-y
Tathir S., 2025, J. Mater. Sci. Mater. Electron., V36, P1, DOI [10.1007/s10854-025, DOI 10.1007/S10854-025]
Teixeira SS, 2024, CRYSTALS, V14, DOI 10.3390/cryst14060550
Töpfer J, 2015, J SOLID STATE CHEM, V226, P133, DOI 10.1016/j.jssc.2015.02.007
Trudel TTC, 2019, PHYS STATUS SOLIDI A, V216, DOI 10.1002/pssa.201800928
Trukhanov AV, 2018, J ALLOY COMPD, V754, P247, DOI 10.1016/j.jallcom.2018.04.150
Trukhanov AV, 2017, PHYS SOLID STATE+, V59, P737, DOI 10.1134/S1063783417040308

Trukhanov SV, 2017, DALTON T, V46, P9010, DOI 10.1039/c7dt01708a
Ueda H, 2018, J PHYS SOC JPN, V87, DOI 10.7566/JPSJ.87.104706
Wongkasem N, 2021, ELECTROMAGN BIOL MED, V40, P236, DOI 10.1080/15368378.2021.1874976
Wu YP, 2025, CARBON, V231, DOI 10.1016/j.carbon.2024.119741
Xie XB, 2023, J MATER SCI TECHNOL, V133, P1, DOI 10.1016/j.jmst.2022.05.058
Xu WW, 2024, ACS APPL ELECTRON MA, V6, P2759, DOI 10.1021/acsaelm.4c00307
Yuan L, 2023, FRONT ELECTRON, V4, DOI 10.3389/felec.2023.1274258
Yuwen C, 2021, CERAM INT, V47, P17487, DOI 10.1016/j.ceramint.2021.03.066
Zeng J, 2020, FRONT MATER, V7, DOI [10.2478/fon-2020-0006, 10.3389/fmats.2020.00123]
Zeng XJ, 2020, CARBON, V168, P606, DOI 10.1016/j.carbon.2020.07.028
Zhang SJ, 2024, CELL REP PHYS SCI, V5, DOI 10.1016/j.xcrp.2024.102206
Zhang WH, 2022, MAGNETOCHEMISTRY, V8, DOI 10.3390/magnetochemistry8050051
Zhang WH, 2021, J ALLOY COMPD, V871, DOI 10.1016/j.jallcom.2021.159563
Zhou HW, 2025, INFOMAT, V7, DOI 10.1002/inf2.12630

Cited Reference Count: 105

Abstract: The development of electronic and wireless communication equipments which generates electromagnetic radiation pollution are hazardous for human health. Ongoing research is mainly aimed to reduce or nullify the potential long-term effects of electromagnetic pollution by using variety of absorbing materials. In the present work, we report the microwave absorption properties of BaxSr1-xFe12O19 hexaferrite nanoparticles (x = 0.0,0.1,0.5,1.0) in combination with graphene oxide (0, 2.5, 5, and 7.5 wt%) for wide microwave frequency band range (X to Kubands: 8 GHz-18 GHz). We systematically investigated the structural, magnetic and microwave properties of hexaferrite nanoparticles and their composites with graphene oxide (GO). The XRD pattern of Badoped Sr hexaferrite nanoparticles matched well with the space group P63/mmc of magnetoplumbite hexagonal crystal structure. The large ionic radius of Ba2+ (1.35 & Aring;) as compared to Sr2+(1.18 & Aring;) results in the increase in crystallite size. The FTIR spectra of M-type hexaferrites revealed a red shift in metal-oxygen bond length with the increase of Ba doping. The Raman spectroscopy and morphological measurements further confirmed the formation of hexaferrite phase in all samples. The saturation magnetization gradually increases with the increase of Ba doping in Sr hexaferrites except for x = 0.1 whereas the coercivity decreases substantially. The microwave absorption measurements of SrFe12O19 hexaferrite shows maximum reflection loss of-16.1 dB at 13.4 GHz and effective absorption bandwidth of 1.28 GHz for 2 mm absorber thickness. The addition of graphene oxide to Sr substituted hexaferrites enhance the reflection loss considerably up to-41.22 dB at 9.03 GHz for 3 mm absorber thickness. The absorption bandwidth increases up to 4.7 GHz for Ba0.5Sr0.5Fe12O19-7.5 GO composite. This research demonstrates novel absorbing nanocomposites for stealth technology for military purpose as well as reduction of electromagnetic radiation for health hazard of living beings.

Accession Number: WOS:001598690300001

Language: English

Document Type: Article

Author Keywords: Hexaferrite; Graphene oxide; Composite; Microwave absorption

KeyWords Plus: REDUCED GRAPHENE OXIDE; STRONTIUM HEXAFERRITE; BARIUM HEXAFERRITE; HEXAGONAL FERRITES; CARBON COMPOSITES; CU; PERMEABILITY; BAFE12O19; FEATURES; SINGLE

Addresses: [Kaushik, Sanskriti; Dabla, Manisha; Sharma, Monika; Kuanr, Bijoy K.] Jawaharlal Nehru Univ, Special Ctr Nanosci, New Delhi 110067, India.
[Sharma, Monika] Univ Delhi, Deshbandhu Coll, Dept Phys, New Delhi 110019, India.

Corresponding Address: Sharma, M; Kuanr, BK (corresponding author), Jawaharlal Nehru Univ, Special Ctr Nanosci, New Delhi 110067, India.
Sharma, M (corresponding author), Univ Delhi, Deshbandhu Coll, Dept Phys, New Delhi 110019, India.

E-mail Addresses: monikasharma1604@gmail.com; bkkuanr@gmail.com

Affiliations: Special Centre for Nanoscience, Jawaharlal Nehru University; Jawaharlal Nehru University, New Delhi; University of Delhi

Author Identifiers:

Author	Web of Science ResearcherID	ORCID Number
Kuanr, Bijoy	ABF-6805-2020	

Publisher: ELSEVIER

Publisher Address: RADARWEG 29, 1043 NX AMSTERDAM, NETHERLANDS

Web of Science Index: Science Citation Index Expanded (SCI-EXPANDED)

Web of Science Categories: Materials Science, Multidisciplinary; Physics, Condensed Matter

Research Areas: Materials Science; Physics

IDS Number: 8WA7I

ISSN: 0921-5107

eISSN: 1873-4944

29-char Source Abbrev.: MATER SCI ENG B-ADV

ISO Source Abbrev.: Mater. Sci. Eng. B-Adv. Funct. Solid-State Mater.

Source Item Page Count: 24

Output Date: 2025-11-11

Record 18 of 56

Title: Role of Ta buffer layer in thickness-dependent Gilbert damping of sputtered FeAl thin films

Author(s): Bhardwaj, S (Bhardwaj, Sunayana); Kumar, P (Kumar, Prashant); Ghosh, RK (Ghosh, Ram Krishna); Kuanr, BK (Kuanr, Bijoy K.)

Source: JOURNAL OF APPLIED PHYSICS **Volume:** 138 **Issue:** 16 **Article Number:** 163905 **DOI:** 10.1063/5.0287825 **Published Date:** 2025 OCT 28

Times Cited in Web of Science Core Collection: 0

Total Times Cited: 0

Usage Count (Last 180 days): 0

Usage Count (Since 2013): 0

Cited References: Amils X, 1999, NANOSTRUCT MATER, V11, P689, DOI 10.1016/S0965-9773(99)00357-8
Andrieu S, 2016, PHYS REV B, V93, DOI 10.1103/PhysRevB.93.094417
ARROTT A, 1959, PHYS REV, V114, P1420, DOI 10.1103/PhysRev.114.1420
Asif M, 2024, IEEE MAGN LETT, V15, DOI 10.1109/LMAG.2024.3484271
Bainsla L, 2018, J PHYS D APPL PHYS, V51, DOI 10.1088/1361-6463/aae4ef
Bajaj R, 2024, PHYS REV B, V109, DOI 10.1103/PhysRevB.109.214432
BHAGAT SM, 1974, PHYS REV B, V10, P179, DOI 10.1103/PhysRevB.10.179
Bhattacharjee S, 2012, PHYS REV LETT, V108, DOI 10.1103/PhysRevLett.108.057204
Bi XF, 2004, J MAGN MAGN MATER, V268, P321, DOI 10.1016/S0304-8853(03)00542-0
Brataas A, 2012, NAT MATER, V11, P372, DOI [10.1038/nmat3311, 10.1038/NMAT3311]
CADIEU FJ, 1986, J MAGN MAGN MATER, V54-7, P1598, DOI 10.1016/0304-8853(86)90940-6
Chappert C, 2007, NAT MATER, V6, P813, DOI 10.1038/nmat2024
Chen L, 2018, NAT PHYS, V14, P490, DOI 10.1038/s41567-018-0053-8
Chumak AV, 2015, NAT PHYS, V11, P453, DOI [10.1038/nphys3347, 10.1038/NPHYS3347]
Conca A, 2014, APPL PHYS LETT, V104, DOI 10.1063/1.4875927
d'Allivy Kelly O, 2013, APPL PHYS LETT, V103, DOI 10.1063/1.4819157
Devolder T, 2013, APPL PHYS LETT, V103, DOI 10.1063/1.4845375

Ding JJ, 2020, IEEE MAGN LETT, V11, DOI 10.1109/LMAG.2020.2989687
Dubs C, 2020, PHYS REV MATER, V4, DOI 10.1103/PhysRevMaterials.4.024416
Emori S, 2018, NANO LETT, V18, P4273, DOI 10.1021/acs.nanolett.8b01261
Emori S, 2017, ADV MATER, V29, DOI 10.1002/adma.201701130
Foros J, 2005, J APPL PHYS, V97, DOI 10.1063/1.1853131
Ghosh RK, 2021, PHYS REV B, V103, DOI 10.1103/PhysRevB.103.054409
Gil-Monsalve J, 2022, PHYS REV B, V105, DOI 10.1103/PhysRevB.105.014420
Gilbert TL, 2004, IEEE T MAGN, V40, P3443, DOI 10.1109/TMAG.2004.836740
Gilmore K, 2007, PHYS REV LETT, V99, DOI 10.1103/PhysRevLett.99.027204
Gilmore K, 2008, J APPL PHYS, V103, DOI 10.1063/1.2832348
Gray MT, 2018, PHYS REV APPL, V9, DOI 10.1103/PhysRevApplied.9.064039
Gubanov VA, 2023, PHYS REV B, V107, DOI 10.1103/PhysRevB.107.024427
Hadley MJ, 2002, J MAGN MAGN MATER, V246, pL347, DOI 10.1016/S0304-8853(02)00143-9
Hait S, 2022, J APPL PHYS, V132, DOI 10.1063/5.0107655
Hait S, 2022, ACS APPL MATER INTER, V14, P37182, DOI 10.1021/acsami.2c09941
Haspot V, 2022, PHYS REV MATER, V6, DOI 10.1103/PhysRevMaterials.6.024406
HEINRICH B, 1966, PHYS STATUS SOLIDI, V16, pK11, DOI 10.1002/pssb.19660160138
Iihama S, 2014, PHYS REV B, V89, DOI 10.1103/PhysRevB.89.174416
Ikeda S, 2010, NAT MATER, V9, P721, DOI [10.1038/nmat2804, 10.1038/NMAT2804]
Jermain CL, 2016, APPL PHYS LETT, V109, DOI 10.1063/1.4967695
Kaiju H, 2014, J APPL PHYS, V115, DOI 10.1063/1.4862376
KAMBERSK.V, 1966, PHYS LETT, V23, P26, DOI 10.1016/0031-9163(66)90238-1
KAMBERSKY V, 1976, CZECH J PHYS, V26, P1366, DOI 10.1007/BF01587621
Kambersky V., 1970, Canadian Journal of Physics, V48, P2906, DOI 10.1139/p70-361
KAMBERSKY V, 1975, PHYS REV B, V11, P2668, DOI 10.1103/PhysRevB.11.2668
Kent AD, 2015, NAT NANOTECHNOL, V10, P187, DOI 10.1038/nnano.2015.24
Khodadadi B, 2020, PHYS REV LETT, V124, DOI 10.1103/PhysRevLett.124.157201
KITTEL C, 1948, PHYS REV, V73, P155, DOI 10.1103/PhysRev.73.155
Kobayashi K, 2009, IEEE T MAGN, V45, P2541, DOI 10.1109/TMAG.2009.2018862
Kruglyak VV, 2010, J PHYS D APPL PHYS, V43, DOI 10.1088/0022-3727/43/26/260301
Kubota T, 2009, APPL PHYS LETT, V94, DOI 10.1063/1.3105982
Kumar A, 2019, PHYS REV B, V100, DOI 10.1103/PhysRevB.100.214433
Kumar P, 2025, J ELECTRON MATER, V54, P164, DOI 10.1007/s11664-024-11512-z
Kumar P, 2024, J ALLOY COMPD, V988, DOI 10.1016/j.jallcom.2024.174314
Kumar P, 2024, AIP ADV, V14, DOI 10.1063/9.0000809
Kurniawan I, 2023, PHYS REV B, V108, DOI 10.1103/PhysRevB.108.094426
Kwilu AL, 2015, J APPL PHYS, V117, DOI 10.1063/1.4917334
Law R, 2007, APPL PHYS LETT, V91, DOI 10.1063/1.2824832
Lee AJ, 2017, NAT COMMUN, V8, DOI 10.1038/s41467-017-00332-x
Lefakis H, 1996, J MAGN MAGN MATER, V154, P17, DOI 10.1016/0304-8853(95)00569-2
Li Y, 2015, PHYS REV B, V92, DOI 10.1103/PhysRevB.92.140413
Li Y, 2019, PHYS REV LETT, V122, DOI 10.1103/PhysRevLett.122.117203
Liu XY, 2011, J APPL PHYS, V110, DOI 10.1063/1.3615961
Locatelli N, 2014, NAT MATER, V13, P11, DOI [10.1038/NMAT3823, 10.1038/nmat3823]
Mangin S, 2009, APPL PHYS LETT, V94, DOI 10.1063/1.3058680
Menéndez E, 2009, SMALL, V5, P229, DOI 10.1002/smll.200800783
Miranda IP, 2021, PHYS REV B, V103, DOI 10.1103/PhysRevB.103.L220405
Mizukami S, 2011, PHYS REV LETT, V106, DOI 10.1103/PhysRevLett.106.117201
Mizukami S, 2009, J APPL PHYS, V105, DOI 10.1063/1.3067607
Mondal R, 2018, J PHYS-CONDENS MAT, V30, DOI 10.1088/1361-648X/aac5a2
Mondal R, 2016, PHYS REV B, V94, DOI 10.1103/PhysRevB.94.144419

Mougin A, 2007, EPL-EUROPHYS LETT, V78, DOI 10.1209/0295-5075/78/57007
Oogane M, 2006, JPN J APPL PHYS 1, V45, P3889, DOI 10.1143/JJAP.45.3889
Pachauri N, 2016, J MAGN MAGN MATER, V417, P137, DOI 10.1016/j.jmmm.2016.05.045
Pachauri N, 2015, J APPL PHYS, V117, DOI 10.1063/1.4922778
Palm M, 2019, ANNU REV MATER RES, V49, P297, DOI 10.1146/annurev-matsci-070218-125911
Pan F, 2016, PHYS REV B, V94, DOI 10.1103/PhysRevB.94.214410
Panda SN, 2019, SCI ADV, V5, DOI 10.1126/sciadv.aav7200
Pandey L, 2023, J APPL PHYS, V134, DOI 10.1063/5.0156982
Peria WK, 2024, SCI REP-UK, V14, DOI 10.1038/s41598-024-63475-0
Polushkin NI, 2018, PHYS REV APPL, V10, DOI 10.1103/PhysRevApplied.10.024023
Qaid MM, 2024, PHYS REV MATER, V8, DOI 10.1103/PhysRevMaterials.8.034404
Qin Q, 2017, APPL PHYS LETT, V110, DOI 10.1063/1.4978431
Qu T, 2015, APPL PHYS LETT, V106, DOI 10.1063/1.4909510
Raza SA, 2020, J MAGN MAGN MATER, V513, DOI 10.1016/j.jmmm.2020.167081
Sakuraba Y, 2005, JPN J APPL PHYS 1, V44, P6535, DOI 10.1143/JJAP.44.6535
Salikhov R, 2019, PHYS REV B, V99, DOI 10.1103/PhysRevB.99.104412
Sankey JC, 2006, PHYS REV LETT, V96, DOI 10.1103/PhysRevLett.96.227601
Saravanan L, 2025, J MAGN MAGN MATER, V614, DOI 10.1016/j.jmmm.2024.172701
Sbiaa R, 2011, PHYS STATUS SOLIDI-R, V5, P413, DOI 10.1002/pssr.201105420
Schoen MAW, 2017, PHYS REV B, V95, DOI 10.1103/PhysRevB.95.134410
Schoen MAW, 2016, NAT PHYS, V12, P839, DOI 10.1038/nphys3770
Sharma V, 2022, RESULTS SURF INTERF, V6, DOI 10.1016/j.rsurfi.2022.100052
Shaw JM, 2011, APPL PHYS LETT, V99, DOI 10.1063/1.3607278
SHULL RD, 1976, SOLID STATE COMMUN, V20, P863, DOI 10.1016/0038-1098(76)91292-8
Smith N, 2010, PHYS REV B, V81, DOI 10.1103/PhysRevB.81.184431
Steiauf D, 2005, PHYS REV B, V72, DOI 10.1103/PhysRevB.72.064450
Steiauf D, 2008, PHYS REV B, V78, DOI 10.1103/PhysRevB.78.020410
Sterwerf C, 2016, J APPL PHYS, V120, DOI 10.1063/1.4960705
Strusch T, 2022, J APPL PHYS, V132, DOI 10.1063/5.0125699
Sun YY, 2012, APPL PHYS LETT, V101, DOI 10.1063/1.4759039
TAYLOR A, 1958, J PHYS CHEM SOLIDS, V6, P16, DOI 10.1016/0022-3697(58)90213-0
Thiruvengadam V, 2019, APPL PHYS LETT, V115, DOI 10.1063/1.5126324
Thonig D, 2014, NEW J PHYS, V16, DOI 10.1088/1367-2630/16/1/013032
Thonig D, 2018, PHYS REV MATER, V2, DOI 10.1103/PhysRevMaterials.2.013801
Tserkovnyak Y, 2002, PHYS REV B, V66, DOI 10.1103/PhysRevB.66.224403
Tulapurkar AA, 2005, NATURE, V438, P339, DOI 10.1038/nature04207
Turek I, 2015, PHYS REV B, V92, DOI 10.1103/PhysRevB.92.214407
Usami T, 2019, APPL PHYS LETT, V115, DOI 10.1063/1.5120597
Vahaplar K, 2009, J VAC SCI TECHNOL B, V27, P2112, DOI 10.1116/1.3196784
Victor RT, 2023, NANOSCALE HORIZ, V8, P1568, DOI 10.1039/d3nh00137g
Wang C, 2009, PHYS REV B, V79, DOI 10.1103/PhysRevB.79.224416
Wang HL, 2014, PHYS REV LETT, V112, DOI 10.1103/PhysRevLett.112.197201
Weber R, 2019, J PHYS D APPL PHYS, V52, DOI 10.1088/1361-6463/ab2096
Wei YP, 2021, SCI ADV, V7, DOI 10.1126/sciadv.abc5053
Weindler T, 2014, PHYS REV LETT, V113, DOI 10.1103/PhysRevLett.113.237204
Woltersdorf G, 2004, PHYS REV B, V69, DOI 10.1103/PhysRevB.69.184417
Yin YL, 2015, PHYS REV B, V92, DOI 10.1103/PhysRevB.92.024427
Zhang DL, 2020, APPL PHYS LETT, V117, DOI 10.1063/5.0016100
Zhang ZH, 2020, PHYS REV B, V102, DOI 10.1103/PhysRevB.102.014454
Zhao YB, 2021, J PHYS D APPL PHYS, V54, DOI 10.1088/1361-6463/ac15d0
Zhao YL, 2016, SCI REP-UK, V6, DOI 10.1038/srep22890

Zhu LJ, 2019, PHYS REV LETT, V123, DOI 10.1103/PhysRevLett.123.057203

Cited Reference Count: 120

Abstract: To address the technological perspective of FeAl alloy thin films in spintronic applications, we investigate how a 4 nm non-magnetic Ta buffer layer affects the ferromagnetic relaxation (damping) in FeAl for varying thicknesses (7-24 nm) using ferromagnetic resonance spectroscopy (FMR). It is found that the presence of a Ta buffer layer leads to the enhancement of Gilbert damping (alpha) from 0.0111 +/- 0.0002 to 0.0236 +/- 0.0007 (i.e., similar to 112.6% increment) compared to a bare 7 nm FeAl film. However, effective magnetization and saturation magnetization in the Ta/FeAl (7 nm) film shows comparatively less increment in their values, i.e., similar to 4.4% and similar to 6.6%, respectively, compared to the 7 nm FeAl film as obtained from FMR and vibrating sample magnetometry techniques. We observed a significant increase in alpha due to the spin pumping effect at the interface of the heavy metal Ta layer and ferromagnetic FeAl layer. From first-principles density functional theory, the rise in alpha is qualitatively demonstrated by the enhanced density of states at the Fermi level. Intrinsic alpha calculated from the Kambersky torque-torque correlation model shows about six time rise in alpha with buffer layer compared to the bare 4.5 nm FeAl film, a similar trend as obtained experimentally. This research provides guidance to tailor alpha of FeAl through a heavy metal Ta buffer layer for application in economical spintronic devices.

Accession Number: WOS:001603330300001

Language: English

Document Type: Article

KeyWords Plus: PERPENDICULAR MAGNETIC-ANISOTROPY; FERROMAGNETIC-RESONANCE; TEMPERATURE-DEPENDENCE; SPIN; RELAXATION; TRANSITION; GENERATION; STABILITY; EMERGENCE; LINEWIDTH

Addresses: [Bhardwaj, Sunayana; Kuanr, Bijoy K.] Jawaharlal Nehru Univ, Special Ctr Nanosci, New Delhi 110067, India.
[Kumar, Prashant] Motilal Nehru Coll, Dept Phys, South Campus, New Delhi 110021, India.
[Ghosh, Ram Krishna] Indraprastha Inst Informat Technol Delhi, Dept Elect & Commun Engn, New Delhi 110020, India.

Corresponding Address: Kuanr, BK (corresponding author), Jawaharlal Nehru Univ, Special Ctr Nanosci, New Delhi 110067, India.

E-mail Addresses: bkkuanr@gmail.com

Affiliations: Jawaharlal Nehru University, New Delhi; Special Centre for Nanoscience, Jawaharlal Nehru University; Indraprastha Institute of Information Technology Delhi

Author Identifiers:

Author	Web of Science ResearcherID	ORCID Number
Kuanr, Bijoy	ABF-6805-2020	

Publisher: AIP Publishing

Publisher Address: 1305 WALT WHITMAN RD, STE 300, MELVILLE, NY 11747-4501 USA

Web of Science Index: Science Citation Index Expanded (SCI-EXPANDED)

Web of Science Categories: Physics, Applied

Research Areas: Physics

IDS Number: 9CW5T

ISSN: 0021-8979

eISSN: 1089-7550

29-char Source Abbrev.: J APPL PHYS

ISO Source Abbrev.: J. Appl. Phys.

Source Item Page Count: 10

Funding:

Funding Agency	Grant Number
University Grants Commission, Government of India	
JNU	

S.B. would like to acknowledge the senior research fellowship provided by the University Grants Commission, Government of India. The authors acknowledge CIF, IISER Bhopal for providing GIXRD, X-ray reflectivity, and SQUID-VSM facilities. AIRF, JNU, is also acknowledged for providing the AFM facility.

Open Access: hybrid

Output Date: 2025-11-11

Record 19 of 56

Title: Multi-target mechanisms of Creatine in Parkinson's disease: an in-silico and in-vivo investigation

Author(s): Kispotta, S (Kispotta, Sneha); Singh, V (Singh, Vishal); Sahu, PK (Sahu, Pratap Kumar); Sahoo, U (Sahoo, Utkalika); Rout, M (Rout, Monalisa); Jew, KA (Jew, Kiran Anjum); Kumar, A (Kumar, Alok); Prusty, SK (Prusty, Shakti Ketan); Das, D (Das, Debajyoti)

Source: GENES & GENOMICS **DOI:** 10.1007/s13258-025-01695-y **Early Access Date:** OCT 2025 **Published Date:** 2025 OCT 21

Times Cited in Web of Science Core Collection: 0

Total Times Cited: 0

Usage Count (Last 180 days): 0

Usage Count (Since 2013): 0

Cited References: Afgan E, 2018, NUCLEIC ACIDS RES, V46, pW537, DOI 10.1093/nar/gky379
Andres RH, 2005, NEUROSCIENCE, V133, P701, DOI 10.1016/j.neuroscience.2005.03.004
Baul HS, 2018, Research Journal of Pharmacy and Technology, V11, P203, DOI [10.5958/0974-360x.2018.00038.0, 10.5958/0974-360X.2018.00038.0, DOI 10.5958/0974-360X.2018.00038.0]
Berg D, 2021, NAT REV NEUROL, V17, P349, DOI 10.1038/s41582-021-00486-9
Bhattacharjee N, 2016, NEUROCHEM INT, V101, P48, DOI 10.1016/j.neuint.2016.10.001
Biradar P, 2022, ADV TRADIT MED, V22, P193, DOI 10.1007/s13596-020-00524-9
Bortolato M, 2008, ADV DRUG DELIVER REV, V60, P1527, DOI 10.1016/j.addr.2008.06.002
Calabresi P, 2010, LANCET NEUROL, V9, P1106, DOI 10.1016/S1474-4422(10)70218-0
Dong B, 2020, CLIN NEUROL NEUROSUR, V188, DOI 10.1016/j.clineuro.2019.105587
ESSMANN U, 1995, J CHEM PHYS, V103, P8577, DOI 10.1063/1.470117
Gracia P, 2020, INT J MOL SCI, V21, DOI 10.3390/ijms21218043
HOLIAN BL, 1985, J CHEM PHYS, V83, P3560, DOI 10.1063/1.449161
Jones G, 2022, ACTA CRYSTALLOGR D, V78, P690, DOI 10.1107/S2059798322002741
Kang SS, 2020, ACTA PHARM SIN B, V10, P1228, DOI 10.1016/j.apsb.2020.04.009
Kare P, 2013, MOL DIVERS, V17, P111, DOI 10.1007/s11030-012-9420-z
Kozakov D, 2015, NAT PROTOC, V10, P733, DOI 10.1038/nprot.2015.043
Kulkarni SK, 2008, PSYCHOPHARMACOLOGY, V201, P435, DOI 10.1007/s00213-008-1300-y
Kumar H, 2012, INT J MOL SCI, V13, P10478, DOI 10.3390/ijms130810478
Lavi A, 2013, PROTEINS, V81, P2096, DOI 10.1002/prot.24422
Law CW, 2014, GENOME BIOL, V15, DOI 10.1186/gb-2014-15-2-r29
Li LT, 2020, INTERDISCIP SCI, V12, P131, DOI 10.1007/s12539-020-00359-7

Liu RJ, 2015, NUCLEIC ACIDS RES, V43, pE97, DOI 10.1093/nar/gkv412
Lopina OD, 2017, ENZYME INHIBITORS AC, DOI DOI 10.5772/67248
Meade RM, 2019, MOL NEURODEGENER, V14, DOI 10.1186/s13024-019-0329-1
Mohapatra D, 2022, HELIYON, V8, DOI 10.1016/j.heliyon.2022.e08935
Obeso JA, 2000, TRENDS NEUROSCI, V23, pS2, DOI 10.1016/S1471-1931(00)00031-8
PARRINELLO M, 1981, J APPL PHYS, V52, P7182, DOI 10.1063/1.328693
Pemminati S, 2007, INDIAN J PHARMACOL, V39, P87, DOI 10.4103/0253-7613.32526
Peña-Díaz S, 2023, PHARMACEUTICS, V15, DOI 10.3390/pharmaceutics15030839
Persky AM, 2001, PHARMACOL REV, V53, P161
Prusty SK, 2017, INDIAN DRUGS, V54, P58, DOI [10.53879/id.54.06.10837, 10.53879/id.54.06.10837, DOI 10.53879/ID.54.06.10837]
Rim KT, 2020, TOXICOL ENV HEALTH, V12, P191, DOI 10.1007/s13530-020-00056-4
Roy Z, 2023, CURR PHARM BIOTECHNO, V24, P1265, DOI 10.2174/1389201024666221121160822
Schapira AHV, 2006, NEUROLOGY, V66, pS10, DOI 10.1212/WNL.66.10_suppl_4.S10
Schurch NJ, 2016, RNA, V22, P839, DOI 10.1261/rna.053959.115
Shaheen N, 2024, INT J SURG, V110, P3146, DOI 10.1097/JS9.0000000000001279
Singh B, 2020, METAB BRAIN DIS, V35, P517, DOI 10.1007/s11011-019-00526-w
Subudhi BB, 2018, AAPS J, V20, DOI 10.1208/s12248-018-0270-1
Tokuda T, 2010, NEUROLOGY, V75, P1766, DOI 10.1212/WNL.0b013e3181fd613b
Vannur A, 2022, METAB BRAIN DIS, V37, P411, DOI 10.1007/s11011-021-00878-2
Vanommeslaeghe K, 2010, J COMPUT CHEM, V31, P671, DOI 10.1002/jcc.21367
Vial F, 2021, NEUROEPIDEMIOLOGY, V55, P393, DOI 10.1159/000517750
Youssef SA, 2016, VET PATHOL, V53, P327, DOI 10.1177/0300985815623997

Cited Reference Count: 43

Abstract: BackgroundParkinson's disease (PD) is a progressive neurodegenerative disorder marked by the loss of dopaminergic neurons, resulting in impaired motor control and cognitive decline. Despite current therapies, there remains a need for more effective and multifaceted treatment strategies.ObjectiveThis study explores the neuroprotective potential of exogenous Creatine in a Haloperidol-induced PD rat model, with a focus on reducing elevated homocysteine levels and targeting key proteins involved in PD pathology.MethodWe proposed a multitarget therapeutic approach, aiming to inhibit ADORA2A, alpha-synuclein, and monoamine Oxidase B (MAO-B) using the same bioactive compound. RNA-seq data from publicly available datasets (BioProject: PRJNA608432; GEO: GSE145814) were analyzed to identify dysregulated proteins and pathways associated with neuroactive ligand-receptor interaction, olfactory transduction, and phototransduction. Using computational methods, including RNA Seq analysis, molecular docking, MMGBSA, and ADME/T analyses, we screened for potential common ligand. Creatine showed a higher binding affinity for the target proteins compared to Levodopa (primarily used medication against PD), suggesting its therapeutic potential. In vivo experiments assessed the efficacy of Creatine through behavioural testing, redox status evaluation, biochemical markers, and histological analysis.ResultThe results potentially suggest that Creatine ameliorates motor deficits, reduces oxidative stress, and protects neuronal integrity in PD rats. Overall, our findings indicate that Creatine acts as a promising multitargeted approach, capable of modulating several PD-associated molecular mechanisms.ConclusionThis approach may further be validated and pave the way for more effective, broad-spectrum treatments for Parkinson's disease, addressing both its motor and non-motor symptoms.

Accession Number: WOS:001596863900001

PubMed ID: 41118113

Language: English

Document Type: Article; Early Access

Author Keywords: RNA Seq analysis; Molecular docking; MMGBSA; ADMET; Neuroprotection

KeyWords Plus: AGING BRAIN

Addresses: [Kispotta, Sneha; Sahu, Pratap Kumar; Rout, Monalisa; Jew, Kiran Anjum; Prusty, Shakti Ketan; Das, Debajyoti] Siksha O Anusandhan Deemed Be Univ, Sch Pharmaceut Sci, Dept Pharmacol, Bhubaneswar 751003, Odisha, India.
[Singh, Vishal; Sahoo, Utkalika] Siksha O Anusandhan Deemed Be Univ, Ctr Biotechnol, SPS, Bhubaneswar 751003, Odisha, India.
[Kumar, Alok] Jawaharlal Nehru Univ, Sch Biotechnol, Delhi 110067, India.

Corresponding Address: Prusty, SK (corresponding author), Siksha O Anusandhan Deemed Be Univ, Sch Pharmaceut Sci, Dept Pharmacol, Bhubaneswar 751003, Odisha, India.

E-mail Addresses: vishal@soa.ac.in; shaktiketanprusty@soa.ac.in

Affiliations: Siksha 'O' Anusandhan University; Siksha 'O' Anusandhan University; Jawaharlal Nehru University, New Delhi

Author Identifiers:

Author	Web of Science ResearcherID	ORCID Number
Sahu, Pratap	AAP-2377-2020	

Publisher: SPRINGER

Publisher Address: ONE NEW YORK PLAZA, SUITE 4600, NEW YORK, NY, UNITED STATES

Web of Science Index: Science Citation Index Expanded (SCI-EXPANDED)

Web of Science Categories: Biochemistry & Molecular Biology; Biotechnology & Applied Microbiology; Genetics & Heredity

Research Areas: Biochemistry & Molecular Biology; Biotechnology & Applied Microbiology; Genetics & Heredity

IDS Number: 8TI9S

ISSN: 1976-9571

eISSN: 2092-9293

29-char Source Abbrev.: GENES GENOM

ISO Source Abbrev.: Genes Genom.

Source Item Page Count: 20

Output Date: 2025-11-11

Record 20 of 56

Title: Distinct and Additive Effects of Long Noncoding RNA-expression and Retinoic Acid-treatment During Neuronal Differentiation of Human Neuroblastoma Cells

Author(s): Kumari, A (Kumari, Anita); Danga, AK (Danga, Ajay Kumar); Rath, PC (Rath, Pramod C.)

Source: NEUROTOXICITY RESEARCH **Volume:** 43 **Issue:** 6 **Article Number:** 42 **DOI:** 10.1007/s12640-025-00760-4 **Published Date:** 2025 OCT 18

Times Cited in Web of Science Core Collection: 0

Total Times Cited: 0

Usage Count (Last 180 days): 0

Usage Count (Since 2013): 0

Cited References: Alammari F, 2024, FRONT NEUROSCI-SWITZ, V18, DOI 10.3389/fnins.2024.1392688
Balmer JE, 2002, J LIPID RES, V43, P1773, DOI 10.1194/jlr.R100015-JLR200
Bastien J, 2004, GENE, V328, P1, DOI 10.1016/j.gene.2003.12.005
Chen M, 2021, MOL CELL BIOCHEM, V476, P1871, DOI 10.1007/s11010-020-04042-9
CROWE DL, 1993, J CELL SCI, V106, P183

Danga AK, 2024, BIOGERONTOLOGY, V25, P1053, DOI 10.1007/s10522-024-10119-5
Danga AK, 2024, BIOGERONTOLOGY, V25, P543, DOI 10.1007/s10522-023-10088-1
Pasquali MAD, 2016, MOL NEUROBIOL, V53, P423, DOI 10.1007/s12035-014-8998-9
DETHE H, 1989, EMBO J, V8, P429, DOI 10.1002/j.1460-2075.1989.tb03394.x
Donato LJ, 2005, CANCER RES, V65, P8193, DOI 10.1158/0008-5472.CAN-05-1177
dos Santos MG, 2023, CELL BIOL INT, V47, P1883, DOI 10.1002/cbin.12093
Giguère V, 2022, J MOL ENDOCRINOL, V69, pT1, DOI 10.1530/JME-22-0117
Hao QY, 2020, ELIFE, V9, DOI 10.7554/eLife.55102
Hardwick LJA, 2015, CELL TISSUE RES, V359, P187, DOI 10.1007/s00441-014-1895-8
Jiang N, 2021, CELL DEATH DISCOV, V7, DOI 10.1038/s41420-021-00407-1
Jovasevic V, 2024, NATURE, V628, DOI 10.1038/s41586-024-07220-7
Kour S, 2017, MOL NEUROBIOL, V54, P639, DOI 10.1007/s12035-015-9634-z
Kour S, 2016, J MOL NEUROSCI, V58, P266, DOI 10.1007/s12031-015-0671-x
Kour S, 2015, INT J DEV NEUROSCI, V47, P286, DOI 10.1016/j.ijdevneu.2015.08.008
Kovalevich J, 2021, METHODS MOL BIOL, V2311, P9, DOI 10.1007/978-1-0716-1437-2_2
Kunzler A, 2017, MOL NEUROBIOL, V54, P6903, DOI 10.1007/s12035-016-0189-4
Li G, 2018, YONSEI MED J, V59, P226, DOI 10.3349/ymj.2018.59.2.226
Li J, 2017, CELL PROLIFERAT, V50, DOI 10.1111/cpr.12312
Li MM, 2020, FEBS J, V287, P561, DOI 10.1111/febs.15047
Lian YF, 2018, MOL THER NUCL ACIDS, V12, P684, DOI 10.1016/j.omtn.2018.06.012
Lou MM, 2021, NAT COMMUN, V12, DOI 10.1038/s41467-021-24236-z
Luo XM, 2006, EXP BIOL MED, V231, P619
Ma LN, 2013, RNA BIOL, V10, P925, DOI 10.4161/rna.24604
Madabhushi R, 2015, CELL, V161, P1592, DOI 10.1016/j.cell.2015.05.032
Maden M, 2007, NAT REV NEUROSCI, V8, P755, DOI 10.1038/nrn2212
Mangiarotti R, 1998, BRIT J CANCER, V77, P186, DOI 10.1038/bjc.1998.32
Manji SS, 1998, J CELL PHYSIOL, V176, P1
Mattick JS, 2023, NAT REV MOL CELL BIO, V24, P430, DOI 10.1038/s41580-022-00566-8
Merrill RA, 2004, BIOL CHEM, V385, P605, DOI 10.1515/BC.2004.075
Meza-Sosa KF, 2022, MOL CELL, V82, P785, DOI 10.1016/j.molcel.2022.01.001
Miloso M, 2004, J NEUROSCI RES, V75, P241, DOI 10.1002/jnr.10848
Mrass P, 2004, CANCER RES, V64, P6542, DOI 10.1158/0008-5472.CAN-04-1129
Niizuma H, 2006, ONCOGENE, V25, P5046, DOI 10.1038/sj.onc.1209515
Nowsheen S., 2012, Experimental Oncology, V34, P243
Park MK, 2021, CELL METAB, V33, P2380, DOI 10.1016/j.cmet.2021.11.011
Qiao JB, 2012, BIOCHEM BIOPH RES CO, V424, P421, DOI 10.1016/j.bbrc.2012.06.125
Santos MDL, 2007, MOL ENDOCRINOL, V21, P2416, DOI 10.1210/me.2007-0151
Sarropoulos I, 2019, NATURE, V571, P510, DOI 10.1038/s41586-019-1341-x
Shen Y, 2021, AM J TRANSL RES, V13, P9993
SINGH NP, 1988, EXP CELL RES, V175, P184, DOI 10.1016/0014-4827(88)90265-0
Srinivas T, 2023, MOL THER, V31, P1550, DOI 10.1016/j.ymthe.2023.02.008
Sur S, 2022, J BIOL CHEM, V298, DOI 10.1016/j.jbc.2022.101895
Tao H, 2019, MOL REPROD DEV, V86, P686, DOI 10.1002/mrd.23147
Thomson AC, 2022, CELL MOL NEUROBIOL, V42, P1829, DOI 10.1007/s10571-021-01062-x
Wang C, 2021, NUTR CANCER, V73, P2065, DOI 10.1080/01635581.2020.1823006
Wang CF, 2019, P NATL ACAD SCI USA, V116, P14620, DOI 10.1073/pnas.1903432116
Wang J, 2024, CELL TISSUE RES, V395, P285, DOI 10.1007/s00441-024-03860-3
Wang L, 2024, SIGNAL TRANSDUCT TAR, V9, DOI 10.1038/s41392-024-01980-4
Wen F, 2022, EPILEPTIC DISORD, V24, P917, DOI 10.1684/epd.2022.1477
Wen F, 2023, NEUROCHEM RES, V48, P895, DOI 10.1007/s11064-022-03801-y
Xia YY, 2024, CELL DEATH DISCOV, V10, DOI 10.1038/s41420-024-01832-8

Zong SK, 2021, AGING-US, V13, P23169, DOI 10.18632/aging.203609

Cited Reference Count: 57

Abstract: Retinoic Acid (RA) induces differentiation and regulates gene expression through three subtypes (alpha, beta, gamma) of the nuclear retinoid receptor heterodimer (RAR/RXR), which also function as transcription factors. Earlier, we reported the long intergenic noncoding RNAs (LINC-RBE and LINC-RSAS) induced by All-Trans Retinoic Acid (ATRA) in cultured primary hippocampal neurons from adult rat brain at transcriptional and post-transcriptional levels, respectively. In this study, we report that similar to 25% of the human neuroblastoma (SH-SY5Y) cells were differentiated by 1 mu M ATRA-treatment within 72 h showing extension of neurites from spindle-shaped cells demonstrating neuronal differentiation. Expression of RAR beta and interferon regulatory factor-1 (IRF-1) mRNAs was significantly upregulated up to 16xfold at 10 h and 2.6xfold at 8 h by 1 mu M ATRA-treatment, respectively. This indicated activation of the RA-signaling pathway in these cells. With a transfection efficiency of similar to 40%, overexpression of LINC-RBE and LINC-RSAS caused similar to 34% and similar to 33% inhibition of cell proliferation, respectively, with an increase in cell death and similar to 10% reduction in number of cells in G1-phase of cell cycle. ATRA-treatment alone caused similar to 40% inhibition of cell proliferation, and induced similar to 66% of cells to G1-phase arrest. Combined effect of LINC-RSAS + ATRA further enhanced inhibition of cell proliferation by additional similar to 32%, whereas LINC-RBE, ATRA and LINC-RBE + ATRA showed similar effects indicating distinct effects and mechanisms of their actions. Moreover, overexpression of these lncRNAs led to fourfold increase in genomicDNA breakage/damage in these cells. Thus it showed an unique relationship between lncRNA and RA during neuronal differentiation, most likely involving regulation of gene expression.

Accession Number: WOS:001597165300001

PubMed ID: 41108347

Language: English

Document Type: Article

Author Keywords: lncRNA; Retinoic acid; Neuronal differentiation; Cell cycle; DNA breakage/damage

KeyWords Plus: GENE-EXPRESSION; POSTTRANSCRIPTIONAL REGULATION; DNA-DAMAGE; APOPTOSIS; LNCRNA; PROLIFERATION; RECEPTOR; GROWTH; PROFILE; EXERTS

Addresses: [Kumari, Anita; Danga, Ajay Kumar; Rath, Pramod C.] Jawaharlal Nehru Univ, Sch Life Sci, Mol Biol Lab, New Delhi 110067, India.
[Danga, Ajay Kumar] Natl Inst Immunol, Dept Biotechnol Res Associate, Aruna Asaf Ali Marg, New Delhi 110067, India.

Corresponding Address: Rath, PC (corresponding author), Jawaharlal Nehru Univ, Sch Life Sci, Mol Biol Lab, New Delhi 110067, India.

E-mail Addresses: anitaksaa@gmail.com; ajaykumardanga@ymail.com; pramod.rath@gmail.com

Affiliations: Jawaharlal Nehru University, New Delhi; Department of Biotechnology (DBT) India; National Institute of Immunology (NII)

Author Identifiers:

Author	Web of Science ResearcherID	ORCID Number
RATH, PRAMOD	AAP-5565-2020	

Publisher: SPRINGER

Publisher Address: ONE NEW YORK PLAZA, SUITE 4600, NEW YORK, NY, UNITED STATES

Web of Science Index: Science Citation Index Expanded (SCI-EXPANDED)

Web of Science Categories: Neurosciences

Research Areas: Neurosciences & Neurology

IDS Number: 8TU5A

ISSN: 1029-8428
eISSN: 1476-3524
29-char Source Abbrev.: NEUROTOX RES
ISO Source Abbrev.: Neurotox. Res.
Source Item Page Count: 19
Funding:

Funding Agency	Grant Number
Department of Biotechnology, India	BT/INF/22/ SP45382/2022
India-Department of Biotechnology (DBT)-Builder	
Junior/Senior Research Fellowships (JRF/SRF) from the University Grants Commission (UGC)	
Indian Council of Medical Research (ICMR)	
Anusandhan National Research Foundation (ANRF)	

We acknowledge the financial support from the Govt. of India-Department of Biotechnology (DBT)-Builder (grant no. BT/INF/22/SP45382/2022) to the School of Life Sciences, J.N.U. and the Junior/Senior Research Fellowships (JRF/SRF) from the University Grants Commission (UGC) to AK and Indian Council of Medical Research (ICMR) to AKD. AK also acknowledges Anusandhan National Research Foundation (ANRF), Govt. of India for providing International Travel Support to AK to present this work in the EMBO | EMBL Symposium: "The complex life of RNA" held in EMBL, Heidelberg, Germany during 15-18 October, 2024. AKD also acknowledges the Research Associateship of the Department of Biotechnology, Govt. of India.

Output Date: 2025-11-11

Record 21 of 56

Title: Carbon Quantum Dots-Enhanced Photocatalytic Degradation of Antibiotics: An Eco-Friendly Water Treatment Approach

Author(s): Singh, H (Singh, Harshulika); Ahlawat, A (Ahlawat, Amit); Sajwan, RK (Sajwan, Reena K.); Solanki, PR (Solanki, Pratima R.)

Source: CHEMISTRYSELECT **Volume:** 10 **Issue:** 38 **Article Number:** e01926 **DOI:** 10.1002/slct.202501926 **Published Date:** 2025 OCT

Times Cited in Web of Science Core Collection: 0

Total Times Cited: 0

Usage Count (Last 180 days): 2

Usage Count (Since 2013): 2

Cited References: Ahlawat A., 2021, SSRN Electronic J
Ahlawat A, 2024, NANO EXPRESS, V5, DOI 10.1088/2632-959X/ad2fd0
Ahlawat A, 2023, ENVIRON SCI POLLUT R, DOI 10.1007/s11356-023-25604-6
Ahlawat A, 2021, MATER LETT, V305, DOI 10.1016/j.matlet.2021.130830
Ahmad A, 2015, RSC ADV, V5, P30801, DOI 10.1039/c4ra16959j
Amin A, 2023, CHEMOSPHERE, V323, DOI 10.1016/j.chemosphere.2023.138189
Choudhary T, 2023, ENVIRON SCI POLLUT R, DOI 10.1007/s11356-023-31376-w
Cunha BA, 2000, MED CLIN N AM, V84, P1407, DOI 10.1016/S0025-7125(05)70295-9

Daghrir R, 2013, ENVIRON CHEM LETT, V11, P209, DOI 10.1007/s10311-013-0404-8
Geng BN, 2022, ANTIBIOTICS-BASEL, V11, DOI 10.3390/antibiotics11111476
Haddix P L., 2000, Bioscene, V26, P17
Han L, 2019, J PHYS CHEM C, V123, P2398, DOI 10.1021/acs.jpcc.8b10059
Huemer M, 2020, EMBO REP, V21, DOI 10.15252/embr.202051034
Kapoor Garima, 2017, J Anaesthesiol Clin Pharmacol, V33, P300, DOI [10.4103/joacp.joacp_349_15, 10.4103/joacp.JOACP_349_15]
Kaur H, 2023, APPL SURF SCI, V609, DOI 10.1016/j.apsusc.2022.155455
Kujur VS, 2022, J PHYS CHEM SOLIDS, V167, DOI 10.1016/j.jpcs.2022.110751
Kumari A, 2024, ACS Sustainable Resource Management, V1, P2136, DOI [10.1021/acssusresmgt.4c00233, 10.1021/acssusresmgt.4c00233, DOI 10.1021/ACSSUSRESMGT.4C00233]
Malitha D, 2024, SCI REP-UK, V14, DOI 10.1038/s41598-024-66046-5
Patneedi C. B., 2015, Rasayan Journal of Chemistry, V8, P67
Preethi R, 2023, J ENVIRON MANAGE, V326, DOI 10.1016/j.jenvman.2022.116831
Riyat MRI, 2022, REACT KINET MECH CAT, V135, P1077, DOI 10.1007/s11144-022-02182-1
Sajwan RK, 2025, TALANTA, V293, DOI 10.1016/j.talanta.2025.128057
Sajwan RK, 2024, MATER ADV, V5, P961, DOI 10.1039/d3ma00632h
Sajwan RK, 2023, FOOD CHEM, V415, DOI 10.1016/j.foodchem.2023.135590
Sajwan RK, 2022, FOOD CHEM, V370, DOI 10.1016/j.foodchem.2021.131312
Sajwan RK, 2021, ENVIRON SCI-NANO, V8, P2693, DOI [10.1039/d1en00483b, 10.1039/D1EN00483B]
Sajwan RK, 2021, FOOD CHEM, V340, DOI 10.1016/j.foodchem.2020.127835
Sarkar T, 2020, NANOTECHNOLOGY, V31, DOI 10.1088/1361-6528/ab925e
Singh H, 2023, MATER LETT, V346, DOI 10.1016/j.matlet.2023.134504
Sri S, 2018, ACS APPL MATER INTER, V10, P37835, DOI 10.1021/acsami.8b13217
Sun MY, 2023, J ALLOY COMPD, V937, DOI 10.1016/j.jallcom.2022.168254
Umar W., 2022, Sustainable Nanotechnology for Environmental Remediation, P223, DOI DOI 10.1016/B978-0-12-824547-7.00002-3
Ventola C Lee, 2015, P T, V40, P277, DOI 10.24911/ijmdc.51-1549060699
Vuran B, 2021, TALANTA, V230, DOI 10.1016/j.talanta.2021.122307
Wu R, 2023, MATER CHEM PHYS, V301, DOI 10.1016/j.matchemphys.2023.127554
Zhu XD, 2013, CHEMOSPHERE, V92, P925, DOI 10.1016/j.chemosphere.2013.02.066

Cited Reference Count: 36

Abstract: The world is facing the problem of the water crisis, and people do not have access to a good quantity of water that is free from any toxic chemicals and pathogens for their daily use worldwide. The pharmaceutical waste polluted the water with access to antibiotics, pathogenic bacteria, and other poisonous substances. The massive amount of antibiotics accelerated the resistance of bacteria to antibiotics. They developed antibiotic resistance (ABR), which created a dangerous and perilous situation for human health and enhanced society's economic burden. Photodegradation is an efficient and economically feasible way to remove and break down antibiotics in H2O and CO2 molecules as a final product. So, in this work, photocatalytic degradation of two antibiotics, ampicillin and tetracycline, is reported by taking advantage of the catalytic activity of carbon quantum dots (CQDs). The catalytic properties of CQDs were investigated during the photodegradation of antibiotics under UV light. With an optimized amount of CQDs, the degradation of two antibiotics was carried out under the irradiation of UV light, and the degradation percentage was calculated as 92% and 94% for ampicillin and tetracycline, respectively, in just 120 min. This reaction's pseudo-first-order rate constant was determined to be 0.009 min(-1) for tetracycline and 0.006 min(-1) for ampicillin, respectively. The value of percentage degradation confirms that the antibiotics are massively removed from the water body, and the proposed method can be utilized further in applying a polluted water cleanup system.

Accession Number: WOS:001591873600001

Language: English

Document Type: Article

Author Keywords: Ampicillin; Antibiotics; Carbon quantum dots; Photo-degradation; Tetracycline; Water pollution

KeyWords Plus: TETRACYCLINE

Addresses: [Singh, Harshulika; Ahlawat, Amit; Sajwan, Reena K.; Solanki, Pratima R.] Jawaharlal Nehru Univ, Special Ctr Nanosci, New Delhi 110067, India.
[Ahlawat, Amit] Deenbandhu Chhotu Ram Univ Sci & Technol, Dept Phys, Murthal 131039, India.

Corresponding Address: Solanki, PR (corresponding author), Jawaharlal Nehru Univ, Special Ctr Nanosci, New Delhi 110067, India.

E-mail Addresses: partima@mail.jnu.ac.in

Affiliations: Jawaharlal Nehru University, New Delhi; Special Centre for Nanoscience, Jawaharlal Nehru University; Deenbandhu Chhotu Ram University of Science & Technology

Author Identifiers:

Author	Web of Science ResearcherID	ORCID Number
AHLAWAT, AMIT	AAC-8540-2022	
Solanki, Pratima	N-1041-2013	
SAJWAN, REENA	OEO-9034-2025	

Publisher: WILEY-V C H VERLAG GMBH

Publisher Address: POSTFACH 101161, 69451 WEINHEIM, GERMANY

Web of Science Index: Science Citation Index Expanded (SCI-EXPANDED)

Web of Science Categories: Chemistry, Multidisciplinary

Research Areas: Chemistry

IDS Number: 8MA4L

ISSN: 2365-6549

29-char Source Abbrev.: CHEMISTRYSELECT

ISO Source Abbrev.: ChemistrySelect

Source Item Page Count: 9

Funding:

Funding Agency	Grant Number
Department of Science and Technology	

The authors of this paper acknowledge the AIRF and JNU for providing the TEM facility. One of the authors, AA, is thankful to UGC, India, for giving financial support through a fellowship (NTA Ref. No. 201610066606). PRS is grateful to the Department of Health Research, Ministry of Health and Family Welfare, Government of India (Grant No.: R.11013/46/2021-GIA/HR). RKS is grateful to the Department of Science and Technology (DST) for providing financial support through the Women Scientist-A (DST/WOS-A/ET-11/2020) fellowship program.

Output Date: 2025-11-11

Record 22 of 56

Title: Design of Peptide Inhibitors Using Expression Tags: Structure of the Complex of Phosphopantetheine Adenylyltransferase with 17-Residue Expression-Tag Peptide and Citric Acid at 2.10 Å Resolution

Author(s): Ahmad, N (Ahmad, Nabeel); Kumar, V (Kumar, Virender); Goel, VK (Goel, Vijay K.); Sharma, P (Sharma, Pradeep); Sharma, S (Sharma, Sujata); Singh, TP (Singh, Tej P.)

Source: BIOCHEMISTRY **Volume:** 64 **Issue:** 20 **Pages:** 4341-4353 **DOI:** 10.1021/acs.biochem.5c00465 **Early Access Date:** OCT 2025 **Published Date:** 2025 OCT 21

Cited References: Aghajanian S, 2002, BIOCHEM J, V365, P13, DOI 10.1042/BJ20020569
Agirre J, 2023, ACTA CRYSTALLOGR D, V79, P449, DOI 10.1107/S2059798323003595
Ahmad N, 2024, EUR BIOPHYS J BIOPHY, V53, P147, DOI 10.1007/s00249-024-01703-1
Ahmad N, 2025, PROTEIN SCI, V34, DOI 10.1002/pro.70216
Badger J, 2005, PROTEINS, V60, P787, DOI 10.1002/prot.20541
Begley TP, 2001, VITAM HORM, V61, P157
CHANG JY, 1985, EUR J BIOCHEM, V151, P217, DOI 10.1111/j.1432-1033.1985.tb09091.x
Chatterjee R, 2016, BBA-PROTEINS PROTEOM, V1864, P773, DOI 10.1016/j.bbapap.2016.03.018
Chen VB, 2010, ACTA CRYSTALLOGR D, V66, P12, DOI 10.1107/S0907444909042073
Daugherty M, 2002, J BIOL CHEM, V277, P21431, DOI 10.1074/jbc.M201708200
Davis IW, 2007, NUCLEIC ACIDS RES, V35, pW375, DOI 10.1093/nar/gkm216
de Jonge BLM, 2013, ANTIMICROB AGENTS CH, V57, P6005, DOI 10.1128/AAC.01661-13
Edwards TE, 2011, ACTA CRYSTALLOGR F, V67, P1032, DOI 10.1107/S1744309111004349
Emsley P, 2004, ACTA CRYSTALLOGR D, V60, P2126, DOI 10.1107/S0907444904019158
Evans PR, 2013, ACTA CRYSTALLOGR D, V69, P1204, DOI 10.1107/S0907444913000061
Evans PR, 2011, ACTA CRYSTALLOGR D, V67, P282, DOI 10.1107/S090744491003982X
Franklin MC, 2015, PROTEINS, V83, P2124, DOI 10.1002/prot.24841
FRENCH S, 1978, ACTA CRYSTALLOGR A, V34, P517, DOI 10.1107/S0567739478001114
Genschel U, 2004, MOL BIOL EVOL, V21, P1242, DOI 10.1093/molbev/msh119
Gerdes SY, 2002, J BACTERIOL, V184, P4555, DOI 10.1128/JB.184.16.4555-4572.2002
Gupta A, 2019, BBA-PROTEINS PROTEOM, V1867, P537, DOI 10.1016/j.bbapap.2019.03.002
Hansen PR, 2015, METHODS MOL BIOL, V1348, P33, DOI 10.1007/978-1-4939-2999-3_5
Izard T, 2002, J MOL BIOL, V315, P487, DOI 10.1006/jmbi.2001.5272
Kabsch W, 2010, ACTA CRYSTALLOGR D, V66, P125, DOI 10.1107/S0907444909047337
Krissinel E, 2005, LECT NOTES COMPUT SC, V3695, P163
Krissinel E, 2007, J MOL BIOL, V372, P774, DOI 10.1016/j.jmb.2007.05.022
Krissinel E, 2010, J COMPUT CHEM, V31, P133, DOI 10.1002/jcc.21303
LASKOWSKI RA, 1993, J APPL CRYSTALLOGR, V26, P283, DOI 10.1107/S0021889892009944
Lee HH, 2009, ACTA CRYSTALLOGR F, V65, P987, DOI 10.1107/S1744309109036616
Mccarthy WJ, 2024, ANGEW CHEM INT EDIT, V63, DOI 10.1002/anie.202406846
Miller JR, 2007, J BACTERIOL, V189, P8196, DOI 10.1128/JB.00732-07
Moreau RJ, 2018, J MED CHEM, V61, P3309, DOI 10.1021/acs.jmedchem.7b01691
Murshudov GN, 1997, ACTA CRYSTALLOGR D, V53, P240, DOI 10.1107/S0907444996012255
Potterton E, 2003, ACTA CRYSTALLOGR D, V59, P1131, DOI 10.1107/S0907444903008126
Proudfoot A, 2017, J AM CHEM SOC, V139, P17824, DOI 10.1021/jacs.7b07171
Proudfoot A, 2016, J BIOMOL NMR, V65, P15, DOI 10.1007/s10858-016-0032-2
Ramachandran G N, 1968, Adv Protein Chem, V23, P283, DOI 10.1016/S0065-3233(08)60402-7
ROBISHAW JD, 1985, AM J PHYSIOL, V248, pE1, DOI 10.1152/ajpendo.1985.248.1.E1
Rossman M. G., 1975, ENZYMES, V11
Skepper CK, 2018, J MED CHEM, V61, P3325, DOI 10.1021/acs.jmedchem.7b01861
Spry C, 2008, FEMS MICROBIOL REV, V32, P56, DOI 10.1111/j.1574-6976.2007.00093.x
Takahashi H, 2004, ACTA CRYSTALLOGR D, V60, P97, DOI 10.1107/S0907444903025319
Thomas SE, 2022, FRONT MOL BIOSCI, V9, DOI 10.3389/fmolb.2022.880432
Thomas SE, 2017, J MOL BIOL, V429, P2677, DOI 10.1016/j.jmb.2017.06.014

Timofeev VI, 2012, CRYSTALLOGR REP+, V57, P96, DOI 10.1134/S1063774512010142
Timofeev V, 2012, ACTA CRYSTALLOGR D, V68, P1660, DOI 10.1107/S0907444912040206
Vagin A, 2010, ACTA CRYSTALLOGR D, V66, P22, DOI 10.1107/S0907444909042589
Williams CJ, 2018, PROTEIN SCI, V27, P293, DOI 10.1002/pro.3330
Winn MD, 2011, ACTA CRYSTALLOGR D, V67, P235, DOI 10.1107/S0907444910045749
Xie JM, 2024, FRONT BIOSCI-LANDMRK, V29, DOI 10.31083/j.fbl2904143
Yoon HJ, 2011, MOL CELLS, V32, P431, DOI 10.1007/s10059-011-0102-y
Yu Y, 2021, BBA-MOL CELL RES, V1868, DOI 10.1016/j.bbamcr.2021.118965
Zhyvoloup A, 2002, J BIOL CHEM, V277, P22107, DOI 10.1074/jbc.C200195200

Cited Reference Count: 53

Abstract: Phosphopantetheine adenylyltransferase (PPAT) catalyzes the transfer of an adenylyl group from adenosine triphosphate (ATP) to 4 '-phosphopantetheine (PNS) to generate dephosphocoenzyme A (dPCoA) and pyrophosphate (PPi). The dPCoA is required for the biosynthesis of coenzyme A (CoA), which is a vital cofactor in several essential biochemical reactions. PPAT enzyme from Enterobacter spp. (EbPPAT), cloned with a 30-residue-long N-terminal tag, was purified and crystallized. The structure determination of EbPPAT revealed the presence of six protein molecules, A, B, C, D, E, and F, in the asymmetric unit, which formed three homodimers designated as A-B, C-D and E-F. At the N-termini of molecules B and F, 17 additional residues belonging to the expression tag were observed. These 17-residue segments of molecules B and F were located deep inside the PNS-binding sites of the adjacent molecules. In addition to this, six citric acid (CIT) molecules were observed in the ATP-binding sites of all six EbPPAT molecules. Thus, the 17-mer peptide and CIT molecules filled the substrate-binding cleft of EbPPAT completely. In order to estimate the binding affinity, the 17-mer tag peptide was synthesized. The KD value for the 17-mer peptide was found to be 1.7 x 10-8 M. The KD value for the CIT molecule was 2.13 x 10--5 M. These values indicated higher binding affinities of the 17-mer peptide and CIT molecule than those of the substrates, PNS and ATP, respectively. These results suggest that expression-tag fragments can be used to design the required peptide inhibitors of enzymes.

Accession Number: WOS:001591488400001

PubMed ID: 41069273

Language: English

Document Type: Article

KeyWords Plus: COENZYME-A BIOSYNTHESIS; MYCOBACTERIUM-TUBERCULOSIS; STRUCTURE VALIDATION; MOLPROBITY; ASSEMBLIES; PROTEINS; GENOMICS; CONTACTS; PATHWAY; STATE

Addresses: [Ahmad, Nabeel; Sharma, Pradeep; Sharma, Sujata; Singh, Tej P.] All India Inst Med Sci, Dept Biophys, New Delhi 110029, India.
[Kumar, Virender; Goel, Vijay K.] Jawaharlal Nehru Univ, Sch Phys Sci, New Delhi 110067, India.

Corresponding Address: Sharma, S; Singh, TP (corresponding author), All India Inst Med Sci, Dept Biophys, New Delhi 110029, India.

E-mail Addresses: sujatasharma.aiims@gmail.com; tpsingh.aiims@gmail.com

Affiliations: All India Institute of Medical Sciences (AIIMS) New Delhi; Jawaharlal Nehru University, New Delhi

Publisher: AMER CHEMICAL SOC

Publisher Address: 1155 16TH ST, NW, WASHINGTON, DC 20036 USA

Web of Science Index: Science Citation Index Expanded (SCI-EXPANDED)

Web of Science Categories: Biochemistry & Molecular Biology

Research Areas: Biochemistry & Molecular Biology

IDS Number: 8TZ7V

ISSN: 0006-2960
eISSN: 1520-4995
29-char Source Abbrev.: BIOCHEMISTRY-US
ISO Source Abbrev.: Biochemistry
Source Item Page Count: 13
Funding:

Funding Agency	Grant Number
Indian National Science Academy	
Department of Biotechnology (DBT), Ministry of Science and Technology, Government of India, New Delhi	
University Grants Commission (UGC), New Delhi	
Indian National Science Academy, New Delhi	
INSA Senior Scientist program	

Authors gratefully acknowledge the support from the Department of Biotechnology (DBT), Ministry of Science and Technology, Government of India, New Delhi, for sponsoring the Synchrotron beamlines at the European Synchrotron Radiation Facility (ESRF), Grenoble, France, and the University Grants Commission (UGC), New Delhi, for granting the Senior Research Fellowship to NA. TPS thanks the Indian National Science Academy, New Delhi, for granting the project under the INSA Senior Scientist program.

Output Date: 2025-11-11

Record 23 of 56

Title: Benthic Foraminiferal recovery following a massive Submarine Landslide in the Laxmi Basin, Arabian Sea (IODP U1457)

Author(s): Thena, T (Thena, Thulasi); Nair, N (Nair, Nisha); Pandey, DK (Pandey, Dhananjai Kumar)

Source: PALAEOGEOGRAPHY PALAEOCLIMATOLOGY PALAEOECOLOGY **Volume:** 676 **Article Number:** 113150 **DOI:** 10.1016/j.palaeo.2025.113150 **Published Date:** 2025 OCT 15

Times Cited in Web of Science Core Collection: 1

Total Times Cited: 1

Usage Count (Last 180 days): 2

Usage Count (Since 2013): 2

Cited References: Ahmad SM, 2008, PALAEOGEOGR PALAEOCL, V262, P182, DOI 10.1016/j.palaeo.2008.03.007
Alam M, 2023, GEOL MAG, V160, P813, DOI 10.1017/S0016756822001273
Altenbach AV, 2003, PALAEOGEOGR PALAEOCL, V197, P213, DOI 10.1016/S0031-0182(03)00463-2
Ando S., 2016, Site U1457, P355
Arumugm Y, 2014, J EARTH SYST SCI, V123, P1671, DOI 10.1007/s12040-014-0495-z
Ash-Mor A, 2017, MAR GEOL, V391, P36, DOI 10.1016/j.margeo.2017.07.009
Ashkenazi L, 2022, MAR GEOL, V445, DOI 10.1016/j.margeo.2022.106756
Barnes DKA, 2007, PHILOS T R SOC B, V362, P11, DOI 10.1098/rstb.2006.1951
Bernhard JM, 1999, MODERN FORAMINIFERA, P201
BERNHARD JM, 1991, BIOGEOCHEMISTRY, V15, P127
Bhattacharya GC, 2015, SPR GEOL, P1, DOI 10.1007/978-3-319-03119-4_1
Bhattacharya GC, 2001, INDIAN OCEAN - A PERSPECTIVE, VOLS 1 AND 2, P691

Bhaumik AK, 2007, INDIAN J MAR SCI, V36, P332
Bijesh CM, 2023, LANDSLIDES, V20, P177, DOI 10.1007/s10346-022-01969-6
Bryn P, 2005, MAR PETROL GEOL, V22, P11, DOI 10.1016/j.marpetgeo.2004.12.003
BUZAS MA, 1969, SCIENCE, V163, P72, DOI 10.1126/science.163.3862.72
Calvès G, 2015, EARTH PLANET SC LETT, V432, P265, DOI 10.1016/j.epsl.2015.10.022
Claussmann B, 2023, MAR PETROL GEOL, V152, DOI 10.1016/j.marpetgeo.2023.106191
Clift PD, 2020, NAT COMMUN, V11, DOI 10.1038/s41467-020-16569-y
Dailey SK, 2020, GEOL SOC AM BULL, V132, P85, DOI 10.1130/B35158.1
Das M, 2017, PALAEOGEOGR PALAEOCL, V483, P125, DOI 10.1016/j.palaeo.2016.10.035
de Haas H, 2002, CONT SHELF RES, V22, P691, DOI 10.1016/S0278-4343(01)00093-0
Diaz J., 2011, 3-D Seismic Stratigraphic Interpretation of Quaternary Mass-Transport Deposits in the Mensa and Thunder Horse Intraslope Basins
Drinia H, 2018, BULL GEOL SOC GREECE, V36, P772, DOI [10.12681/bgsg.16809, 10.12681/bgsg.16809, DOI 10.12681/BGSG.16809]
Ducassou E, 2013, MAR PETROL GEOL, V39, P102, DOI 10.1016/j.marpetgeo.2012.09.006
Feakins SJ, 2020, PALEOCEANOGR PALEOCL, V35, DOI 10.1029/2020PA003856
Forwick M, 2007, HOLOCENE, V17, P707, DOI 10.1177/0959683607080510
Glock N, 2011, J FORAMIN RES, V41, P22, DOI 10.2113/gsjfr.41.1.22
Gooday AJ, 2009, DEEP-SEA RES PT II, V56, P488, DOI 10.1016/j.dsr2.2008.10.003
Gooday A.J.:., 2003, BENTHIC FORAMINIFERA
Griggs G.B., 2011, Eos, V92, P325
Gupta AK, 2003, GEOLOGY, V31, P47, DOI 10.1130/0091-7613(2003)031<0047:IONHGA>2.0.CO;2
Gupta AK, 1999, PALEOCEANOGRAPHY, V14, P62, DOI 10.1029/1998PA900006
Gupta AK, 2004, GEOLOGY, V32, P753, DOI 10.1130/G20662.1
Gupta AK, 2008, PALEOCEANOGRAPHY, V23, DOI 10.1029/2007PA001546
Hampton MA, 1996, REV GEOPHYS, V34, P33, DOI 10.1029/95RG03287
HAQ BU, 1987, SCIENCE, V235, P1156, DOI 10.1126/science.235.4793.1156
Heinz P, 2004, MAR BIOL, V144, P985, DOI 10.1007/s00227-003-1257-7
Herbert TD, 2016, NAT GEOSCI, V9, P843, DOI [10.1038/ngeo2813, 10.1038/NGEO2813]
Hohenegger J, 2006, MAR MICROPALEONTOL, V61, P4, DOI 10.1016/j.marmicro.2006.05.007
Holbourn AE, 2018, NAT COMMUN, V9, DOI 10.1038/s41467-018-03950-1
Jamson KM, 2022, PALAEONTOLOGY, V65, DOI 10.1111/pala.12615
Javaux Emmanuelle J., 2003, Palaeontologia Electronica, V6, P1
Jorissen FJ, 1995, MAR MICROPALEONTOL, V26, P3, DOI 10.1016/0377-8398(95)00047-X
Jorissen FJ, 2007, DEV MARINE GEOL, V1, P263, DOI 10.1016/S1572-5480(07)01012-3
Katz O, 2020, GEOL SOC SPEC PUBL, V500, P377, DOI 10.1144/SP500-2019-170
Kender S, 2019, J MICROPALAEONTOL, V38, P177, DOI 10.5194/jm-38-177-2019
Khim BK, 2020, GEOL MAG, V157, P1012, DOI 10.1017/S0016756818000870
Krishna KS, 2006, TECTONICS, V25, DOI 10.1029/2004TC001747
Krishna MR, 2002, MAR GEOPHYS RES, V23, P25, DOI 10.1023/A:1021288003781
Lafuerza S, 2012, MAR GEOL, V307, P1, DOI 10.1016/j.margeo.2012.02.010
Li W, 2016, EARTH PLANET SC LETT, V451, P272, DOI 10.1016/j.epsl.2016.07.007
Loeblich A. R., 1964, GEOL SOC INDIA, V5, P5, DOI [DOI 10.17491/JGSI/1964/050108, 10.17491/jgsi/1964/050108]
LOEBLICH AR, 1984, MICROPALEONTOLOGY, V30, P1, DOI 10.2307/1485456
Majumder J, 2022, PALAEOGEOGR PALAEOCL, V591, DOI 10.1016/j.palaeo.2022.110891
Martinot C, 2022, PALEOCEANOGR PALEOCL, V37, DOI 10.1029/2021PA004407
Martins M VA., 2019, Monitoring of Marine Pollution, P1
Maslin M, 2005, QUATERNARY SCI REV, V24, P2180, DOI 10.1016/j.quascirev.2005.01.016
Masson DG, 2006, PHILOS T R SOC A, V364, P2009, DOI 10.1098/rsta.2006.1810
Masud-Ul-Alam M, 2022, REG STUD MAR SCI, V53, DOI 10.1016/j.rsma.2022.102417

Melis R, 2020, GEOSCIENCES, V10, DOI 10.3390/geosciences10100413
Mohan K, 2011, J MICROPALAEONTOL, V30, P33, DOI 10.1144/0262-821X10-008
Murgese DS, 2005, MAR MICROPALEONTOL, V56, P25, DOI 10.1016/j.marmicro.2005.03.005
Murray JW, 2006, ECOLOGY AND APPLICATIONS OF BENTHIC FORAMINIFERA, P1, DOI 10.1017/CBO9780511535529
Nair N, 2021, GEOSCI FRONT, V12, DOI 10.1016/j.gsf.2020.11.008
Pandey DK, 2020, GEOL MAG, V157, P834, DOI 10.1017/S0016756818000833
Pandey D.K., 2020, Dyn. Earth Syst., P1
Pandey DK, 2019, NAT COMMUN, V10, DOI 10.1038/s41467-019-10227-8
Panieri G, 2012, MAR GEOL, V291, P97, DOI 10.1016/j.margeo.2011.11.005
Pathak VK, 2021, J EARTH SYST SCI, V130, DOI 10.1007/s12040-021-01659-2
Pawlowski J, 2013, MAR MICROPALEONTOL, V100, P1, DOI 10.1016/j.marmicro.2013.04.002
Piotrowski AM, 2009, EARTH PLANET SC LETT, V285, P179, DOI 10.1016/j.epsl.2009.06.007
Polonia A, 2015, MAR GEOL, V361, P41, DOI 10.1016/j.margeo.2015.01.001
Prabhat P, 2022, NAT COMMUN, V13, DOI 10.1038/s41467-022-35145-0
Risgaard-Petersen N, 2006, NATURE, V443, P93, DOI 10.1038/nature05070
Romano E, 2022, GEOSCIENCES, V12, DOI 10.3390/geosciences12010042
Routledge CM, 2020, GEOL MAG, V157, P961, DOI 10.1017/S0016756819000104
Ruano P, 2014, GLOBAL PLANET CHANGE, V123, P374, DOI 10.1016/j.gloplacha.2014.06.009
Runarsdottir R.H., 2016, Doctoral dissertation
Saravanan P, 2020, MAR MICROPALEONTOL, V160, DOI 10.1016/j.marmicro.2020.101905
Saravanan P, 2019, J ASIAN EARTH SCI, V181, DOI 10.1016/j.jseaes.2019.103915
Schmidt H., 2020, Ocean Sci. Discuss., V2020, P1
Schröder-Adams CJ, 2014, ESTUAR COAST SHELF S, V139, P78, DOI 10.1016/j.ecss.2013.12.006
Shannon C.E., 1949, MATH THEORY COMMUNIC
Shetye SR, 1996, J GEOPHYS RES-OCEANS, V101, P14011, DOI 10.1029/95JC03307
Singh AD, 2015, QUATERN INT, V374, P118, DOI 10.1016/j.quaint.2014.11.052
Sugawara D, 2009, ISL ARC, V18, P513, DOI 10.1111/j.1440-1738.2009.00677.x
Thena T., 2023, Evol. Earth, V1
Thena T, 2021, REG STUD MAR SCI, V47, DOI 10.1016/j.rsma.2021.101949
Thena T, 2021, POLAR SCI, V28, DOI 10.1016/j.polar.2021.100659
Tripathi S, 2017, SCI REP-UK, V7, P1, DOI [10.26700/shuri.2017.04.7.1.1, 10.1038/srep43056, 10.26700/shuri.2017.04.7.1.1, 10.1038/s41598-017-04995-w]
VANMARLE LJ, 1988, MAR MICROPALEONTOL, V13, P97, DOI 10.1016/0377-8398(88)90001-1
Verma K, 2022, PALAEOGEOGR PALAEOCL, V589, DOI 10.1016/j.palaeo.2022.110844
Wollenburg JE, 2000, MAR MICROPALEONTOL, V40, P189, DOI 10.1016/S0377-8398(00)00039-6
Zu B, 2019, MINERALS-BASEL, V9, DOI 10.3390/min9040243

Cited Reference Count: 95

Abstract: Submarine mass transport deposits (MTDs) are sedimentary deposits formed by transporting large amounts of sediment downslope, usually in a marine setting. Evidence of such deposits was found in the Laxmi Basin, Arabian Sea, during the International Ocean Discovery Program (IODP) Expedition 355. The MTDs of the Laxmi Basin include matrix-supported carbonate breccia, reworked Indus-derived sediment, material from western Indian rivers, and some from the Deccan Traps. It is estimated to have occurred during the Late Miocene period (similar to 11 to 9 Ma). The diverse sediment sources suggest that the region had undergone significant sedimentary loading, contributing to instability. In this study, we conducted foraminiferal analysis to examine the benthic foraminiferal groups within MTDs to gain insights into the environmental conditions during deposition and subsequent reworking. Benthic foraminiferal communities in MTDs show reduced diversity and altered abundance compared to undisturbed sediments in the region, reflecting the stress and rapid deposition associated with mass transport events. The specific group of species belonging to Cibicidoides, Epistominella, Gavelinopsis, and Oridorsalis taxa struggled to exist due to changes in sediment texture, which further primed variation in the organic matter affecting the foraminiferal food sources. The benthic foraminifera, which were considered as oxygen minimum zone (OMZ) taxa were buried, leaving behind broken fragments during the event and affecting the region's abundance, diversity, and community structure. The bottom water oxygen estimated in these sediments was less than 0.7 mL/L, revealing the dysoxic conditions that altered the sediment nutrient distribution during deposition. The diversity index shows a significant decrease during MTD, indicating that the benthic foraminiferal community is experiencing gradual recovery or shifts in species composition over time. This process is characterized by succession, where pioneer species colonize the new sediments before a more stable community establishes itself. Despite the challenges, the foraminiferal and geochemical proxies demonstrate the importance of understanding the paleoenvironmental impacts associated with MTD.

Accession Number: WOS:001541604400001

Language: English

Document Type: Article

Author Keywords: Mass Transport Deposit; Benthic Foraminifera; Oxygen Minimum Zone; Laxmi Basin; Arabian Sea

KeyWords Plus: INDIAN-OCEAN; CONTINENTAL-MARGIN; SPECIES-DIVERSITY; PRODUCTIVITY; TRANSPORT; MIOCENE; CARBON; MODEL; CIRCULATION; INITIATION

Addresses: [Thena, Thulasi; Nair, Nisha] Minist Earth Sci, Natl Ctr Polar & Ocean Res NCPOR, Vasco Da Gama 403804, Goa, India.
[Pandey, Dhananjai Kumar] Jawaharlal Nehru Univ, Sch Environm Sci, New Delhi 110067, India.

Corresponding Address: Thena, T (corresponding author), Minist Earth Sci, Natl Ctr Polar & Ocean Res NCPOR, Vasco Da Gama 403804, Goa, India.

E-mail Addresses: thenadoss@ncpor.res.in

Affiliations: Ministry of Earth Sciences (MoES) - India; National Centre for Polar and Ocean Research (NCPOR); Jawaharlal Nehru University, New Delhi

Author Identifiers:

Author	Web of Science ResearcherID	ORCID Number
Pandey, Dhananjai	HTO-0167-2023	

Publisher: ELSEVIER

Publisher Address: RADARWEG 29, 1043 NX AMSTERDAM, NETHERLANDS

Web of Science Index: Science Citation Index Expanded (SCI-EXPANDED)

Web of Science Categories: Geography, Physical; Geosciences, Multidisciplinary; Paleontology

Research Areas: Physical Geography; Geology; Paleontology

IDS Number: 5QA5B

ISSN: 0031-0182

eISSN: 1872-616X

29-char Source Abbrev.: PALAEOGEOGR PALAEOCL

ISO Source Abbrev.: Paleogeogr. Paleoclimatol. Paleoecol.

Source Item Page Count: 12

Funding:

Funding Agency	Grant Number
SAGE-IODP Program	MoES/PO (Seismo) /8 (16) 2020

The authors of the manuscript wish to express gratitude to the Director of NCPOR, Ministry of Earth Sciences (MoES), India, for the encouragement and support provided under the SAGE-IODP Program through Grant No. MoES/PO (Seismo) /8 (16) 2020. Our sincere acknowledgment to the R/V JOIDES

Resolution and IODP for providing the marine core sediment samples from IODP Expedition 355. We also thank Dr. Rahul Mohan for his support in utilizing the facilities at the Geology and Microscope laboratory. We thank the editor and the two anonymous reviewers for their constructive comments. This is NCPOR Contribution Number J-28/2025-26.

Output Date: 2025-11-11

Record 24 of 56

Title: Hydrodynamic equations for a system with translational and rotational dynamics

Author(s): Yoshimori, A (Yoshimori, Akira); Das, SP (Das, Shankar P.)

Source: PHYSICAL REVIEW E **Volume:** 112 **Issue:** 4 **Article Number:** 045101 **DOI:** 10.1103/hbqb-ksrc **Published Date:** 2025 OCT 6

Times Cited in Web of Science Core Collection: 0

Total Times Cited: 0

Usage Count (Last 180 days): 1

Usage Count (Since 2013): 1

Cited References: AILAWADI NK, 1971, PHYS REV A, V3, P1472, DOI 10.1103/PhysRevA.3.1472
Andreanov A, 2006, J STAT MECH-THEORY E, DOI 10.1088/1742-5468/2006/07/P07008
Archer AJ, 2004, J PHYS A-MATH GEN, V37, P9325, DOI 10.1088/0305-4470/37/40/001
Aron C, 2016, J STAT MECH-THEORY E, DOI 10.1088/1742-5468/2016/05/053207
Aron C, 2014, J STAT MECH-THEORY E, DOI 10.1088/1742-5468/2014/09/P09008
Bertin E, 2006, PHYS REV E, V74, DOI 10.1103/PhysRevE.74.022101
Bidhoodi N, 2015, PHYS REV E, V92, DOI 10.1103/PhysRevE.92.012325
BIXON M, 1969, PHYS REV, V187, P267, DOI 10.1103/PhysRev.187.267
CHANDLER D, 1972, J CHEM PHYS, V57, P1930, DOI 10.1063/1.1678513
CHANDRA A, 1989, J CHEM PHYS, V91, P1829, DOI 10.1063/1.457088
Chandra A., 1991, ADV CHEM PHYS, V80, P1
Chandrasekhar S, 1943, REV MOD PHYS, V15, P0001, DOI 10.1103/RevModPhys.15.1
Cugliandolo LF, 2015, PHYS REV E, V91, DOI 10.1103/PhysRevE.91.032139
DAHLER JS, 1959, J CHEM PHYS, V30, P1447, DOI 10.1063/1.1730220
DAHLER JS, 1961, NATURE, V192, P36, DOI 10.1038/192036a0
Das S., 2011, Statistical Physics of Liquids at Freezing and Beyond
Das S. P., 1986, Physical Review A (General Physics), V34, P2265, DOI 10.1103/PhysRevA.34.2265
Das SP, 2013, PHYS REV E, V88, DOI 10.1103/PhysRevE.88.043008
Das SP, 2013, J STAT PHYS, V152, P159, DOI 10.1007/s10955-013-0755-3
Das SP, 2012, J STAT PHYS, V149, P643, DOI 10.1007/s10955-012-0610-y
Das SP, 2009, PHYS REV E, V79, DOI 10.1103/PhysRevE.79.021504
DAS SP, 1990, PHYS REV A, V42, P6116, DOI 10.1103/PhysRevA.42.6116
Das SP, 2004, REV MOD PHYS, V76, P785, DOI 10.1103/RevModPhys.76.785
de Gennes P.G., 1995, PHYS LIQUID CRYSTALS, V2nd
Dean DS, 1996, J PHYS A-MATH GEN, V29, P7867, DOI 10.1088/0305-4470/29/24/012
Debye P., 1929, POLAR MOL
DEDOMINICIS C, 1978, PHYS REV B, V18, P4913, DOI 10.1103/PhysRevB.18.4913
Dzyloshinski E., 1980, Ann. Phys., V67, P125
Einstein A, 1906, ANN PHYS-BERLIN, V19, P371
Escudero C, 2023, Arxiv, DOI arXiv:2309.03654
Escudero C, 2023, PHYS SCRIPTA, V98, DOI 10.1088/1402-4896/acc98a
Español P, 2009, J CHEM PHYS, V131, DOI 10.1063/1.3266943
Evans L.C., 2012, INTRO STOCHASTIC DIF

FORSTER D, 1977, PHYS REV A, V16, P732, DOI 10.1103/PhysRevA.16.732
Forster D., 1995, Hydrodynamic Fluctuations, Broken Symmetry, And Correlation Functions, Advanced Books Classics
FOX RF, 1987, J STAT PHYS, V46, P1145, DOI 10.1007/BF01011160
Frusawa H, 2000, J PHYS A-MATH GEN, V33, pL155, DOI 10.1088/0305-4470/33/15/101
Fürthauer S, 2012, EUR PHYS J E, V35, DOI 10.1140/epje/i2012-12089-6
GOLDSTONE J, 1961, NUOVO CIMENTO, V19, P154, DOI 10.1007/BF02812722
Arenas ZG, 2012, J STAT MECH-THEORY E, DOI 10.1088/1742-5468/2012/12/P12005
Gray C. G., 1984, Theory of Mol. Liquids, V1
Han M, 2021, NAT PHYS, V17, P1260, DOI 10.1038/s41567-021-01360-7
Han Y, 2006, SCIENCE, V314, P626, DOI 10.1126/science.1130146
HANGGI P, 1980, HELV PHYS ACTA, V53, P491
Hansen J.P., 1986, THEORY SIMPLE LIQUID, VSecond
HOHENBERG PC, 1977, REV MOD PHYS, V49, P435, DOI 10.1103/RevModPhys.49.435
Honkonen J, 2012, Arxiv, DOI arXiv:1102.1581
Ito K., 1944, P IMP ACAD, V20, P519, DOI [DOI 10.3792/PIA/1195572786, 10.3792/pia/1195572786]
JANSSEN HK, 1976, Z PHYS B CON MAT, V23, P377, DOI 10.1007/BF01316547
Brey JJ, 2009, PHYS REV E, V79, DOI 10.1103/PhysRevE.79.051305
Kawasaki K., 1995, Transport Theory and Statistical Physics, V24, P755, DOI 10.1080/00411459508203934
Kawasaki K, 1997, Z PHYS B CON MAT, V103, P423, DOI 10.1007/s002570050396
Kawasaki K., 1994, Physica A, V35, P208
KELLER EF, 1971, J THEOR BIOL, V30, P225, DOI 10.1016/0022-5193(71)90050-6
KLIMONTOVICH YL, 1990, PHYSICA A, V163, P515, DOI 10.1016/0378-4371(90)90142-F
KLIMONTOVICH YL, 1992, PHYSICA A, V182, P121, DOI 10.1016/0378-4371(92)90233-G
Klimontovich Yu. L., 1994, Physics-Uspekhi, V37, P737, DOI 10.1070/PU1994v037n08ABEH000038
Kuo HH, 2006, UNIVERSITEXT, P1
Kupferman R, 2004, PHYS REV E, V70, DOI 10.1103/PhysRevE.70.036120
Landau L. D., 1983, Mechanics
LANGER JS, 1973, PHYS REV A, V8, P3230, DOI 10.1103/PhysRevA.8.3230
Langevin P., 1903, C. R. Acad. Sci. Paris, V146, P530
Lindner B, 2007, NEW J PHYS, V9, DOI 10.1088/1367-2630/9/5/136
Ma S.K., 2000, Modern Theory Of Critical Phenomena
MA SK, 1975, PHYS REV B, V11, P4077, DOI 10.1103/PhysRevB.11.4077
Mahdisoltani S, 2021, PHYS REV RES, V3, DOI 10.1103/PhysRevResearch.3.013100
Mannella R, 2012, FLUCT NOISE LETT, V11, DOI 10.1142/S021947751240010X
Marconi UMB, 2000, J PHYS-CONDENS MAT, V12, pA413, DOI 10.1088/0953-8984/12/8A/356
Markovich T, 2019, NEW J PHYS, V21, DOI 10.1088/1367-2630/ab54af
Martin P. C., 1973, Physical Review A (General Physics), V8, P423, DOI 10.1103/PhysRevA.8.423
MARTIN PC, 1972, PHYS REV A-GEN PHYS, V6, P2401, DOI 10.1103/PhysRevA.6.2401
MCCONNELL J, 1977, P ROY IRISH ACAD A, V77, P13
McQuarie D.A., 2000, STAT MECH
MONASSON R, 1995, PHYS REV LETT, V75, P2847, DOI 10.1103/PhysRevLett.75.2847
MUNAKATA T, 1994, PHYS REV E, V50, P2347, DOI 10.1103/PhysRevE.50.2347
Munakata T, 1996, AUST J PHYS, V49, P25, DOI 10.1071/PH960025
Nakamura T, 2009, J PHYS A-MATH THEOR, V42, DOI 10.1088/1751-8113/42/6/065001
NAMBU Y, 1961, PHYS REV, V122, P345, DOI 10.1103/PhysRev.122.345
Oksendal B., 2003, STOCHASTIC DIFFERENT, VSixth, DOI [10.1007/978-3-642-14394-6, DOI 10.1007/978-3-642-14394-6]
Ornstein L. S., 1917, Proc. Akad. Sci. (Amsterdam), V17, P793
Penna F, 2006, J CHEM PHYS, V124, DOI 10.1063/1.2189243

Pokrovsky L. A., 1967, Rep. USSR Acad. Sci, V177, pN5
Pokrovsky L. A., 1968, Sov. Phys. Doklady, V12, P1135
RAMAKRISHNAN TV, 1979, PHYS REV B, V19, P2775, DOI 10.1103/PhysRevB.19.2775
Risken H., 1984, FOKKER PLANCK EQUATI
Russo A, 2020, J PHYS A-MATH THEOR, V53, DOI 10.1088/1751-8121/ab9e8d
Sabrina S, 2015, SOFT MATTER, V11, P8409, DOI 10.1039/c5sm01753j
Soni V., 2019, Nat. Phys
Stark H, 2005, PHYS REV E, V72, DOI 10.1103/PhysRevE.72.051714
Stratonovich R.L., 1966, SIAM J. Control, V4, P362, DOI [DOI 10.1137/0304028, 10.1137/0304028]
Tjhung E, 2017, P NATL ACAD SCI USA, V114, P4631, DOI 10.1073/pnas.1619960114
TONER J, 1995, PHYS REV LETT, V75, P4326, DOI 10.1103/PhysRevLett.75.4326
Tucci G, 2024, NEW J PHYS, V26, DOI 10.1088/1367-2630/ad50ff
Uhlenbeck GE, 1930, PHYS REV, V36, P0823, DOI 10.1103/PhysRev.36.823
VanKampen NG, 2007, NORTH-HOLL PERS LIBR, P1
VANKAMPEN NG, 1981, J STAT PHYS, V24, P175, DOI 10.1007/BF01007642
Vardhan P, 2022, PHYS REV E, V105, DOI 10.1103/PhysRevE.105.024110
Velenich A, 2008, J PHYS A-MATH THEOR, V41, DOI 10.1088/1751-8113/41/23/235002
WILSON KG, 1983, REV MOD PHYS, V55, P583, DOI 10.1103/RevModPhys.55.583
Wittkowski R, 2011, MOL PHYS, V109, P2935, DOI 10.1080/00268976.2011.609145
Wu SW, 2004, PHYS REV B, V70, DOI 10.1103/PhysRevB.70.024207
Yadav S. K., 2018, Phys. Rev. E., V76, P785
Yoshimori A, 2005, PHYS REV E, V71, DOI 10.1103/PhysRevE.71.031203
Zuberav D. N., 1997, Statistical Mechan-ics of Non-Equilibrium Processes, VI

Cited Reference Count: 104

Abstract: We obtain the equations of fluctuating hydrodynamics for many-particle systems whose microscopic units have both translational and rotational motion. The orientational dynamics of each element are studied in terms of Langevin equations for the rotational motion of a corresponding fixed-length director u. We consider the microscopic dynamics for two separate choices of basic variables: Brownian dynamics for position, Fokker-Planck dynamics for position, and momentum. In each case of the microscopic dynamics, the time evolution of a corresponding set of collective densities {psi} has been obtained as an exact representation. For the Brownian dynamics, noise in the Langevin equation for the director u is multiplicative. The corresponding equation of motion for the collective number-density rho has two different forms, respectively, for the Ito and Stratonvich interpretation of the multiplicative noise in the u equation. Without the u variable, both forms reduce to the standard Dean-Kawasaki form. We average the microscopic equations for the collective densities {psi} (which are, at this stage, a collection of Dirac delta functions) over the phase space variables and obtain a corresponding set of stochastic partial differential equations for the coarse-grained densities {psi} with smooth spatial and temporal dependence. For averaging, we use a general local-equilibrium distribution involving an extended set of dynamical variables for the rotational motion. The coarse-grained equations of motion for the collective densities {psi} constitute the fluctuating nonlinear hydrodynamics (FNH) for the fluid with both rotational and translational dynamics. From the stationary solution of the (deterministic) equation for the probability distribution P[psi], we obtain a free-energy functional F[psi]. The F[psi]s for the different FNH descriptions with their corresponding set of {psi} are also worked out.

Accession Number: WOS:001601314000003

Language: English

Document Type: Article

KeyWords Plus: DENSITY-FUNCTIONAL THEORY; COLLECTIVE ORIENTATIONAL RELAXATION; GLASS-TRANSITION; RENORMALIZATION-GROUP; ANGULAR-MOMENTUM; KINETIC-THEORY; MODEL; FORMULATION; PARTICLES; ORDER

Addresses: [Yoshimori, Akira] Niigata Univ, Dept Phys, Niigata 9502181, Japan.
[Das, Shankar P.] Jawaharlal Nehru Univ, Sch Phys Sci, New Delhi 110067, India.

Corresponding Address: Yoshimori, A (corresponding author), Niigata Univ, Dept Phys, Niigata 9502181, Japan.

Affiliations: Niigata University; Jawaharlal Nehru University, New Delhi

Publisher: AMER PHYSICAL SOC

Publisher Address: ONE PHYSICS ELLIPSE, COLLEGE PK, MD 20740-3844 USA

Web of Science Index: Science Citation Index Expanded (SCI-EXPANDED)

Web of Science Categories: Physics, Fluids & Plasmas; Physics, Mathematical

Research Areas: Physics

IDS Number: 8ZX2N

ISSN: 2470-0045

eISSN: 2470-0053

29-char Source Abbrev.: PHYS REV E

ISO Source Abbrev.: Phys. Rev. E

Source Item Page Count: 21

Output Date: 2025-11-11

Record 25 of 56

Title: Cerium-based nanoparticles for neurodegeneration: emerging redox therapeutics beyond pharmaceuticals

Author(s): Mishra, K (Mishra, Keerti); Tripathi, S (Tripathi, Shourya); Tiwari, AK (Tiwari, Amrendra K.); Rana, R (Rana, Rafquat); Yadav, P (Yadav, Pooja); Chourasia, MK (Chourasia, Manish K.)

Source: RSC ADVANCES **Volume:** 15 **Issue:** 45 **Pages:** 37540-37569 **DOI:** 10.1039/d5ra03599f **Published Date:** 2025 OCT 8

Times Cited in Web of Science Core Collection: 0

Total Times Cited: 0

Usage Count (Last 180 days): 2

Usage Count (Since 2013): 2

Cited References: Abbott NJ, 2006, NAT REV NEUROSCI, V7, P41, DOI 10.1038/nrn1824
Abdelalim LR, 2025, COLLOID SURFACE B, V245, DOI 10.1016/j.colsurfb.2024.114271
Alkahtani S, 2023, INT J MOL SCI, V24, DOI 10.3390/ijms24021340
Aloufi B., 2017, Investigating Ceria Nanocrystals Uptake by Glioblastoma Multiforme Cells and its Related Effects: An Electron Microscopy Study
Amor S, 2010, IMMUNOLOGY, V129, P154, DOI 10.1111/j.1365-2567.2009.03225.x
Angeloni C, 2023, ANTIOXIDANTS-BASEL, V12, DOI 10.3390/antiox12010094
Attia MS, 2023, SAUDI PHARM J, V31, P417, DOI 10.1016/j.jsps.2023.01.009
Banerjee A, 2016, J CONTROL RELEASE, V238, P176, DOI 10.1016/j.jconrel.2016.07.051
Bao QQ, 2018, ACS NANO, V12, P6794, DOI 10.1021/acsnano.8b01994
Barker E, 2022, MOLECULES, V27, DOI 10.3390/molecules27092678
Barnham KJ, 2004, NAT REV DRUG DISCOV, V3, P205, DOI 10.1038/nrd1330
Begines B, 2020, NANOMATERIALS-BASEL, V10, DOI 10.3390/nano10071403
Bishop NA, 2010, NATURE, V464, P529, DOI 10.1038/nature08983
Brasnjevic I, 2009, PROG NEUROBIOL, V87, P212, DOI 10.1016/j.pneurobio.2008.12.002
Breijyeh Z, 2020, MOLECULES, V25, DOI 10.3390/molecules25245789
Brown RC, 2005, ENVIRON HEALTH PERSP, V113, P1250, DOI 10.1289/ehp.7567

Bruijn LI, 1998, SCIENCE, V281, P1851, DOI 10.1126/science.281.5384.1851
Cadenas E, 2000, FREE RADICAL BIO MED, V29, P222, DOI 10.1016/S0891-5849(00)00317-8
Casals E, 2020, SMALL, V16, DOI [10.1002/smll.202070111, 10.1002/smll.201907322]
Chen L, 2018, ACS NANO, V12, P1321, DOI 10.1021/acsnano.7b07625
Chen WY, 2003, ANAL CHEM, V75, P4223, DOI 10.1021/ac0300439
Chen XJ, 2015, Integrative Medicine International, V1, P223, DOI [10.1159/000381546, DOI 10.1159/000381546, 10.1159/000381546]
Chen Y, 2012, ADV DRUG DELIVER REV, V64, P640, DOI 10.1016/j.addr.2011.11.010
Cheng M, 2025, NAT NEUROSCI, V28, DOI 10.1038/s41593-025-01896-4
Ciofani G, 2014, BBA-GEN SUBJECTS, V1840, P495, DOI 10.1016/j.bbagen.2013.10.009
Ciofani G, 2013, PHARM RES-DORDR, V30, P2133, DOI 10.1007/s11095-013-1071-y
Correia AC, 2022, ADV DRUG DELIVER REV, V189, DOI 10.1016/j.addr.2022.114485
D'Angelo B, 2009, CURR NANOSCI, V5, P167, DOI 10.2174/157341309788185523
Daneman R, 2015, CSH PERSPECT BIOL, V7, DOI 10.1101/cshperspect.a020412
Das G. K., 2012, Rare Earth Nanotechnology, V1st
Davis ME, 2016, CLIN J ONCOL NURS, V20, P2, DOI 10.1188/16.CJON.S1.2-8
DeCoteau W, 2016, NANOMED-NANOTECHNOL, V12, P2311, DOI 10.1016/j.nano.2016.06.009
Department of Physiology Erzincan Binali Yildirim University Faculty of Medicine Erzincan Turkiye, 2023, Archives of Basic and Clinical Research, V5, P284, DOI 10.5152/abcr.2023.23150
Devraj K, 2011, J NEUROSCI RES, V89, P1913, DOI 10.1002/jnr.22738
Dias V, 2013, J PARKINSON DIS, V3, P461, DOI 10.3233/JPD-130230
Dong DL, 2024, INT J MOL SCI, V25, DOI 10.3390/ijms252413281
Dowding JM, 2014, CELL DEATH DIFFER, V21, P1622, DOI 10.1038/cdd.2014.72
Duraes F, 2018, PHARMACEUTICALS-BASE, V11, DOI 10.3390/ph11020044
Eitan E, 2015, EXP NEUROL, V273, P151, DOI 10.1016/j.expneurol.2015.08.008
Eleftheria M., 2025, Sci. Rep, V15, P1
Eleftheriadou D, 2020, SMALL, V16, DOI 10.1002/smll.201907308
Estevez AY, 2011, FREE RADICAL BIO MED, V51, P1155, DOI 10.1016/j.freeradbiomed.2011.06.006
Farahmandjou M, 2016, REV MEX FIS, V62, P496
Far BF, 2024, J MATER CHEM B, V12, P609, DOI 10.1039/d3tb01786a
FEARNLEY JM, 1991, BRAIN, V114, P2283, DOI 10.1093/brain/114.5.2283
Feske SK, 2021, AM J MED, V134, P1457, DOI 10.1016/j.amjmed.2021.07.027
Figueira RB, 2015, J COAT TECHNOL RES, V12, P1, DOI 10.1007/s11998-014-9595-6
Fischer MT, 2013, BRAIN, V136, P1799, DOI 10.1093/brain/awt110
Fischer R, 2015, OXID MED CELL LONGEV, V2015, DOI 10.1155/2015/610813
Forman MS, 2004, NAT MED, V10, P1055, DOI 10.1038/nm1113
Foroutan Z, 2022, CERAM INT, V48, P30441, DOI 10.1016/j.ceramint.2022.06.322
Gadhave DG, 2024, AGEING RES REV, V99, DOI 10.1016/j.arr.2024.102357
Gai SL, 2014, CHEM REV, V114, P2343, DOI 10.1021/cr4001594
Gangopadhyay S, 2014, J ALLOY COMPD, V584, P199, DOI 10.1016/j.jallcom.2013.09.013
Ghahramani Z, 2020, INT J APPL CERAM TEC, V17, P1514, DOI 10.1111/ijac.13365
Ghotekar S, 2023, TOP CATAL, V66, P89, DOI 10.1007/s11244-022-01630-5
Glowniak S, 2023, MOLECULES, V28, DOI 10.3390/molecules28062639
Grabrucker AM, 2016, TISSUE BARRIERS, V4, DOI 10.1080/21688370.2016.1153568
Gu YT, 2013, NEUROPHARMACOLOGY, V75, P407, DOI 10.1016/j.neuropharm.2013.08.004
Guan YJ, 2016, CHEM-EUR J, V22, P14523, DOI 10.1002/chem.201603233
Gupta A, 2016, J MATER CHEM B, V4, P3195, DOI 10.1039/c6tb00396f
GUSELLA JF, 1983, NATURE, V306, P234, DOI 10.1038/306234a0
Haider L, 2011, BRAIN, V134, P1914, DOI 10.1093/brain/awr128
Halliday GM, 2010, ANN NY ACAD SCI, V1184, P188, DOI 10.1111/j.1749-6632.2009.05118.x
Han X, 2024, ACS NANO, V18, P19836, DOI 10.1021/acsnano.4c06616

Hanzha VV, 2023, FRONT CELL NEUROSCI, V17, DOI 10.3389/fncel.2023.1131168
Haque S., 2022, Nanomedical Drug Delivery for Neurodegenerative Diseases
Hawkins BT, 2005, PHARMACOL REV, V57, P173, DOI 10.1124/pr.57.2.4
Heckman KL, 2013, ACS NANO, V7, P10582, DOI 10.1021/nn403743b
Hegazy MA, 2017, NEUROCHEM INT, V108, P361, DOI 10.1016/j.neuint.2017.05.011
Hegazy MA, 2017, ALEX J MED, V53, P351, DOI 10.1016/j.ajme.2016.12.006
Hekmatimoghadam S. H., 2018, Beyhagh, V23, P21
Hsieh HL, 2013, BIOMED RES INT, V2013, DOI 10.1155/2013/484613
Hu CL, 2020, ASIAN J PHARM SCI, V15, P131, DOI 10.1016/j.ajps.2019.09.002
Hu Y, 2023, INT J NANOMED, V18, P6797, DOI 10.2147/IJN.S434873
Huang HQ, 2023, PHARMACEUTICS, V15, DOI 10.3390/pharmaceutics15071868
Jiang ZG, 2024, J CONTROL RELEASE, V365, P1074, DOI 10.1016/j.jconrel.2023.12.016
Karkan Sonia Fathi, 2019, Nanomedicine Research Journal, V4, P209, DOI [10.22034/nmrj.2019.04.002, 10.22034/nmrj.2019.04.002]
Khaledian S, 2022, J MOL LIQ, V346, DOI 10.1016/j.molliq.2021.118278
Kim CK, 2012, ANGEW CHEM INT EDIT, V51, P11039, DOI 10.1002/anie.201203780
Kim D, 2019, ADV MATER, V31, DOI 10.1002/adma.201807965
Kobelt G, 2017, MULT SCLER J, V23, P1123, DOI 10.1177/1352458517694432
Konstantinov K, 2000, INT J INORG MATER, V2, P277, DOI 10.1016/S1466-6049(00)00024-6
Koula G, 2024, NANOMEDICINE-UK, V19, P1389, DOI 10.1080/17435889.2024.2350357
Kulkarni M, 2024, ADMET DMPK, V12, DOI 10.5599/admet.2043
Kumar R, 2025, SCI REP-UK, V15, DOI 10.1038/s41598-025-04843-2
Kusuma KB, 2022, APPL SURF SCI ADV, V11, DOI 10.1016/j.apsadv.2022.100304
Kwon HJ, 2018, ANGEW CHEM INT EDIT, V57, P9408, DOI 10.1002/anie.201805052
Kwon HJ, 2016, ACS NANO, V10, P2860, DOI 10.1021/acsnano.5b08045
Lamptey RNL, 2022, INT J MOL SCI, V23, DOI 10.3390/ijms23031851
Li J., 2016, Handbook of Nanoparticles, P295, DOI DOI 10.1007/978-3-319-15338-4_17
Li M, 2013, CHEM SCI, V4, P2536, DOI 10.1039/c3sc50697e
Li X, 2022, BIOMATERIALS, V291, DOI 10.1016/j.biomaterials.2022.121904
Liao J, 2024, ACS NANO, V18, P5510, DOI 10.1021/acsnano.3c10982
Lin MT, 2006, NATURE, V443, P787, DOI 10.1038/nature05292
Lord MS, 2021, SMALL, V17, DOI 10.1002/smll.202102342
Loscher Wolfgang, 2005, NeuroRx, V2, P86, DOI 10.1602/neurorx.2.1.86
Ma J, 2025, J NANOBIOTECHNOL, V23, DOI 10.1186/s12951-025-03263-8
Ma SH, 2005, LAB CHIP, V5, P74, DOI 10.1039/b405713a
MACDONALD ME, 1993, CELL, V72, P971, DOI 10.1016/0092-8674(93)90585-E
Machhi J, 2022, ACS CHEM NEUROSCI, V13, P1232, DOI 10.1021/acschemneuro.1c00847
Margolis RL, 2001, ANN NEUROL, V50, P373, DOI 10.1002/ana.1312
McBean GJ, 2017, BRIT J PHARMACOL, V174, P1750, DOI 10.1111/bph.13551
Miao DY, 2025, NAT PROTOC, V20, DOI 10.1038/s41596-024-01115-7
Mishra S, 2020, J PHYS CHEM SOLIDS, V137, DOI 10.1016/j.jpcs.2019.109211
Modi G, 2009, PROG NEUROBIOL, V88, P272, DOI 10.1016/j.pneurobio.2009.05.002
Mohammad, 2023, FRONT PHARMACOL, V14, DOI 10.3389/fphar.2023.1188470
Monfared AAT, 2022, NEUROL THER, V11, P553, DOI 10.1007/s40120-022-00338-8
Nadeem M, 2020, INT J NANOMED, V15, P5951, DOI 10.2147/IJN.S255784
Nelson BC, 2016, ANTIOXIDANTS-BASEL, V5, DOI 10.3390/antiox5020015
Noh H, 2023, J IND ENG CHEM, V125, P277, DOI 10.1016/j.jiec.2023.05.037
Nosrati H, 2023, MATER TODAY BIO, V23, DOI 10.1016/j.mtbio.2023.100823
Nowak M, 2020, BIOENG TRANSL MED, V5, DOI 10.1002/btm2.10153
Nyoka M, 2020, NANOMATERIALS-BASEL, V10, DOI 10.3390/nano10020242
Othman A, 2024, MATER HORIZ, V11, P3213, DOI 10.1039/d4mh00055b

Pardridge WM, 2004, DRUG DISCOV TODAY, V9, P392, DOI 10.1016/S1359-6446(04)03065-X
Patzke GR, 2011, ANGEW CHEM INT EDIT, V50, P826, DOI 10.1002/anie.201000235
Preston Jane E, 2014, Adv Pharmacol, V71, P147, DOI 10.1016/bs.apha.2014.06.001
Rakhit R, 2002, J BIOL CHEM, V277, P47551, DOI 10.1074/jbc.M207356200
Rekatsina M, 2020, ADV THER, V37, P113, DOI 10.1007/s12325-019-01148-5
RICHTER C, 1988, P NATL ACAD SCI USA, V85, P6465, DOI 10.1073/pnas.85.17.6465
Ruotolo R, 2020, NANOMATERIALS-BASEL, V10, DOI 10.3390/nano10020235
Rzigalinski BA, 2017, WIRES NANOMED NANOBI, V9, DOI 10.1002/wnan.1444
Sadowska-Bartosz I, 2018, J NANOBIOTECHNOL, V16, DOI 10.1186/s12951-018-0412-8
Samii A, 2004, LANCET, V363, P1783, DOI 10.1016/S0140-6736(04)16305-8
Santos R, 2016, OXID MED CELL LONGEV, V2016, DOI 10.1155/2016/7632025
Saraiva C, 2016, J CONTROL RELEASE, V235, P34, DOI 10.1016/j.jconrel.2016.05.044
Saunders NR, 2013, MOL ASPECTS MED, V34, P742, DOI 10.1016/j.mam.2012.11.006
Schieber M, 2014, CURR BIOL, V24, pR453, DOI 10.1016/j.cub.2014.03.034
Selvaraj S, 2024, J INORG ORGANOMET P, V34, P5691, DOI 10.1007/s10904-024-03263-5
Singh KRB, 2020, RSC ADV, V10, P27194, DOI 10.1039/d0ra04736h
Singh N, 2021, ANGEW CHEM INT EDIT, V60, P3121, DOI 10.1002/anie.202011711
Sndharan P, 2020, J MATER SCI, V55, P11622, DOI 10.1007/s10853-020-04872-4
Stylianopoulos T, 2010, BIOPHYS J, V99, P1342, DOI 10.1016/j.bpj.2010.06.016
Thakur N, 2019, J NANOBIOTECHNOL, V17, DOI 10.1186/s12951-019-0516-9
Tremblay ME, 2011, J NEUROSCI, V31, P16064, DOI 10.1523/JNEUROSCI.4158-11.2011
Van Schependom J, 2023, J CLIN MED, V12, DOI 10.3390/jcm12051709
Wirsching H.-G., 2017, Malig. Brain Tumors, P265, DOI [DOI 10.1007/978-3-319-49864-518, 10.1007/978-3-319-49864-518]
Wu D, 2023, SIGNAL TRANSDUCT TAR, V8, DOI 10.1038/s41392-023-01481-w
Wu JR, 2023, ADV DRUG DELIVER REV, V197, DOI 10.1016/j.addr.2023.114820
Wu Y, 2021, J MATER CHEM B, V9, P7291, DOI 10.1039/d1tb01091c
Xu XL, 2021, J ALLOY COMPD, V887, DOI 10.1016/j.jallcom.2021.161237
Yang ANC, 2020, NATURE, V583, P425, DOI 10.1038/s41586-020-2453-z
Yang YC, 2023, FRONT IMMUNOL, V14, DOI 10.3389/fimmu.2023.1259797
Yaribeygi H, 2018, CNS NEUROL DISORD-DR, V17, P207, DOI 10.2174/1871527317666180425122557
Yue ZG, 2011, BIOMACROMOLECULES, V12, P2440, DOI 10.1021/bm101482r
Zhang J, 2001, CHEM MATER, V13, P4192, DOI 10.1021/cm010235p
Zhang L, 2020, CARDIOVASC ENG TECHN, V11, P607, DOI 10.1007/s13239-020-00496-6
Zhang RF, 2019, NANOMEDICINE IN BRAIN DISEASES: PRINCIPLES AND APPLICATION, P139, DOI 10.1007/978-981-13-8731-9_6
Zhang T, 2018, CURR MED SCI, V38, P144, DOI 10.1007/s11596-018-1858-5
Zhou D, 2016, J HUAZHONG U SCI-MED, V36, P480, DOI 10.1007/s11596-016-1612-9
Zhou YQ, 2018, J CONTROL RELEASE, V270, P290, DOI 10.1016/j.jconrel.2017.12.015
Zhu X., 2019, Brain Targeted Drug Delivery Systems: A Focus on Nanotechnology and Nanoparticulates
Zhu XJ, 2019, MATER HORIZ, V6, P1094, DOI 10.1039/c8mh01527a
Zonarsaghar A, 2022, INT J HYDROGEN ENERG, V47, P5403, DOI 10.1016/j.ijhydene.2021.11.183

Cited Reference Count: 155

Abstract: Delivering therapeutic agents across the blood-brain barrier (BBB) remains a formidable hurdle in the treatment of neurodegenerative diseases, which are primarily driven by mitochondrial dysfunction, oxidative stress, and neuroinflammation. Although our understanding of these disease mechanisms has advanced, effective treatments are still limited due to the restrictive nature of the BBB. In this context, nanotechnology has emerged as a promising approach, offering engineered nanocarriers capable of traversing the BBB and enabling targeted drug delivery to the brain. Amongst the various nanomaterials explored, cerium-based nanoparticles have gained particular attention as promising candidates for neurodegenerative disease therapy. Their multifunctionality stemming from reversible redox behaviour, enzyme-mimicking activity, sustained antioxidant effects, and anti-inflammatory properties, combined with their ability to penetrate the BBB and provide neuroprotection, positions them as a powerful platform for future therapeutic strategies. This review begins with a concise overview of the shared pathological mechanisms underlying neurodegenerative diseases, highlights BBB-related drug delivery challenges, and discusses nanocarrier strategies for brain targeting, focusing on cerium-based nanoparticles. We then delved into the structural features, synthesis techniques, and distinctive redox properties of cerium-based nanomaterials, with emphasis on cerium oxide and cerium vanadate. Their therapeutic potential is explored across Alzheimer's and Parkinson's diseases, as well as in stroke, multiple sclerosis, and glioblastoma. Key insights into their physicochemical properties, BBB permeability, and neuroprotective mechanisms are provided. We also address current limitations, including nanoparticle stability, toxicity, and translational barriers, and conclude with future directions for optimizing cerium-based nanozymes in neurotherapeutics.

Accession Number: WOS:001589896100001

PubMed ID: 41080679

Language: English

Document Type: Review

KeyWords Plus: BLOOD-BRAIN-BARRIER; OXIDE CEO2 NANOPARTICLES; OXIDATIVE STRESS; MULTIPLE-SCLEROSIS; PARKINSONS-DISEASE; MITOCHONDRIAL; MODEL; DELIVERY; PROTECT; TRANSPORTERS

Addresses: [Mishra, Keerti; Tripathi, Shourya; Tiwari, Amrendra K.; Rana, Rafquat; Yadav, Pooja; Chourasia, Manish K.] Cent Drug Res Inst, Div Pharmaceut & Pharmacokinet, Lucknow 226031, UP, India.
[Mishra, Keerti; Tripathi, Shourya; Rana, Rafquat] Jawaharlal Nehru Univ, New Delhi 110067, India.
[Tiwari, Amrendra K.; Yadav, Pooja; Chourasia, Manish K.] Acad Sci & Innovat Res, Ghaziabad 201002, India.

Corresponding Address: Chourasia, MK (corresponding author), Cent Drug Res Inst, Div Pharmaceut & Pharmacokinet, Lucknow 226031, UP, India.
Chourasia, MK (corresponding author), Acad Sci & Innovat Res, Ghaziabad 201002, India.

E-mail Addresses: manish_chourasia@cdri.res.in

Affiliations: Council of Scientific & Industrial Research (CSIR) - India; CSIR - Central Drug Research Institute (CDRI); Jawaharlal Nehru University, New Delhi; Academy of Scientific & Innovative Research (AcSIR)

Author Identifiers:

Author	Web of Science ResearcherID	ORCID Number
Rana, Rafquat	AFZ-7483-2022	

Publisher: ROYAL SOC CHEMISTRY

Publisher Address: THOMAS GRAHAM HOUSE, SCIENCE PARK, MILTON RD, CAMBRIDGE CB4 0WF, CAMBS, ENGLAND

Web of Science Index: Science Citation Index Expanded (SCI-EXPANDED)

Web of Science Categories: Chemistry, Multidisciplinary

Research Areas: Chemistry

IDS Number: 8JC8B

eISSN: 2046-2069

29-char Source Abbrev.: RSC ADV

ISO Source Abbrev.: RSC Adv.

Source Item Page Count: 30

Open Access: gold

Output Date: 2025-11-11

Record 26 of 56

Title: Development of NiCoCrFePd high-entropy alloy thin films for high-temperature NO₂ gas sensing

Author(s): Kumari, A (Kumari, Anju); Hussain, A (Hussain, Abid); Verma, T (Verma, Trishna); Rajput, G (Rajput, Gaurav); Choudhary, RJ (Choudhary, Ram Janay); Kulriya, PK (Kulriya, P. K.)

Source: NANOTECHNOLOGY **Volume:** 36 **Issue:** 42 **Article Number:** 425501 **DOI:** 10.1088/1361-6528/ae07ea **Published Date:** 2025 OCT 20

Times Cited in Web of Science Core Collection: 0

Total Times Cited: 0

Usage Count (Last 180 days): 3

Usage Count (Since 2013): 3

Cited References: Almaev AV, 2021, SUPERLATTICE MICROST, V151, DOI 10.1016/j.spmi.2021.106835
Ambedkar AK, 2023, J MATER SCI-MATER EL, V34, DOI 10.1007/s10854-023-11657-3
Chen ST, 2010, MAT SCI ENG A-STRUCT, V527, P5818, DOI 10.1016/j.msea.2010.05.052
Chen YY, 2005, CORROS SCI, V47, P2679, DOI 10.1016/j.corsci.2004.09.026
Chen YY, 2005, CORROS SCI, V47, P2257, DOI 10.1016/j.corsci.2004.11.008
Craciun D, 2024, MATERIALS, V17, DOI 10.3390/ma17051162
Cropper MD, 2018, APPL SURF SCI, V455, P153, DOI 10.1016/j.apsusc.2018.05.172
Eadi SB, 2023, INT J HYDROGEN ENERG, V48, P12534, DOI 10.1016/j.ijhydene.2022.11.313
El Garah M, 2024, EMERGENT MATER, V7, P77, DOI 10.1007/s42247-023-00607-8
Feng XB, 2017, SCRIPTA MATER, V139, P71, DOI 10.1016/j.scriptamat.2017.06.009
Gludovatz B, 2014, SCIENCE, V345, P1153, DOI 10.1126/science.1254581
Gomaa MM, 2021, J ALLOY COMPD, V885, DOI 10.1016/j.jallcom.2021.160908
Hemphill MA, 2012, ACTA MATER, V60, P5723, DOI 10.1016/j.actamat.2012.06.046
Hussain A, 2025, MATER TODAY PHYS, V51, DOI 10.1016/j.mtphys.2024.101644
Hussain A, 2024, J APPL PHYS, V136, DOI 10.1063/5.0212176
Hussain A, 2023, MAT SCI ENG A-STRUCT, V863, DOI 10.1016/j.msea.2022.144523
Hussain A, 2023, J ALLOY COMPD, V948, DOI 10.1016/j.jallcom.2023.169624
Jing L, 2023, LANGMUIR, DOI 10.1021/acs.langmuir.2c03367
Jishnu V, 2022, ACS APPL MATER INTER, V14, P13653, DOI 10.1021/acsami.2c00531
Kang B, 2018, MAT SCI ENG A-STRUCT, V712, P616, DOI 10.1016/j.msea.2017.12.021
Kao YF, 2011, J ALLOY COMPD, V509, P1607, DOI 10.1016/j.jallcom.2010.10.210
Khan MAH, 2019, SENSORS-BASEL, V19, DOI 10.3390/s19040905
Khan NA, 2019, APPL SURF SCI, V495, DOI 10.1016/j.apsusc.2019.143560
Kim YS, 2019, J ALLOY COMPD, V797, P834, DOI 10.1016/j.jallcom.2019.05.043
Kumar R, 2018, NANOTECHNOLOGY, V29, DOI 10.1088/1361-6528/aade20
Kumar S, 2023, ACS APPL NANO MATER, V6, P5952, DOI 10.1021/acsanm.3c00346
Lach TG, 2022, NPJ MAT DEGRAD, V6, DOI 10.1038/s41529-022-00260-2
Lee E, 2010, THIN SOLID FILMS, V519, P880, DOI 10.1016/j.tsf.2010.07.122
Li QY, 2024, ACS APPL NANO MATER, V7, P7856, DOI 10.1021/acsanm.4c00408
Li XC, 2024, APPL PHYS LETT, V124, DOI 10.1063/5.0191206
Liang AY, 2023, ACTA MATER, V257, DOI 10.1016/j.actamat.2023.119163
Liao WB, 2019, ENTROPY-SWITZ, V21, DOI 10.3390/e21020146
Liu CM, 2014, J ALLOY COMPD, V583, P162, DOI 10.1016/j.jallcom.2013.08.102
Manoj T, 2023, J ALLOY COMPD, V930, DOI 10.1016/j.jallcom.2022.167337
Marian S, 2001, SENSOR ACTUAT B-CHEM, V78, P191, DOI 10.1016/S0925-4005(01)00811-5
Mishra SS, 2023, MATER CHEM PHYS, V298, DOI 10.1016/j.matchemphys.2023.127449
Mollaamin F, 2023, J MOL MODEL, V29, DOI 10.1007/s00894-023-05526-3

Mondal B, 2023, NANOSCALE, V15, P17097, DOI 10.1039/d3nr04810a
Naganaboina VR, 2022, SENSOR ACTUAT B-CHEM, V357, DOI 10.1016/j.snb.2022.131426
Nagy P, 2024, J MATER RES TECHNOL, V31, P47, DOI 10.1016/j.jmrt.2024.06.059
Obeydavi A, 2024, INTERMETALLICS, V172, DOI 10.1016/j.intermet.2024.108369
Otto F, 2013, ACTA MATER, V61, P5743, DOI 10.1016/j.actamat.2013.06.018
PARRATT LG, 1954, PHYS REV, V95, P359, DOI 10.1103/PhysRev.95.359
Peters TA, 2012, CATAL TODAY, V193, P8, DOI 10.1016/j.cattod.2011.12.028
Sahlberg M, 2016, SCI REP-UK, V6, DOI 10.1038/srep36770
Senkov ON, 2010, INTERMETALLICS, V18, P1758, DOI 10.1016/j.intermet.2010.05.014
Sharma B, 2019, INT J HYDROGEN ENERG, V44, P30499, DOI 10.1016/j.ijhydene.2019.09.170
Takeuchi A, 2005, MATER TRANS, V46, P2817, DOI 10.2320/matertrans.46.2817
Tang Z, 2015, ACTA MATER, V99, P247, DOI 10.1016/j.actamat.2015.07.004
Vorobiov S, 2021, APPL PHYS A-MATER, V127, DOI 10.1007/s00339-020-04145-6
Xiao B, 2022, NANO ENERGY, V95, DOI 10.1016/j.nanoen.2022.106962
Yan WJ, 2024, ACS APPL MATER INTER, V16, P49474, DOI 10.1021/acsami.4c07782
Ye YF, 2016, MATER TODAY, V19, P349, DOI 10.1016/j.mattod.2015.11.026
Yeh JW, 2013, JOM-US, V65, P1759, DOI 10.1007/s11837-013-0761-6
Zhang Y, 2014, MRS COMMUN, V4, P57, DOI 10.1557/mrc.2014.11

Cited Reference Count: 55

Abstract: High-entropy alloy thin films (HEATFs) have garnered a lot of interest lately because of their superior chemical and physical characteristics as well as their potential applications in a wide range of advanced technology industries, including nano-electronics, medical, aerospace, gas sensors, and nuclear energy. Gas sensors fabricated using HEATFs are not only stable at elevated temperatures but also crucial for industrial safety and environmental monitoring under extreme conditions of high temperature and radiation. Among these, the detection of nitrogen dioxide (NO2) is of significant importance due to its highly toxic and reactive nature. Here, the sensing response of the HEATF of NiCoCrFePd deposited using the pulsed laser deposition technique is presented. Grazing incidence x-ray diffraction (GIXRD), energy dispersive x-ray (EDX), x-ray photoelectron spectroscopy (XPS), scanning electron microscopy (SEM), and x-ray reflectivity techniques are used to examine the composition, surface morphology, and structural characteristics of HEATFs. XRD along with SEM analysis confirmed the formation of single-phase face-centered cubic (FCC) with nanoscale granules. XPS investigation confirmed the presence of O at the surface. The NO2 gas-sensing performance of the NiCoCrFePd HEATFs sensor is analyzed with 50-200 ppm at an elevated temperature of 130 degrees C. The observation of high sensitivity at high temperatures and a quick response time (66 sec) indicate that NiCoCrFePd HEATFs have great potential in the effective detection of NO2 in high-temperature environments. Thus, this study will open new avenues for the development of HEATF-based reliable gas sensors under extreme conditions.

Accession Number: WOS:001594413000001

PubMed ID: 41084212

Language: English

Document Type: Article

Author Keywords: high entropy alloys; NiCoCrFePd; NO2 gas sensing

KeyWords Plus: MECHANICAL-PROPERTIES; FATIGUE BEHAVIOR; MICROSTRUCTURE; HYDROGEN; PERFORMANCE

Addresses: [Kumari, Anju; Verma, Trishna; Rajput, Gaurav; Kulriya, P. K.] Jawaharlal Nehru Univ, Sch Phys Sci, New Delhi 110067, India.
[Hussain, Abid] Univ Kashmir, Dept Phys, Kupwara Campus, Kupwara 193222, Jammu And Kashm, India.
[Choudhary, Ram Janay] UGC DAE Consortium Sci Res Indore Ctr, Univ Campus,Khandwa Rd, Indore 452017, India.

Corresponding Address: Kulriya, PK (corresponding author), Jawaharlal Nehru Univ, Sch Phys Sci, New Delhi 110067, India.

E-mail Addresses: pkkulriya@mail.jnu.ac.in

Affiliations: Jawaharlal Nehru University, New Delhi; University of Kashmir; UGC DAE Consortium for Scientific Research

Author Identifiers:

Author	Web of Science ResearcherID	ORCID Number
RAJPUT, GAURAV	AAW-4292-2021	
Kulriya, Pawan	AAC-6687-2021	

Publisher: IOP Publishing Ltd

Publisher Address: TEMPLE CIRCUS, TEMPLE WAY, BRISTOL BS1 6BE, ENGLAND

Web of Science Index: Science Citation Index Expanded (SCI-EXPANDED)

Web of Science Categories: Nanoscience & Nanotechnology; Materials Science, Multidisciplinary; Physics, Applied

Research Areas: Science & Technology - Other Topics; Materials Science; Physics

IDS Number: 8PT5Z

ISSN: 0957-4484

eISSN: 1361-6528

29-char Source Abbrev.: NANOTECHNOLOGY

ISO Source Abbrev.: Nanotechnology

Source Item Page Count: 13

Funding:

Funding Agency	Grant Number
Ministry of Education, Govt. of India	09/0263 (15269)/2022-EMR-I
CSIR	
Ministry of Education	MoE-STARS/STARS-2/2023-0407
STARS Scheme	

AK thanks CSIR for providing the Junior Research Fellowship (JRF file no. 09/0263(15269)/2022-EMR-I). PKK is thankful to the Ministry of Education, Govt. of India for financial support through the STARS Scheme via project no. MoE-STARS/STARS-2/2023-0407. The authors are thankful to Dr V Raghavendra Reddy for providing the GIXRD facilities in UGC DAE CSR, Indore. The authors also thank AIRF, Jawaharlal Nehru University, New Delhi for providing the SEM and EDX facilities.

Output Date: 2025-11-11

Record 27 of 56

Title: Exploring fungal survival mechanisms: toward next-generation antifungal therapies against <i>Candida</i> spp.

Author(s): Kauser, S (Kauser, Sana); Gulzar, M (Gulzar, Mehak); Hasan, GM (Hasan, Gulam Mustafa); Kumar, P (Kumar, Pritam)

Source: ARCHIVES OF MICROBIOLOGY **Volume:** 207 **Issue:** 11 **Article Number:** 302 **DOI:** 10.1007/s00203-025-04519-5 **Published Date:** 2025 OCT 13

Cited References: Abdulghani M., 2024, Advances in antifungal drug development: natural products with antifungal potential, P293, DOI [10.1007/978-981-97-5165-5_10, DOI 10.1007/978-981-97-5165-5_10]
Aderiye B.I., 2015, Agric. Biol. Sci. J, V1, P206
Ahmadipour Sanaz, 2021, Cell Surf, V7, P100063, DOI [10.1016/j.tcsw.2021.100063, 10.1016/j.tcsw.2021.100063]
Ahmady L, 2024, APMIS, V132, P291, DOI 10.1111/apm.13389
Ahmed MZ, 2021, Biochem Drug Resistance, ppp143
Ajetunmobi OH, 2023, J FUNGI, V9, DOI 10.3390/jof9090879
Alaalm L, 2021, FRONT CELL INFECT MI, V11, DOI 10.3389/fcimb.2021.637836
Albanell-Fernández M, 2025, CLIN PHARMACOKINET, V64, P27, DOI 10.1007/s40262-024-01461-5
Aldejohann AM, 2024, ANTIMICROB AGENTS CH, V68, DOI 10.1128/aac.01324-23
Alem MAS, 2006, EUKARYOT CELL, V5, P1770, DOI 10.1128/EC.00219-06
Amsri A, 2024, FRONT CELL INFECT MI, V14, DOI 10.3389/fcimb.2024.1367656
Andes D, 2024, J ANTIMICROB CHEMOTH, V80, P18, DOI 10.1093/jac/dkae415
Curto MA, 2021, PHYTOMEDICINE, V88, DOI 10.1016/j.phymed.2021.153556
Arendrup MC, 2020, ANTIMICROB AGENTS CH, V64, DOI 10.1128/AAC.02136-19
August BA, 2024, PHARMACOTHERAPY, V44, P467, DOI 10.1002/phar.2926
Basso V, 2019, CURR TOP MICROBIOL, V422, P61, DOI 10.1007/82_2018_144
Bauer I, 2023, ESSAYS BIOCHEM, V67, P877, DOI [10.1042/ebc20220253, 10.1042/EBC20220253]
Benedict K, 2025, MED MYCOL, V63, DOI 10.1093/mmy/myaf049
Benedict K, 2019, CLIN INFECT DIS, V68, P1791, DOI 10.1093/cid/ciy776
Benitez LL, 2019, DRUGS, V79, P833, DOI 10.1007/s40265-019-01127-8
Berman J, 2006, CURR OPIN MICROBIOL, V9, P595, DOI 10.1016/j.mib.2006.10.007
Bohm NM, 2015, ANTIMICROB AGENTS CH, V59, P6816, DOI 10.1128/AAC.01306-15
Bongomin F, 2017, J FUNGI, V3, DOI 10.3390/jof3040057
Bouz G, 2021, PHARMACEUTICALS-BASE, V14, DOI 10.3390/ph14121312
Brand Alexandra, 2012, Int J Microbiol, V2012, P517529, DOI 10.1155/2012/517529
Bras G, 2024, INT J MOL SCI, V25, DOI 10.3390/ijms25094775
Cao CJ, 2017, MOL MICROBIOL, V105, P46, DOI 10.1111/mmi.13681
Caplan T, 2018, CELL REP, V23, P2292, DOI 10.1016/j.celrep.2018.04.084
Care RS, 1999, MOL MICROBIOL, V34, P792, DOI 10.1046/j.1365-2958.1999.01641.x
Carmo A, 2023, ANTIBIOTICS-BASEL, V12, DOI 10.3390/antibiotics12050884
Castanheira M, 2022, J GLOB ANTIMICROB RE, V29, P371, DOI 10.1016/j.jgar.2022.05.004
Chai S, 2022, THER ADV DRUG SAF, V13, DOI 10.1177/20420986221143266
Chakraborty D, 2022, Ibrexafungerp: a novel oral triterpenoid antifungal, as an emerging therapeutic option in Vulvovaginal Candidiasis (VVC)
Chen H, 2004, P NATL ACAD SCI USA, V101, P5048, DOI 10.1073/pnas.0401416101
Chew SY, 2019, J BIOMED SCI, V26, DOI 10.1186/s12929-019-0546-5
Chow EWL, 2021, PATHOGENS, V10, DOI 10.3390/pathogens10070859
Conde JN., 2021, Dengue virus: methods and protocols, P119
Correia I, 2016, FUTURE MICROBIOL, V11, P51, DOI 10.2217/fmb.15.127
Cow NAR, 2023, NAT REV MICROBIOL, V21, P248, DOI 10.1038/s41579-022-00796-9
Crunden JL., 2021, Characterisation of Hsp90 and its interaction networks in the fungal pathogen of humans
Crunden JL, 2021, FEMS YEAST RES, V21, DOI 10.1093/femsyr/foab054
Czajka KM, 2023, CELLS-BASEL, V12, DOI 10.3390/cells12222655
d'Enfert C, 2021, FEMS MICROBIOL REV, V45, DOI 10.1093/femsre/fuaa060

D'Orazio G, 2021, REV ANAL CHEM, V40, P220, DOI 10.1515/revac-2021-0136
Dai XL, 2024, NAT COMMUN, V15, DOI 10.1038/s41467-024-53512-x
Daneshnia F, 2023, LANCET MICROBE, V4, pe470, DOI 10.1016/S2666-5247(23)00067-8
De Bels D, 2022, EXPERT OPIN EMERG DR, V27, P405, DOI 10.1080/14728214.2022.2142207
De Stefano P, 2022, BIOMICROFLUIDICS, V16, DOI 10.1063/5.0087294
Denning DW, 2024, LANCET INFECT DIS, V24, pe428, DOI 10.1016/S1473-3099(23)00692-8
Denning DW, 2023, ALLERGOL INT, V72, P493, DOI 10.1016/j.alit.2023.07.003
Deveau A, 2010, EUKARYOT CELL, V9, P569, DOI 10.1128/EC.00321-09
Devi DS., 2023, Antibiotics-therapeutic spectrum and limitations, P233, DOI [10.1016/B978-0-323-95388-7.00009-7, DOI 10.1016/B978-0-323-95388-7.00009-7]
Dhingra S, 2017, FRONT MICROBIOL, V8, DOI 10.3389/fmicb.2017.00092
Diezmann S, 2012, PLOS GENET, V8, DOI 10.1371/journal.pgen.1002562
Dijkgraaf GJP, 2002, YEAST, V19, P671, DOI 10.1002/yea.866
El-Baz AM, 2021, ANTIBIOTICS-BASEL, V10, DOI 10.3390/antibiotics10010081
Eldesouky HE, 2021, ANTIMICROB AGENTS CH, V65, DOI 10.1128/AAC.00684-20
Enjalbert B, 2006, MOL BIOL CELL, V17, P1018, DOI 10.1091/mbc.E05-06-0501
Eschenauer Gregory, 2007, Ther Clin Risk Manag, V3, P71, DOI 10.2147/tcrm.2007.3.1.71
Fan Y, 2013, MYCOPATHOLOGIA, V176, P329, DOI 10.1007/s11046-013-9684-6
Fatima Z, 2021, Recent trends in mycological research: Volume 1: Agricultural and Medical Perspective, V1, P439
Fazius F, 2012, MOL MICROBIOL, V86, P1508, DOI 10.1111/mmi.12076
Finkel JS, 2011, NAT REV MICROBIOL, V9, P109, DOI 10.1038/nrmicro2475
Fondi M, 2007, BMC EVOL BIOL, V7, DOI 10.1186/1471-2148-7-S2-S3
Fung S, 2025, DRUGS, V85, P415, DOI 10.1007/s40265-024-02134-0
Gaálová-Radochová B, 2023, ANTIBIOTICS-BASEL, V12, DOI 10.3390/antibiotics12030441
Ghannoum MA, 2000, CLIN MICROBIOL REV, V13, P122, DOI 10.1128/CMR.13.1.122-143.2000
Gil-Bona A, 2015, J PROTEOME RES, V14, P4270, DOI 10.1021/acs.jproteome.5b00411
Gropp K, 2009, MOL IMMUNOL, V47, P465, DOI 10.1016/j.molimm.2009.08.019
Gupta AK, 2017, MYCOPATHOLOGIA, V182, P127, DOI 10.1007/s11046-016-0045-0
Hacioglu M, 2024, J ANTIMICROB CHEMOTH, V79, P2828, DOI 10.1093/jac/dkae293
He R, 2024, HELIYON, V10, DOI 10.1016/j.heliyon.2024.e28776
Hodges MR, 2024, ANTIMICROB AGENTS CH, V68, DOI 10.1128/aac.00273-24
Hoenigl M, 2024, CLIN MICROBIOL REV, V37, DOI 10.1128/cmr.00074-23
Hoenigl M, 2022, EXPERT OPIN INV DRUG, V31, P795, DOI 10.1080/13543784.2022.2086120
Hogan DA, 2011, CURR OPIN MICROBIOL, V14, P682, DOI 10.1016/j.mib.2011.09.014
Hossain CM, 2022, Encyclopedia, V2, P1722, DOI [10.3390/encyclopedia2040118, 10.3390/encyclopedia2040118, DOI 10.3390/ENCYCLOPEDIA2040118]
Hossain R, 2023, Hepatotoxicity and acute kidney injury associations with itraconazole, voriconazole and posaconazole in the treatment of Onychomycosis: pharmacovigilance study of FDA adverse event reporting system data (FAERS)
Houst J, 2020, METABOLITES, V10, DOI 10.3390/metabo10030106
Hu KD, 2012, FUNGAL GENET BIOL, V49, P433, DOI 10.1016/j.fgb.2012.04.004
Hu LL, 2016, FUNGAL GENET BIOL, V93, P17, DOI 10.1016/j.fgb.2016.05.007
Huang L, 2022, J BIOCHEM MOL TOXIC, V36, DOI 10.1002/jbt.22935
Husain F, 2022, FRONT MICROBIOL, V12, DOI 10.3389/fmicb.2021.794855
Ibe C, 2021, PLOS PATHOG, V17, DOI 10.1371/journal.ppat.1009470
Isogai S, 2021, APPL ENVIRON MICROB, V87, DOI 10.1128/AEM.00600-21
Issi L, 2014, Identification and characterization of novel putative virulence factors in Candida albicans
Jacobsen ID, 2023, CURR CLIN MICROBIOL, V10, P55, DOI 10.1007/s40588-023-00190-w
Jakab A, 2019, APPL ENVIRON MICROB, V85, DOI 10.1128/AEM.01388-19
Jallow S, 2021, J FUNGI, V7, DOI 10.3390/jof7030163

Jamalzadeh S, 2021, Identification of novel MAPK regulatory proteins and signaling pathways that regulate filamentous growth in saccharomyces cerevisiae
Jastrzebowska K, 2015, AMINO ACIDS, V47, P227, DOI 10.1007/s00726-014-1873-1
Jeck J, 2023, JAC-ANTIMICROB RESIS, V5, DOI 10.1093/jacamr/dlad079
Kaneko A, 2004, YEAST, V21, P1025, DOI 10.1002/yea.1147
Kaneko A, 2006, EUKARYOT CELL, V5, P1894, DOI 10.1128/EC.00151-06
Karygianni L, 2020, TRENDS MICROBIOL, V28, P668, DOI 10.1016/j.tim.2020.03.016
Kato I, 2021, J MED CHEM, V64, P10482, DOI 10.1021/acs.jmedchem.1c00883
Khalifa HO, 2022, ANTIMICROB AGENTS CH, V66, DOI 10.1128/AAC.01856-21
Kim JS, 2023, FRONT CELL INFECT MI, V13, DOI 10.3389/fcimb.2023.1257897
Kitamura A, 2010, BIOL PHARM BULL, V33, P192, DOI 10.1248/bpb.33.192
Kriegl L, 2024, Clin Microbiol Infect
Kumar V, 2024, TRENDS PHARMACOL SCI, V45, P366, DOI 10.1016/j.tips.2024.02.007
Kyriakidis I, 2017, EXPERT OPIN DRUG SAF, V16, P149, DOI 10.1080/14740338.2017.1270264
Lackner M, 2018, J ANTIMICROB CHEMOTH, V73, P3068, DOI 10.1093/jac/dky329
LaFayette SL, 2010, PLOS PATHOG, V6, DOI 10.1371/journal.ppat.1001069
LaFleur MD, 2011, J ANTIMICROB CHEMOTH, V66, P820, DOI 10.1093/jac/dkq530
Lai WC, 2020, SCI REP-UK, V10, DOI 10.1038/s41598-020-59891-7
Lenardon MD, 2010, CURR OPIN MICROBIOL, V13, P416, DOI 10.1016/j.mib.2010.05.002
Li CR, 2012, J CELL SCI, V125, P2533, DOI 10.1242/jcs.104497
Lim SJ, 2021, MED MYCOL, V59, P1127, DOI 10.1093/mmy/myab053
Liu SY, 2015, EUKARYOT CELL, V14, P324, DOI 10.1128/EC.00271-14
Lopes JP, 2022, VIRULENCE, V13, P89, DOI 10.1080/21505594.2021.2019950
Lu H, 2023, MBIO, V14, DOI 10.1128/mbio.02639-22
Lu Y, 2014, P NATL ACAD SCI USA, V111, P1975, DOI 10.1073/pnas.1318690111
Luedeke C, 2005, J CELL BIOL, V169, P897, DOI 10.1083/jcb.200412143
Madaan K, 2023, MICROB DRUG RESIST, V29, P319, DOI 10.1089/mdr.2022.0353
Maertens JA, 2025, Lancet Infect Dis
Maione A, 2021, J FUNGI, V7, DOI 10.3390/jof7010026
Mamouei Z, 2017, MOL MICROBIOL, V106, P986, DOI 10.1111/mmi.13864
Marcomini EK, 2023, DRUG DISCOV TODAY, V28, DOI 10.1016/j.drudis.2023.103624
Martins M, 2010, MYCOPATHOLOGIA, V169, P323, DOI 10.1007/s11046-009-9264-y
McManus DS., 2017, Side Eff Drugs Annu, V39, P245, DOI [10.1016/bs.seda.2017.06.031, DOI 10.1016/BS.SEDA.2017.06.031]
Mesa-Arango Ana C, 2012, Front Microbiol, V3, P286
Mills KAM, 2024, CURR OPIN MICROBIOL, V80, DOI 10.1016/j.mib.2024.102508
Moyes DL, 2016, NATURE, V532, P64, DOI 10.1038/nature17625
Mroczynska M, 2020, ANTIBIOTICS-BASEL, V9, DOI 10.3390/antibiotics9050227
Mullins C, 2020, ANN PHARMACOTHER, V54, P526, DOI 10.1177/1060028019892587
Naglik J, 2004, CELL MICROBIOL, V6, P915, DOI 10.1111/j.1462-5822.2004.00439.x
Ngece K, 2024, PHARMACEUTICS, V16, DOI 10.3390/pharmaceutics16081065
Niewerth M, 2001, MYCOSES, V44, P361, DOI 10.1046/j.1439-0507.2001.00685.x
Nikou SA, 2019, PATHOGENS, V8, DOI 10.3390/pathogens8020053
O'Meara TR, 2019, PLOS BIOL, V17, DOI 10.1371/journal.pbio.3000358
O'Meara TR, 2015, NAT COMMUN, V6, DOI 10.1038/ncomms7741
Oliveira C, 2021, bioRxiv, V2021
Oughtred R, 2021, PROTEIN SCI, V30, P187, DOI 10.1002/pro.3978
Perlin DS, 2020, CURR TOP MICROBIOL, V425, P255, DOI 10.1007/82_2019_188
Plesko S., 2025, Drug interactions in gastroenterology: a clinical guide, P93
Prajapati J, 2022, COMPUT BIOL MED, V151, DOI 10.1016/j.compbiomed.2022.106237
Pristov KE, 2019, CLIN MICROBIOL INFEC, V25, P792, DOI 10.1016/j.cmi.2019.03.028

Prusty JS, 2024, J PROTEOMICS, V303, DOI 10.1016/j.jprot.2024.105228
Purkait D., 2023, Bacterial secretion systems: methods and protocols, P247
Qadri H., 2024, Human fungal diseases, P130, DOI [10.1201/9781032642864-10, DOI 10.1201/9781032642864-10]
Qiang L, 2019, SCI REP-UK, V9, DOI 10.1038/s41598-019-44298-w
Radigues RL, 2022, Wider properties of olorofim, a novel orotomide compound
Rajasingham R, 2022, LANCET INFECT DIS, V22, P1748, DOI 10.1016/S1473-3099(22)00499-6
Ramage Gordon, 2012, Int J Microbiol, V2012, P528521, DOI 10.1155/2012/528521
Raschi E, 2014, WORLD J HEPATOL, V6, P601, DOI 10.4254/wjh.v6.i8.601
Ren ZN, 2022, NAT STRUCT MOL BIOL, V29, P653, DOI 10.1038/s41594-022-00791-x
Richardson JP, 2022, PATHOGENS, V11, DOI 10.3390/pathogens11040459
Ripandelli RAA, 2024, J PHYS CHEM B, V128, P10311, DOI 10.1021/acs.jpcb.4c02746
Robbins N, 2023, CURR OPIN MICROBIOL, V75, DOI 10.1016/j.mib.2023.102351
Rodrigues CF, 2020, GENES-BASEL, V11, DOI 10.3390/genes11040444
Román E, 2005, MOL CELL BIOL, V25, P10611, DOI 10.1128/MCB.25.23.10611-10627.2005
Cesar PHS, 2021, BIOTECHNOL APPL BIOC, V68, P486, DOI 10.1002/bab.1943
Sanyaolu A, 2022, INFECT CHEMOTHER, V54, P236, DOI 10.3947/ic.2022.0008
Schoeters F, 2019, FRONT MICROBIOL, V10, DOI 10.3389/fmicb.2019.01792
Schoeters F, 2018, MSPHERE, V3, DOI 10.1128/mSphere.00391-18
Shafiei M, 2020, BIOORG CHEM, V104, DOI 10.1016/j.bioorg.2020.104240
Shapiro RS, 2009, CURR BIOL, V19, P621, DOI 10.1016/j.cub.2009.03.017
Sharma M, 2023, CURR FUNGAL INFECT R, V17, P15, DOI 10.1007/s12281-023-00455-3
Sigera LSM, 2023, THER ADV INFECT DIS, V10, DOI 10.1177/20499361231161387
Singh SD, 2009, PLOS PATHOG, V5, DOI 10.1371/journal.ppat.1000532
Smith HL, 2024, J INFECT DIS, V230, P505, DOI 10.1093/infdis/jiae146
Song ZL, 2022, J FUNGI, V8, DOI 10.3390/jof8010037
Srinivasan A, 2013, MBIO, V4, DOI 10.1128/mBio.00331-13
Subotic A, 2017, G3-GENES GENOM GENET, V7, P3509, DOI 10.1534/g3.117.300149
Suchodolski J, 2019, MICROORGANISMS, V7, DOI 10.3390/microorganisms7100378
Sukumar M, 2016, Identification and characterization of novel players in the establishment of receptor polarity in yeast
Szymanski M, 2022, J ENZYM INHIB MED CH, V37, P876, DOI 10.1080/14756366.2022.2050224
Teixeira MM, 2022, PHARMACEUTICALS-BASE, V15, DOI 10.3390/ph15111427
Teli BB, 2024, MSPHERE, V9, DOI 10.1128/msphere.00703-23
Tverdek FP, 2016, EXPERT REV ANTI-INFE, V14, P765, DOI 10.1080/14787210.2016.1199272
Van Daele R, 2019, MED MYCOL, V57, pS328, DOI 10.1093/mmy/myz012
Vandeputte P, 2011, MYCOPATHOLOGIA, V171, P11, DOI 10.1007/s11046-010-9342-1
Veri AO, 2018, PLOS GENET, V14, DOI 10.1371/journal.pgen.1007270
Vishwakarma M, 2024, MICROBIOL RES, V278, DOI 10.1016/j.micres.2023.127517
Wang WY, 2018, PLANT REPROD, V31, P203, DOI 10.1007/s00497-018-0322-9
Wang X, 2024, Mechanism of activation of Beta-1, 3-glucan synthase by Rho1
Wangsanut T, 2023, G3-GENES GENOM GENET, V13, DOI 10.1093/g3journal/jkad070
Wangsanut T, 2018, MSPHERE, V3, DOI [10.1128/mSphere.00467-18, 10.1128/msphere.00467-18]
Wiederhold NP, 2020, J FUNGI, V6, DOI 10.3390/jof6030122
Wightman R, 2004, J CELL BIOL, V164, P581, DOI 10.1083/jcb.200307176
Wijnants S, 2022, TRENDS PHARMACOL SCI, V43, P69, DOI 10.1016/j.tips.2021.10.003
Wu H, 2015, INT J ORAL SCI, V7, P1, DOI 10.1038/ijos.2014.65
Wu T, 2000, ANTIMICROB AGENTS CH, V44, P1200, DOI 10.1128/AAC.44.5.1200-1208.2000
Xie JLL, 2017, MICROB CELL, V4, P342, DOI 10.15698/mic2017.10.594
Xu HY, 2006, CELL BIOCHEM BIOPHYS, V46, P43, DOI 10.1385/CBB:46:1:43
Yang YL, 2021, FRONT PHARMACOL, V12, DOI 10.3389/fphar.2021.697330

Yong JYA, 2016, J CELL SCI, V129, P2744, DOI 10.1242/jcs.183160
Yu D, 2017, INT J MOL SCI, V18, DOI 10.3390/ijms18020424
Yu QL, 2012, MYCOPATHOLOGIA, V174, P359, DOI 10.1007/s11046-012-9569-0
Yu YD, 2020, EXPERT OPIN INV DRUG, V29, P961, DOI 10.1080/13543784.2020.1791819
Zabriskie TM, 2000, NAT PROD REP, V17, P85, DOI 10.1039/a801345d
Zhai J, 2024, NAT COMMUN, V15, DOI 10.1038/s41467-024-48616-3
Zhang RF, 2023, EUR J MED CHEM, V259, DOI 10.1016/j.ejmech.2023.115658
Zhang Y, 2022, MICROBIOLOGYOPEN, V11, DOI 10.1002/mbo3.1301
Zhao ZG, 2020, 3 BIOTECH, V10, DOI 10.1007/s13205-020-02515-8

Cited Reference Count: 196

Abstract: Candida Spp are predominant opportunistic fungal pathogens responsible for a broad spectrum of infections, ranging from superficial mucosal candidiasis to life-threatening systemic diseases, particularly in immunocompromised individuals. Its complex biology and adaptive mechanisms contribute to pathogenicity and antifungal resistance, presenting significant therapeutic challenges. This review aimed to explore fungal survival mechanisms that can be exploited for the development of antifungal drugs. Key structural drug target components include the fungal cell wall, comprising beta-glucan, chitin, and the plasma membrane, as well as ergosterol, which serve as critical targets for antifungal intervention. Biosynthesis inhibitors show promise in compromising cell integrity. Biofilm formation, driven by quorum sensing and extracellular matrix production, further enhances resistance to antifungal agents and host immune responses. Virulence factors, including hyphal wall protein 1, secreted aspartyl proteinases, and phospholipases, facilitate adhesion, invasion, and immune modulation, making them attractive targets for therapeutic development. Additionally, stress response pathways, such as the Hsp90 calcineurin axis and oxidative stress regulators, offer novel avenues for developing new antifungal treatments. Metabolic flexibility, involving amino acid biosynthesis and the glyoxylate cycle, underpins fungal adaptation to the host environment and presents further opportunities for targeted intervention. This review explores the multifaceted survival strategies of Candida Spp. and highlights molecular pathways that can be exploited for antifungal drug development. Advancing our understanding of these mechanisms is crucial for the development of next-generation therapeutics that aim to overcome resistance, enhance treatment efficacy, and improve patient outcomes. A multidisciplinary approach integrating molecular biology, pharmacology, and clinical sciences is vital for translating these insights into effective antifungal strategies.

Accession Number: WOS:001592908800006

PubMed ID: 41081904

Language: English

Document Type: Review

Author Keywords: <italic>Candia albicans</italic>; Antifungal resistance; Quorum sensing; Stress response; Metabolic adaptation; Cell wall biosynthesis

KeyWords Plus: ALPHA-AMINOADIPATE PATHWAY; CELL-CYCLE PROGRESSION; LYSINE BIOSYNTHESIS; OXIDATIVE STRESS; ALBICANS; PROTEIN; VIRULENCE; MORPHOGENESIS; ROLES; KINASE

Addresses: [Kauser, Sana] Jamia Millia Islamia, Dept Biosci, New Delhi 110025, India.
[Gulzar, Mehak] Jamia Millia Islamia, Ctr Interdisciplinary Res Basic Sci, New Delhi 110025, India.
[Hasan, Gulam Mustafa] Prince Sattam Bin Abdulaziz Univ, Coll Med, Dept Biochem, POB 173, Al Kharj 11942, Saudi Arabia.
[Kumar, Pritam] Jawaharlal Nehru Univ, Sch Life Sci, New Delhi 110067, India.

Corresponding Address: Kauser, S (corresponding author), Jamia Millia Islamia, Dept Biosci, New Delhi 110025, India.

E-mail Addresses: ssanaalam@gmail.com

Affiliations: Jamia Millia Islamia; Jamia Millia Islamia; Prince Sattam Bin Abdulaziz University; Jawaharlal Nehru University, New Delhi

Author Identifiers:

Author	Web of Science ResearcherID	ORCID Number
Hasan, Gulam	ABH-1046-2021	

Publisher: SPRINGER HEIDELBERG

Publisher Address: TIERGARTENSTRASSE 17, D-69121 HEIDELBERG, GERMANY

Web of Science Index: Science Citation Index Expanded (SCI-EXPANDED)

Web of Science Categories: Microbiology

Research Areas: Microbiology

IDS Number: 8NN9V

ISSN: 0302-8933

eISSN: 1432-072X

29-char Source Abbrev.: ARCH MICROBIOL

ISO Source Abbrev.: Arch. Microbiol.

Source Item Page Count: 23

Output Date: 2025-11-11

Record 28 of 56

Title: Spectroscopic insights into structural and electronic modifications in Ce_{0.8}Zr_{0.2}O₂ under low-energy ion irradiation

Author(s): Kumar, V (Kumar, Vivek); Singh, Y (Singh, Yogendar); Pandey, A (Pandey, Avaneesh); Sharma, SK (Kumar Sharma, Saurabh); Sharma, RK (Kumar Sharma, Rajendra); Grover, V (Grover, Vinita); Kulriya, PK (Kulriya, P. K.)

Source: JOURNAL OF APPLIED PHYSICS **Volume:** 138 **Issue:** 13 **Article Number:** 135903 **DOI:** 10.1063/5.0290646 **Published Date:** 2025 OCT 7

Times Cited in Web of Science Core Collection: 0

Total Times Cited: 0

Usage Count (Last 180 days): 0

Usage Count (Since 2013): 0

Cited References: Babitha KK, 2014, MATER CHARACT, V98, P222, DOI 10.1016/j.matchar.2014.11.004
Bhabu KA, 2016, J MATER SCI-MATER EL, V27, P10980, DOI 10.1007/s10854-016-5214-x
Bricout M, 2021, J NUCL MATER, V554, DOI 10.1016/j.jnucmat.2021.153088
Bricout M, 2020, J NUCL MATER, V531, DOI 10.1016/j.jnucmat.2019.151967
BURROUGHS P, 1976, J CHEM SOC DALTON, P1686, DOI 10.1039/dt9760001686
Cai W, 2014, APPL CATAL B-ENVIRON, V158, P258, DOI 10.1016/j.apcatb.2014.04.022
Calvache-Muñoz J, 2019, J INORG ORGANOMET P, V29, P813, DOI 10.1007/s10904-018-01056-1
Channei D, 2014, SCI REP-UK, V4, DOI 10.1038/srep05757
Chauhan V, 2020, MATER CHEM PHYS, V240, DOI 10.1016/j.matchemphys.2019.122127
Costantini JM, 2022, J NUCL MATER, V564, DOI 10.1016/j.jnucmat.2022.153667
Costantini JM, 2017, J APPL PHYS, V122, DOI 10.1063/1.5011165
Du XY, 1999, CHINESE PHYS LETT, V16, P376, DOI 10.1088/0256-307X/16/5/023
Escribano VS, 2003, SOLID STATE SCI, V5, P1369, DOI 10.1016/j.solidstatesciences.2003.07.001
Grover V, 2014, PHYS CHEM CHEM PHYS, V16, P27065, DOI 10.1039/c4cp04215h
Hemalatha KS, 2016, RSC ADV, V6, P74354, DOI 10.1039/c6ra11126b

Ingo G. M., 1996, Ion Beam Induced Reduction of Metallic Cations in Yttria-Zirconia
Iwase A, 2009, NUCL INSTRUM METH B, V267, P969, DOI 10.1016/j.nimb.2009.02.035
Jarosinski L, 2019, OPT MATER, V88, P667, DOI 10.1016/j.optmat.2018.12.041
Joo J, 2003, J AM CHEM SOC, V125, P6553, DOI 10.1021/ja034258b
Kalita P, 2021, SCI REP-UK, V11, DOI 10.1038/s41598-021-90214-6
Kalita P, 2020, J PHYS CHEM C, V124, P15489, DOI 10.1021/acs.jpcc.0c02907
Kalita P, 2019, J APPL PHYS, V125, DOI 10.1063/1.5080934
Kalita P, 2016, NUCL INSTRUM METH B, V379, P116, DOI 10.1016/j.nimb.2016.02.052
Kim HS, 2008, J NUCL MATER, V378, P98, DOI 10.1016/j.jnucmat.2008.05.003
Kim NY, 2022, J MATER SCI, V57, P12318, DOI 10.1007/s10853-022-07338-x
Kulriya PK, 2017, J NUCL MATER, V487, P373, DOI 10.1016/j.jnucmat.2017.02.032
Kumar A, 2022, J NUCL MATER, V564, DOI 10.1016/j.jnucmat.2022.153682
Kumar V, 2023, J APPL PHYS, V134, DOI 10.1063/5.0159046
Kurosaki K, 2009, J NUCL MATER, V389, P85, DOI 10.1016/j.jnucmat.2009.01.011
Lang M, 2009, PHYS REV B, V79, DOI 10.1103/PhysRevB.79.224105
Leel NS, 2023, J LUMIN, V263, DOI 10.1016/j.jlumin.2023.119981
Li ZX, 2008, J PHYS CHEM C, V112, P18405, DOI 10.1021/jp807348n
Lin XM, 2001, MATER CHEM PHYS, V69, P236, DOI 10.1016/S0254-0584(00)00409-0
Liu G, 2001, J PHYS CHEM B, V105, P7762, DOI 10.1021/jp011224m
Martínez-Arias A, 1999, LANGMUIR, V15, P4796, DOI 10.1021/la981537h
Maslakov KI, 2018, APPL SURF SCI, V448, P154, DOI 10.1016/j.apsusc.2018.04.077
MCBRIDE JR, 1994, J APPL PHYS, V76, P2435, DOI 10.1063/1.357593
Mullins DR, 1998, SURF SCI, V409, P307, DOI 10.1016/S0039-6028(98)00257-X
Nadjia L, 2018, J RARE EARTH, V36, P575, DOI 10.1016/j.jre.2018.01.004
Panghal Asha, 2021, Ceramics International, V47, P20248, DOI [10.1016/j.ceramint.2021.04.032, 10.1016/j.ceramint.2021.04.032]
PFAU A, 1994, SURF SCI, V321, P71, DOI 10.1016/0039-6028(94)90027-2
Phoka S, 2009, MATER CHEM PHYS, V115, P423, DOI 10.1016/j.matchemphys.2008.12.031
Schneider EA, 2007, J NUCL MATER, V361, P41, DOI 10.1016/j.jnucmat.2006.10.021
Sharan R, 2017, J ALLOY COMPD, V693, P936, DOI 10.1016/j.jallcom.2016.09.267
Sickafus KE, 1999, J NUCL MATER, V274, P66, DOI 10.1016/S0022-3115(99)00041-0
Singh H, 2023, CERAM INT, V49, P7946, DOI 10.1016/j.ceramint.2022.10.304
Singh Y, 2025, J AM CERAM SOC, V108, DOI 10.1111/jace.20124
Singh Y, 2024, J MATER CHEM C, V12, P13525, DOI 10.1039/d4tc02652g
Varshney M, 2012, NANOSCI NANOTECH LET, V4, P66, DOI 10.1166/nnl.2012.1289
Wang GF, 2010, J ALLOY COMPD, V493, P202, DOI 10.1016/j.jallcom.2009.12.053
WEBER WH, 1993, PHYS REV B, V48, P178, DOI 10.1103/PhysRevB.48.178
Weber WJ, 2015, SCI REP-UK, V5, DOI 10.1038/srep07726
Xiao HX, 2018, J NUCL MATER, V509, P482, DOI 10.1016/j.jnucmat.2018.07.035
YASHIMA M, 1994, J AM CERAM SOC, V77, P1067, DOI 10.1111/j.1151-2916.1994.tb07270.x
Yasuda K, 1998, NUCL INSTRUM METH B, V136, P499, DOI 10.1016/S0168-583X(97)00898-7
Zhang C, 2015, FUEL PROCESS TECHNOL, V131, P1, DOI 10.1016/j.fuproc.2014.11.010
Zhang GJ, 2006, J PHYS CHEM B, V110, P25782, DOI 10.1021/jp0648285
Zinkle SJ, 2013, ACTA MATER, V61, P735, DOI 10.1016/j.actamat.2012.11.004

Cited Reference Count: 58

Abstract: This study presents a comprehensive spectroscopic investigation of defect formation and structural stability in polycrystalline Ce0.8Zr0.2O2 subjected to 1.75 MeV Xe5+ ion irradiation up to a fluence of 1 x 10(17) ions/cm(2). Building on our earlier structural analysis of Xe-induced defects in Ce0.8Zr0.2O2, we employ Raman spectroscopy, synchrotron-based x-ray photoelectron spectroscopy (XPS), UV-visible diffuse reflectance spectroscopy (UV-Vis DRS), and photoluminescence (PL) to elucidate atomic-scale structural and electronic modifications. Raman analysis reveals the emergence of Ce3+ and oxygen-vacancy-induced distortions, evident from peak broadening and shifts associated with B-1g, F-2g, and LO phonon modes. The extent of structural disorder is quantified from Raman intensity ratios and FWHM broadening, revealing damage region diameters of similar to 0.31 +/- 0.03 and similar to 0.22 +/- 0.03 nm, respectively. XPS confirms the partial reduction of Ce4+ to Ce3+ and Zr4+ to Zr3+, along with oxygen-vacancy formation that contributes to lattice relaxation and stabilization of the fluorite structure. UV-Vis DRS measurements show a decrease in optical bandgap from 3.37 to 2.71 eV and an increase in Urbach energy from 1.09 to 2.33 eV, indicating enhanced electronic disorder. PL intensity is quenched upon irradiation due to increased non-radiative recombination through defect centers. These findings provide a coherent spectroscopic framework to understand irradiation-driven redox and defect processes in Ce0.8Zr0.2O2. Its retained crystallinity while accommodating high defect densities highlights its promise as a radiation-tolerant matrix for advanced nuclear and extreme-environment applications.

Accession Number: WOS:001588304600001

Language: English

Document Type: Article

KeyWords Plus: OPTICAL-PROPERTIES; X-RAY; MECHANICAL-PROPERTIES; RADIATION STABILITY; CEO2 NANOPARTICLES; CERIA; RAMAN; SCATTERING; SURFACES; SIZE

Addresses: [Kumar, Vivek; Singh, Yogendar; Pandey, Avaneesh; Kumar Sharma, Saurabh; Kulriya, P. K.] Jawaharlal Nehru Univ, Sch Phys Sci, New Delhi 110067, India.
[Kumar Sharma, Saurabh] RPI, Dept Mech Aerosp & Nucl Engn, Troy, NY 12180 USA.
[Kumar Sharma, Rajendra] Bhabha Atom Res Ctr, Tech Phys Div, Mumbai 400085, India.
[Grover, Vinita] Bhabha Atom Res Ctr, Chem Div, Mumbai 400085, India.

Corresponding Address: Kulriya, PK (corresponding author), Jawaharlal Nehru Univ, Sch Phys Sci, New Delhi 110067, India.

E-mail Addresses: pkkulriya@mail.jnu.ac.in

Affiliations: Jawaharlal Nehru University, New Delhi; Rensselaer Polytechnic Institute; Bhabha Atomic Research Center (BARC); Bhabha Atomic Research Center (BARC)

Author Identifiers:

Author	Web of Science ResearcherID	ORCID Number
SHARMA, Saurabh	GYA-0495-2022	
Sharma, Saurabh	GYA-0495-2022	0000-0002-3520-9168
Kulriya, Pawan	AAC-6687-2021	

Publisher: AIP Publishing

Publisher Address: 1305 WALT WHITMAN RD, STE 300, MELVILLE, NY 11747-4501 USA

Web of Science Index: Science Citation Index Expanded (SCI-EXPANDED)

Web of Science Categories: Physics, Applied

Research Areas: Physics

IDS Number: 8GT9P

ISSN: 0021-8979

eISSN: 1089-7550

29-char Source Abbrev.: J APPL PHYS

ISO Source Abbrev.: J. Appl. Phys.

Source Item Page Count: 16

Funding:

Funding Agency	Grant Number
Science and Engineering Research Board10.13039/501100001843	CRG/2018/003937
Department of Science and Technology of the Government of India's Science and Engineering Research Board (SERB)	1623
UGC-SRF	
IUAC New Delhi	

The authors express gratitude to the Department of Science and Technology of the Government of India's Science and Engineering Research Board (SERB) for funding the CRG/2018/003937 project. V. Kumar expresses gratitude to the UGC-SRF for granting the Senior Research Fellowship, Reference No. 1623 (CSIR-UGC NET JUNE 2019). The authors express gratitude to IUAC New Delhi for providing a steady Xenon beam. The authors express gratitude to RRCAT Indore for providing x-ray photoelectron spectroscopy. The authors express gratitude to AIRF-JNU New Delhi for providing Raman spectroscopy.

Open Access: hybrid

Output Date: 2025-11-11

Record 29 of 56

Title: Exchange bias and anomalous Hall effect driven by intertwined magnetic phases in MnBi4Te7

Author(s): Firdosh, N (Firdosh, Nazma); Sinha, S (Sinha, Shreyashi); Sinha, I (Sinha, Indraneel); Singh, M (Singh, Mainpal); Patnaik, S (Patnaik, Satyabrata); Manna, S (Manna, Sujit)

Source: PHYSICAL REVIEW B **Volume:** 112 **Issue:** 14 **Article Number:** 144410 **DOI:** 10.1103/pjh8-j9p1 **Published Date:** 2025 OCT 1

Times Cited in Web of Science Core Collection: 0

Total Times Cited: 0

Usage Count (Last 180 days): 0

Usage Count (Since 2013): 0

Cited References: Ali SR, 2012, PHYS REV B, V85, DOI 10.1103/PhysRevB.85.012404
Amara GM, 2017, RSC ADV, V7, P10928, DOI 10.1039/c6ra28839a
Ambrose T, 1998, J APPL PHYS, V83, P7222, DOI 10.1063/1.367823
Balanda M, 2013, ACTA PHYS POL A, V124, P964
Baltz V, 2018, REV MOD PHYS, V90, DOI 10.1103/RevModPhys.90.015005
Binek C, 2004, PHYS REV B, V70, DOI 10.1103/PhysRevB.70.014421
Burch KS, 2018, NATURE, V563, P47, DOI 10.1038/s41586-018-0631-z
Ceccardi M, 2023, NPJ QUANTUM MATER, V8, DOI 10.1038/s41535-023-00606-2
Chang CZ, 2015, NAT MATER, V14, P473, DOI [10.1038/nmat4204, 10.1038/NMAT4204]
Chang CZ, 2013, SCIENCE, V340, P167, DOI 10.1126/science.1234414
Chong SK, 2024, NAT COMMUN, V15, DOI 10.1038/s41467-024-46689-8
Cui JH, 2023, NANO LETT, DOI 10.1021/acs.nanolett.2c03773
Deng YJ, 2020, SCIENCE, V367, P895, DOI 10.1126/science.aax8156
Derevyanko VV, 2017, PHYS SOLID STATE+, V59, P1492, DOI 10.1134/S1063783417080091
Ding L, 2021, J PHYS D APPL PHYS, V54, DOI 10.1088/1361-6463/abe0dd
Du MH, 2021, ADV FUNCT MATER, V31, DOI 10.1002/adfm.202006516
Fang JZ, 2023, PHYS REV B, V107, DOI 10.1103/PhysRevB.107.L041107
Gao AY, 2021, NATURE, V595, P521, DOI 10.1038/s41586-021-03679-w
Garnica M, 2022, NPJ QUANTUM MATER, V7, DOI 10.1038/s41535-021-00414-6
Gibertini M, 2019, NAT NANOTECHNOL, V14, P408, DOI 10.1038/s41565-019-0438-6

Gokhfeld D, 2025, APPL PHYS A-MATER, V131, DOI 10.1007/s00339-024-08131-0
Gokhfeld D, 2018, J SUPERCOND NOV MAGN, V31, P1785, DOI 10.1007/s10948-017-4400-2
Guo JF, 2024, PHYS REV B, V109, DOI 10.1103/PhysRevB.109.165410
Hcini S, 2013, J SUPERCOND NOV MAGN, V26, P2181, DOI 10.1007/s10948-012-1812-x
He MY, 2019, FRONT PHYS-BEIJING, V14, DOI 10.1007/s11467-019-0893-4
He QL, 2018, NAT COMMUN, V9, DOI 10.1038/s41467-018-05166-9
Henk J, 2012, PHYS REV LETT, V108, DOI 10.1103/PhysRevLett.108.206801
Hu CW, 2020, NAT COMMUN, V11, DOI 10.1038/s41467-019-13814-x
Huang Y, 2015, SCI REP-UK, V5, DOI 10.1038/srep15261
Klimovskikh II, 2020, NPJ QUANTUM MATER, V5, DOI 10.1038/s41535-020-00255-9
Li DX, 2008, J APPL PHYS, V103, DOI 10.1063/1.2831322
Li JH, 2019, SCI ADV, V5, DOI 10.1126/sciadv.aaw5685
Li S., 2024, Natl. Sci. Rev., V11
Liang ZW, 2020, PHYS REV B, V102, DOI 10.1103/PhysRevB.102.161115
link.aps.org, about us, DOI [10.1103/pjh8-j9p1, DOI 10.1103/PJH8-J9P1]
Mishra SK, 2009, PHYS REV LETT, V102, DOI 10.1103/PhysRevLett.102.177208
Navarro-Verdugo AL, 2011, SOFT MATTER, V7, P5847, DOI 10.1039/c1sm05252g
Otrokov MM, 2019, NATURE, V576, P416, DOI 10.1038/s41586-019-1840-9
Otrokov MM, 2017, 2D MATER, V4, DOI 10.1088/2053-1583/aa6bec
Ovchinnikov D, 2021, NANO LETT, V21, P2544, DOI 10.1021/acs.nanolett.0c05117
PACCARD D, 1966, PHYS STATUS SOLIDI, V16, P301, DOI 10.1002/pssb.19660160131
Sahoo M, 2024, ADV SCI, V11, DOI 10.1002/advs.202402753
Sass PM, 2020, PHYS REV LETT, V125, DOI 10.1103/PhysRevLett.125.037201
Serlin M, 2020, SCIENCE, V367, P900, DOI 10.1126/science.aay5533
Shi MZ, 2019, PHYS REV B, V100, DOI 10.1103/PhysRevB.100.155144
Shi Y, 2024, PHYS REV MATER, V8, DOI 10.1103/PhysRevMaterials.8.124202
Sinha S, 2025, SURF INTERFACES, V62, DOI 10.1016/j.surfin.2025.106171
Smejkal L, 2022, NAT REV MATER, V7, P482, DOI 10.1038/s41578-022-00430-3
Smejkal L, 2018, NAT PHYS, V14, P242, DOI 10.1038/s41567-018-0064-5
Tokura Y, 2019, NAT REV PHYS, V1, P126, DOI 10.1038/s42254-018-0011-5
Wu XF, 2020, PHYS REV X, V10, DOI 10.1103/PhysRevX.10.031013
Xu XL, 2022, NAT COMMUN, V13, DOI 10.1038/s41467-022-35184-7
Yan CH, 2022, NANO LETT, V22, P9815, DOI 10.1021/acs.nanolett.2c02500
Yu S, 2022, J SUPERCOND NOV MAGN, V35, P1221, DOI 10.1007/s10948-022-06175-y
Zhao YF, 2021, APPL PHYS LETT, V119, DOI 10.1063/5.0059447

Cited Reference Count: 55

Abstract: We report on the interplay between atomic-scale inhomogeneity and competing magnetic phases and their effect on the anomalous Hall effect in the layered antiferromagnet MnBi4Te7, a natural superlattice hosting coexisting ferromagnetic and antiferromagnetic phases. Using a combination of scanning tunneling microscopy (STM), DC and AC magnetization, and magnetotransport measurements, we reveal that intrinsic Mn-Bi antisite defects induce strong interlayer exchange coupling, giving rise to a robust exchange bias observed in both magnetic and Hall responses. The exchange bias undergoes a transition from asymmetric to symmetric behavior between 2 and 6 K, indicating a temperature-driven dynamical reconfiguration of interfacial spin structures. The training effect analysis revealed a stronger contribution of frozen spins at 2 K compared to 6 K, with relaxation amplitude shift from-264 to +306 Oe. This sign reversal indicates a field-induced change in interfacial coupling. The temperature dependence of longitudinal resistivity (rho xx) and magnetization reveals complementary behavior, indicating the coexistence of two distinct spin states near the magnetic transition temperature. The phase-fraction-based resistivity model captures the distinct scattering mechanisms that govern electronic transport across different magnetic regimes. Our findings offer a direct link between microscopic disorder, interfacial magnetism, and macroscopic topological phenomena in magnetic topological insulators.

Accession Number: WOS:001596827100014

Language: English

Document Type: Article

Author Keywords: responses; anomalous Nernst effect; topological Hall effect

KeyWords Plus: PERCOLATION MODEL; TEMPERATURE; RESISTIVITY; TRANSITIONS; DEPENDENCE; STATE

Addresses: [Firdosh, Nazma; Sinha, Shreyashi; Sinha, Indraneel; Manna, Sujit] Indian Inst Technol Delhi, Dept Phys, Hauz Khas, New Delhi 110016, India.
[Singh, Mainpal; Patnaik, Satyabrata] Jawaharlal Nehru Univ, Sch Phys Sci, New Delhi 110067, India.

Corresponding Address: Manna, S (corresponding author), Indian Inst Technol Delhi, Dept Phys, Hauz Khas, New Delhi 110016, India.

E-mail Addresses: smanna@physics.iitd.ac.in

Affiliations: Indian Institute of Technology System (IIT System); Indian Institute of Technology (IIT) - Delhi; Jawaharlal Nehru University, New Delhi

Publisher: AMER PHYSICAL SOC

Publisher Address: ONE PHYSICS ELLIPSE, COLLEGE PK, MD 20740-3844 USA

Web of Science Index: Science Citation Index Expanded (SCI-EXPANDED)

Web of Science Categories: Materials Science, Multidisciplinary; Physics, Applied; Physics, Condensed Matter

Research Areas: Materials Science; Physics

IDS Number: 8TH5O

ISSN: 2469-9950

eISSN: 2469-9969

29-char Source Abbrev.: PHYS REV B

ISO Source Abbrev.: Phys. Rev. B

Source Item Page Count: 13

Funding:

Funding Agency	Grant Number
Department of Science and Technology, Government of India	IF200582
ANRF Core Research Grant	CRG/2023/008193

DST Nano Mission project CONCEPT	DST/NM/TUE/QM-10/2019

N.F. is grateful for DST Inspire fellowship (IF200582)) assistance from the Department of Science and Technology, Government of India. This work at IIT Delhi was supported by the ANRF Core Research Grant No. (CRG/2023/008193). S.M., I.S., and S.P. acknowledge the partial funding support from the DST Nano Mission project CONCEPT (DST/NM/TUE/QM-10/2019). The authors acknowledge the Department of Physics and the Central Research Facility (CRF), IIT Delhi for providing MPMS, PPMS, and STM facilities.

Output Date: 2025-11-11

Record 30 of 56

Title: A web-based application for the estimation of tensile strength of rocks: statistical and soft computing approach

Author(s): Verma, RK (Verma, Rahul Kumar); Singh, R (Singh, Rajesh); Sharma, P (Sharma, Prateek); Umrao, RK (Umrao, Ravi Kumar); Kainthola, A (Kainthola, Ashutosh)

Source: MEASUREMENT **Volume:** 258 **Article Number:** 119269 **DOI:** 10.1016/j.measurement.2025.119269 **Early Access Date:** OCT 2025 **Published Date:** 2026 JAN 30 **Part:** C

Times Cited in Web of Science Core Collection: 0

Total Times Cited: 0

Usage Count (Last 180 days): 0

Usage Count (Since 2013): 0

Cited References: Altindag R, 2010, SCI RES ESSAYS, V5, P2107
Alzabeebee S, 2024, GEOTECH GEOL ENG, V42, P2495, DOI 10.1007/s10706-023-02687-z
[Anonymous], 1991, IS 13030
Armaghani D. J., 2016, P INDOROCK 6 IND ROC
Aydin A, 2005, ENG GEOL, V81, P1, DOI 10.1016/j.enggeo.2005.06.006
Aydogdu M, 2015, WATER RESOUR MANAG, V29, P1575, DOI 10.1007/s11269-014-0895-5
Basu A, 2013, B ENG GEOL ENVIRON, V72, P457, DOI 10.1007/s10064-013-0505-4
Brown ET, 1981, Rock characterization Testing and monitoring: ISRM suggested Methods, P13
Cai M, 2010, ROCK MECH ROCK ENG, V43, P167, DOI 10.1007/s00603-009-0053-1
Çaydas U, 2009, EXPERT SYST APPL, V36, P6135, DOI 10.1016/j.eswa.2008.07.019
Despotovic M, 2016, RENEW SUST ENERG REV, V56, P246, DOI 10.1016/j.rser.2015.11.058
Fang XX, 2025, J PET EXPLOR PROD TE, V15, DOI 10.1007/s13202-025-01960-6
Fattahi H, 2021, ENVIRON EARTH SCI, V80, DOI 10.1007/s12665-021-10049-2
Fattahi H, 2022, ENG COMPUT-GERMANY, V38, P2619, DOI 10.1007/s00366-020-01231-4
Franklin J., 1981, Rock Characterization Testing and Monitoring, ISRM Suggested Methods, P79
Goyal MK, 2014, EXPERT SYST APPL, V41, P5267, DOI 10.1016/j.eswa.2014.02.047
Gurocak Z, 2012, ENG GEOL, V145, P1, DOI 10.1016/j.enggeo.2012.06.005
Harandizadeh H, 2020, NEURAL COMPUT APPL, V32, P14047, DOI 10.1007/s00521-020-04803-z
Hasanipanah M, 2020, IEEE ACCESS, V8, P57148, DOI 10.1109/ACCESS.2020.2980623
Heidari M, 2012, ROCK MECH ROCK ENG, V45, P265, DOI 10.1007/s00603-011-0196-8
Jamshidi A, 2016, ARAB J GEOSCI, V9, DOI 10.1007/s12517-016-2542-3
Jang J.S.R., 1992, Dissertation
JANG JSR, 1993, IEEE T SYST MAN CYB, V23, P665, DOI 10.1109/21.256541
Kainthola A, 2015, GEOTECH GEOL ENG, V33, P1255, DOI 10.1007/s10706-015-9899-z
Karakus M, 2006, ROCK MECH ROCK ENG, V39, P45, DOI 10.1007/s00603-005-0050-y
Karaman K, 2015, ARAB J GEOSCI, V8, P2393, DOI 10.1007/s12517-014-1384-0

Khandelwal M, 2009, INT J COAL GEOL, V79, P55, DOI 10.1016/j.coal.2009.01.004
Kumar BR, 2011, ROCK MECH ROCK ENG, V44, P613, DOI 10.1007/s00603-011-0160-7
Li JZ, 2022, APPL SOFT COMPUT, V131, DOI 10.1016/j.asoc.2022.109729
Li Y, 2021, SUSTAINABILITY-BASEL, V13, DOI 10.3390/su131910541
Mahdiyar A, 2019, B ENG GEOL ENVIRON, V78, P4519, DOI 10.1007/s10064-018-1405-4
MATLAB, 2009, Manual Fuzzy logic toolbox TM user's guide
Mishra DA, 2012, INT J ROCK MECH MIN, V51, P119, DOI 10.1016/j.ijrmms.2012.01.016
Mohammed A., 2021, Int. J. Geotech. Eng.
Monjezi M, 2012, GEOTECH GEOL ENG, V30, P1053, DOI 10.1007/s10706-012-9510-9
Monjezi M., 2000, Coal Int., P145
Nilashi M, 2017, MEASUREMENT, V109, P268, DOI 10.1016/j.measurement.2017.05.048
Parsajoo M, 2021, J ROCK MECH GEOTECH, V13, P1290, DOI 10.1016/j.jrmge.2021.05.010
Parsajoo M, 2021, TRANSP GEOTECH, V31, DOI 10.1016/j.trgeo.2021.100652
Rocco C, 1999, ACI MATER J, V96, P52
Roy DG, 2018, MEASUREMENT, V126, P231, DOI 10.1016/j.measurement.2018.05.069
Roy DG, 2018, MEASUREMENT, V129, P91, DOI 10.1016/j.measurement.2018.07.016
Rutqvist J., 2008, Coupled reservoir-geomechanical analysis of the potential for tensile and shear failure associated
Saedi B, 2018, ARAB J GEOSCI, V11, DOI 10.1007/s12517-018-3912-9
Shahnazar A, 2017, ENVIRON EARTH SCI, V76, DOI 10.1007/s12665-017-6864-6
Singh R., 2024, INT C GEOT ISS EN IN, P45
Singh R, 2017, MEASUREMENT, V99, P108, DOI 10.1016/j.measurement.2016.12.023
Singh TN, 2005, J EARTH SYST SCI, V114, P75, DOI 10.1007/BF02702010
Sirdesai NN, 2017, ROCK MECH ROCK ENG, V50, P205, DOI 10.1007/s00603-016-1047-4
Tavallali A, 2010, INT J ROCK MECH MIN, V47, P313, DOI 10.1016/j.ijrmms.2010.01.001
Teymen A, 2020, INT J MIN SCI TECHNO, V30, P785, DOI 10.1016/j.ijmst.2020.06.008
Umrao RK, 2018, MEASUREMENT, V126, P194, DOI 10.1016/j.measurement.2018.05.064
Verma RK, 2024, INT J GEOMECH, V24, DOI 10.1061/IJGNAI.GMENG-9384
Weather2visit, About us
Wu HY, 2017, ENG FRACT MECH, V184, P59, DOI 10.1016/j.engfracmech.2017.08.006
Yagiz S, 2012, INT J NUMER ANAL MET, V36, P1636, DOI 10.1002/nag.1066
Yang HQ, 2020, NAT RESOUR RES, V29, P739, DOI 10.1007/s11053-019-09515-3
ZADEH LA, 1965, INFORM CONTROL, V8, P338, DOI 10.1016/S0019-9958(65)90241-X
Zheng JH, 2023, PERIOD POLYTECH-CIV, V67, P902, DOI 10.3311/PPci.22179
Zhu W, 2021, APPL SOFT COMPUT, V108, DOI 10.1016/j.asoc.2021.107434

Cited Reference Count: 60

Abstract: The geotechnical properties of geomaterials are crucial in the design and safety assessment of civil engineering projects. In fractured or highly weathered rock formations, it is sometimes challenging to obtain intact samples for laboratory tests such as the Brazilian tensile strength (BTS). Hence, this study proposes a method to estimate BTS using three easily measurable parameters: density, point load index, and Schmidt hammer rebound number. Two predictive models, the adaptive neuro-fuzzy inference system (ANFIS) and multiple regression analysis (MRA), were developed and evaluated. A total of 122 datasets were used, with 111 for model training and 11 for testing. The performance of the models was assessed using multiple statistical indices, including the variance accounted for (VAF), efficiency (E), normalized root mean square error (NRMSE), relative root mean square error (RRMSE), correlation coefficient (R2), and performance indices I and II (PI-I, PI-II). The ANFIS model with a generalized bell-shaped membership function (gbellmf) achieves superior results across most metrics, whereas the triangular membership function (trimf) yields the highest VAF. Both MRA models demonstrated good predictive ability for BTS estimation, except for RRMSE, for which the performance was fair. To facilitate practical application, a user-friendly, freely accessible web-based application integrating both ANFIS and MRA models was developed, enabling BTS estimation on any device without specialized software. This represents the first

webbased implementation of such predictive models for BTS estimation, offering a rapid, cost-effective alternative for geotechnical investigations in challenging field conditions.

Accession Number: WOS:001603671500004

Language: English

Document Type: Article

Author Keywords: Brazilian tensile strength; Multiple regression analysis; Adaptive neuro-fuzzy inference system; Underground projects

KeyWords Plus: UNIAXIAL COMPRESSIVE STRENGTH; SEDIMENTARY-ROCKS; SCHMIDT HAMMER; NEURO-FUZZY; PREDICTION; ANFIS; NETWORK; ANN

Addresses: [Verma, Rahul Kumar; Singh, Rajesh; Sharma, Prateek] Univ Lucknow, Dept Geol, Rock Sci & Rock Engn Lab, Lucknow 226007, India.
[Verma, Rahul Kumar; Umrao, Ravi Kumar] Jawaharlal Nehru Univ, Sch Environm Sci, GeoHazards & GeoResources Lab, New Delhi 110067, India.
[Kainthola, Ashutosh] Banaras Hindu Univ, Dept Geol, Varanasi 221005, India.

Corresponding Address: Singh, R (corresponding author), Univ Lucknow, Dept Geol, Rock Sci & Rock Engn Lab, Lucknow 226007, India.

E-mail Addresses: georajeshsingh@lkouinv.ac.in

Affiliations: Lucknow University; Jawaharlal Nehru University, New Delhi; Banaras Hindu University (BHU)

Author Identifiers:

Author	Web of Science ResearcherID	ORCID Number
Kainthola, Ashutosh	HTP-3711-2023	
Verma, Rahul	C-6027-2012	

Publisher: ELSEVIER SCI LTD

Publisher Address: 125 London Wall, London, ENGLAND

Web of Science Index: Science Citation Index Expanded (SCI-EXPANDED)

Web of Science Categories: Engineering, Multidisciplinary; Instruments & Instrumentation

Research Areas: Engineering; Instruments & Instrumentation

IDS Number: 9DJ6Z

ISSN: 0263-2241

eISSN: 1873-412X

29-char Source Abbrev.: MEASUREMENT

ISO Source Abbrev.: Measurement

Source Item Page Count: 16

Funding:

Funding Agency	Grant Number
Science and Engineering Research Board (SERB)	SUR/2022/004587
Department of Science and Technology, Government of India	
Council of Science and Technology, Uttar Pradesh	3805

This work was supported by the Science and Engineering Research Board (SERB) [SUR/2022/004587] , Department of Science and Technology, Government of India and Council of Science and Technology [3805] , Uttar Pradesh.

Record 31 of 56

Title: miR159b, an epigenetic target of RSI1/FLD, negatively regulates systemic acquired resistance

Author(s): Kumar, R (Kumar, Ranjan); Saini, R (Saini, Reena); Singh, D (Singh, Deepjyoti); Kaushik, S (Kaushik, Sujata); Nandi, AK (Nandi, Ashis Kumar)

Source: PLANT JOURNAL **Volume:** 124 **Issue:** 1 **Article Number:** e70519 **DOI:** 10.1111/tpj.70519 **Published Date:** 2025 OCT 13

Times Cited in Web of Science Core Collection: 0

Total Times Cited: 0

Usage Count (Last 180 days): 0

Usage Count (Since 2013): 0

Cited References: Achard P, 2004, DEVELOPMENT, V131, P3357, DOI 10.1242/dev.01206
Addo-Quaye C, 2008, CURR BIOL, V18, P758, DOI 10.1016/j.cub.2008.04.042
Allen RS, 2007, P NATL ACAD SCI USA, V104, P16371, DOI 10.1073/pnas.0707653104
Allen Robert S, 2010, Silence, V1, P18, DOI 10.1186/1758-907X-1-18
Alves L, 2009, NUCLEIC ACIDS RES, V37, P4010, DOI 10.1093/nar/gkp272
Anand S, 2023, PHYSIOL MOL BIOL PLA, V29, P1437, DOI 10.1007/s12298-023-01377-7
Axtell MJ, 2008, TRENDS PLANT SCI, V13, P343, DOI 10.1016/j.tplants.2008.03.009
Banday ZZ, 2018, MOL PLANT PATHOL, V19, P464, DOI 10.1111/mpp.12538
Bernoux M, 2008, PLANT CELL, V20, P2252, DOI 10.1105/tpc.108.058685
Bozkurt TO, 2011, P NATL ACAD SCI USA, V108, P20832, DOI 10.1073/pnas.1112708109
Cecchini NM, 2015, NAT COMMUN, V6, DOI 10.1038/ncomms8658
Chaturvedi R, 2008, PLANT J, V54, P106, DOI 10.1111/j.1365-313X.2007.03400.x
Chen CF, 2005, NUCLEIC ACIDS RES, V33, DOI 10.1093/nar/gni178
Chen LQ, 2017, PLANT PHYSIOL, V174, P1795, DOI 10.1104/pp.16.01944
Chen YC, 2018, P NATL ACAD SCI USA, V115, pE4920, DOI 10.1073/pnas.1805291115
CHOMCZYNSKI P, 1987, ANAL BIOCHEM, V162, P156, DOI 10.1016/0003-2697(87)90021-2
DeFraia CT, 2008, PLANT METHODS, V4, DOI 10.1186/1746-4811-4-28
Gautam JK, 2018, PLANT PHYSIOL BIOCH, V133, P92, DOI 10.1016/j.plaphy.2018.10.026
German MA, 2008, NAT BIOTECHNOL, V26, P941, DOI 10.1038/nbt1417
Giri MK, 2014, J PLANT PHYSIOL, V171, P860, DOI 10.1016/j.jplph.2013.12.015
Gupta P, 2020, J PLANT BIOCHEM BIOT, V29, P796, DOI 10.1007/s13562-020-00608-2
He YH, 2003, SCIENCE, V302, P1751, DOI 10.1126/science.1091109
López-Galiano MJ, 2019, PLANTS-BASEL, V8, DOI 10.3390/plants8070201
Jung HW, 2009, SCIENCE, V324, P89, DOI 10.1126/science.1170025
Kachroo A, 2020, CURR OPIN PLANT BIOL, V58, P41, DOI 10.1016/j.pbi.2020.10.004
Kaschani F, 2010, PLANT PHYSIOL, V154, P1794, DOI 10.1104/pp.110.158030
Kasschau KD, 2007, PLOS BIOL, V5, P479, DOI 10.1371/journal.pbio.0050057
Kim TJ, 2023, PLANTS-BASEL, V12, DOI 10.3390/plants12051013
Lee HJ, 2015, PLANT CELL, V27, P3425, DOI 10.1105/tpc.15.00371
Li Chengjian, 2018, Cold Spring Harb Protoc, V2018, DOI [10.1101/pdb.prot097493, 10.1101/pdb.prot097493]
Li M, 2021, RNA BIOL, V18, P2087, DOI 10.1080/15476286.2021.1899491
Li Q, 2023, NAT COMMUN, V14, DOI 10.1038/s41467-023-42629-0
Li QY, 2024, PLANT SCI, V342, DOI 10.1016/j.plantsci.2024.112033
Luan YS, 2015, PLANTA, V241, P1405, DOI 10.1007/s00425-015-2267-7
Maldonado AM, 2002, NATURE, V419, P399, DOI 10.1038/nature00962
Medina C, 2017, NEW PHYTOL, V216, P882, DOI 10.1111/nph.14717

Millar AA, 2019, PLANTS-BASEL, V8, DOI 10.3390/plants8080255
Mosher S, 2013, PLANT SIGNAL BEHAV, V8, DOI 10.4161/psb.24119
Nandi A, 2004, PLANT CELL, V16, P465, DOI 10.1105/tpc.016907
Návarová H, 2012, PLANT CELL, V24, P5123, DOI 10.1105/tpc.112.103564
Palatnik JF, 2007, DEV CELL, V13, P115, DOI 10.1016/j.devcel.2007.04.012
Park SW, 2007, SCIENCE, V318, P113, DOI 10.1126/science.1147113
Park W, 2002, CURR BIOL, V12, P1484, DOI 10.1016/S0960-9822(02)01017-5
Patil V, 2022, PLANT CELL REP, V41, P2351, DOI 10.1007/s00299-022-02926-2
Peng T, 2018, MOL PLANT, V11, P1400, DOI 10.1016/j.molp.2018.09.003
Pulido A, 2010, J EXP BOT, V61, P1277, DOI 10.1093/jxb/erp397
Roy S, 2018, PLANT PHYSIOL, V177, P1728, DOI 10.1104/pp.17.01579
Schwab R, 2005, DEV CELL, V8, P517, DOI 10.1016/j.devcel.2005.01.018
Sharma N, 2021, P NATL ACAD SCI USA, V118, DOI 10.1073/pnas.2101833118
Singh D, 2023, PLANT J, V115, P662, DOI 10.1111/tpj.16252
Singh V, 2014, J BIOSCIENCES, V39, P119, DOI 10.1007/s12038-013-9407-7
Singh V, 2013, MOL PLANT MICROBE IN, V26, P1079, DOI 10.1094/MPMI-04-13-0096-R
Teotia S, 2017, METHODS MOL BIOL, V1631, P337, DOI 10.1007/978-1-4939-7136-7_22
Tomassi AH, 2017, METHODS MOL BIOL, V1640, P199, DOI 10.1007/978-1-4939-7165-7_14
Varkonyi-Gasic E, 2011, METHODS MOL BIOL, V744, P145, DOI 10.1007/978-1-61779-123-9_10
Wildermuth MC, 2001, NATURE, V414, P562, DOI 10.1038/35107108
Xie SS, 2023, ABIOTECH, V4, P124, DOI 10.1007/s42994-023-00101-z
Xu MT, 2023, PLANT PHYSIOL, V192, P2290, DOI 10.1093/plphys/kiad131
Yan J, 2012, PLANT CELL, V24, P415, DOI 10.1105/tpc.111.094144
Yu Y., 2025, Plant microRNA maturation and function. Nature Reviews Molecular Cell Biology, DOI [10.1038/s41580-025-00871-y, DOI 10.1038/S41580-025-00871-Y]
Zeng YH, 2024, J EXP BOT, V75, P1530, DOI 10.1093/jxb/erad454
Zhang T, 2016, NAT PLANTS, V2, DOI [10.1038/NPLANTS.2016.153, 10.1038/nplants.2016.153]
Zheng ZH, 2020, PLANT PHYSIOL, V182, P2182, DOI 10.1104/pp.19.00786
Zhong YL, 2020, PLANT MOL BIOL, V103, P511, DOI 10.1007/s11103-020-01006-x

Cited Reference Count: 64

Abstract: Plants retain memories of past infections to mount a robust defense in the form of systemic acquired resistance (SAR) during subsequent pathogen invasions. Primary infected tissues generate a group of compounds that serve as mobile signals for SAR development. Downstream processes subsequent to mobile signal perception are little known. Epigenetic regulator reduced systemic immunity1/FLOWERING LOCUS D (RSI1/FLD) is essential for activating SAR and functions downstream of signal perception in the systemic tissues. Here, we show that RSI1 negatively regulates the expression of miR159b, which in turn regulates the expression of a set of genes that control SAR development. RSI1 physically associates and contributes to SAR-associated demethylation of H3K4me2 and H3K4me3 at the MIR159B locus. Overexpression of miR159b suppresses SAR development, whereas SAR is exaggerated in mir159ab double mutants and target mimic expressing STTM159 lines. Through bioinformatics and expression analysis, we identified several targets of miR159, among which SDG14, RD19A, MYB65, MYB33, MYB120, TPST, TIE4, CSD3, and PPDK positively regulate SAR development, whereas MYB97 and MYB104 negatively regulate it. Altogether, our work identified a functional network of genes that activate and fine-tune SAR development in Arabidopsis thaliana.

Accession Number: WOS:001594960100001

PubMed ID: 41091628

Language: English

Document Type: Article

Author Keywords: FLD/RSI1; infection memory; miR159; STTM159; systemic acquired resistance; targets of miR159

KeyWords Plus: FLOWERING-LOCUS-D; ARABIDOPSIS-THALIANA; PHYTOPHTHORA-INFESTANS; PIPECOLIC ACID; SMALL RNAS; EXPRESSION; MICRORNAS; PROTEASE; DEFENSE; METABOLISM

Addresses: [Kumar, Ranjan; Saini, Reena; Singh, Deepjyoti; Kaushik, Sujata; Nandi, Ashis Kumar] Jawaharlal Nehru Univ, Sch Life Sci, New Delhi 110067, India.
[Singh, Deepjyoti] North Carolina State Univ, Dept Entomol & Plant Pathol, Raleigh, NC 27695 USA.

Corresponding Address: Nandi, AK (corresponding author), Jawaharlal Nehru Univ, Sch Life Sci, New Delhi 110067, India.

E-mail Addresses: ashis_nandi@mail.jnu.ac.in

Affiliations: Jawaharlal Nehru University, New Delhi; North Carolina State University

Publisher: WILEY

Publisher Address: 111 RIVER ST, HOBOKEN 07030-5774, NJ USA

Web of Science Index: Science Citation Index Expanded (SCI-EXPANDED)

Web of Science Categories: Plant Sciences

Research Areas: Plant Sciences

IDS Number: 8QO5A

ISSN: 0960-7412

eISSN: 1365-313X

29-char Source Abbrev.: PLANT J

ISO Source Abbrev.: Plant J.

Source Item Page Count: 16

Funding:

Funding Agency	Grant Number
Ministry of Education Scheme for Transformational and Advanced Research in Sciences (MoE-STARS) grant	2023-0930
DBT project of AKN	BT/PR52208/ BSA/33/162/2024
Department of Biotechnology, Ministry of Science and Technology, India	
University Grants Commission, Ministry of Education, Government of India	
Council of Scientific and Industrial Research, Government of India	
Department of Biotechnology, Ministry of Science and Technology, India, BUILDER grant	BT/INF/22/SP45382/2022

We acknowledge the Arabidopsis Biological Resource Center, Ohio State University, USA, for mutant seeds and vector DNA; Sachin Teotia (Sharda University, Uttar Pradesh, India) for the STTM159 construct. We acknowledge discussions and experimental suggestions from Utpal Nath (Indian Institute of Science, Bangalore, India). The work was primarily supported by a Ministry of Education Scheme for Transformational and Advanced Research in Sciences (MoE-STARS) grant (Project ID: 2023-0930), with partial support from the DBT project (BT/PR52208/BSA/33/162/2024) of AKN. RK and SK received the Department of Biotechnology, Ministry of Science and Technology, India, fellowship; DS received the University Grants Commission, Ministry of Education, Government of India, fellowship; RS received the Council of Scientific and Industrial Research, Government of India, fellowship during the work. We also acknowledge the infrastructure support from the Department of Biotechnology, Ministry of Science and Technology, India, BUILDER grant (grant no BT/INF/22/SP45382/2022).

Output Date: 2025-11-11

Record 32 of 56

Title: Co-Delivery of Temozolomide and Quercetin via Nanoemulsion for Glioblastoma Therapy: From In-Silico to In-Vivo Evaluation

Author(s): Vikram (Vikram); Muheem, A (Muheem, Abdul); Kumar, S (Kumar, Shobhit); Chaudhary, D (Chaudhary, Divya); Waseem, M (Waseem, Mohd); Baboota, S (Baboota, Sanjula); Ali, J (Ali, Javed)

Source: JOURNAL OF CLUSTER SCIENCE **Volume:** 36 **Issue:** 6 **Article Number:** 199 **DOI:** 10.1007/s10876-025-02916-w **Published Date:** 2025 OCT 10

Times Cited in Web of Science Core Collection: 0

Total Times Cited: 0

Usage Count (Last 180 days): 0

Usage Count (Since 2013): 0

Cited References: Anjum V, 2024, MOLECULES, V29, DOI 10.3390/molecules29081797
Arriaga MA, 2023, CANCER RES, V83, DOI 10.1158/1538-7445.AM2023-2687
Ashhar MU, 2021, CHEM PHYS LIPIDS, V235, DOI 10.1016/j.chemphyslip.2020.105035
Barbarisi M, 2018, J CELL PHYSIOL, V233, P6550, DOI 10.1002/jcp.26238
Bazylinska U, 2014, COLLOID SURFACE A, V460, P312, DOI 10.1016/j.colsurfa.2013.12.042
Chen B, 2022, FRONT PHARMACOL, V13, DOI 10.3389/fphar.2022.963614
Choi J., 2017, Telodendrimers for physical encapsulation and covalent linking of individual or combined therapeutics Mol Pharm, V14, P2607, DOI [10.1021/acs.molpharmaceut.7b00019, DOI 10.1021/ACS.MOLPHARMACEUT.7B00019]
CHOU TC, 1984, ADV ENZYME REGUL, V22, P27, DOI 10.1016/0065-2571(84)90007-4
Dhiman A, 2025, RSC PHARM, V2, P207, DOI [10.1039/d4pm00263f, 10.1039/d4pm00263f]
Ganta S, 2010, MOL MEMBR BIOL, V27, P260, DOI 10.3109/09687688.2010.497971
Gold-Smith F, 2016, NUTRIENTS, V8, DOI 10.3390/nu8070396
Hate SS, 2025, J PHARM SCI-US, V114, P520, DOI 10.1016/j.xphs.2024.10.032
Hu J, 2016, INT J MOL MED, V37, P690, DOI 10.3892/ijmm.2016.2458
Khot S, 2025, INT J BIOL MACROMOL, V309, DOI [10.1016/j.ijbiomac.2025.142861, 10.1016/j.ijbiomac.2025.142861]
Kumar A, 2016, DRUG DELIV, V23, P214, DOI 10.3109/10717544.2014.909906
Kumar S, 2016, NANOTECHNOLOGY, V27, DOI 10.1088/0957-4484/27/43/435101
Laskowski RA, 2011, J CHEM INF MODEL, V51, P2778, DOI 10.1021/ci200227u
Laxmi M, 2015, ARTIF CELL NANOMED B, V43, P334, DOI 10.3109/21691401.2014.887018
Lee SY, 2016, GENES DIS, V3, P198, DOI 10.1016/j.gendis.2016.04.007
Mandan J, 2025, CURR PHARM BIOTECHNO, DOI [10.2174/0113892010352026250213055117, 10.2174/0113892010352026250213055117]
Mittal S, 2023, EUR J PHARM BIOPHARM, V191, P175, DOI 10.1016/j.ejpb.2023.08.018
Moody CL, 2014, PHARMACEUTICALS-BASE, V7, P797, DOI 10.3390/ph7070797
Muheem A, 2024, J DRUG DELIV SCI TEC, V98, DOI 10.1016/j.jddst.2024.105831
Muheem A, 2024, DISCOV NANO, V19, DOI 10.1186/s11671-023-03954-x
Natsume A, 2008, CANCER CHEMOTH PHARM, V61, P653, DOI 10.1007/s00280-007-0520-x
Newlands ES, 1997, CANCER TREAT REV, V23, P35, DOI 10.1016/S0305-7372(97)90019-0
O'Boyle N.M., 2011, J. Cheminform, V3, P33, DOI [10.1186/1758-2946-3-33, DOI 10.1186/1758-2946-3-33]
Palapetta SC, 2023, ACS OMEGA, DOI 10.1021/acsomega.2c06049

Pandey YR, 2016, NANOTECHNOLOGY, V27, DOI 10.1088/0957-4484/27/2/025102
Parmar DR, 2021, BIOORG CHEM, V115, DOI 10.1016/j.bioorg.2021.105206
Pawlikowska-Pawlega B, 2014, BBA-BIOMEMBRANES, V1838, P254, DOI 10.1016/j.bbamem.2013.08.014
Pourmadadi M, 2023, J DRUG DELIV SCI TEC, V85, DOI 10.1016/j.jddst.2023.104568
Quirt I, 2007, ONCOLOGIST, V12, P1114, DOI 10.1634/theoncologist.12-9-1114
Sang DP, 2014, ACTA PHARMACOL SIN, V35, P832, DOI 10.1038/aps.2014.22
Sartaj A, 2022, J DRUG TARGET, V30, P1113, DOI 10.1080/1061186X.2022.2104292
Shimazu R, 2021, J AGR FOOD CHEM, V69, P11676, DOI 10.1021/acs.jafc.1c02898
Shrivastava N, 2022, PHARMACEUTICS, V14, DOI 10.3390/pharmaceutics14071486
Singh A, 2024, PARTICUL SCI TECHNOL, V42, P88, DOI 10.1080/02726351.2023.2205348
Singh A, 2022, J BIOMOL STRUCT DYN, V40, P4507, DOI 10.1080/07391102.2020.1858966
Singh Y, 2017, J CONTROL RELEASE, V252, P28, DOI 10.1016/j.jconrel.2017.03.008
Thakkar HP, 2015, J MICROENCAPSUL, V32, P559, DOI 10.3109/02652048.2015.1065917
Trott O, 2010, J COMPUT CHEM, V31, P455, DOI 10.1002/jcc.21334
Vikram, 2024, ASSAY DRUG DEV TECHN, V22, P73, DOI 10.1089/adt.2023.073
Villano JL, 2009, CANCER CHEMOTH PHARM, V64, P647, DOI 10.1007/s00280-009-1050-5
Wesolowski JR, 2010, AM J NEURORADIOL, V31, P1383, DOI 10.3174/ajnr.A2170
Wilson RJ, 2022, PARTICUOLOGY, V64, P85, DOI 10.1016/j.partic.2021.05.009
Wrobel-Biedrawa D., 2022, A flavonoid on the brain: quercetin as a potential therapeutic agent in central nervous system disorders Life, V12, P591, DOI [10.3390/life12040591, DOI 10.3390/LIFE12040591]

Cited Reference Count: 47

Abstract: Glioblastoma (GBM) is a form of brain tumor, and the line of treatment includes the administration of temozolomide (TMZ). Due to the short life of TMZ, high doses are recommended, which leads to drug-induced adverse reactions. In this study, TMZ and Quercetin (QUE) loaded nanoemulsion was developed using a Quality by Design (QbD) approach for the treatment of GBM. The efficacy of TMZ and QUE was assessed through in silico studies, which revealed a synergistic effect of the drugs. Afterward, cellular assays using U87 MG cell lines demonstrated that the optimal ratio of TMZ to QUE (1:8 mu g/mL) yielded a synergistic therapeutic effect. Thus, the ratio of TMZ to QUE was considered to design the formulation. The nanoemulsion was optimized by using a central composite rotatable design (CCRD). The prepared nanoemulsion was characterized by a droplet size of 84.91 +/- 2.17 nm with a polydispersity index (PDI) value of 0.20 +/- 0.01, zeta potential -7.7 +/- 0.34 mV, % transmittance of 94.16 +/- 8.05 %, etc. In vitro drug release and ex vivo permeation studies demonstrated that a dual drug-loaded nanoemulsion significantly improved drug permeation compared to the drug suspension. Furthermore, the pharmacokinetic studies also showed significant improvement in drug plasma concentrations for improved therapeutic efficacy. The nanoemulsion-treated groups also showed a significantly lower IC50 value, indicating greater potency. Hence, the findings suggest that dual drug-loaded nanoemulsion could serve as an effective approach for treating GBM.

Accession Number: WOS:001591862000002

Language: English

Document Type: Article

Author Keywords: Nanoemulsion; Quality by design; Glioblastoma; Temozolomide; Quercetin; Bioavailability

KeyWords Plus: BIOAVAILABILITY

Addresses: [Vikram; Muheem, Abdul; Baboota, Sanjula; Ali, Javed] Jamia Hamdard, Sch Pharmaceut Educ & Res, Dept Pharmaceut, New Delhi, India.
[Kumar, Shobhit] Meerut Inst Engn & Technol MIET, Dept Pharmaceut Technol, Meerut 250005, UP, India.
[Chaudhary, Divya] Meerut Inst Engn & Technol MIET, Dept Biotechnol, Meerut 250005, UP, India.
[Waseem, Mohd] Jawaharlal Nehru Univ, Sch Computat & Integrat Sci, New Delhi 110067, India.

Corresponding Address: Baboota, S; Ali, J (corresponding author), Jamia Hamdard, Sch Pharmaceut Educ & Res, Dept Pharmaceut, New Delhi, India.

E-mail Addresses: sanjulababoota19@gmail.com; javedaali@yahoo.com

Affiliations: Jamia Hamdard University; Meerut Institute of Engineering & Technology; Meerut Institute of Engineering & Technology; Jawaharlal Nehru University, New Delhi

Author Identifiers:

Author	Web of Science ResearcherID	ORCID Number
Baboota, Sanjula	ABE-7005-2020	

Publisher: SPRINGER/PLENUM PUBLISHERS

Publisher Address: 233 SPRING ST, NEW YORK, NY 10013 USA

Web of Science Index: Science Citation Index Expanded (SCI-EXPANDED)

Web of Science Categories: Chemistry, Inorganic & Nuclear

Research Areas: Chemistry

IDS Number: 8LZ9Z

ISSN: 1040-7278

eISSN: 1572-8862

29-char Source Abbrev.: J CLUST SCI

ISO Source Abbrev.: J. Clust. Sci.

Source Item Page Count: 26

Funding:

Funding Agency	Grant Number
Department of Science and Technology, Ministry of Science and Technology, India	
Department of Science and Technology (DST)	
ACIC Animal Cell Culture Lab, Meerut Institute of Engineering and Technology (MIET), Meerut (UP), India	

The authors would like to acknowledge the Department of Science and Technology (DST), Govt. of India for providing the DST-PURSE fellowship to the first author (File No.AS/Fellow (DST)/JH-62/2023) and providing infrastructure under DST-FIST program. The authors also would like to acknowledge ACIC Animal Cell Culture Lab, Meerut Institute of Engineering and Technology (MIET), Meerut (UP), India for providing a facility for cell culture.

Output Date: 2025-11-11

Record 33 of 56

Title: Material-Driven Performance Analysis of a Vertical Nanowire Tunnel FET for Analog Applications

Author(s): Bhardwaj, A (Bhardwaj, Anjana); Das, A (Das, Amit); Garg, P (Garg, Puneet); Yadav, S (Yadav, Shivani)

Source: JOURNAL OF ELECTRONIC MATERIALS **DOI:** 10.1007/s11664-025-12438-w **Early Access Date:** OCT 2025 **Published Date:** 2025 OCT 22

Times Cited in Web of Science Core Collection: 0

Total Times Cited: 0

Usage Count (Last 180 days): 0

Cited References: Alam K, 2005, APPL PHYS LETT, V87, DOI 10.1063/1.2011788
Anam A, 2020, IEEE SENS J, V20, P13178, DOI 10.1109/JSEN.2020.3004050
Anand S, 2016, SUPERLATTICE MICROST, V97, P60, DOI 10.1016/j.spmi.2016.06.001
Batakala J, 2024, IEEE ACCESS, V12, P66910, DOI 10.1109/ACCESS.2024.3399097
Bhardwaj A., 2022, P 2022 IEEE INT C CU, P3
Bhardwaj A, 2025, MICROELECTRON RELIAB, V172, DOI 10.1016/j.microrel.2025.115840
Bhardwaj A, 2025, SEMICONDUCTORS+, V59, P521, DOI 10.1134/S1063782625600263
Bhardwaj A, 2025, SEMICONDUCTORS+, V59, P474, DOI 10.1134/S1063782625600494
Bhardwaj A, 2025, SEMICONDUCTORS+, V59, P382, DOI 10.1134/S1063782625600020
Bhardwaj A, 2023, ENG RES EXPRESS, V5, DOI 10.1088/2631-8695/acff3a
Bhardwaj A, 2023, J ELECTRON MATER, V52, P3103, DOI 10.1007/s11664-023-10260-w
Bhardwaj A, 2022, J ELECTRON MATER, V51, P4005, DOI 10.1007/s11664-022-09658-9
Bhardwaj A, 2025, SEMICONDUCTORS+, V59, P678, DOI 10.1134/S1063782625601001
Brown LS, 2007, PHYS REV E, V76, DOI 10.1103/PhysRevE.76.066404
Cheng R, 2021, J SEMICOND, V42, DOI 10.1088/1674-4926/42/2/023101
Cherik IC, 2022, IEEE T ELECTRON DEV, V69, P5170, DOI 10.1109/TED.2022.3189326
Cuervo A, 2014, P NATL ACAD SCI USA, V111, pE3624, DOI 10.1073/pnas.1405702111
Cutaia D, 2015, IEEE J ELECTRON DEVI, V3, P182, DOI 10.1109/JEDS.2015.2388793
Das A., 2025, Photonics and Optoelectronics in Industry 5.0, P39, DOI [10.1007/978-981-96-7594-4_3, DOI 10.1007/978-981-96-7594-4_3]
Das A., 2025, Machine Learning for Semiconductor Materials, P109, DOI [10.1201/9781003508304-7, DOI 10.1201/9781003508304-7]
Das A., 2025, Photonics and Optoelectronics in Industry 5.0, P15, DOI [10.1007/978-981-96-7594-4_2, DOI 10.1007/978-981-96-7594-4_2]
Das A, 2025, ECS J SOLID STATE SC, V14, DOI 10.1149/2162-8777/add417
Das A, 2025, INDIAN J PURE AP PHY, V63, P281, DOI 10.56042/ijpap.v63i4.14388
Das A, 2025, SEMICONDUCTORS+, V59, P427, DOI 10.1134/S1063782625600299
Das A, 2025, MICRO NANOSTRUCTURES, V204, DOI 10.1016/j.micrna.2025.208152
Das A, 2023, PHYS SCRIPTA, V98, DOI 10.1088/1402-4896/acde16
Das A, 2023, MICROELECTRON J, V138, DOI 10.1016/j.mejo.2023.105832
Das A, 2023, INT J NUMER MODEL EL, V36, DOI 10.1002/jnm.3106
Das A, 2023, J COMPUT ELECTRON, V22, P742, DOI 10.1007/s10825-023-02008-w
Das A, 2022, SILICON-NETH, V14, P5133, DOI 10.1007/s12633-021-01288-w
Dwivedi P, 2020, ENG RES EXPRESS, V2, DOI 10.1088/2631-8695/ab9bf0
Fahad HM, 2013, IEEE T ELECTRON DEV, V60, P1034, DOI 10.1109/TED.2013.2243151
Gnudi A, 2012, IEEE ELECTR DEVICE L, V33, P336, DOI 10.1109/LED.2011.2181153
Gopal G, 2022, SILICON-NETH, V14, P6553, DOI 10.1007/s12633-021-01428-2
Goyal P, 2022, SEMICOND SCI TECH, V37, DOI 10.1088/1361-6641/ac7ede
Goyal P, 2023, SILICON-NETH, V15, P1597, DOI 10.1007/s12633-022-02079-7
Gusev EP, 2003, MICROELECTRON ENG, V69, P145, DOI 10.1016/S0167-9317(03)00291-0
Hwang MT, 2020, NAT COMMUN, V11, DOI 10.1038/s41467-020-15330-9
Kauerauf T, 2005, SOLID STATE ELECTRON, V49, P695, DOI 10.1016/j.sse.2005.01.018
Kaul A., 2025, Machine Learning for Semiconductor Materials, P172, DOI [10.1201/9781003508304-10, DOI 10.1201/9781003508304-10]
Kaur N, 2022, SILICON-NETH, V14, P10989, DOI 10.1007/s12633-022-01820-6
Kaur P, 2024, IETE J RES, V70, P4097, DOI 10.1080/03772063.2023.2217797
Kim SH, 2010, IEEE ELECTR DEVICE L, V31, P1107, DOI 10.1109/LED.2010.2061214
Moselund KE, 2012, IEEE ELECTR DEVICE L, V33, P1453, DOI 10.1109/LED.2012.2206789
Mukherjee M., 2010, Advanced Microwave and Millimeter Wave Technologies: Semiconductor Devices Circuits and Systems, P1

Musalgaonkar G, 2019, IEEE T ELECTRON DEV, V66, P2809, DOI 10.1109/TED.2019.2910156
Nah J, 2010, IEEE T ELECTRON DEV, V57, P1883, DOI 10.1109/TED.2010.2051249
Narendar V, 2018, SILICON-NETH, V10, P2865, DOI 10.1007/s12633-018-9826-z
Parija SK, 2022, SILICON-NETH, V14, P8371, DOI 10.1007/s12633-021-01622-2
Pekarik JJ, 2014, IEEE BIPOL BICMOS, P92, DOI 10.1109/BCTM.2014.6981293
Ramezani Z, 2018, INT J ELECTRON, V105, P361, DOI 10.1080/00207217.2017.1357206
Reddy NN, 2021, SILICON-NETH, V13, P3085, DOI 10.1007/s12633-020-00657-1
Sahay S, 2017, IEEE T ELECTRON DEV, V64, P1851, DOI 10.1109/TED.2017.2672203
Salimian F, 2018, ECS J SOLID STATE SC, V7, pM1, DOI 10.1149/2.0071802jss
Samal U., 2025, Optical Fiber Sensors and AI, P157
Shaw N, 2023, IEEE SENS J, V23, P1206, DOI 10.1109/JSEN.2022.3224036
Shukla AK, 2020, SOLID STATE ELECTRON, V171, DOI 10.1016/j.sse.2020.107866
Singh AK, 2020, APPL PHYS A-MATER, V126, DOI 10.1007/s00339-020-03869-9
Singh S, 2021, AEU-INT J ELECTRON C, V136, DOI 10.1016/j.aeue.2021.153777
Soma U, 2022, SILICON-NETH, V14, P9669, DOI 10.1007/s12633-022-01721-8
Strangio S, 2018, SOLID STATE ELECTRON, V146, P50, DOI 10.1016/j.sse.2018.05.003
Swain SK, 2022, MICROELECTRON J, V129, DOI 10.1016/j.mejo.2022.105607
Thakur RR, 2020, MATER TODAY-PROC, V24, P2011, DOI [10.1016/j.matpr.2020.03.630, 10.1016/j.matpr.2020.03.630]
Tripathy MR, 2021, MICROELECTRON RELIAB, V119, DOI 10.1016/j.microrel.2021.114073
Vadizadeh M, 2021, IEEE T ELECTRON DEV, V68, P1986, DOI 10.1109/TED.2021.3056632
Xie HW, 2021, MATERIALS, V14, DOI 10.3390/ma14061426
Yadav S, 2024, ECS J SOLID STATE SC, V13, DOI 10.1149/2162-8777/ad3364
Yadav S, 2025, 2019 Devices for Integrated Circuit (DevIC), P348, DOI 10.1109/devic63749.2025.11012312
Yu B, 2002, INTERNATIONAL ELECTRON DEVICES 2002 MEETING, TECHNICAL DIGEST, P251, DOI 10.1109/IEDM.2002.1175825

Cited Reference Count: 69

Abstract: This study analyzes the performance of a high-k germanium-silicon-based source-drain vertical nanowire tunnel field-effect transistor (HK-Ge-Si-VNWTFET) for analog/radio frequency (RF) applications under various gate dielectric materials. Ge/Si materials are chosen for the source/drain of the proposed device to enhance the ON-state current (ION), reduce the subthreshold swing (SS), and minimize the OFF-state current (IOFF). The objective of this analysis is to investigate the performance of various proposed VNWTFETs under different gate dielectric conditions. High-k dielectrics (such as In2O3, TiO2 HfO2, Al2O3, Si3N4, SiO2, and ZnO2) are used in device simulation to analyze the impact of high-k dielectrics on heterojunctions. The incorporation of high-k HfO2 increases the tunneling of the charge carriers across the source-channel junction, yielding ION of 2.09 x 10-5 A/mu m, IOFF of 1.8 x 10-19 A/mu m, ION/IOFF ratio of 1.16 x 1014, SS of 11.8 mV/dec, and cutoff frequency (fT) of 833.6 GHz. The results show that the proposed Ge-Si-based VNWTFETs provide considerable enhancements in analog/RF characteristics in comparison to traditional Si-Si-based VNWTFETs, and they may be a more suitable substitute for upcoming low power devices.

Accession Number: WOS:001597870500001

Language: English

Document Type: Article; Early Access

Author Keywords: Germanium; source engineering; heterojunction; Ge-Si; high-k; tunnel FET; vertical nanowire

KeyWords Plus: FIELD-EFFECT TRANSISTOR; GATE-STACK; TFET; DESIGN; OPTIMIZATION; TEMPERATURE

Addresses: [Bhardwaj, Anjana; Das, Amit] GLA Univ, Dept ECE, Mathura 281406, Uttar Pradesh, India.
[Das, Amit] Jawaharlal Nehru Univ, Sch Computat & Integrat Sci, New Delhi 110067, India.
[Garg, Puneet] AI KIET Grp Inst, Dept CSE, Ghaziabad 201206, Uttar Pradesh, India.
[Yadav, Shivani] KIET Grp Inst, ECE Dept, Ghaziabad 201206, Uttar Pradesh, India.

Corresponding Address: Das, A (corresponding author), GLA Univ, Dept ECE, Mathura 281406, Uttar Pradesh, India.
Das, A (corresponding author), Jawaharlal Nehru Univ, Sch Computat & Integrat Sci, New Delhi 110067, India.

E-mail Addresses: amitofficial7492@gmail.com

Affiliations: GLA University; Jawaharlal Nehru University, New Delhi; KIET Group of Institutions

Author Identifiers:

Author	Web of Science ResearcherID	ORCID Number
Garg, Puneet	GPW-6277-2022	

Publisher: SPRINGER

Publisher Address: ONE NEW YORK PLAZA, SUITE 4600, NEW YORK, NY, UNITED STATES

Web of Science Index: Science Citation Index Expanded (SCI-EXPANDED)

Web of Science Categories: Engineering, Electrical & Electronic; Materials Science, Multidisciplinary; Physics, Applied

Research Areas: Engineering; Materials Science; Physics

IDS Number: 8UV3S

ISSN: 0361-5235

eISSN: 1543-186X

29-char Source Abbrev.: J ELECTRON MATER

ISO Source Abbrev.: J. Electron. Mater.

Source Item Page Count: 12

Output Date: 2025-11-11

Record 34 of 56

Title: Exploration of Oxetanes and Azetidines in Structure-Based Drug Design

Author(s): Ramisetty, MK (Ramisetty, Mohana Krishna); Yadav, V (Yadav, Vikas); Venkitasamy, K (Venkitasamy, Kesavan); Baskaran, S (Baskaran, Sundarababu)

Source: SYNLETT **DOI:** 10.1055/a-2698-0616 **Early Access Date:** OCT 2025 **Published Date:** 2025 OCT 8

Times Cited in Web of Science Core Collection: 0

Total Times Cited: 0

Usage Count (Last 180 days): 0

Usage Count (Since 2013): 0

Cited References: Abraham Mark James, 2015, SoftwareX, V1-2, P19, DOI [10.1016/j.softx.2015.06.001, 10.1016/j.softx.2015.06.001]
Agrawal A., 2023, J Biomol Struct Dyn, V20, P1201
Albitz K, 2025, ANGEW CHEM INT EDIT, V64, DOI 10.1002/anie.202416441
Amir M, 2021, J BIOMOL STRUCT DYN, V39, P3934, DOI 10.1080/07391102.2020.1772880
Anwer R, 2017, J MOL RECOGNIT, V30, DOI 10.1002/jmr.2599
Bachrach SM, 2008, J ORG CHEM, V73, P2466, DOI 10.1021/jo702665r
Banerjee P, 2018, NUCLEIC ACIDS RES, V46, pW257, DOI 10.1093/nar/gky318

Banks JL, 2005, J COMPUT CHEM, V26, P1752, DOI 10.1002/jcc.20292
Bauer MR, 2021, RSC MED CHEM, V12, P448, DOI 10.1039/d0md00370k
Boerma LJ, 2014, J BIOL CHEM, V289, P814, DOI 10.1074/jbc.M113.476861
Brandi A, 2008, CHEM REV, V108, P3988, DOI 10.1021/cr800325e
Bull JA, 2016, CHEM REV, V116, P12150, DOI 10.1021/acs.chemrev.6b00274
Butler MS, 2004, J NAT PROD, V67, P2141, DOI 10.1021/np040106y
Chen P, 2016, MOL CANCER THER, V15, P2273, DOI 10.1158/1535-7163.MCT-16-0300
Chen S., 2017, [No title captured], Patent No. [WO2017/114512A1, 2017114512]
Coates J T., 2010, US Patent Application, Patent No. [US2010/0160340A1, 20100160340]
Das T, 2023, J BIOMOL STRUCT DYN, V41, P3368, DOI 10.1080/07391102.2022.2048081
Delaney JS, 2004, J CHEM INF COMP SCI, V44, P1000, DOI 10.1021/ci034243x
Dey S, 2020, J CHROMATOGR SCI, V58, P309, DOI 10.1093/chromsci/bmz116
Ding D, 2019, CELL REP, V27, P1848, DOI 10.1016/j.celrep.2019.04.050
Dubois MAJ, 2021, RSC MED CHEM, V12, P2045, DOI 10.1039/d1md00248a
Dubois MAJ, 2020, ORG LETT, V22, P5279, DOI 10.1021/acs.orglett.0c01214
Duchowicz PR, 2007, BIOORGAN MED CHEM, V15, P3711, DOI 10.1016/j.bmc.2007.03.044
Evans GB, 2008, J MED CHEM, V51, P948, DOI 10.1021/jm701265n
FORNELL C, 1981, J MARKETING RES, V18, P39, DOI 10.1038/srep42717
Girdhar N, 2025, J BIOMOL STRUCT DYN, V43, P6737, DOI 10.1080/07391102.2024.2321511
Harikrishna AS, 2023, J BIOMOL STRUCT DYN, V41, P14638, DOI 10.1080/07391102.2023.2183714
Hornak V, 2006, PROTEINS, V65, P712, DOI 10.1002/prot.21123
Ikee Y, 2008, CHEM PHARM BULL, V56, P346, DOI 10.1248/cpb.56.346
Candel FJ, 2017, DRUG DES DEV THER, V11, P881, DOI 10.2147/DDDT.S106071
Jeffries B, 2020, BEILSTEIN J ORG CHEM, V16, P2141, DOI 10.3762/bjoc.16.182
Johnson TW, 2018, J MED CHEM, V61, P6401, DOI 10.1021/acs.jmedchem.8b00077
Kashif M, 2023, J BIOMOL STRUCT DYN, V41, P13914, DOI 10.1080/07391102.2023.2175382
Khan MF, 2018, BMC COMPLEM ALTERN M, V18, DOI 10.1186/s12906-018-2116-x
Kirchmair J, 2012, J CHEM INF MODEL, V52, P617, DOI 10.1021/ci200542m
Kollman PA, 2000, ACCOUNTS CHEM RES, V33, P889, DOI 10.1021/ar000033j
Kumari R, 2014, J CHEM INF MODEL, V54, P1951, DOI 10.1021/ci500020m
Kumari S., 2014, Int J Pharm Pharm Sci, V6, P66
Leelavathi P T., 2023, Pharm Res, V7, P000282
Leeson PD, 2007, NAT REV DRUG DISCOV, V6, P881, DOI 10.1038/nrd2445
Lipinski CA, 1997, ADV DRUG DELIVER REV, V23, P3, DOI 10.1016/S0169-409X(96)00423-1
Litskan O., 2025, Org Chem Front, V12, P3775
Lonikar N, 2021, J BIOMOL STRUCT DYN, V39, P3515, DOI 10.1080/07391102.2020.1765874
Madhav H, 2024, RSC MED CHEM, V15, P1022, DOI 10.1039/d3md00490b
Maetani M, 2017, ACS MED CHEM LETT, V8, P438, DOI 10.1021/acsmedchemlett.7b00030
Mahoney MW, 2000, J CHEM PHYS, V112, P8910, DOI 10.1063/1.481505
Manish M, 2022, COMPUT BIOL MED, V150, DOI 10.1016/j.compbiomed.2022.106125
Mark P, 2001, J PHYS CHEM A, V105, P9954, DOI 10.1021/jp003020w
Martin TM, 2008, TOXICOL MECH METHOD, V18, P251, DOI 10.1080/15376510701857353
Mishra S, 2019, Journal of Drug Delivery and Therapeutics, V9, P366, DOI [10.22270/jddt.v9i2-s.2710, DOI 10.22270/JDDT.V9I2-S.2710, 10.22270/jddt.v9i3.2678]
MORIGUCHI I, 1992, CHEM PHARM BULL, V40, P127
Mughal H, 2021, ORG BIOMOL CHEM, V19, P3274, DOI 10.1039/d1ob00061f
Mugumbate G, 2015, PLOS ONE, V10, DOI 10.1371/journal.pone.0121492
Ono F., 2020, Sci Rep, V10, P1
Parsy C, 2014, BIOORG MED CHEM LETT, V24, P4444, DOI 10.1016/j.bmcl.2014.08.002
Pastewska M, 2021, J CHROMATOGR A, V1656, DOI 10.1016/j.chroma.2021.462552
Pletsa V, 1997, CARCINOGENESIS, V18, P2191, DOI 10.1093/carcin/18.11.2191

Raffa RB, 2019, Pharmacology &amp Pharmacy, V10, P465, DOI 10.4236/pp.2019.1011038
Raies AB, 2016, WIRES COMPUT MOL SCI, V6, P147, DOI 10.1002/wcms.1240
Raturi A., 2023, J Biomol Struct Dyn, V42, P585
RICHMOND TJ, 1984, J MOL BIOL, V178, P63, DOI 10.1016/0022-2836(84)90231-6
Rogers-Evans M, 2014, CHIMIA, V68, P492, DOI 10.2533/chimia.2014.492
Ryckmans T, 2009, BIOORG MED CHEM LETT, V19, P4406, DOI 10.1016/j.bmcl.2009.05.062
Sachdeva H, 2022, APPL BIOCHEM BIOTECH, V194, P6438, DOI 10.1007/s12010-022-04099-w
Sakamoto H, 2011, CANCER CELL, V19, P679, DOI 10.1016/j.ccr.2011.04.004
Sastry GM, 2013, J COMPUT AID MOL DES, V27, P221, DOI 10.1007/s10822-013-9644-8
Shaker B, 2020, J MICROBIOL, V58, P235, DOI 10.1007/s12275-020-9563-z
Skinner-Adams TS, 2019, COMMUN BIOL, V2, DOI 10.1038/s42003-019-0397-3
Sousa da Silva A W., 2012, Notes, V5, P367
Stepan AF, 2011, J MED CHEM, V54, P7772, DOI 10.1021/jm200893p
Su MY, 2019, J CHEM INF MODEL, V59, P895, DOI 10.1021/acs.jcim.8b00545
Surleraux DLNG, 2005, J MED CHEM, V48, P1813, DOI 10.1021/jm049560p
Suvannang N, 2011, MOLECULES, V16, P3597, DOI 10.3390/molecules16053597
Tian XH, 2015, FRONT PHARMACOL, V6, DOI 10.3389/fphar.2015.00057
Verma J., 2022, J Biomol Struct Dyn, V30, P127457
Wang YL, 2015, Q REV BIOPHYS, V48, P488, DOI 10.1017/S0033583515000190
Wuitschik G, 2010, J MED CHEM, V53, P3227, DOI 10.1021/jm9018788
Yadav V., 2025, Molr Inf, V44, P1
Zheng X., 2019, J. Med. Chem, V62, P6315, DOI [10.1021/ACS.JMEDCHEM.9B00654/SUPPL_FILE/JM9B00654_SI_001, DOI 10.1021/ACS.JMEDCHEM.9B00654/SUPPL_FILE/JM9B00654_SI_001]
Zheng XF, 2018, J MED CHEM, V61, P10228, DOI 10.1021/acs.jmedchem.8b01394

Cited Reference Count: 80

Abstract: Oxetane and azetidine motifs are widely used in medicinal chemistry to enhance various attributes such as hydrophilicity, metabolic stability, hydrophobicity, and conformational preference. These stable structures are present in numerous bioactive compounds, including FDA-validated therapeutic agents. This study aims to demonstrate the use of oxetane and azetidine ring systems as bioisosteric replacements for isopropyl groups in the development of novel lead candidates. The objective is to improve physicochemical and structural characteristics to facilitate effective molecular optimization, improve pharmacological activity, and simplify synthetic pathways. This can ultimately increase the chances of discovering medication that is more efficient and safer to use. We report the virtual screening of selected 14 approved drugs with a replacement of isopropyl to oxetane and azetidine group transformation, enabling optimization for receptor binding potential and absorption, distribution, metabolism, and excretion (ADME) properties. The results indicate that oxetane alectinib (-6.906 kcal/mol), azetidine procarbazine (-8.083 kcal/mol), azetidine erdafitinib (-7.677 kcal/mol), oxetane anastrozole (-7.454 kcal/mol), azetidine nateglinide (-6.686 kcal/mol), oxetane repaglinide (-7.831 kcal/mol), oxetane nilutamide (-9.649 kcal/mol), and oxetane proguanil (-8.555 kcal/mol) have excellent molecular affinity when compared to their parent molecule. This perspective aims to inspire medicinal chemists to explore the use of oxetane and azetidine moieties in the development of effective drug candidates.

Accession Number: WOS:001590027300001

Language: English

Document Type: Article; Early Access

Author Keywords: Oxetane; Azetidine; Isopropyl group; Drugs; Binding potential; ADME properties

KeyWords Plus: MOLECULAR DOCKING; DISCOVERY; PREDICTION; CHEMISTRY; BINDING; PROTEIN; WATER; PHARMACOKINETICS; PROCARBAZINE; DERIVATIVES

Addresses: [Ramisetty, Mohana Krishna; Venkitasamy, Kesavan] Indian Inst Technol, Bhupat & Jyoti Mehta Sch Biosci, Dept Biotechnol, Chem Biol Lab, Madras, Chennai, India.

[Yadav, Vikas] Jawaharlal Nehru Univ, Sch Computat & Integrat Sci, New Delhi, India.
[Ramisetty, Mohana Krishna; Baskaran, Sundarababu] Indian Inst Technol, Dept Chem, Chennai 600036, India.

Corresponding Address: Baskaran, S (corresponding author), Indian Inst Technol, Dept Chem, Chennai 600036, India.
Venkitasamy, K (corresponding author), Indian Inst Technol, Dept Biotechnol, Chem Biol Lab, Chennai 600036, India.

E-mail Addresses: vkesavan@iitm.ac.in; sbhaskar@iitm.ac.in

Affiliations: Indian Institute of Technology System (IIT System); Indian Institute of Technology (IIT) - Madras; Jawaharlal Nehru University, New Delhi; Indian Institute of Technology System (IIT System); Indian Institute of Technology (IIT) - Madras

Author Identifiers:

Author	Web of Science ResearcherID	ORCID Number
Yadav, Vikas	KBC-3575-2024	
Baska, Sundarababu	W-1281-2019	

Publisher: GEORG THIEME VERLAG KG

Publisher Address: Oswald-Hesse-Strasse 50, D-70469 STUTTGART, GERMANY

Web of Science Index: Science Citation Index Expanded (SCI-EXPANDED)

Web of Science Categories: Chemistry, Organic

Research Areas: Chemistry

IDS Number: 8JH8J

ISSN: 0936-5214

eISSN: 1437-2096

29-char Source Abbrev.: SYNLETT

ISO Source Abbrev.: Synlett

Source Item Page Count: 12

Funding:

Funding Agency	Grant Number
School of Computational and Integrative Sciences, Jawaharlal Nehru University	

The authors acknowledge the support of School of Computational and Integrative Sciences, Jawaharlal Nehru University for providing all the necessary facilities for carrying out MD Simulations presented in this research work. The authors also acknowledge the support of Indian Biological Data Centre, Regional Centre for Biotechnology, Faridabad for providing the HPC facilities to carried out MD Simulations presented this research work.

Output Date: 2025-11-11

Record 35 of 56

Title: Spatial and Temporal Variations in Ganga River Water Quality: Insights from GIS Analysis (2017-2021)

Author(s): Singh, BP (Singh, Bhupendra P.); Khichi, P (Khichi, Priyanka); Sai, P (Sai, Preeti); Gautam, SK (Gautam, Sandeep Kumar); Chahal, S (Chahal, Seema); Gupta, J (Gupta, Jyotsana)

Source: WATER AIR AND SOIL POLLUTION **Volume:** 236 **Issue:** 15 **Article Number:** 1017 **DOI:** 10.1007/s11270-025-08677-6 **Published Date:** 2025 OCT 10

Cited References: Al-khateeb M., 2013, Engineering and Technology Journal, V31, P828, DOI [10.30684/etj.31.5A3, DOI 10.30684/ETJ.31.5A3]
Al-Kindi AY., 2023, Iraq. Applied Water Science, V13, P20, DOI [10.1007/s13201-023-02010-4, DOI 10.1007/S13201-023-02010-4]
Carriquiriborde P, 2014, INTEGR ENVIRON ASSES, V10, P539, DOI 10.1002/ieam.1561
CPCB, 2022, About us
Das P, 2012, SUSTAINABILITY-BASEL, V4, P1647, DOI 10.3390/su4081647
Dutta V, 2020, SCI TOTAL ENVIRON, V743, DOI 10.1016/j.scitotenv.2020.140756
Dwivedi S, 2018, ENVIRON INT, V117, P327, DOI 10.1016/j.envint.2018.05.015
Gavrilescu B.M., 2005, Review Fate of Pesticides in the Environment and its Bioremediation, DOI DOI 10.1002/ELSC.200520098
Gorde SP., 2013, Assessment of Water Quality Parameters : A Review, V3, P2029
Haritash AK, 2016, APPL WATER SCI, V6, P383, DOI 10.1007/s13201-014-0235-1
Hasan MF, 2021, SUSTAINABILITY-BASEL, V13, DOI 10.3390/su13126832
Holvoet KMA, 2007, ECOL MODEL, V209, P53, DOI 10.1016/j.ecolmodel.2007.07.030
Kansal A, 2013, ENVIRON MONIT ASSESS, V185, P2553, DOI 10.1007/s10661-012-2730-x
Kaushal N., 2019, Towards a Healthy Ganga-Improving River Flows Through Understanding Trade Offs, V7, DOI [10.3389/fenvs.2019.00083, DOI 10.3389/FENVS.2019.00083]
Kumar SK, 2015, APPL WATER SCI, V5, P335, DOI 10.1007/s13201-014-0196-4
Kurwadkar S, 2022, MAR POLLUT BULL, V179, DOI 10.1016/j.marpolbul.2022.113686
Matta Gagan, 2017, International Journal of Water, V11, P87, DOI [10.1504/ijw.2017.10004522, 10.1504/ijw.2017.083759, 10.1504/ijw.2017.10004522]
Mukherjee D., 1993, Environmentalist, V13, P199, DOI 10.1007/BF01901382
Muñoz H, 2015, TECNOL CIENC AGUA, V6, P59
Oseke FI, 2021, Water-Energy Nexus, V4, P25, DOI [10.1016/j.wen.2020.12.002, 10.1016/j.wen.2020.12.002, DOI 10.1016/J.WEN.2020.12.002]
Pandey M., 2005, Ganga Water Pollution and Occurrence of Enteric Diseases in Varanasi City, V30, P2
Panwar S, 2017, ARAB J GEOSCI, V10, DOI 10.1007/s12517-017-3003-3
Patidar K, 2024, PHYS CHEM EARTH, V136, DOI 10.1016/j.pce.2024.103760
Patidar K, 2024, PHYS CHEM EARTH, V134, DOI 10.1016/j.pce.2024.103596
Patidar K, 2024, ENVIRON GEOCHEM HLTH, V46, DOI 10.1007/s10653-024-01926-3
Rahaman M. M., 2014, Principles of Transboundary Water Resources Management and Ganges Treaties: An Analysis Principles of Transboundary Water Resources Management and Ganges Treaties: An Analysis, P37, DOI [10.1080/07900620802517574, DOI 10.1080/07900620802517574]
Rani N, 2014, ECOTOX ENVIRON SAFE, V108, P58, DOI 10.1016/j.ecoenv.2014.06.033
Ravindra K, 2003, J ENVIRON MONITOR, V5, P419, DOI 10.1039/b301723k
Santy S, 2020, SCI REP-UK, V10, DOI 10.1038/s41598-020-66171-x
Sargaonkar A., 2003, Development of An Overall Index of Pollution, P43
Schulz R, 2001, ENVIRON SCI TECHNOL, V35, P422, DOI 10.1021/es0001198
Seth R, 2013, APPL WATER SCI, V3, P717, DOI 10.1007/s13201-013-0116-z
Sharma P, 2023, International Journal of Geography Geology and Environment, V5, P15, DOI [10.22271/27067483.2023.v5.i1a.136, 10.22271/27067483.2023.v5.i1a.136, DOI 10.22271/27067483.2023.V5.I1A.136]
Singh BP, 2025, ECOHEALTH, V22, P486, DOI 10.1007/s10393-025-01720-2
Singh BP, 2024, DISCOV PUBLIC HEALTH, V21, DOI 10.1186/s12982-024-00193-y
Singh BP, 2024, MRS ENERGY SUSTAIN, V11, P343, DOI 10.1557/s43581-024-00100-7

Singh BP, 2024, AIR QUAL ATMOS HLTH, V17, P2661, DOI 10.1007/s11869-024-01593-4
Singh BP, 2024, URBAN WATER J, V21, P380, DOI 10.1080/1573062X.2023.2295339
Singh BP, 2024, ASIA-PAC J ATMOS SCI, V60, P211, DOI 10.1007/s13143-023-00348-y
Singh BP, 2023, WATER RESOUR+, V50, P633, DOI 10.1134/S0097807823040061
Singh BP, 2023, J ATMOS CHEM, V80, P53, DOI 10.1007/s10874-022-09440-5
Singh BP, 2022, FRONT ENV SCI-SWITZ, V10, DOI 10.3389/fenvs.2022.940640
Singh BP, 2021, URBAN CLIM, V40, DOI 10.1016/j.uclim.2021.101013
Singh BP, 2025, DISCOV PUBLIC HEALTH, V22, DOI 10.1186/s12982-025-00788-z
Singh N., 2022, CURRENT DIRECTIONS W, V6, P173, DOI DOI 10.1016/B978-0-323-91838-1.00008-7
Tariq A., 2023, International Journal of Chemical and Biochemical Sciences, V23, P121, DOI DOI 10.1007/S12345-023-00001-0
Tiwari D, 2025, RSC ADV, V15, P3290, DOI 10.1039/d4ra06144f
Tiwari M, 2024, DISCOV PUBLIC HEALTH, V21, DOI 10.1186/s12982-024-00269-9
Tyagi S, 2020, American Journal of Water Resources, V1, P34, DOI [10.12691/ajwr-1-3-3, 10.12691/ajwr-1-3-3, DOI 10.12691/AJWR-1-3-3]
Udosen E. D., 2006, Trends in Applied Sciences Research, V1, P292

Cited Reference Count: 50

Abstract: The Ganga River serves as a vital source of fresh water and holds significant cultural and religious value in India, however, pollution has severely degraded the water quality, posing threats to human health and ecological integrity. This study analyzes water quality trends in the Ganga River from 2017 to 2021, focusing on Uttar Pradesh, India, and evaluates the impact of the COVID-19 pandemic on water quality parameters. Results indicated maximum fluctuations in temperature, dissolved oxygen, pH, biochemical oxygen demand (BOD), and nitrate levels were reported 29.5-34 degrees c, 11-12.5 mg/L, 8.6-9, 560-2200 (mu mho/cm), 5.3-9.8 mg/L, 1.83-9.4 (mg/L) influenced by anthropogenic activities and natural environmental dynamics. The correlation analysis highlights significant relationships among water quality parameters. Strong significant positive correlations were observed between pH with fecal coliform (0.73) and total coliform (0.80), whereas a strong negative correlation was calculated between DO with fecal coliform (-.83) and total coliform (0.90). In addition, spatial analysis using GIS underscores the heterogeneous distribution of water quality parameters across the Ganga River basin, emphasizing more pollutant loads downstream which needs targeted interventions to mitigate pollution sources and ensure sustainable water management practices. This study contributes to bridging the existing knowledge gap regarding the dynamic evolution of water quality in the Ganga River, facilitating informed decision-making for policy formulation and implementation to safeguard water resources for future generations.

Accession Number: WOS:001591895600005

Language: English

Document Type: Article

Author Keywords: Ganga River; DO; BOD; Correlation; GIS

KeyWords Plus: CATCHMENT; POLLUTION; WQI

Addresses: [Singh, Bhupendra P.; Khichi, Priyanka] Cent Univ Haryana, Dept Environm Studies, Jaat 123029, Haryana, India.
[Singh, Bhupendra P.] Univ Delhi, Inst Eminence, Climate Change & Sustainabil, Delhi 110009, India.
[Sai, Preeti] Jamia Hamdard, Dept Bot, New Delhi, India.
[Gautam, Sandeep Kumar] Univ Delhi, Sandeep Kumar Gautam Satyawati Coll Evening, New Delhi 110052, India.
[Chahal, Seema] Jawaharlal Nehru Univ, Seema Chahal Sch Environm Sci, New Delhi 110067, India.
[Gupta, Jyotsana] Sadar Hosp, Dept Dermatol, Ghazipur 233002, Uttar Pradesh, India.

Corresponding Address: Singh, BP (corresponding author), Cent Univ Haryana, Dept Environm Studies, Jaat 123029, Haryana, India.

E-mail Addresses: bpsingh0783@gmail.com; priyankakhichi0199@gmail.com; preetisaihansi24@gmail.com; kgmsandeep@gmail.com; seema9184@gmail.com; jyotsanagupta24@gmail.com

Affiliations: Central University of Haryana; University of Delhi; Jamia Hamdard University; University of Delhi; Jawaharlal Nehru University, New Delhi

Author Identifiers:

Author	Web of Science ResearcherID	ORCID Number
Gautam, Sandeep	AAJ-4115-2020	
Singh, Bhupendra	JTV-4341-2023	

Publisher: SPRINGER INT PUBL AG

Publisher Address: GEWERBESTRASSE 11, CHAM, CH-6330, SWITZERLAND

Web of Science Index: Science Citation Index Expanded (SCI-EXPANDED)

Web of Science Categories: Environmental Sciences; Meteorology & Atmospheric Sciences; Water Resources

Research Areas: Environmental Sciences & Ecology; Meteorology & Atmospheric Sciences; Water Resources

IDS Number: 8MB2X

ISSN: 0049-6979

eISSN: 1573-2932

29-char Source Abbrev.: WATER AIR SOIL POLL

ISO Source Abbrev.: Water Air Soil Pollut.

Source Item Page Count: 20

Funding:

Funding Agency	Grant Number
Central Pollution Control Board (CPCB), India	

The authors acknowledge and thank the Central Pollution Control Board (CPCB), India for supporting the data collection and writing the manuscript.

Output Date: 2025-11-11

Record 36 of 56

Title: Metabolite profiling of rice with different pericarp colours unveils new insights into nutrients and nutraceuticals content of aromatic black rice

Author(s): Nongpiur, RC (Nongpiur, Ramsong Chantre); Ali, A (Ali, Akib); Bagri, J (Bagri, Jayram); Upadhaya, S (Upadhaya, Sunita); Kumari, B (Kumari, Babita); Barua, S (Barua, Sushmita); Pareek, A (Pareek, Ashwani); Chrungoo, NK (Chrungoo, Nikhil Kumar)

Source: JOURNAL OF FOOD MEASUREMENT AND CHARACTERIZATION **DOI:** 10.1007/s11694-025-03643-6 **Early Access Date:** OCT 2025 **Published Date:** 2025 OCT 11

Times Cited in Web of Science Core Collection: 0

Total Times Cited: 0

Usage Count (Last 180 days): 0

Usage Count (Since 2013): 0

Cited References: Ali A, 2023, PLANT CELL TISS ORG, V152, P619, DOI 10.1007/s11240-022-02435-w
Bajkacz S, 2018, FOOD ANAL METHOD, V11, P3563, DOI 10.1007/s12161-018-1332-9
BRADFORD MM, 1976, ANAL BIOCHEM, V72, P248, DOI 10.1016/0003-2697(76)90527-3
Byreddy AR, 2016, J MICROBIOL METH, V125, P28, DOI 10.1016/j.mimet.2016.04.002
Chen CJ, 2023, MOL PLANT, V16, P1733, DOI 10.1016/j.molp.2023.09.010
Chen XQ, 2022, FOOD RES INT, V161, DOI 10.1016/j.foodres.2022.111726
Chen ZW, 2018, APPL MICROBIOL BIOT, V102, P4269, DOI 10.1007/s00253-018-8916-6
De B, 2014, CR BIOL, V337, P283, DOI 10.1016/j.crvi.2014.01.006
Deepa G, 2008, FOOD CHEM, V106, P165, DOI 10.1016/j.foodchem.2007.05.062
Dhital S, 2010, CARBOHYD POLYM, V82, P480, DOI 10.1016/j.carbpol.2010.05.018
Eknayake S, 1999, FOOD CHEM, V66, P115, DOI 10.1016/S0308-8146(99)00041-2
Eun-Young Kim, 2008, Journal of Nutrition, V138, P1647
Feng SY, 2022, METABOLITES, V12, DOI 10.3390/metabo12090856
Frank T, 2012, J CEREAL SCI, V55, P112, DOI 10.1016/j.jcs.2011.09.009
Gayacharan, 2018, INDIAN J BIOTECHNOL, V17, P110
GOMEZ KA, 1975, AGRON J, V67, P565, DOI 10.2134/agronj1975.00021962006700040029x
Hart JJ, 2015, J AGR FOOD CHEM, V63, P5950, DOI 10.1021/acs.jafc.5b00531
HOSHIKAWA K, 1967, Proceedings of the Crop Science Society of Japan, V36, P221
JULIANO BO, 1992, CEREAL FOOD WORLD, V37, P772
Keskes H, 2017, PHARM BIOL, V55, P88, DOI 10.1080/13880209.2016.1230139
Khin OM, 2013, PLANT PROD SCI, V16, P41, DOI 10.1626/pps.16.41
Khush GS, 2005, PLANT MOL BIOL, V59, P1, DOI 10.1007/s11103-005-2159-5
Khush GS., 2000, R.K. Singh, U.S. Singh, G.S. Khush Oxford and IBH Publishing Co, P5
Maeda H, 2014, BREEDING SCI, V64, P134, DOI 10.1270/jsbbs.64.134
Masuda T, 1999, J AGR FOOD CHEM, V47, P1749, DOI 10.1021/jf980864s
McLaughlin MJ, 1999, FIELD CROP RES, V60, P143, DOI 10.1016/S0378-4290(98)00137-3
Mishra M, 2022, FOOD ENERGY SECUR, V11, DOI 10.1002/fes3.343
Noda T, 2003, CEREAL CHEM, V80, P193, DOI 10.1094/CCHEM.2003.80.2.193
Oates CG, 1997, TRENDS FOOD SCI TECH, V8, P375, DOI 10.1016/S0924-2244(97)01090-X
Ou SJL, 2023, NPJ SCI FOOD, V7, DOI 10.1038/s41538-023-00233-y
Phuyal Nirmala, 2020, ScientificWorldJournal, V2020, P8780704, DOI [10.1155/2020/8780704, 10.1155/2020/8780704]
Pi-Sunyer FX, 2002, AM J CLIN NUTR, V76, p290S, DOI 10.1093/ajcn/76.1.290S
Rajendran M, 2020, CURR RES NUTR FOOD S, V8, P903, DOI 10.12944/CRNFSJ.8.3.20
Re R, 1999, FREE RADICAL BIO MED, V26, P1231, DOI 10.1016/S0891-5849(98)00315-3
Reddy CK, 2017, RICE SCI, V24, pCP3, DOI 10.1016/j.rsci.2017.05.002
Roy S, 2014, PLANT GENET RESOUR-C, V12, P264, DOI 10.1017/S1479262113000580
Saikia S, 2012, FOOD RES INT, V46, P334, DOI 10.1016/j.foodres.2011.12.021
Shao YF, 2017, CEREAL CHEM, V94, P811, DOI 10.1094/CCHEM-04-17-0076-R
Shao YF, 2018, FOOD CHEM, V239, P733, DOI 10.1016/j.foodchem.2017.07.009
Singleton VL, 1999, METHOD ENZYMOL, V299, P152
SNOW P, 1981, AM J CLIN NUTR, V34, P2721, DOI 10.1093/ajcn/34.12.2721
Suwannaporn P, 2007, STARCH-STARKE, V59, P171, DOI 10.1002/star.200600565
Uivarasan AM, 2024, FOODS, V13, DOI 10.3390/foods13101503
Velickovic TDC, 2018, COMPR REV FOOD SCI F, V17, P82, DOI 10.1111/1541-4337.12320
Verma DK, 2017, RICE SCI, V24, P21, DOI 10.1016/j.rsci.2016.05.005
Waterman P.G., 2007, Secondary Metabolites: their function and evolution, DOI [10.1002/9780470514344.ch15, DOI 10.1002/9780470514344.CH15]
Yang QQ, 2016, J EXP BOT, V67, P4285, DOI 10.1093/jxb/erw209
Yang XH, 2019, PLANT BIOTECHNOL J, V17, P1700, DOI 10.1111/pbi.13133
Yuliana ND, 2020, FOOD SCI BIOTECHNOL, V29, P825, DOI 10.1007/s10068-019-00725-2

Cited Reference Count: 49

Abstract: There is a growing interest in coloured rice varieties due to their rich aroma and an abundance of bioactive compounds. In this study, we performed a comparative metabolite profiling of white (IR64), red (IC540274), and aromatic black (Chakhao Poireiton and Chakhao Amubi) rice varieties. Grain morphology analysis revealed three-four aleurone layers in the Chakhao cultivars compared to one in IR64 and IC540275. Proximate analysis revealed that Chakhao Poireiton and Chakhao Amubi exhibited higher levels of proteins, lipids, and ash than IC540274 and IR64. Inductively Coupled Plasma Optical Emission Spectroscopy (ICP-OES) revealed higher Fe and Cu in the Chakhao cultivars compared to IC540274 and IR64, with IR64 containing the highest levels of K and Mg, and Mn being highest in IC540274. Differences in starch granule morphology and apparent amylose content were also observed among the four cultivars. The Total Phenolic Content (TPC), Total Flavonoid Content (TFC) and antioxidant activity were also higher in Chakhao cultivars, followed by IC540274 and IR64. Metabolomic data analyses revealed dissimilar profiles among the cultivars as portrayed by differential cluster patterns of metabolites in the PCA and PLS-DA scores-plot. Ultra-high performance liquid chromatography (UPLC) showed higher concentrations of lysine and threonine in Chakhao cultivars compared to IR64 and IC540274. Chakhao rice also exhibits unique flavonoid profiles with abundant anthocyanins, especially kuromanin, while IR64 lacks anthocyanins. These findings improve our understanding of the pigmented rice metabolome and highlight Chakhao Poireiton and Chakhao Amubi as potentially valuable dietary additions/alternatives for nutritional security due to their nutritional and nutraceutical content.

Accession Number: WOS:001590904000001

Language: English

Document Type: Article; Early Access

Author Keywords: Aromatic black rice; Nutritional profile; Metabolite profile; Chakhao Amubi; Chakhao Poireiton; IC540274; IR64

KeyWords Plus: ORYZA-SATIVA L.; ANTIOXIDANT ACTIVITY; PROXIMATE COMPOSITION; PHENOLIC-ACIDS; GRAIN; RED; VARIETIES; STARCH

Addresses: [Nongpiur, Ramsong Chantre; Ali, Akib; Upadhaya, Sunita; Kumari, Babita; Barua, Sushmita; Chrungoo, Nikhil Kumar] North Eastern Hill Univ, Dept Bot, Mol Plant Physiol Lab, Shillong 793022, Meghalaya, India.
[Pareek, Ashwani] Jawaharlal Nehru Univ, Stress Physiol & Mol Biol Lab, New Delhi 110067, India.
[Bagri, Jayram; Pareek, Ashwani] Natl Agrifood Biotechnol Inst NABI, Mohali 140306, Punjab, India.
[Nongpiur, Ramsong Chantre] Indira Gandhi Natl Open Univ, Reg Ctr Itanagar, HCMT Bldg,Rajiv Gandhi Govt Polytech Coll Campus, Itanagar 791113, India.
[Chrungoo, Nikhil Kumar] Royal Global Univ, Sch Life Sci, Gauhati 781035, India.

Corresponding Address: Nongpiur, RC (corresponding author), North Eastern Hill Univ, Dept Bot, Mol Plant Physiol Lab, Shillong 793022, Meghalaya, India.
Nongpiur, RC (corresponding author), Indira Gandhi Natl Open Univ, Reg Ctr Itanagar, HCMT Bldg,Rajiv Gandhi Govt Polytech Coll Campus, Itanagar 791113, India.

E-mail Addresses: ramsongnongpiur@gmail.com

Affiliations: North Eastern Hill University; Jawaharlal Nehru University, New Delhi; Department of Biotechnology (DBT) India; National Agri Food Biotechnology Institute (NABI)

Publisher: SPRINGER

Publisher Address: ONE NEW YORK PLAZA, SUITE 4600, NEW YORK, NY, UNITED STATES

Web of Science Index: Science Citation Index Expanded (SCI-EXPANDED)

Web of Science Categories: Food Science & Technology

Research Areas: Food Science & Technology

IDS Number: 8KP2Y

ISSN: 2193-4126
eISSN: 2193-4134
29-char Source Abbrev.: J FOOD MEAS CHARACT
ISO Source Abbrev.: J. Food Meas. Charact.
Source Item Page Count: 16
Funding:

Funding Agency	Grant Number
Science and Engineering Research Board, Department of Science and Technology, Government of India	
Science and Engineering Research Board (SERB), Government of India	
SERB for National Post-Doctoral Fellowship (NPDF)	

The authors thank Science and Engineering Research Board (SERB), Government of India for funding. Ramsong Chantre Nongpiur thanks SERB for National Post-Doctoral Fellowship (NPDF). The authors acknowledge the Sophisticated Analytical Instrument Facility (SAIF), North-Eastern Hill University, Shillong, for electron microscopy and ICP-OES services. The authors also acknowledge Prof. Suman Kumaria, Dr. Meera C Das, Rebati Sinam and Hanjabam Pritam Sharma.

Output Date: 2025-11-11

Record 37 of 56

Title: Effect of zinc additive on thermal transport properties of novel multicomponent chalcogenide Se-Te-Sn system: transient plane source technique

Author(s): Kumar, D (Kumar, Deepak); Pal, K (Pal, Krishna); Sharma, AK (Sharma, Arvind Kumar); Kumar, H (Kumar, Horesh); Singh, K (Singh, Kedar); Kumar, S (Kumar, Sunil)

Source: JOURNAL OF THERMAL ANALYSIS AND CALORIMETRY **DOI:** 10.1007/s10973-025-14809-1 **Early Access Date:** OCT 2025 **Published Date:** 2025 OCT 8

Times Cited in Web of Science Core Collection: 0

Total Times Cited: 0

Usage Count (Last 180 days): 0

Usage Count (Since 2013): 0

Cited References: Akiyama T, 2001, JPN J APPL PHYS 1, V40, P1598, DOI 10.1143/JJAP.40.1598
Boolchand P, 2000, PHILOS MAG B, V80, P1757, DOI 10.1080/13642810008216504
Borisova ZU., 1981, Springer-Verlag, DOI [10.1007/978-1-4757-0851-6, DOI 10.1007/978-1-4757-0851-6]
CHIBA R, 1988, J NON-CRYST SOLIDS, V105, P149, DOI 10.1016/0022-3093(88)90349-3
Das G. C., 1972, Journal of Non-Crystalline Solids, V7, P251, DOI 10.1016/0022-3093(72)90026-9
Dubey JP, 2016, TURK J PHYS, V40, P201, DOI 10.3906/fiz-1509-18
Dubey JP, 2015, TURK J PHYS, V39, P242, DOI 10.3906/fiz-1412-11
Dubey JP., 2015, IOSR J Appl Phys, V7, P67
ELMOUSLY MK, 1978, J NON-CRYST SOLIDS, V27, P265, DOI 10.1016/0022-3093(78)90129-1
Feltz A, 1993, Amorphous Inorganic Materials and Glasses, DOI [10.1002/ange.19941062241, DOI 10.1002/ANGE.19941062241]
Gangadharan R, 2003, J ALLOY COMPD, V359, P22, DOI 10.1016/S0925-8388(03)00188-9
GUSTAFSSON SE, 1991, REV SCI INSTRUM, V62, P797, DOI 10.1063/1.1142087
Horie M., 2002, Proceedings of the SPIE - The International Society for Optical Engineering, V4342, P76, DOI 10.1117/12.453380

Hurst CH, 1974, P 5 INT C AM LIQ SEM, P349
Janetzko F, 2004, J PHYS CHEM A, V108, P5449, DOI 10.1021/jp040061+
Kumar H, 2011, PHYS SCRIPTA, V83, DOI 10.1088/0031-8949/83/06/065602
Kumar S, 2012, J MATER SCI, V47, P3949, DOI 10.1007/s10853-011-6244-7
Maharajan NB, 2000, B MATER SCI, V23, P369, DOI 10.1007/BF02708386
Mehta N, 2008, THERMOCHIM ACTA, V475, P80, DOI 10.1016/j.tca.2008.06.012
Mott N.F., 1972, Physics Today, V25, P55, DOI DOI 10.1063/1.3071145
Ohta T, 2001, J OPTOELECTRON ADV M, V3, P609
PHILLIPS JC, 1981, J NON-CRYST SOLIDS, V44, P17, DOI 10.1016/0022-3093(81)90129-0
PHILLIPS JC, 1985, SOLID STATE COMMUN, V53, P699, DOI 10.1016/0038-1098(85)90381-3
PHILLIPS JC, 1981, J NON-CRYST SOLIDS, V43, P37, DOI 10.1016/0022-3093(81)90172-1
PHILLIPS JC, 1979, J NON-CRYST SOLIDS, V34, P153, DOI 10.1016/0022-3093(79)90033-4
Rowlands J, 1997, PHYS TODAY, V50, P24, DOI 10.1063/1.881994
Saraswat V, 2023, RSC ADV, V13, P3602, DOI 10.1039/d2ra07041c
Saxena NS, 2005, J MATER SCI, V40, P523, DOI 10.1007/s10853-005-6119-x
Saxena NS, 2002, B MATER SCI, V25, P241, DOI 10.1007/BF02711161
Sharma A, 2015, MATER CHEM PHYS, V161, P35, DOI 10.1016/j.matchemphys.2015.04.039
Sharma A, 2013, MEASUREMENT, V46, P514, DOI 10.1016/j.measurement.2012.08.009
Singh K, 2005, J PHYS CHEM SOLIDS, V66, P946, DOI 10.1016/j.jpcs.2004.11.005
Singh K, 2002, PHYS STATUS SOLIDI A, V189, P197, DOI
10.1002/1521-396X(200201)189:1<197::AID-PSSA197>3.0.CO;2-2
SREERAM AN, 1991, J NON-CRYST SOLIDS, V127, P287, DOI 10.1016/0022-3093(91)90481-K
Sun YF, 2012, NAT COMMUN, V3, DOI 10.1038/ncomms2066
TANAKA K, 1980, J NON-CRYST SOLIDS, V35-6, P1023, DOI 10.1016/0022-3093(80)90335-X
TANAKA K, 1989, PHYS REV B, V39, P1270, DOI 10.1103/PhysRevB.39.1270
Thakur A, 2017, J ELECTRON MATER, V46, P1516, DOI 10.1007/s11664-016-5190-1
THORPE MF, 1983, J NON-CRYST SOLIDS, V57, P355, DOI 10.1016/0022-3093(83)90424-6
Vashist P, 2023, J THERM ANAL CALORIM, V148, P7717, DOI 10.1007/s10973-023-12271-5
Zakery A., 2007, Springer, DOI [10.1007/978-3-540-71068-4, DOI 10.1007/978-3-540-71068-4]

Cited Reference Count: 41

Abstract: This research delves into the thermal transport characteristics of the novel quaternary chalcogenide Se90-xTe5Sn5Znx (0 <= x <= 9) (STSZ) network, which was prepared using the melt-quenching method. Measurements of effective thermal conductivity (lambda e), effective thermal diffusivity (chi e), and specific heat per unit volume (rho Cp) for twin pellets of STSZ chalcogenide glasses (ChGs) were conducted at ambient temperature by employing the transient plane source (TPS) technique. The observed a non-monotonous trend in the values of lambda e, chi e and rho Cp related to 3 at. mass% and 6 at mass% of Zn concentration in the quaternary compositions accredited to the formation of higher-order cross-linking. The two structural units at 3 at mass% and 6 at mass% of Zn are considered as critical (threshold) compositions at which the quaternary STSZ network turns into a chemically ordered alloy. Also, the observed discrepancies in thermal transport characteristics reliant upon composition can be connected to the structural relaxation phenomena of the multicomponent network of STSZ. In addition, a topological framework knowledgeable in constraint theory can provide inclusive clarification for the variations in the thermal transport properties of the STSZ network.

Accession Number: WOS:001589194700001

Language: English

Document Type: Article; Early Access

Author Keywords: Quaternary chalcogenide network; Transient plane source technique; Effective thermal conductivity; Specific Heat per Unit Volume; Constraint Theory

KeyWords Plus: NON-CRYSTALLINE SOLIDS; COMPOSITION DEPENDENCE; PHYSICAL PROPERTIES; RANGE ORDER; CONDUCTIVITY; DIFFUSIVITY; TOPOLOGY; X=0; DYNAMICS; GLASSES

Addresses: [Kumar, Deepak; Pal, Krishna; Kumar, Sunil] Govt Postgrad Coll, Dept Phys, Pilibhit 262201, Uttar Pradesh, India.
[Sharma, Arvind Kumar] Mahatma Gandhi Cent Univ, Sch Phys Sci, Dept Phys, Motihari 845401, Bihar, India.
[Kumar, Horesh] Banaras Hindu Univ, Inst Sci, Dept Phys, Varanasi 221005, Uttar Pradesh, India.
[Singh, Kedar] Jawaharlal Nehru Univ, Sch Phys Sci, New Delhi 110067, India.

Corresponding Address: Kumar, S (corresponding author), Govt Postgrad Coll, Dept Phys, Pilibhit 262201, Uttar Pradesh, India.

E-mail Addresses: skcbhu07@gmail.com

Affiliations: Banaras Hindu University (BHU); Jawaharlal Nehru University, New Delhi

Author Identifiers:

Author	Web of Science ResearcherID	ORCID Number
Kumar, Sunil	GNP-6612-2022	

Publisher: SPRINGER

Publisher Address: VAN GODEWIJCKSTRAAT 30, 3311 GZ DORDRECHT, NETHERLANDS

Web of Science Index: Science Citation Index Expanded (SCI-EXPANDED)

Web of Science Categories: Thermodynamics; Chemistry, Analytical; Chemistry, Physical

Research Areas: Thermodynamics; Chemistry

IDS Number: 8IB9P

ISSN: 1388-6150

eISSN: 1588-2926

29-char Source Abbrev.: J THERM ANAL CALORIM

ISO Source Abbrev.: J. Therm. Anal. Calorim.

Source Item Page Count: 9

Funding:

Funding Agency	Grant Number
Department of Higher Education, Government of Uttar Pradesh	
Higher Education, Uttar Pradesh	
Research & Development Scheme	

Dr Sunil Kumar is thankful to Higher Education, Uttar Pradesh, for the financial support under the Research & Development Scheme.

Output Date: 2025-11-11

Record 38 of 56

Title: Mineralogical and geochemical proxies from sediment cores to understand paleoclimate and sea level changes along the southwest coast of India

Author(s): Sreekesh, S (Sreekesh, S.); Meenakshi (Meenakshi); Naik, SRS (Naik, S. R. Sreerama); Kumar, P (Kumar, Pankaj); Sarpal, S (Sarpal, Sandeep)

Source: APPLIED GEOCHEMISTRY **Volume:** 191 **Article Number:** 106532 **DOI:** 10.1016/j.apgeochem.2025.106532 **Published Date:** 2025 OCT

Cited References: Abshire ML, 2020, MAR GEOL, V429, DOI 10.1016/j.margeo.2020.106316
Ajaykumar B, 2012, J EARTH SYST SCI, V121, P1093, DOI 10.1007/s12040-012-0210-x
Alexander L., 1989, Powder Diffr., V4, P66, DOI [10.1017/s0885715600016432, DOI 10.1017/S0885715600016432]
Anooja S, 2013, INDIAN J GEO-MAR SCI, V42, P749
Aubert H., 1977, Developments in Soil Science, V7
B. S. Praseetha, 2022, INT J SCI RES SCI TE, P314, DOI [10.32628/ijsrst229367, 10.32628/ijsrst229367, DOI 10.32628/IJSRST229367, 10.32628/IJSRST229367]
Banerjee PK, 2000, MAR GEOL, V167, P243, DOI 10.1016/S0025-3227(00)00028-1
Banerji US, 2017, QUATERN INT, V443, P200, DOI 10.1016/j.quaint.2016.09.060
Borchers SL, 2005, GEOCHEM GEOPHY GEOSY, V6, DOI 10.1029/2004GC000886
COX R, 1995, GEOCHIM COSMOCHIM AC, V59, P2919, DOI 10.1016/0016-7037(95)00185-9
Das P, 2024, QUAT SCI ADV, V14, DOI 10.1016/j.qsa.2024.100197
Dashtgard SE, 2022, SCI REP-UK, V12, DOI 10.1038/s41598-022-18466-4
Dean WE, 1997, GEOCHIM COSMOCHIM AC, V61, P4507, DOI 10.1016/S0016-7037(97)00237-8
Dellwig O, 1998, ORG GEOCHEM, V29, P1687, DOI 10.1016/S0146-6380(98)00103-X
Divya J., 2021, Soil geochemistry of Periyar river basin
Galloway W.E., 1983, TERRIGENOUS CLASTIC
Gayathri G.S., 2022, J. Geosci. Res., V7, P42
Ghsoub M, 2020, REG STUD MAR SCI, V35, DOI 10.1016/j.rsma.2020.101169
He ZW, 2023, GEOCHIM COSMOCHIM AC, V343, P84, DOI 10.1016/j.gca.2022.12.026
Hylander LD, 2000, SCI TOTAL ENVIRON, V260, P97, DOI 10.1016/S0048-9697(00)00544-1
IMD, Brochure
Jin ZD, 2006, EARTH SURF PROC LAND, V31, P285, DOI 10.1002/esp.1243
Kolditz K, 2012, SEDIMENTOLOGY, V59, P337, DOI 10.1111/j.1365-3091.2011.01252.x
Kumaran KPN, 2018, J GEOL SOC INDIA, V92, P596, DOI 10.1007/s12594-018-1073-9
Kumaran KPN, 2005, QUATERNARY RES, V64, P418, DOI 10.1016/j.yqres.2005.08.015
KUNTE PD, 1995, J COASTAL RES, V11, P508
Liu Y.J., 1984, Element Geochemistry
Lukose A, 2020, INDIAN J GEO-MAR SCI, V49, P1536
Nair KM, 2010, J ASIAN EARTH SCI, V37, P361, DOI 10.1016/j.jseaes.2009.09.004
Narayana AC, 2006, J COASTAL RES, P1898
NESBITT HW, 1982, NATURE, V299, P715, DOI 10.1038/299715a0
OERTEL GF, 1985, MAR GEOL, V63, P1, DOI 10.1016/0025-3227(85)90077-5
Padmalal D, 2014, INDIAN J GEO-MAR SCI, V43, P1152
Padmalal D, 2014, QUATERN INT, V325, P162, DOI 10.1016/j.quaint.2013.12.032
Pattan JN, 2012, QUATERN INT, V250, P19, DOI 10.1016/j.quaint.2011.08.007
Paul S.K., 2001, AGU SPRING M
Paulose K.V., 1968, Memoir. Geol. Surv. India, V2, P300
Poulain C, 2015, CHEM GEOL, V396, P42, DOI 10.1016/j.chemgeo.2014.12.019
Raiswell R, 2018, AM J SCI, V318, P491, DOI 10.2475/05.2018.03
RAJENDRAN CP, 1989, J GEOL SOC INDIA, V33, P218
Ramstein G., 2020, Palaeoclimatology
REDDY NPC, 1992, INDIAN J MAR SCI, V21, P152

Robbins LJ, 2016, EARTH-SCI REV, V163, P323, DOI 10.1016/j.earscirev.2016.10.013
Rollinson H., 1993, Using Geochemical Data: Evaluation, Presentation, Interpretation
Rudnick R.L., 2003, The Crust: Treatise on Geochemistry 3, P1, DOI [10.1016/0016-7037(95)00038-2, 10.1016/B0-08-043751-6/03016-4, DOI 10.1016/B978-0-08-095975-7.00301-6]
Sajid Z, 2020, J ASIAN EARTH SCI, V203, DOI 10.1016/j.jseaes.2020.104539
Shaji J, 2022, QUATERN INT, V642, P48, DOI 10.1016/j.quaint.2022.03.005
Shivaprasad A, 2013, HYDROL EARTH SYST SC, V17, P187, DOI 10.5194/hess-17-187-2013
SUTTNER LJ, 1986, J SEDIMENT PETROL, V56, P329
Taylor SR., 1985, The Continental Crust: Its Composition and Evolution, P1, DOI DOI 10.1017/S0016756800032167
Tiju VI, 2021, J ASIAN EARTH SCI, V222, DOI 10.1016/j.jseaes.2021.104952
Tribovillard N, 2023, CR GEOSCI, V355, P213, DOI 10.5802/crgeos.170
Varghese T.I., 2016, J. Earth Sci. Climatic Change, V7, P1, DOI [10.4172/2157-7617.1000355, DOI 10.4172/2157-7617.1000355]
Varghese TI, 2018, ARAB J GEOSCI, V11, DOI 10.1007/s12517-018-3406-9
WRONKIEWICZ DJ, 1990, GEOCHIM COSMOCHIM AC, V54, P343, DOI 10.1016/0016-7037(90)90323-D

Cited Reference Count: 55

Abstract: Geochemical variations, among other factors, are attributable to air, water, and land interactions, which are plentiful in the coastal setting. To explore the extent of these interactions in the Vypin Island, southwest of India, three sediment cores were investigated for the mineralogical and geochemical variations. A similar to 10 m long core from Kuzhuppilly with a 9 m thick sand deposit suggested a back-barrier ridge condition, largely influenced by fluvial processes. Mineralogy indicated a weakly weathered character, while geochemistry suggested arid conditions, causative of a break in sedimentation at 25-145 cm, 350-365 cm, and 940-955 cm depths with enrichment of Fe, Ti, Zr, and Mn by removal of light-weight Si and Al-rich material. In Chellanam and Munambam cores, characteristic clay and sand layers suggest two varied depositions at the bottom and top, respectively. Saline and oxic depositional conditions under higher sea levels are further complemented by presence of glauconite and kaolinite in bottom clayey sediments, found in the inner shelf depositional setting. The sandy sediments on top are deposited under freshwater conditions (Sr/Ba) but intruded by anoxic conditions indicated by Fe/Al values suggesting a fluvial reworking or deposition. Chemical index of alteration delineate increasing sediment maturity trend from Kuzhuppilly to Chellanam, and Munambam with a depositional hiatus at similar to 5.5 m depth in Munambam. Further, glauconite and kaolinite suggest progressive weathering of deeper sediments. This study suggests that clayey sediments were deposited under inner-shelf conditions during higher sea levels, and a trace elemental rich layer between sand and clay proposes further sandy sediment deposition and reworking by dominant fluvial processes during lower Sea levels under semi-arid climate. The work recognizes signatures of three arid phases, regression episodes each and paleo-flood events supported by clay-sand mixed sediment layers.

Accession Number: WOS:001561191400001

Language: English

Document Type: Article

Author Keywords: Coastal processes; Barrier island; Late Holocene; Geochemistry; Palaeo-flood; Sediment core

KeyWords Plus: WEST-COAST; HOLOCENE CLIMATE; BARRIER-ISLAND; CENTRAL KERALA; EVOLUTION; CHEMISTRY; COCHIN; IRON

Addresses: [Sreekesh, S.; Meenakshi; Naik, S. R. Sreerama] Jawaharlal Nehru Univ, Ctr Study Reg Dev, New Delhi 110067, India.
[Meenakshi] IIT Madras Res Pk, IITM Pravartak Technol Fdn, Kanagam Rd, Chennai 600113, India.
[Naik, S. R. Sreerama] Kannur Univ, Dept Geog, Payyanur 670307, Kerala, India.
[Kumar, Pankaj] Inter Univ Accelerator Ctr, AMS & Geochronol Grp, New Delhi 110067, India.

[Sarpal, Sandeep] Jawaharlal Nehru Univ, Adv Instrumentat Res Facil, New Delhi 110067, India.

Corresponding Address: Sreekesh, S (corresponding author), Jawaharlal Nehru Univ, Ctr Study Reg Dev, New Delhi 110067, India.

E-mail Addresses: sreekesh@jnu.ac.in

Affiliations: Jawaharlal Nehru University, New Delhi; Indian Institute of Technology System (IIT System); Indian Institute of Technology (IIT) - Madras; Inter-University Accelerator Centre; Jawaharlal Nehru University, New Delhi

Author Identifiers:

Author	Web of Science ResearcherID	ORCID Number
kumar, Pankaj	HPF-8395-2023	

Publisher: PERGAMON-ELSEVIER SCIENCE LTD

Publisher Address: THE BOULEVARD, LANGFORD LANE, KIDLINGTON, OXFORD OX5 1GB, ENGLAND

Web of Science Index: Science Citation Index Expanded (SCI-EXPANDED)

Web of Science Categories: Geochemistry & Geophysics

Research Areas: Geochemistry & Geophysics

IDS Number: 6SV4L

ISSN: 0883-2927

eISSN: 1872-9134

29-char Source Abbrev.: APPL GEOCHEM

ISO Source Abbrev.: Appl. Geochem.

Source Item Page Count: 15

Funding:

Funding Agency	Grant Number
Department of Science & Technology, Ministry of Science & Technology, Government of India, New Delhi	DST/CCP/ NCCCV/137/2017(G)

Authors acknowledge the support from the Department of Science & Technology, Ministry of Science & Technology, Government of India, New Delhi under the Climate Change Program (SPLICE) through grant no. DST/CCP/NCC&CV/137/2017(G) to carry out this study. The authors are also thankful to the School of Physical Sciences and Advanced Instrument Research Facility (AIRF) , Jawaharlal Nehru University, New Delhi, for providing the instrumental and analytical support to carry out this work.

Output Date: 2025-11-11

Record 39 of 56

Title: Defining seedling stage-specific metabolic adaptations to salinity in landrace Pokkali and cultivated rice IR64

Author(s): Anwar, K (Anwar, Khalid); Lakra, N (Lakra, Nita); Nongpiur, RC (Nongpiur, Ramsong Chantre); Bagri, J (Bagri, Jayram); Singla-Pareek, SL (Singla-Pareek, Sneh L.); Pareek, A (Pareek, Ashwani)

Source: PLANT PHYSIOLOGY AND BIOCHEMISTRY **Volume:** 227 **Article Number:** 110062 **DOI:** 10.1016/j.plaphy.2025.110062 **Published Date:** 2025 OCT

Times Cited in Web of Science Core Collection: 1

Cited References: Abd El-Samad HM, 2011, J MED PLANTS RES, V5, P5692
Aziz S, 2022, PLANTS-BASEL, V11, DOI 10.3390/plants11162145
BATES LS, 1973, PLANT SOIL, V39, P205, DOI 10.1007/BF00018060
BAUM G, 1993, J BIOL CHEM, V268, P19610
Bogdan J, 2006, PLANT PHYSIOL BIOCH, V44, P787, DOI 10.1016/j.plaphy.2006.10.028
Bouché N, 2004, TRENDS PLANT SCI, V9, P110, DOI 10.1016/j.tplants.2004.01.006
Brosché M, 2005, GENOME BIOL, V6, DOI 10.1186/gb-2005-6-12-r101
Chatterjee Y, 2025, PLANT CELL ENVIRON, V48, P2804, DOI 10.1111/pce.15358
Chaves MM, 2004, J EXP BOT, V55, P2365, DOI 10.1093/jxb/erh269
Che-Othman MH, 2020, NEW PHYTOL, V225, P1166, DOI 10.1111/nph.15713
Chen THH, 2002, CURR OPIN PLANT BIOL, V5, P250, DOI 10.1016/S1369-5266(02)00255-8
COHEN SA, 1993, ANAL BIOCHEM, V211, P279, DOI 10.1006/abio.1993.1270
Cuin TA, 2007, PLANT CELL ENVIRON, V30, P875, DOI 10.1111/j.1365-3040.2007.01674.x
Darko E, 2019, PLOS ONE, V14, DOI 10.1371/journal.pone.0226151
Das P, 2019, RICE, V12, DOI 10.1186/s12284-019-0316-8
Deinlein U, 2014, TRENDS PLANT SCI, V19, P371, DOI 10.1016/j.tplants.2014.02.001
Di Martino C, 2003, NEW PHYTOL, V158, P455, DOI 10.1046/j.1469-8137.2003.00770.x
dos Santos TB, 2022, Stresses, V2, P113, DOI [10.3390/stresses2010009, DOI 10.3390/STRESSES2010009, 10.3390/stresses2010009]
Dubey R. S., 1990, Tropical Science, V30, P133
Fait A, 2008, TRENDS PLANT SCI, V13, P14, DOI 10.1016/j.tplants.2007.10.005
Farooq M, 2023, PLANTS-BASEL, V12, DOI 10.3390/plants12061315
Farooq M, 2021, FRONT PLANT SCI, V12, DOI 10.3389/fpls.2021.680131
Fiehn O, 2002, PLANT MOL BIOL, V48, P155, DOI 10.1023/A:1013713905833
FORD CW, 1984, PHYTOCHEMISTRY, V23, P1007, DOI 10.1016/S0031-9422(00)82601-1
Gagneul D, 2007, PLANT PHYSIOL, V144, P1598, DOI 10.1104/pp.107.099820
Garg AK, 2002, P NATL ACAD SCI USA, V99, P15898, DOI 10.1073/pnas.252637799
Gong QQ, 2005, PLANT J, V44, P826, DOI 10.1111/j.1365-313X.2005.02587.x
Hasan MM, 2024, PLANT STRESS, V11, DOI 10.1016/j.stress.2023.100307
HEATH RL, 1968, ARCH BIOCHEM BIOPHYS, V125, P189, DOI 10.1016/0003-9861(68)90654-1
Huang XX, 2023, PEERJ, V11, DOI 10.7717/peerj.14673
HURKMAN WJ, 1987, PLANT PHYSIOL, V83, P517, DOI 10.1104/pp.83.3.517
HURRY VM, 1995, PLANT PHYSIOL, V109, P697, DOI 10.1104/pp.109.2.697
Kan CC, 2017, BMC GENOMICS, V18, DOI 10.1186/s12864-017-3588-7
Kishor PBK, 2005, CURR SCI INDIA, V88, P424
Kosmides Alyssa K., 2013, Critical Reviews in Biomedical Engineering, V41, P205
Kumar R, 2017, FRONT PLANT SCI, V8, DOI 10.3389/fpls.2017.01302
Kumari S, 2009, FUNCT INTEGR GENOMIC, V9, P109, DOI 10.1007/s10142-008-0088-5
Lakra N, 2019, RICE, V12, DOI 10.1186/s12284-018-0259-5
Lakra N, 2018, PLANT CELL ENVIRON, V41, P947, DOI 10.1111/pce.12946
Liao HS, 2022, PLANT SCI, V318, DOI 10.1016/j.plantsci.2022.111238
Liu CL, 2011, J INTEGR PLANT BIOL, V53, P608, DOI 10.1111/j.1744-7909.2011.01049.x
López-Bucio J, 2000, PLANT SCI, V160, P1, DOI 10.1016/S0168-9452(00)00347-2
Ma Y, 2020, FRONT PLANT SCI, V11, DOI 10.3389/fpls.2020.591911
MADAMANCHI NR, 1994, PESTIC BIOCHEM PHYS, V48, P31, DOI 10.1006/pest.1994.1004
MAY MJ, 1993, PLANT PHYSIOL, V103, P621, DOI 10.1104/pp.103.2.621
Mishra M, 2021, PHOTOSYNTH RES, V150, P117, DOI 10.1007/s11120-020-00771-6

Munns R, 2005, NEW PHYTOL, V167, P645, DOI 10.1111/j.1469-8137.2005.01487.x
Munns R, 2008, ANNU REV PLANT BIOL, V59, P651, DOI 10.1146/annurev.arplant.59.032607.092911
Nakhoda B, 2012, FIELD CROP RES, V127, P191, DOI 10.1016/j.fcr.2011.11.004
Ngoc NT, 2022, PLANT SCI TODAY, V9, P491, DOI 10.14719/pst.1539
Padmanaban S, 2004, PLANT PHYSIOL, V134, P1514, DOI 10.1104/pp.103.034025
Paul MJ, 2008, ANNU REV PLANT BIOL, V59, P417, DOI 10.1146/annurev.arplant.59.032607.092945
Poór P, 2019, PLANT SIGNALING MOLECULES: ROLE AND REGULATION UNDER STRESSFUL ENVIRONMENTS, P193, DOI 10.1016/B978-0-12-816451-8.00012-5
Quoc CD, 2024, PLANT PHYSIOL REP, DOI 10.1007/s40502-024-00804-5
Ramputh AL, 1996, PLANT PHYSIOL, V111, P1349, DOI 10.1104/pp.111.4.1349
Renault H, 2010, BMC PLANT BIOL, V10, DOI 10.1186/1471-2229-10-20
Reshma TS, 2025, J SOIL SCI PLANT NUT, V25, P118, DOI 10.1007/s42729-024-02121-0
Rohila JS, 2002, PLANT SCI, V163, P525, DOI 10.1016/S0168-9452(02)00155-3
Sathee L, 2021, PLANT PHYSIOL BIOCH, V165, P161, DOI 10.1016/j.plaphy.2021.05.013
SCOTT TA, 1953, ANAL CHEM, V25, P1656, DOI 10.1021/ac60083a023
Sharma R, 2014, PLOS ONE, V9, DOI 10.1371/journal.pone.0092900
Sharma SS, 2006, J EXP BOT, V57, P711, DOI 10.1093/jxb/erj073
Shelp BJ, 2012, TRENDS PLANT SCI, V17, P57, DOI 10.1016/j.tplants.2011.12.006
Signorelli S, 2015, PLOS ONE, V10, DOI 10.1371/journal.pone.0115349
Soda N, 2013, FUNCT INTEGR GENOMIC, V13, P351, DOI 10.1007/s10142-013-0328-1
Song HM, 2010, J SCI FOOD AGR, V90, P1410, DOI 10.1002/jsfa.3951
Szabados L, 2010, TRENDS PLANT SCI, V15, P89, DOI 10.1016/j.tplants.2009.11.009
Taji T, 2004, PLANT PHYSIOL, V135, P1697, DOI 10.1104/pp.104.039909
Theerawitaya Cattarin, 2015, Plant Omics, V8, P130
Tripathi AK, 2012, RICE, V5, DOI 10.1186/1939-8433-5-37
Urano K, 2009, PLANT J, V57, P1065, DOI 10.1111/j.1365-313X.2008.03748.x
Vaidyanathan H, 2003, PLANT SCI, V165, P1411, DOI 10.1016/j.plantsci.2003.08.005
Wang YH, 2020, SCI REP-UK, V10, DOI 10.1038/s41598-020-69253-y
Yancey PH, 2005, J EXP BIOL, V208, P2819, DOI 10.1242/jeb.01730
Yaronskaya E, 2006, PLANTA, V224, P700, DOI 10.1007/s00425-006-0249-5
Yoshida S., 1972, Int. Rice Res. Inst. Rice breeding, P455
Zhao XQ, 2014, PLOS ONE, V9, DOI 10.1371/journal.pone.0108020

Cited Reference Count: 77

Abstract: Understanding the biochemical basis of salinity tolerance in naturally evolved landraces cultivated in seawater along coastal India is key to improving elite rice (Oryza sativa L.) genotypes. We conducted a detailed time-course metabolome profiling of two contrasting genotypes: the salt-sensitive IR64 and the salt-tolerant wild rice Pokkali. Principal component analysis revealed distinct metabolic profiles under control and stress, with salinity inducing significant, time-dependent reprogramming. The genotypes showed clear metabolic distinctions between early and prolonged stress phases, highlighting osmotic vs. ionic responses. Pokkali accumulated protective metabolites like proline and glutathione, while IR64 showed elevated tricarboxylic acid cycle intermediates. Differential buildup of phytohormone precursors-azelaic acid, phenylalanine, and tryptophan-suggested their roles in salinity response. Pokkali rapidly restored cellular homeostasis via rapid accumulation of trehalose (4.3x), tryptophan (6.2x), proline (2.2x), glutamate (3.2x), and hydroxyproline (3.3x). Glutamate, a central amino acid metabolism regulator, accumulated prominently in Pokkali, whereas IR64 exhibited higher gamma-aminobutyric acid (GABA) (9x) and phenylalanine (4x), indicating cellular stress damage. Exogenous proline application and GABA biosynthesis inhibition confirmed their contrasting roles in stress response and genotype-specific salinity tolerance. Our extensive metabolic dataset and salt-tolerance biomarkers offer valuable insights for developing resilient rice cultivars for saline environments.

Accession Number: WOS:001502436900001

PubMed ID: 40449184

Language: English

Document Type: Article

Author Keywords: Gas chromatography-mass spectrometry; Metabolome; Principal component analysis; Proline

KeyWords Plus: ORYZA-SATIVA L.; SALT-TOLERANCE; AMINO-ACIDS; COMPATIBLE SOLUTES; STRESS-RESPONSE; ABIOTIC STRESS; PLANT-GROWTH; GENES; ARABIDOPSIS; EXPRESSION

Addresses: [Anwar, Khalid; Lakra, Nita; Nongpiur, Ramsong Chantre; Bagri, Jayram; Pareek, Ashwani] Jawaharlal Nehru Univ, Sch Life Sci, Stress Physiol & Mol Biol Lab, New Delhi 110067, India.
[Singla-Pareek, Sneh L.] Int Ctr Genet Engn & Biotechnol, Plant Stress Biol, Aruna Asaf Ali Rd, New Delhi 110067, India.
[Pareek, Ashwani] Natl Agrifood & Biomfg Inst, Mohali 140306, Punjab, India.
[Lakra, Nita] CCS Haryana Agr Univ, Coll Biotechnol, Dept Mol Biol & Biotechnol, Hisar 125004, India.

Corresponding Address: Pareek, A (corresponding author), Jawaharlal Nehru Univ, Sch Life Sci, Stress Physiol & Mol Biol Lab, New Delhi 110067, India.

E-mail Addresses: ashwanip@mail.jnu.ac.in

Affiliations: Jawaharlal Nehru University, New Delhi; Department of Biotechnology (DBT) India; International Center for Genetic Engineering & Biotechnology (ICGEB); International Center for Genetic Engineering & Biotechnology (ICGEB), New Delhi; CCS Haryana Agricultural University

Author Identifiers:

Author	Web of Science ResearcherID	ORCID Number
ANWAR, KHALID	LOS-6646-2024	

Publisher: ELSEVIER FRANCE-EDITIONS SCIENTIFIQUES MEDICALES ELSEVIER

Publisher Address: 65 RUE CAMILLE DESMOULINS, CS50083, 92442 ISSY-LES-MOULINEAUX, FRANCE

Web of Science Index: Science Citation Index Expanded (SCI-EXPANDED)

Web of Science Categories: Plant Sciences

Research Areas: Plant Sciences

IDS Number: 3KJ5I

ISSN: 0981-9428

eISSN: 1873-2690

29-char Source Abbrev.: PLANT PHYSIOL BIOCH

ISO Source Abbrev.: Plant Physiol. Biochem.

Source Item Page Count: 15

Funding:

Funding Agency	Grant Number
Department of Biotechnology (DBT) India	BT/PR11677/PBD/16/832/2008

Department of Biotechnology, Government of India, (# BT/PR11677/PBD/16/832/2008) .

Output Date: 2025-11-11

Record 40 of 56

Title: Functional characterization of dysregulated LncRNAs in BRCA and CESC highlights their role in cancer prognosis

Author(s): Sharma, M (Sharma, Madhur); Chourasia, N (Chourasia, Nidhi); Priyanka, P (Priyanka, Priyanka); Sarkar, DP (Sarkar, Debi Prasad); Nag, A (Nag, Alo); Saxena, S (Saxena, Sandeep)

Source: SCIENTIFIC REPORTS **Volume:** 15 **Issue:** 1 **Article Number:** 34265 **DOI:** 10.1038/s41598-025-16436-0 **Published Date:** 2025 OCT 1

Times Cited in Web of Science Core Collection: 0

Total Times Cited: 0

Usage Count (Last 180 days): 0

Usage Count (Since 2013): 0

Cited References: Cantile M, 2020, CANCERS, V12, DOI 10.3390/cancers12051197
Gökmen-Polar Y, 2015, SCI REP-UK, V5, DOI 10.1038/srep08765
Goyal B, 2021, BBA-REV CANCER, V1875, DOI 10.1016/j.bbcan.2021.188502
Han P, 2017, MOL CANCER, V16, DOI 10.1186/s12943-017-0583-1
He WX, 2022, BIOCHEM BIOPHYS REP, V30, DOI 10.1016/j.bbrep.2022.101279
Hou JH, 2023, BIOMARK RES, V11, DOI 10.1186/s40364-023-00467-8
Jeong S, 2022, CANCERS, V14, DOI 10.3390/cancers14061557
Kawaguchi T, 2015, NUCLEUS-PHILA, V6, P462, DOI 10.1080/19491034.2015.1119353
Kuleshov MV, 2016, NUCLEIC ACIDS RES, V44, pW90, DOI 10.1093/nar/gkw377
Li DD, 2020, MOL THER NUCL ACIDS, V19, P109, DOI 10.1016/j.omtn.2019.11.003
Li J, 2015, CANCER RES, V75, P3728, DOI 10.1158/0008-5472.CAN-15-0273
Liu K, 2023, MEDICINE, V102, DOI 10.1097/MD.0000000000035249
Liu Z, 2016, MOL MED REP, V13, P3206, DOI 10.3892/mmr.2016.4908
Luo X, 2024, CELL DEATH DIS, V15, DOI 10.1038/s41419-024-06816-1
Mas-Ponte D, 2017, RNA, V23, P1080, DOI 10.1261/rna.060814.117
Mitobe Y, 2020, CANCER SCI, V111, P2440, DOI 10.1111/cas.14498
Park MK, 2021, CELL METAB, V33, P2380, DOI 10.1016/j.cmet.2021.11.011
Qian LY, 2023, BREAST CANCER RES TR, V200, P375, DOI 10.1007/s10549-023-06982-4
Qiao FH, 2021, ONCOL LETT, V21, DOI 10.3892/ol.2021.12594
Shi XF, 2018, EBIOMEDICINE, V37, P177, DOI 10.1016/j.ebiom.2018.10.004
Szklarczyk D, 2019, NUCLEIC ACIDS RES, V47, pD607, DOI [10.1093/nar/gky1131, 10.1093/nar/gkac1000]
Wang B, 2022, DIS MARKERS, V2022, DOI 10.1155/2022/2442094
Wasson MCD, 2024, GENE, V901, DOI 10.1016/j.gene.2024.148165
Wei GH, 2017, EUR REV MED PHARMACO, V21, P3850
Yang F, 2016, BIOCHEM BIOPH RES CO, V470, P479, DOI 10.1016/j.bbrc.2016.01.147
Zhang CH, 2021, AM J TRANSL RES, V13, P9233
Zhang J, 2019, CANCER CELL INT, V19, DOI 10.1186/s12935-019-0893-z
Zhang YY, 2017, SCI REP-UK, V7, DOI 10.1038/s41598-017-10001-0
Zhao WY, 2018, CANCER MED-US, V7, P842, DOI 10.1002/cam4.1353
Zhou YH, 2020, ADV CLIN CHEM, V97, P117, DOI 10.1016/bs.acc.2019.12.004
Zhou YL, 2012, J MOL ENDOCRINOL, V48, pR45, DOI 10.1530/JME-12-0008
Zhu CM, 2022, CELL DEATH DISCOV, V8, DOI 10.1038/s41420-022-01174-3

Cited Reference Count: 32

Abstract: This study examines the contribution of dysregulated long non-coding RNAs (lncRNAs) to disease progression and prognosis in breast invasive carcinoma (BRCA) and cervical squamous cell carcinoma with endocervical adenocarcinoma (CESC) using data from The Cancer Genome Atlas (TCGA). Comparative analyses identified both shared and cancer-specific lncRNAs linked to tumorigenesis. Survival analysis using the Kaplan-Meier method highlighted several candidates with prognostic relevance. Notably, FAM83H-AS1 showed increased expression in advanced stages of BRCA and was linked with lymph node involvement and metastatic status. Its elevated expression was associated with poor survival outcomes in both BRCA and CESC cohorts. In contrast, lncRNAs such as FGF14-AS2, which were downregulated, demonstrated links to tumor-suppressive mechanisms and improved survival in BRCA patients. Subcellular localization analysis indicated predominant cytoplasmic presence of FAM83H-AS1, implying possible roles in post-transcriptional regulation. To support our in-silico observations, we carried out qRT-PCR experiments in breast cancer cell lines with varying degrees of aggressiveness, which confirmed the differential expression patterns of these lncRNAs. Overall, our findings highlight the clinical importance of lncRNA dysregulation in gynaecological cancers and point to their potential utility as biomarkers for prognosis and targeted therapy.

Accession Number: WOS:001586629400008

PubMed ID: 41034425

Language: English

Document Type: Article

Author Keywords: Long non-coding RNA (long cRNA, ncRNA); Prognostic biomarkers; BRCA and CESC; Cancer transcriptomics and functional enrichment analysis

KeyWords Plus: NONCODING RNA; PROLIFERATION; APOPTOSIS; INVASION; GROWTH; HOTAIR

Addresses: [Sharma, Madhur; Sarkar, Debi Prasad; Nag, Alo] Univ Delhi, Dept Biochem, South Campus,Benito Juarez Rd, New Delhi 110021, India.
[Chourasia, Nidhi; Saxena, Sandeep] Jawaharlal Nehru Univ, New Delhi 110067, India.
[Priyanka, Priyanka] Univ Calif San Diego, Dept Med, Cellular & Mol Med, La Jolla, CA 92093 USA.
[Sarkar, Debi Prasad] Indian Inst Technol, Dept Biol Sci & Engn, Gandhinagar 382055, Gujarat, India.

Corresponding Address: Saxena, S (corresponding author), Jawaharlal Nehru Univ, New Delhi 110067, India.

E-mail Addresses: sandeepsaxena@mail.jnu.ac.in

Affiliations: University of Delhi; Jawaharlal Nehru University, New Delhi; University of California System; University of California San Diego; Indian Institute of Technology System (IIT System); Indian Institute of Technology (IIT) - Gandhinagar

Author Identifiers:

Author	Web of Science ResearcherID	ORCID Number
priyanka, putta	ADU-6251-2022	

Publisher: NATURE PORTFOLIO

Publisher Address: HEIDELBERGER PLATZ 3, BERLIN, 14197, GERMANY

Web of Science Index: Science Citation Index Expanded (SCI-EXPANDED)

Web of Science Categories: Multidisciplinary Sciences

Research Areas: Science & Technology - Other Topics

IDS Number: 8EH9F

ISSN: 2045-2322

29-char Source Abbrev.: SCI REP-UK

ISO Source Abbrev.: Sci Rep

Source Item Page Count: 14

Funding:

Funding Agency	Grant Number

Indian Council of Medical Research	91/04/2020-TFGTR/BMS 52/01/2020-BIO/BMS 52_29_2022-BIO_BMS
Government of India	

We acknowledge the facilities of the JNU, University of Delhi South Campus and project numbers 91/04/2020-TFGTR/BMS, 52/01/2020-BIO/BMS, and 52_29_2022-BIO_BMS from the Government of India.

Open Access: Green Submitted, gold

Output Date: 2025-11-11

Record 41 of 56

Title: Graphene Straintronics by Molecular Trapping

Author(s): Srivastava, PK (Srivastava, Pawan Kumar); Khandelwal, V (Khandelwal, Vedanki); Reddy, IR (Reddy, Indukuru Ramesh); Tarafder, K (Tarafder, Kartick); Ghosh, S (Ghosh, Subhasis)

Source: JOURNAL OF PHYSICAL CHEMISTRY C **Volume:** 129 **Issue:** 41 **Pages:** 18530-18536 **DOI:** 10.1021/acs.jpcc.5c04013 **Early Access Date:** OCT 2025 **Published Date:** 2025 OCT 16

Times Cited in Web of Science Core Collection: 0

Total Times Cited: 0

Usage Count (Last 180 days): 0

Usage Count (Since 2013): 0

Cited References: Ahn GH, 2017, NAT COMMUN, V8, DOI 10.1038/s41467-017-00516-5
Androulidakis C, 2015, SCI REP-UK, V5, DOI 10.1038/srep18219
Badger RM, 1935, J CHEM PHYS, V3, P710, DOI 10.1063/1.1749581
Banerjee R, 2020, NANO LETT, V20, P3113, DOI 10.1021/acs.nanolett.9b05108
Barrios-Vargas JE, 2013, SOLID STATE COMMUN, V162, P23, DOI 10.1016/j.ssc.2013.03.006
Berry V, 2013, CARBON, V62, P1, DOI 10.1016/j.carbon.2013.05.052
Bruna M, 2014, ACS NANO, V8, P7432, DOI 10.1021/nn502676g
Bunch JS, 2008, NANO LETT, V8, P2458, DOI 10.1021/nl801457b
Chen ZF, 2022, ACS APPL NANO MATER, DOI 10.1021/acsanm.2c03264
Childres I., 2013, NEW DEV PHOTON MAT R, V1, DOI DOI 10.1016/B978-0-444-53175-9.00016-7
Choi SM, 2010, PHYS REV B, V81, DOI 10.1103/PhysRevB.81.081407
Couto NJG, 2014, PHYS REV X, V4, DOI 10.1103/PhysRevX.4.041019
Das A, 2008, NAT NANOTECHNOL, V3, P210, DOI 10.1038/nnano.2008.67
Dean CR, 2010, NAT NANOTECHNOL, V5, P722, DOI 10.1038/nnano.2010.172
Dong XC, 2009, SMALL, V5, P1422, DOI 10.1002/smll.200801711
Ferrari AC, 2013, NAT NANOTECHNOL, V8, P235, DOI 10.1038/nnano.2013.46
Ghosh S, 2023, NANO LETT, V23, P5171, DOI 10.1021/acs.nanolett.3c01145
Gosling JH, 2021, COMMUN PHYS-UK, V4, DOI 10.1038/s42005-021-00518-2
Goumans TPM, 2007, PHYS CHEM CHEM PHYS, V9, P2146, DOI 10.1039/b701176h
Hong X, 2009, PHYS REV B, V80, DOI 10.1103/PhysRevB.80.241415
Hou Y, 2025, SMALL, V21, DOI 10.1002/smll.202311185
Joshi RK, 2014, SCIENCE, V343, P752, DOI 10.1126/science.1245711
Kaupp M, 2017, COORDIN CHEM REV, V344, P355, DOI 10.1016/j.ccr.2017.03.002
Kertesz M., 1982, MATERIALS RES SOC S, V20
Khandelwal V, 2023, J PHYS CHEM C, V127, P18466, DOI 10.1021/acs.jpcc.3c03524
Kresse G, 1996, PHYS REV B, V54, P11169, DOI 10.1103/PhysRevB.54.11169

Lee C, 2008, SCIENCE, V321, P385, DOI 10.1126/science.1157996
Lee JE, 2012, NAT COMMUN, V3, DOI 10.1038/ncomms2022
Levy N, 2010, SCIENCE, V329, P544, DOI 10.1126/science.1191700
Liu Z, 2014, NAT COMMUN, V5, DOI 10.1038/ncomms6246
Locatelli A, 2010, ACS NANO, V4, P4879, DOI 10.1021/nn101116n
Mennel L, 2018, NAT COMMUN, V9, DOI 10.1038/s41467-018-02830-y
Metten D, 2017, 2D MATER, V4, DOI 10.1088/2053-1583/4/1/014004
Metzger C, 2010, NANO LETT, V10, P6, DOI 10.1021/nl901625v
Mohiuddin TMG, 2009, PHYS REV B, V79, DOI 10.1103/PhysRevB.79.205433
Newaz AKM, 2012, NAT COMMUN, V3, DOI 10.1038/ncomms1740
Ni ZH, 2010, NANO LETT, V10, P3868, DOI 10.1021/nl101399r
Ni ZH, 2008, ACS NANO, V2, P1033, DOI 10.1021/nn800031m
Parker DE, 2021, PHYS REV LETT, V127, DOI 10.1103/PhysRevLett.127.027601
Peng ZW, 2020, LIGHT-SCI APPL, V9, DOI 10.1038/s41377-020-00421-5
PERDEW JP, 1992, PHYS REV B, V46, P6671, DOI 10.1103/PhysRevB.46.6671
Perdew JP, 1996, PHYS REV LETT, V77, P3865, DOI [10.1103/PhysRevLett.77.3865, 10.1103/PhysRevLett.78.1396]
PIETRONERO L, 1981, PHYS REV LETT, V47, P593, DOI 10.1103/PhysRevLett.47.593
Postorino S, 2020, NANOMATER NANOTECHNO, V10, DOI 10.1177/1847980420902569
Ren XB, 2004, NAT MATER, V3, P91, DOI 10.1038/nmat1051
Roldán R, 2015, J PHYS-CONDENS MAT, V27, DOI 10.1088/0953-8984/27/31/313201
Settnes M, 2016, PHYS REV B, V93, DOI 10.1103/PhysRevB.93.035456
Solomenko AG, 2023, SCI REP-UK, V13, DOI 10.1038/s41598-023-40541-7
Srivastava PK, 2017, PHYS REV B, V96, DOI 10.1103/PhysRevB.96.241407
Srivastava PK, 2017, ACS APPL MATER INTER, V9, P5375, DOI 10.1021/acsami.6b13211
Srivastava PK, 2015, NANOSCALE, V7, P16079, DOI 10.1039/c5nr04293c
Sun PZ, 2020, NATURE, V579, P229, DOI 10.1038/s41586-020-2070-x
Tsetseris L, 2014, CARBON, V67, P58, DOI 10.1016/j.carbon.2013.09.055
Voggu R, 2008, J PHYS-CONDENS MAT, V20, DOI 10.1088/0953-8984/20/47/472204
Wang LJ, 2020, PHYS REV LETT, V124, DOI 10.1103/PhysRevLett.124.157701
Won K, 2022, ADV MATER, V34, DOI 10.1002/adma.202200946
Xia JL, 2010, NANO LETT, V10, P5060, DOI 10.1021/nl103306a
Yang SX, 2021, INFOMAT, V3, P397, DOI 10.1002/inf2.12177
Zabel J, 2012, NANO LETT, V12, P617, DOI 10.1021/nl203359n
Zhang Y, 2022, NANOSCALE ADV, V4, P5056, DOI 10.1039/d2na00580h
Zihlmann S, 2020, PHYS REV B, V102, DOI 10.1103/PhysRevB.102.195404

Cited Reference Count: 61

Abstract: Here, we report on controlling strain in graphene by trapping molecules at the graphene-substrate interface and leveraging molecular dipole moments. Spectroscopic and transport measurements reveal that strain correlates with the dipole moments of trapped molecules extending beyond their molecular sizes, where values ranging from 1.5 to 4.9D lead to a 50-fold increase in strain and a significant rise in residual carrier density. This has been possible by charge transfer between graphene and trapped molecules, altering the C=C bond length and causing biaxial strain. First-principles density functional theory calculations confirm a consistent dependence of the bending height on molecular dipole moments.

Accession Number: WOS:001588950300001

Language: English

Document Type: Article

KeyWords Plus: GENERALIZED GRADIENT APPROXIMATION; RAMAN-SPECTROSCOPY; BIAXIAL STRAIN; SCATTERING; STRENGTH; MOBILITY; ENERGY; TOOL

Addresses: [Srivastava, Pawan Kumar] Sungkyunkwan Univ, Sch Mech Engn, Suwon 16419, South Korea.
[Khandelwal, Vedanki; Ghosh, Subhasis] Jawaharlal Nehru Univ, Sch Phys Sci, New Delhi 110067, India.
[Reddy, Indukuru Ramesh; Tarafder, Kartick] Natl Inst Technol Karnataka, Dept Phys, Mangalore 575025, India.
[Khandelwal, Vedanki] Govt Adarsh Girls Coll, Sheopur 476337, Madhya Pradesh, India.

Corresponding Address: Ghosh, S (corresponding author), Jawaharlal Nehru Univ, Sch Phys Sci, New Delhi 110067, India.

E-mail Addresses: subhasis@mail.jnu.ac.in

Affiliations: Sungkyunkwan University (SKKU); Jawaharlal Nehru University, New Delhi; National Institute of Technology (NIT System); National Institute of Technology Karnataka

Author Identifiers:

Author	Web of Science ResearcherID	ORCID Number
Tarafder, Kartick	ABF-9627-2020	
Reddy, Indukuru	AAF-2670-2019	

Publisher: AMER CHEMICAL SOC

Publisher Address: 1155 16TH ST, NW, WASHINGTON, DC 20036 USA

Web of Science Index: Science Citation Index Expanded (SCI-EXPANDED)

Web of Science Categories: Chemistry, Physical; Nanoscience & Nanotechnology; Materials Science, Multidisciplinary

Research Areas: Chemistry; Science & Technology - Other Topics; Materials Science

IDS Number: 8QX6X

ISSN: 1932-7447

eISSN: 1932-7455

29-char Source Abbrev.: J PHYS CHEM C

ISO Source Abbrev.: J. Phys. Chem. C

Source Item Page Count: 7

Funding:

Funding Agency	Grant Number
Science and Engineering Research Board	
WITec GmbH	CRG/2021/000776
SERB, Department of Science and Technology, Government of India	

The authors acknowledge WITec GmbH and AIRF, JNU, for providing the Raman facility. This research was partially supported by SERB, Department of Science and Technology, Government of India, through the project with SERB Sanction Order No. CRG/2021/000776.

Output Date: 2025-11-11

Record 42 of 56

Title: Swift heavy ion-induced defect formation and electronic structure evolution in Zr-doped CeO₂(Ce_{0.8}Zr_{0.2}O₂)

Author(s): Kumar, V (Kumar, Vivek); Sharma, SK (Sharma, Saurabh Kumar); Singh, Y (Singh, Yogendar); Malik, V (Malik, Vivek); Grover, V (Grover, Vinita); Kulriya, PK (Kulriya, Pawan Kumar)

Source: JOURNAL OF THE AMERICAN CERAMIC SOCIETY **DOI:** 10.1111/jace.70310 **Early Access Date:** OCT 2025 **Published Date:** 2025 OCT 15

Cited References: Babitha KK, 2014, MATER CHARACT, V98, P222, DOI 10.1016/j.matchar.2014.11.004
Balducci G, 1997, J PHYS CHEM B, V101, P1750, DOI 10.1021/jp962530g
Bêche E, 2008, SURF INTERFACE ANAL, V40, P264, DOI 10.1002/sia.2686
Bhabu KA, 2016, J MATER SCI-MATER EL, V27, P10980, DOI 10.1007/s10854-016-5214-x
BURROUGHS P, 1976, J CHEM SOC DALTON, P1686, DOI 10.1039/dt9760001686
Cai W, 2014, APPL CATAL B-ENVIRON, V158, P258, DOI 10.1016/j.apcatb.2014.04.022
Caricato AP, 2008, J APPL PHYS, V104, DOI 10.1063/1.3010302
Castleton CWM, 2007, J CHEM PHYS, V127, DOI 10.1063/1.2800015
Chandramohan S, 2007, NUCL INSTRUM METH B, V254, P236, DOI 10.1016/j.nimb.2006.11.041
Costantini JM, 2022, J PHYS CHEM SOLIDS, V169, DOI 10.1016/j.jpcs.2022.110853
Costantini JM, 2022, J RAMAN SPECTROSC, V53, P1614, DOI 10.1002/jrs.6414
Costantini JM, 2022, J NUCL MATER, V564, DOI 10.1016/j.jnucmat.2022.153667
Costantini JM, 2019, J APPL PHYS, V126, DOI 10.1063/1.5100582
Costantini JM, 2013, J NUCL MATER, V440, P508, DOI 10.1016/j.jnucmat.2013.02.041
Cureton WF, 2018, ACTA MATER, V160, P47, DOI 10.1016/j.actamat.2018.08.040
Ewing RC, 2015, NAT MATER, V14, P252, DOI 10.1038/nmat4226
Frost DG, 2020, J NUCL MATER, V528, DOI 10.1016/j.jnucmat.2019.151876
Grover V, 2014, PHYS CHEM CHEM PHYS, V16, P27065, DOI 10.1039/c4cp04215h
Hemalatha KS, 2016, RSC ADV, V6, P74354, DOI 10.1039/c6ra11126b
Holgado JP, 2000, APPL SURF SCI, V158, P164, DOI 10.1016/S0169-4332(99)00597-8
Ingo GM, 1996, NUCL INSTRUM METH B, V116, P440, DOI 10.1016/0168-583X(96)00085-7
Ishikawa N, 2008, NUCL INSTRUM METH B, V266, P3033, DOI 10.1016/j.nimb.2008.03.159
Iwase A, 2009, NUCL INSTRUM METH B, V267, P969, DOI 10.1016/j.nimb.2009.02.035
Joo J, 2003, J AM CHEM SOC, V125, P6553, DOI 10.1021/ja034258b
Kalita P, 2020, J PHYS CHEM C, V124, P15489, DOI 10.1021/acs.jpcc.0c02907
Kalita P, 2019, J APPL PHYS, V125, DOI 10.1063/1.5080934
Kim NY, 2022, J MATER SCI, V57, P12318, DOI 10.1007/s10853-022-07338-x
Kulkarni NK, 2009, J NUCL MATER, V384, P81, DOI 10.1016/j.jnucmat.2008.10.015
Kumar A, 2020, J NUCL MATER, V539, DOI 10.1016/j.jnucmat.2020.152278
Kumar A, 2022, J NUCL MATER, V564, DOI 10.1016/j.jnucmat.2022.153682
Kumar V, 2023, J APPL PHYS, V134, DOI 10.1063/5.0159046
Kurosaki K, 2009, J NUCL MATER, V389, P85, DOI 10.1016/j.jnucmat.2009.01.011
Leel NS, 2023, J LUMIN, V263, DOI 10.1016/j.jlumin.2023.119981
Li Z, 2024, J PHYS CHEM LETT, V15, P5868, DOI 10.1021/acs.jpclett.4c00889
Liu G, 2001, J PHYS CHEM B, V105, P7762, DOI 10.1021/jp011224m
Maslakov KI, 2018, PHYS CHEM CHEM PHYS, V20, P16167, DOI 10.1039/c8cp01442f
Mullins DR, 1998, SURF SCI, V409, P307, DOI 10.1016/S0039-6028(98)00257-X
Nadjia L, 2018, J RARE EARTH, V36, P575, DOI 10.1016/j.jre.2018.01.004
Nolan M, 2005, SURF SCI, V595, P223, DOI 10.1016/j.susc.2005.08.015
Ohno H, 2008, NUCL INSTRUM METH B, V266, P3013, DOI 10.1016/j.nimb.2008.03.155
PFAU A, 1994, SURF SCI, V321, P71, DOI 10.1016/0039-6028(94)90027-2
Popel AJ, 2017, J NUCL MATER, V484, P332, DOI 10.1016/j.jnucmat.2016.10.046
Rani S, 2008, NUCL INSTRUM METH B, V266, P1987, DOI 10.1016/j.nimb.2008.02.062

Sharan R, 2017, J ALLOY COMPD, V693, P936, DOI 10.1016/j.jallcom.2016.09.267
Sharma SK, 2021, J APPL PHYS, V129, DOI 10.1063/5.0039390
Sharma SK, 2024, J AM CERAM SOC, V107, P561, DOI 10.1111/jace.19454
Shelyug A, 2018, PHYS REV MATER, V2, DOI 10.1103/PhysRevMaterials.2.093607
Shi L, 2016, PHYS REV B, V94, DOI 10.1103/PhysRevB.94.115132
Shoko E, 2009, PHYS REV B, V79, DOI 10.1103/PhysRevB.79.134108
Singh H, 2023, CERAM INT, V49, P7946, DOI 10.1016/j.ceramint.2022.10.304
Singh Y, 2025, J AM CERAM SOC, V108, DOI 10.1111/jace.20124
Tracy CL, 2015, NAT COMMUN, V6, DOI 10.1038/ncomms7133
Varshney M, 2012, NANOSCI NANOTECH LET, V4, P66, DOI 10.1166/nnl.2012.1289
Wang GF, 2010, J ALLOY COMPD, V493, P202, DOI 10.1016/j.jallcom.2009.12.053
Weck PF, 2017, J PHYS CHEM C, V121, P14678, DOI 10.1021/acs.jpcc.7b03902
Xiao HX, 2018, J NUCL MATER, V509, P482, DOI 10.1016/j.jnucmat.2018.07.035
Yuan FL, 2016, J PHYS CHEM C, V120, P6625, DOI 10.1021/acs.jpcc.6b00325
Zhang C, 2015, FUEL PROCESS TECHNOL, V131, P1, DOI 10.1016/j.fuproc.2014.11.010
Zhang GJ, 2006, J PHYS CHEM B, V110, P25782, DOI 10.1021/jp0648285
Zhang HL, 1997, PHYS STATUS SOLIDI A, V160, P145, DOI
10.1002/1521-396X(199703)160:1<145::AID-PSSA145>3.0.CO;2-5

Cited Reference Count: 60

Abstract: This study investigates the effects of 100 MeV iodine ion irradiation on zirconia-doped ceria (Ce0.8Zr0.2O2) to simulate fission fragment damage in nuclear fuel at fluences up to 5 x 10(13) ions/cm(2). X-ray photoelectron spectroscopy confirms the partial reduction of Ce4+ to Ce3+ and Zr4+ to Zr3+/Zr2+, driven by irradiation-induced charge trapping and stabilized by oxygen vacancies. These localized electrons distort the lattice, forming small polarons that govern the redox equilibrium and contribute to defect tolerance. UV-Vis diffuse reflectance spectroscopy confirms narrowing of the band gap (3.42-2.85 eV) and increase in Urbach energy from 0.93 to 1.85 eV confirmed enhancement of electronic disorder and band tailing. Photoluminescence measurements reveal a progressive quenching of emission intensity with increasing fluence, associated with nonradiative recombination via polaron-stabilized defect states. The combined spectroscopic results suggest that both electronic excitation and nuclear energy loss induce a synergistic mechanism involving polaron formation and oxygen Frenkel pair creation. This dual pathway enables defect accommodation without structural collapse. These results demonstrate that Ce0.8Zr0.2O2 resists amorphization through a balance of irradiation-induced redox activity and native nonstoichiometry, making it a strong candidate for radiation-resistant ceramics in nuclear and aerospace applications, and a mechanistic model for defect-tolerant oxides.

Accession Number: WOS:001594608800001

Language: English

Document Type: Article; Early Access

Author Keywords: photoluminescence; SHI irradiation; UV-Vis diffuse reflectance spectroscopy; X-ray photoelectron spectroscopy

KeyWords Plus: OPTICAL-PROPERTIES; MECHANICAL-PROPERTIES; BEAM IRRADIATION; OXYGEN VACANCIES; GRAIN-SIZE; XPS; SURFACES; CERIA; REDUCTION; MIGRATION

Addresses: [Kumar, Vivek; Sharma, Saurabh Kumar; Singh, Yogendar; Kulriya, Pawan Kumar] Jawaharlal Nehru Univ, Sch Phys Sci, New Delhi 110067, India.
[Sharma, Saurabh Kumar] Rensselaer Polytech Inst RPI, Dept Mech Aerosp & Nucl Engn, Troy, NY USA.
[Malik, Vivek] Indian Inst Technol, Roorkee, Uttarakhand, India.
[Grover, Vinita] Bhabha Atom Res Ctr, Chem Div, Mumbai, India.

Corresponding Address: Kulriya, PK (corresponding author), Jawaharlal Nehru Univ, Sch Phys Sci, New Delhi 110067, India.

E-mail Addresses: pkkulriya@mail.jnu.ac.in

Affiliations: Jawaharlal Nehru University, New Delhi; Rensselaer Polytechnic Institute; Indian Institute of Technology System (IIT System); Indian Institute of Technology (IIT) - Roorkee; Bhabha Atomic Research Center (BARC)

Author Identifiers:

Author	Web of Science ResearcherID	ORCID Number
Sharma, Saurabh	GYA-0495-2022	0000-0002-3520-9168
Kulriya, Pawan	AAC-6687-2021	
SHARMA, Saurabh	GYA-0495-2022	

Publisher: WILEY

Publisher Address: 111 RIVER ST, HOBOKEN 07030-5774, NJ USA

Web of Science Index: Science Citation Index Expanded (SCI-EXPANDED)

Web of Science Categories: Materials Science, Ceramics

Research Areas: Materials Science

IDS Number: 8QB0C

ISSN: 0002-7820

eISSN: 1551-2916

29-char Source Abbrev.: J AM CERAM SOC

ISO Source Abbrev.: J. Am. Ceram. Soc.

Source Item Page Count: 15

Funding:

Funding Agency	Grant Number
Science and Engineering Research Board (SERB), Department of Science and Technology, Government of India	CRG/2018/003937 1623
IUAC New Delhi	

The authors gratefully acknowledge the funding support from the Science and Engineering Research Board (SERB), Department of Science and Technology, Government of India, for the CRG/2018/003937 project. Vivek Kumar appreciates the UGC-SRF for awarding him Reference No. 1623 (CSIR-UGC NET JUNE 2019). The authors are appreciative of the stable iodine beam facility that was provided by IUAC New Delhi. The authors thank IIT Roorkee for providing an X-ray Photoelectric Spectroscopy facility. They also extend their gratitude to AIRF-JNU, New Delhi, for offering essential tools for synthesis and characterization, including high-temperature furnaces and Raman Spectroscopy.

Output Date: 2025-11-11

Record 43 of 56

Title: A Computational Investigation of Phase-Dependent Anomalous Nernst Effect in Ferrimagnetic Cr2MnSb Heusler Alloy

Author(s): Kumar, K (Kumar, Kulwinder); Sangeeta (Sangeeta); Kumar, R (Kumar, Rajesh); Kumar, R (Kumar, Ramesh); Singh, M (Singh, Mukhtiyar); Kashyap, MK (Kashyap, Manish K.)

Source: ADVANCED THEORY AND SIMULATIONS **DOI:** 10.1002/adts.202500943 **Early Access Date:** OCT 2025 **Published Date:** 2025 OCT 25

Times Cited in Web of Science Core Collection: 0

Total Times Cited: 0

Cited References: Ahlawat L., 2024, IEEE Sens. J, V25
Ahlawat L, 2024, OPT LASER TECHNOL, V170, DOI 10.1016/j.optlastec.2023.110183
Alam MS, 2023, PHYS REV B, V107, DOI 10.1103/PhysRevB.107.085102
[Anonymous], 2024, Solid State Sci, V156
Bauer GEW, 2012, NAT MATER, V11, P391, DOI [10.1038/nmat3301, 10.1038/NMAT3301]
Born M., 1996, Dynamical theory of crystal lattices
Chatterjee S, 2023, PHYS REV B, V108, DOI 10.1103/PhysRevB.108.205108
Chernov ED, 2024, APPL PHYS A-MATER, V130, DOI 10.1007/s00339-024-07936-3
Galanakis I, 2007, PHYS REV B, V75, DOI 10.1103/PhysRevB.75.172405
Gomonay EV, 2014, LOW TEMP PHYS+, V40, P17, DOI 10.1063/1.4862467
Graf T, 2011, PROG SOLID STATE CH, V39, P1, DOI 10.1016/j.progsolidstchem.2011.02.001
Guin SN, 2019, NPG ASIA MATER, V11, DOI 10.1038/s41427-019-0116-z
Gupt GD, 2023, J APPL PHYS, V134, DOI 10.1063/5.0158138
Gupt GD, 2020, AIP CONF PROC, V2265, DOI 10.1063/5.0016685
Gupta S, 2019, J PHYS D APPL PHYS, V52, DOI 10.1088/1361-6463/ab3fc6
Hafner J, 2008, J COMPUT CHEM, V29, P2044, DOI 10.1002/jcc.21057
Hazra BK, 2018, J MAGN MAGN MATER, V448, P371, DOI 10.1016/j.jmmm.2017.04.010
Hu JF, 2020, ANN PHYS-BERLIN, V532, DOI 10.1002/andp.201900456
Ikhlas M, 2017, NAT PHYS, V13, P1085, DOI [10.1038/NPHYS4181, 10.1038/nphys4181]
Jayashire R, 2024, J SUPERCOND NOV MAGN, V37, P117, DOI 10.1007/s10948-023-06652-y
Kakati B, 2024, J APPL PHYS, V136, DOI 10.1063/5.0217996
KARPLUS R, 1954, PHYS REV, V95, P1154, DOI 10.1103/PhysRev.95.1154
KOHN W, 1965, PHYS REV, V140, P1133, DOI 10.1103/PhysRev.140.A1133
Kumar R, 2023, EUR PHYS J PLUS, V138, DOI 10.1140/epjp/s13360-023-04179-8
Labidi S, 2021, SPIN-SINGAPORE, V11, DOI 10.1142/S2010324721500211
Li LF, 2024, Arxiv, DOI [arXiv:2401.17624, 10.48550/arXiv.2401.17624, DOI 10.48550/ARXIV.2401.17624]
Liu GD, 2008, PHYS REV B, V77, DOI 10.1103/PhysRevB.77.014424
Man CS, 2011, J ELASTICITY, V105, P29, DOI 10.1007/s10659-011-9312-y
Manna K, 2018, PHYS REV X, V8, DOI 10.1103/PhysRevX.8.041045
Manna K, 2018, NAT REV MATER, V3, P244, DOI 10.1038/s41578-018-0036-5
Mostofi AA, 2008, COMPUT PHYS COMMUN, V178, P685, DOI 10.1016/j.cpc.2007.11.016
Nagaosa N, 2010, REV MOD PHYS, V82, P1539, DOI 10.1103/RevModPhys.82.1539
Nakatsuji S, 2015, NATURE, V527, P212, DOI 10.1038/nature15723
Nehla P, 2019, J ALLOY COMPD, V776, P379, DOI 10.1016/j.jallcom.2018.10.242
Noky J, 2020, NPJ COMPUT MATER, V6, DOI 10.1038/s41524-020-0342-5
Noky J, 2019, PHYS REV B, V99, DOI 10.1103/PhysRevB.99.165117
Noky J, 2018, PHYS REV B, V97, DOI 10.1103/PhysRevB.97.220405
Özdogan K, 2009, J MAGN MAGN MATER, V321, pL34, DOI 10.1016/j.jmmm.2009.01.006
Parray RA, 2023, J MATER SCI-MATER EL, V34, DOI 10.1007/s10854-023-09978-4
Rastogi S, 2025, J ALLOY COMPD, V1010, DOI 10.1016/j.jallcom.2024.177212
Rauch T, 2017, PHYS REV B, V96, DOI 10.1103/PhysRevB.96.235103
Sahu P, 2021, PHYS REV B, V103, DOI 10.1103/PhysRevB.103.085113
Sakai A, 2018, NAT PHYS, V14, P1119, DOI 10.1038/s41567-018-0225-6
Sakuraba Y, 2020, PHYS REV B, V101, DOI 10.1103/PhysRevB.101.134407
Sangeeta, 2023, J PHYS CHEM SOLIDS, V174, DOI 10.1016/j.jpcs.2022.111182
Shahi N, 2022, PHYS REV B, V106, DOI 10.1103/PhysRevB.106.245137
Shi WJ, 2018, PHYS REV B, V97, DOI 10.1103/PhysRevB.97.060406

Shukla GK, 2023, APPL PHYS LETT, V123, DOI 10.1063/5.0155940
Shukla GK, 2022, PHYS REV B, V105, DOI 10.1103/PhysRevB.105.035124
Singh M, 2013, J SOLID STATE CHEM, V208, P71, DOI 10.1016/j.jssc.2013.09.041
Tang KX, 2024, COMMUN MATER, V5, DOI 10.1038/s43246-024-00525-0
Tanzim MF, 2023, ADV FUNCT MATER, V33, DOI 10.1002/adfm.202214967
Tong SC, 2020, PHYS REV B, V101, DOI 10.1103/PhysRevB.101.184434
Torrent M, 2010, COMPUT PHYS COMMUN, V181, P1862, DOI 10.1016/j.cpc.2010.07.036
Vidal EV, 2011, PHYS REV B, V83, DOI 10.1103/PhysRevB.83.174410
Wang EQ, 2024, PHYS REV LETT, V132, DOI 10.1103/PhysRevLett.132.266802
Wang L, 2024, PHYS REV LETT, V132, DOI 10.1103/PhysRevLett.132.243403
Wu QS, 2018, COMPUT PHYS COMMUN, V224, P405, DOI 10.1016/j.cpc.2017.09.033
Wurmehl S, 2006, J PHYS-CONDENS MAT, V18, P6171, DOI 10.1088/0953-8984/18/27/001
Xiao D, 2006, PHYS REV LETT, V97, DOI 10.1103/PhysRevLett.97.026603
Xiao D, 2010, REV MOD PHYS, V82, P1959, DOI 10.1103/RevModPhys.82.1959
Yao YG, 2004, PHYS REV LETT, V92, DOI 10.1103/PhysRevLett.92.037204

Cited Reference Count: 62

Abstract: Ferrimagnetic Heusler alloys show promising applications to thermoelectric and spintronic devices based on anomalous Nernst phenomena led by Berry curvature. The present work shows a computational investigation of the Anomalous Hall Conductivity (AHC) and Anomalous Nernst Conductivity (ANC) in a ferrimagnetic Cr2MnSb Heusler alloy, which exhibits both L21 and Xa structures. The spin-polarized calculations reveal that Cr2MnSb is a ferrimagnetic Heusler alloy, with a nearly zero magnetic moment. The nonzero large Berry curvature (Omega z (& Aring;2)) along the (001) plane leads to the large AHC value of 567 and 302 S cm-1 for L21 and Xa structure, respectively. The ANC value for L21 (0.80 Am-1 K-1) is significantly greater than Xa structure (0.05 Am-1 K-1) at room temperature. This value for L21 phase is further enhanced with B2 disorder because of a modification in the overall Berry curvature around the Fermi level. These large values of AHC and ANC in the L21 structure may be a consequence of the presence of mirror plane symmetry along . Therefore, Cr2MnSb, a ferrimagnetic material, can be a potential candidate for thermoelectric device applications with and without disorder.

Accession Number: WOS:001599732200001

Language: English

Document Type: Article; Early Access

Author Keywords: anomalous hall effect; anomalous nernst effect; berry curvature; ferrimagnetic heusler alloys

KeyWords Plus: MAGNETIC-PROPERTIES; ANTIFERROMAGNET; DISORDER

Addresses: [Kumar, Kulwinder; Singh, Mukhtiyar] Delhi Technol Univ, Dept Appl Phys, Computat Quantum Mat Design CQMD Lab, Delhi 110042, India.
[Kumar, Rajesh] Shiv Nadar Inst Eminence Deemed Be Univ, Sch Nat Sci, Dept Chem, Dadri 201314, Uttar Pradesh, India.
[Kumar, Ramesh] Guru Jambheshwar Univ Sci & Technol, Dept Phys, Hisar 125001, Haryana, India.
[Kashyap, Manish K.] Jawaharlal Nehru Univ, Sch Phys Sci, Renewable Energy Lab, New Delhi 110067, India.

Corresponding Address: Singh, M (corresponding author), Delhi Technol Univ, Dept Appl Phys, Computat Quantum Mat Design CQMD Lab, Delhi 110042, India.
Kashyap, MK (corresponding author), Jawaharlal Nehru Univ, Sch Phys Sci, Renewable Energy Lab, New Delhi 110067, India.

E-mail Addresses: mukhtiyarsingh@dtu.ac.in; mkkashyap@jnu.ac.in

Affiliations: Delhi Technological University; Guru Jambheshwar University of Science & Technology; Jawaharlal Nehru University, New Delhi

Author Identifiers:

Author	Web of Science ResearcherID	ORCID Number
Kashyap, Manish	ABE-6515-2020	

Publisher: WILEY-V C H VERLAG GMBH

Publisher Address: POSTFACH 101161, 69451 WEINHEIM, GERMANY

Web of Science Index: Science Citation Index Expanded (SCI-EXPANDED)

Web of Science Categories: Multidisciplinary Sciences

Research Areas: Science & Technology - Other Topics

IDS Number: 8XO6X

eISSN: 2513-0390

29-char Source Abbrev.: ADV THEOR SIMUL

ISO Source Abbrev.: Adv. Theory Simul.

Source Item Page Count: 8

Funding:

Funding Agency	Grant Number
Anusandhan National Research Foundation	

The authors also acknowledge the National Supercomputing Mission (NSM) for providing computing resources of ' PARAM SEVA' at IIT, Hyderabad, which is implemented by C-DAC and supported by the Ministry of Electronics and Information Technology (MeitY) and the Department of Science and Technology (DST), Government of India. One of the authors (K.K.) would like to thank the Council of Scientific and Industrial Research (CSIR), Delhi, for financial support. The corresponding author (M.S.) wants to acknowledge the financial support by "Anusandhan National Research Foundation (ANRF)" [formerly known as Science and Engineering Research Board (SERB)], Department of Science and Technology (DST), Government of India, under Grant No. EEQ/2023/000913.

Open Access: Bronze

Output Date: 2025-11-11

Record 44 of 56

Title: Identification of potential natural <i>BCL-2</i> inhibitors for leukemia through an integrated virtual screening approach

Author(s): Das, U (Das, Uddalak); Mukherjee, A (Mukherjee, Arnab); Mukunthan, KS (Mukunthan, K. S.); Kumar, J (Kumar, Jitendra)

Source: BMC PHARMACOLOGY & TOXICOLOGY **Volume:** 26 **Issue:** 1 **Article Number:** 176 **DOI:** 10.1186/s40360-025-01005-y **Published Date:** 2025 OCT 28

Times Cited in Web of Science Core Collection: 0

Total Times Cited: 0

Usage Count (Last 180 days): 0

Usage Count (Since 2013): 0

Cited References: Alam M, 2021, INT J MOL SCI, V22, DOI 10.3390/ijms221910442
Almansour NM, 2023, MOLECULES, V28, DOI 10.3390/molecules28020783
Arockiaraj J, 2015, MOL IMMUNOL, V63, P586, DOI 10.1016/j.molimm.2014.07.018
Azmi AS, 2011, EXPERT OPIN EMERG DR, V16, P59, DOI 10.1517/14728214.2010.515210
Banerjee P, 2024, NUCLEIC ACIDS RES, V52, pW513, DOI 10.1093/nar/gkae303

Chikalov I, 2011, BMC BIOINFORMATICS, V12, DOI 10.1186/1471-2105-12-S1-S34
Correll CU, 2025, CNS DRUGS, V39, P111, DOI 10.1007/s40263-024-01138-4
Costa MGS, 2015, J CHEM THEORY COMPUT, V11, P2755, DOI 10.1021/acs.jctc.5b00003
Dai HM, 2011, J CELL BIOL, V194, P38, DOI 10.1083/jcb.201102027
David CC, 2014, METHODS MOL BIOL, V1084, P193, DOI 10.1007/978-1-62703-658-0_11
Elhady SS, 2021, Biology (Basel), P10
Elmeliegy M, 2020, CLIN PHARMACOKINET, V59, P699, DOI 10.1007/s40262-020-00867-1
Fan Y, 2022, BMC PHARMACOL TOXICO, V23, DOI 10.1186/s40360-021-00543-5
FORNELL C, 1981, J MARKETING RES, V18, P39, DOI 10.1038/srep42717
Fu L, 2024, NUCLEIC ACIDS RES, V52, pW422, DOI 10.1093/nar/gkae236
Fu Y, 2018, COMPUT MATH METHOD M, V2018, DOI 10.1155/2018/3502514
Ganji M, 2023, J TRANSL MED, V21, DOI 10.1186/s12967-023-03955-5
Gao D, 2013, DEV COMP IMMUNOL, V41, P728, DOI 10.1016/j.dci.2013.08.004
Hess B, 2008, J CHEM THEORY COMPUT, V4, P435, DOI 10.1021/ct700301q
Huang JJ, 2022, FRONT ONCOL, V12, DOI 10.3389/fonc.2022.904292
Islam MR, 2024, J BIOMOL STRUCT DYN, V42, P82, DOI 10.1080/07391102.2023.2192798
Islam MT, 2018, CANCER LETT, V420, P129, DOI 10.1016/j.canlet.2018.01.074
Jawarkar RD, 2022, Molecules, V27
Kaserer T, 2015, MOLECULES, V20, P22799, DOI 10.3390/molecules201219880
Kim H, 2023, J CHEM THEORY COMPUT, V19, P8919, DOI 10.1021/acs.jctc.3c00777
Laskowski RA, 2018, PROTEIN SCI, V27, P129, DOI 10.1002/pro.3289
Lee JH, 2024, BIOMOLECULES, V14, DOI 10.3390/biom14010099
Lu C, 2021, J CHEM THEORY COMPUT, V17, P4291, DOI 10.1021/acs.jctc.1c00302
Lv XY, 2021, MED ONCOL, V38, DOI 10.1007/s12032-021-01513-x
Mahdizadeh SJ, 2021, J CHEM INF MODEL, V61, P3543, DOI 10.1021/acs.jcim.1c00301
Mysinger MM, 2012, J MED CHEM, V55, P6582, DOI 10.1021/jm300687e
Nagy MI, 2021, PHARMACEUTICALS-BASE, V14, DOI 10.3390/ph14020113
O'Boyle N.M., 2011, J. Cheminform, V3, P33, DOI [10.1186/1758-2946-3-33, DOI 10.1186/1758-2946-3-33]
Ormeno F, 2024, COMMUN CHEM, V7, DOI 10.1038/s42004-024-01114-5
Oyebamiji AK, 2023, QUIM NOVA, V46, P791, DOI 10.21577/0100-4042.20230055
Qian SN, 2022, FRONT ONCOL, V12, DOI 10.3389/fonc.2022.985363
Ribas J, 2002, J ORG CHEM, V67, P7057, DOI 10.1021/jo0201225
Satuluri SH, 2020, J RECEPT SIG TRANSD, V40, P246, DOI 10.1080/10799893.2020.1731533
Sorokina M, 2021, J CHEMINFORMATICS, V13, DOI 10.1186/s13321-020-00478-9
Souza PCT, 2020, NAT COMMUN, V11, DOI 10.1038/s41467-020-17437-5
Taylor D, 2016, ISS ENVIRON SCI TECH, V41, P1
Taylor M, 2023, J COMPUT AID MOL DES, V37, P167, DOI 10.1007/s10822-023-00499-0
Teles HR, 2022, INT J MOL SCI, V23, DOI 10.3390/ijms23168898
Triballeau N, 2005, J MED CHEM, V48, P2534, DOI 10.1021/jm049092j
Truchon JF, 2007, J CHEM INF MODEL, V47, P488, DOI 10.1021/ci600426e
Valentini E, 2022, THERANOSTICS, V12, P2427, DOI 10.7150/thno.64233
Wang HL, 2023, COMPUT STRUCT BIOTEC, V21, P3760, DOI 10.1016/j.csbj.2023.07.017
Wang K, 2016, FOOD HYDROCOLLOID, V61, P567, DOI 10.1016/j.foodhyd.2016.05.040
Wei HD, 2023, NAT COMMUN, V14, DOI 10.1038/s41467-023-40087-2
Yang L, 2020, NAT COMMUN, V11, DOI 10.1038/s41467-020-16388-1
Yang Y, 2023, PHARM BIOL, V61, P259, DOI 10.1080/13880209.2023.2168703
Yu Y, 2021, Molecules, V26
Zhou JY, 2023, ACTA PHARMACOL SIN, V44, P475, DOI 10.1038/s41401-022-00936-0

Cited Reference Count: 53

Abstract: Leukemia, a hematologic malignancy, frequently involves the overexpression of BCL-2 proteins, contributing to cell survival and apoptosis resistance. Although current BCL-2 inhibitors, including Venetoclax, have shown efficacy, they are limited by adverse side effects and restricted bioavailability. This study employs an integrated computational approach to identify natural BCL-2 inhibitors by screening 407,270 natural compounds. Using ligand- and structure-based virtual screening, we identified two promising compounds, CNP0237679 and CNP0420384, demonstrating strong binding affinities, favorable electronic properties, and stability in dynamic aqueous environments. Both compounds exhibited promising toxicity and pharmacokinetic profiles, indicating the possibility of low toxicity and high bioavailability. They are potential candidates for developing selective BCL-2 inhibitors because of these characteristics. The findings represent a positive step in developing new, naturally derived BCL-2 inhibitors and support additional in vitro and in vivo studies to validate their therapeutic efficacy and safety characteristics.

Accession Number: WOS:001604632500003

PubMed ID: 41152995

Language: English

Document Type: Article

Author Keywords: Leukemia; Drug discovery; Pharmacophore; Docking; Pharmacokinetics; Molecular dynamics simulation

KeyWords Plus: MOLECULAR-DYNAMICS; DOCKING; BINDING

Addresses: [Das, Uddalak] Univ Agr Sci, Dept Plant Biotechnol, Bengaluru 560065, Karnataka, India.
[Das, Uddalak] Jawaharlal Nehru Univ, Sch Biotechnol, New Delhi 110067, India.
[Mukherjee, Arnab; Mukunthan, K. S.] Manipal Acad Higher Educ, Dept Biotechnol, Manipal Inst Technol, Manipal 576104, Karnataka, India.
[Kumar, Jitendra] Govt India, Minist Sci & Technol, Dept Biotechnol DBT, Biotechnol Ind Res Assistance Council, Lodhi Rd, New Delhi 110020, India.

Corresponding Address: Mukunthan, KS (corresponding author), Manipal Acad Higher Educ, Dept Biotechnol, Manipal Inst Technol, Manipal 576104, Karnataka, India.

E-mail Addresses: uddalakdas1998@gmail.com; arnabbiotech.gen@gmail.com; mukunthan.ks@manipal.edu; md.birac@nic.in

Affiliations: University of Agricultural Sciences Bangalore; Jawaharlal Nehru University, New Delhi; Manipal Academy of Higher Education (MAHE); Department of Biotechnology (DBT) India; Biotechnology Industry Research Assistance Council (BIRAC)

Author Identifiers:

Author	Web of Science ResearcherID	ORCID Number
Selvam, Mukunthan	P-5972-2015	

Publisher: BMC

Publisher Address: CAMPUS, 4 CRINAN ST, LONDON N1 9XW, ENGLAND

Web of Science Index: Science Citation Index Expanded (SCI-EXPANDED)

Web of Science Categories: Pharmacology & Pharmacy; Toxicology

Research Areas: Pharmacology & Pharmacy; Toxicology

IDS Number: 9EU2Y

eISSN: 2050-6511

29-char Source Abbrev.: BMC PHARMACOL TOXICO

ISO Source Abbrev.: BMC Pharmacol. Toxicol.

Source Item Page Count: 15

Funding:

Funding Agency	Grant Number
Manipal Academy of Higher Education	

The authors thank the Manipal Academy of Higher Education for the Schrodinger Release 2024-1 (Schrodinger, LLC, New York, NY, 2024) and CDAC Param Utkarsh HPC facility for carrying out this work. UD would also like to sincerely acknowledge Mr. Varinder Kumar, Assistant Professor of Bioinformatics, Goswami Ganesh Dutta Sanatan Dharma College (GGDSDC), Chandigarh, for granting access to the Gaussian software for DFT calculations.

Open Access: Green Submitted, gold

Output Date: 2025-11-11

Record 45 of 56

Title: Biomolecular phase separation of microtubule-associated protein tau and its role in the genesis of brain disorders

Author(s): Bhandari, AK (Bhandari, Aurgha Kamal); Dhami, AS (Dhami, Aman Singh); Hemanthkumar, RT (Hemanthkumar, Rishi Thanvanthan); Mishra, N (Mishra, Nishant); Joslyn, B (Joslyn, Beula); Roy, S (Roy, Sindhujit); Srinivasan, J (Srinivasan, Jaisri); Prajapati, KP (Prajapati, Kailash Prasad); Kar, K (Kar, Karunakar); Anand, BG (Anand, Bibin Gnanadhason)

Source: AGEING RESEARCH REVIEWS **Volume:** 113 **Article Number:** 102879 **DOI:** 10.1016/j.arr.2025.102879 **Early Access Date:** OCT 2025 **Published Date:** 2026 JAN

Times Cited in Web of Science Core Collection: 0

Total Times Cited: 0

Usage Count (Last 180 days): 3

Usage Count (Since 2013): 3

Cited References: Abasi LS, 2024, COMMUN BIOL, V7, DOI 10.1038/s42003-024-05920-4
Ahmad A, 2022, INT J BIOL MACROMOL, V220, P703, DOI 10.1016/j.ijbiomac.2022.08.132
Akinyemi RO, 2022, ALZHEIMERS DEMENT, V18, P790, DOI 10.1002/alz.12432
Al-Hilaly YK, 2022, FRONT NEUROSCI-SWITZ, V16, DOI 10.3389/fnins.2022.988074
Alberti S, 2019, ANNU REV GENET, V53, P171, DOI 10.1146/annurev-genet-112618-043527
Alberti S, 2019, CELL, V176, P419, DOI 10.1016/j.cell.2018.12.035
Alberti S, 2018, J MOL BIOL, V430, P4806, DOI 10.1016/j.jmb.2018.06.038
Alberti S, 2017, J CELL SCI, V130, P2789, DOI 10.1242/jcs.200295
Alonso AD, 2004, J BIOL CHEM, V279, P34873, DOI 10.1074/jbc.M405131200
Alquezar C., 2021, Tau Post-Transl. Modif.: Dyn. Transform. Tau Funct., Degrad., Aggreg., V11, P1, DOI [10.3389/fneur.2020.595532, DOI 10.3389/FNEUR.2020.595532]
Alzheimer A, 1995, Clin Anat, V8, P429
Ambadipudi S, 2017, NAT COMMUN, V8, DOI 10.1038/s41467-017-00480-0
Amiram M, 2011, NAT MATER, V10, P141, DOI [10.1038/nmat2942, 10.1038/NMAT2942]
Anand B, 2022, BIOACT MATER, V17, P506, DOI 10.1016/j.bioactmat.2022.05.030
Anand BG, 2021, BIOACT MATER, V6, P4491, DOI 10.1016/j.bioactmat.2021.04.029
Anand BG, 2018, BIOCHEM BIOPH RES CO, V501, P158, DOI 10.1016/j.bbrc.2018.04.198
Arendt T, 2003, PROG NEUROBIOL, V71, P83, DOI 10.1016/j.pneurobio.2003.09.007
Arima K, 2000, NEUROLOGY, V54, P1787, DOI 10.1212/WNL.54.9.1787
Arnsten AFT, 2021, ALZHEIMERS DEMENT, V17, P115, DOI 10.1002/alz.12192
Aron L, 2025, NATURE, V645, DOI 10.1038/s41586-025-09335-x
Astoricchio E, 2020, TRENDS BIOCHEM SCI, V45, P706, DOI 10.1016/j.tibs.2020.04.006
Babinchak WM, 2020, J MOL BIOL, V432, P1910, DOI 10.1016/j.jmb.2020.03.004

Babinchak WM, 2019, J BIOL CHEM, V294, P6306, DOI 10.1074/jbc.RA118.007222
Bader B, 2011, BIOCHEM BIOPH RES CO, V411, P190, DOI 10.1016/j.bbrc.2011.06.135
Bah A, 2015, NATURE, V519, P106, DOI 10.1038/nature13999
Baier A, 2020, BIOMOLECULES, V10, DOI 10.3390/biom10111546
Bailey RM, 2013, ACTA NEUROPATHOL, V126, P809, DOI 10.1007/s00401-013-1188-4
Ballatore C, 2007, NAT REV NEUROSCI, V8, P663, DOI 10.1038/nrn2194
Balmik AA, 2021, CELL COMMUN SIGNAL, V19, DOI 10.1186/s12964-021-00732-z
Banani SF, 2016, CELL, V166, P651, DOI 10.1016/j.cell.2016.06.010
Banerjee PR, 2017, ANGEW CHEM INT EDIT, V56, P11354, DOI 10.1002/anie.201703191
Barbier P, 2019, FRONT AGING NEUROSCI, V11, DOI 10.3389/fnagi.2019.00204
Baskota SU, 2019, LAB INVEST, V99, P1068, DOI 10.1038/s41374-018-0166-9
Berry J, 2018, REP PROG PHYS, V80, DOI 10.1088/1361-6633/aaa61e
Bevilacqua PC, 2022, RNA, V28, P16, DOI 10.1261/rna.078999.121
Bikkavilli RK, 2014, JOVE-J VIS EXP, DOI 10.3791/51997
Binder LI, 2005, BBA-MOL BASIS DIS, V1739, P216, DOI 10.1016/j.bbadis.2004.08.014
Bird TD, 1999, BRAIN, V122, P741, DOI 10.1093/brain/122.4.741
Blard O, 2006, J NEUROSCI RES, V84, P1107, DOI 10.1002/jnr.21006
Boeve B.F., 2008, Arch. Neurol., V65
Boeynaems S, 2023, J MOL BIOL, V435, DOI 10.1016/j.jmb.2023.167971
Boeynaems S, 2019, P NATL ACAD SCI USA, V116, P7889, DOI 10.1073/pnas.1821038116
Boyarko B, 2021, FRONT NEUROSCI-SWITZ, V15, DOI 10.3389/fnins.2021.702788
Boyko S., 2023, LIQUID-LIQUID PHASE SEPARATIO OF PATHOLOGICAL AGGRE by SOLOMIIA BOY N AS A MODULATOR GATION OF TAU KO
Boyko S, 2023, J BIOL CHEM, V299, DOI 10.1016/j.jbc.2023.104722
Boyko S, 2020, P NATL ACAD SCI USA, V117, P31882, DOI 10.1073/pnas.2012460117
Boyko S, 2019, J BIOL CHEM, V294, P11054, DOI 10.1074/jbc.AC119.009198
BRAAK H, 1991, ACTA NEUROPATHOL, V82, P239, DOI 10.1007/BF00308809
Braak H, 2006, ACTA NEUROPATHOL, V112, P389, DOI 10.1007/s00401-006-0127-z
Brandt R, 2005, BBA-MOL BASIS DIS, V1739, P331, DOI 10.1016/j.bbadis.2004.06.018
Brangwynne CP, 2011, P NATL ACAD SCI USA, V108, P4334, DOI 10.1073/pnas.1017150108
Brangwynne CP, 2009, SCIENCE, V324, P1729, DOI 10.1126/science.1172046
Brown RC, 2005, ENVIRON HEALTH PERSP, V113, P1250, DOI 10.1289/ehp.7567
Brunden KR, 2011, PHARMACOL RES, V63, P341, DOI 10.1016/j.phrs.2010.12.002
Brunello CA, 2020, CELL MOL LIFE SCI, V77, P1721, DOI 10.1007/s00018-019-03349-1
Buciuc M, 2023, EUR J NEUROL, V30, P321, DOI 10.1111/ene.15603
Chang E, 2008, J NEUROCHEM, V107, P1113, DOI 10.1111/j.1471-4159.2008.05692.x
Chaudhuri P, 2019, AGEING RES REV, V56, DOI 10.1016/j.arr.2019.100937
Chen H, 2020, CELL RES, V30, P1143, DOI 10.1038/s41422-020-00408-2
Chen ZM, 2022, P NATL ACAD SCI USA, V119, DOI 10.1073/pnas.2115369119
Cheng Heung-Chin, 2011, Enzyme Res, V2011, P794089, DOI 10.4061/2011/794089
Cheon M, 2012, PROTEIN SCI, V21, P1514, DOI 10.1002/pro.2141
Choi JM, 2020, ANNU REV BIOPHYS, V49, P107, DOI 10.1146/annurev-biophys-121219-081629
Chong PA, 2018, J MOL BIOL, V430, P4650, DOI 10.1016/j.jmb.2018.06.014
Clark LN, 1998, P NATL ACAD SCI USA, V95, P13103, DOI 10.1073/pnas.95.22.13103
Congdon EE, 2023, NAT REV NEUROL, V19, P715, DOI 10.1038/s41582-023-00883-2
Conrad C, 1997, ANN NEUROL, V41, P277, DOI 10.1002/ana.410410222
Courade JP, 2018, ACTA NEUROPATHOL, V136, P729, DOI 10.1007/s00401-018-1911-2
Crary JF, 2014, ACTA NEUROPATHOL, V128, P755, DOI 10.1007/s00401-014-1349-0
Rodríguez LC, 2023, BBA-PROTEINS PROTEOM, V1871, DOI 10.1016/j.bbapap.2022.140885
Cummings JL, 2023, ALZHEIMERS RES THER, V15, DOI 10.1186/s13195-023-01321-7
D'Souza I, 1999, P NATL ACAD SCI USA, V96, P5598, DOI 10.1073/pnas.96.10.5598

da Silva LAG, 2022, EMBO J, V41, DOI 10.15252/embj.2021108443
Das RK, 2015, CURR OPIN STRUC BIOL, V32, P102, DOI 10.1016/j.sbi.2015.03.008
de Oliveira GAP, 2020, ADV PROTEIN CHEM STR, V118, P289, DOI 10.1016/bs.apcsb.2019.08.002
de Vries T, 2024, SCI ADV, V10, DOI 10.1126/sciadv.adm7435
DELACOURTE A, 1986, J NEUROL SCI, V76, P173, DOI 10.1016/0022-510X(86)90167-X
DEMAERSCHALCK I, 1993, BIOCHIM BIOPHYS ACTA, V1181, P214, DOI 10.1016/0925-4439(93)90023-T
Deng BY, 2024, ADV BIOTECHNOL-SING, V2, DOI [10.1007/s44307-024-00020-0, 10.1007/s44307-024-00020-0]
Dent EW, 2014, J NEUROCHEM, V129, P235, DOI 10.1111/jnc.12621
Dhani S, 2021, CELL DEATH DIS, V12, DOI 10.1038/s41419-021-04240-3
Dignon GL, 2020, ANNU REV PHYS CHEM, V71, P53, DOI 10.1146/annurev-physchem-071819-113553
Dou F, 2003, P NATL ACAD SCI USA, V100, P721, DOI 10.1073/pnas.242720499
Du XB, 2014, INORG CHEM, V53, P11221, DOI 10.1021/ic501788v
Duan YJ, 2019, CELL RES, V29, P233, DOI 10.1038/s41422-019-0141-z
Dubey K, 2014, BIOCHEMISTRY-US, V53, P8001, DOI 10.1021/bi501333q
Duthie A, 2019, FRONT MOL NEUROSCI, V12, DOI 10.3389/fnmol.2019.00163
El Mammeri N, 2022, SCI ADV, V8, DOI 10.1126/sciadv.abo4459
Elbaum-Garfinkle S, 2019, J BIOL CHEM, V294, P7160, DOI 10.1074/jbc.REV118.001188
Elbaum-Garfinkle S, 2015, P NATL ACAD SCI USA, V112, P7189, DOI 10.1073/pnas.1504822112
Falahati H, 2017, P NATL ACAD SCI USA, V114, P1335, DOI 10.1073/pnas.1615395114
Falkenberg KJ, 2014, NAT REV DRUG DISCOV, V13, P673, DOI 10.1038/nrd4360
Fees CP, 2018, LIFE SCI ALLIANCE, V1, DOI 10.26508/lsa.201800054
Feijoo C, 2005, J CELL SCI, V118, P397, DOI 10.1242/jcs.01655
Ferrari C, 2021, PHYSIOL REV, V101, P1047, DOI 10.1152/physrev.00015.2020
Fesharaki-Zadeh A, 2019, FRONT NEUROL, V10, DOI 10.3389/fneur.2019.00713
Flores J, 2020, NAT COMMUN, V11, DOI 10.1038/s41467-020-18405-9
Florian H, 2023, BRAIN, V146, P2275, DOI 10.1093/brain/awad024
Fontaine SN, 2015, CELL MOL LIFE SCI, V72, P1863, DOI 10.1007/s00018-015-1839-9
Fontaine Sarah N., 2015, Cellular factors modulating the mechanism of tau protein aggregation 1863-1879, DOI [10.1007/s00018-015-1839-9, DOI 10.1007/S00018-015-1839-9]
Fowler DM, 2007, TRENDS BIOCHEM SCI, V32, P217, DOI 10.1016/j.tibs.2007.03.003
Franzmann TM, 2019, J BIOL CHEM, V294, P7128, DOI 10.1074/jbc.TM118.001190
Frost B, 2009, J BIOL CHEM, V284, P12845, DOI 10.1074/jbc.M808759200
Fu QG, 2024, J MOL MED, V102, P167, DOI 10.1007/s00109-023-02407-3
Fu ZQ, 2010, J ALZHEIMERS DIS, V21, P1107, DOI 10.3233/JAD-2010-100687
Ga L, 2018, NAT NEUROSCI, V21, P1300, DOI 10.1038/s41593-018-0237-7
Galpern WR, 2019, ALZHEIMERS DEMENT, V15, DOI [10.1016/j.jalz.2019.06.077, 10.1016/J.JALZ.2019.06.077, DOI 10.1016/J.JALZ.2019.06.077, 10.1016/j.jalz.2019.06.077]
Ganguly J, 2020, FRONT NEUROL, V11, DOI 10.3389/fneur.2020.599384
Gao YL, 2018, ANN TRANSL MED, V6, DOI 10.21037/atm.2018.04.23
Giacobini E, 2013, NAT REV NEUROL, V9, P677, DOI 10.1038/nrneurol.2013.223
GLENNER GG, 1984, BIOCHEM BIOPH RES CO, V120, P885, DOI 10.1016/S0006-291X(84)80190-4
Goedert M, 2019, ADV EXP MED BIOL, V1184, P3, DOI 10.1007/978-981-32-9358-8_1
Gomes E, 2019, J BIOL CHEM, V294, P7115, DOI 10.1074/jbc.TM118.001192
Gomez-Isla Teresa, 2008, Handb Clin Neurol, V89, P233, DOI 10.1016/S0072-9752(07)01222-5
Gonzalez-Ortiz F, 2023, MOL NEURODEGENER, V18, DOI 10.1186/s13024-023-00605-8
Goode BL, 2000, J BIOL CHEM, V275, P38182, DOI 10.1074/jbc.M007489200
Gorsheneva NA, 2024, BIOCHEMISTRY-MOSCOW+, V89, pS205, DOI 10.1134/S0006297924140116
Grese ZR, 2021, EMBO REP, V22, DOI 10.15252/embr.202153632
Grover A, 2003, EXP NEUROL, V184, P131, DOI 10.1016/S0014-4886(03)00393-5

Gui XR, 2019, NAT COMMUN, V10, DOI 10.1038/s41467-019-09902-7
Guo T, 2017, ACTA NEUROPATHOL, V133, P665, DOI 10.1007/s00401-017-1707-9
Halfmann R, 2016, CURR OPIN STRUC BIOL, V38, P18, DOI 10.1016/j.sbi.2016.05.002
Hampel H, 2021, MOL PSYCHIATR, V26, P5481, DOI 10.1038/s41380-021-01249-0
Han D, 2009, J BIOL CHEM, V284, P13422, DOI 10.1074/jbc.M901095200
Hanger DP, 2009, TRENDS MOL MED, V15, P112, DOI 10.1016/j.molmed.2009.01.003
Harmon TS, 2017, ELIFE, V6, DOI 10.7554/eLife.30294
Harris GA, 2025, ALZHEIMERS RES THER, V17, DOI [10.1186/s13195-025-01775-x, 10.1186/s13195-025-01775-x]
Hatters DM, 2023, Frontiers in Biophysics, V1, DOI [10.3389/frbis.2023.1208763, 10.3389/frbis.2023.1208763, DOI 10.3389/FRBIS.2023.1208763]
Hayashi S, 2002, ANN NEUROL, V51, P525, DOI 10.1002/ana.10163
Henninger JE, 2021, CELL, V184, P207, DOI 10.1016/j.cell.2020.11.030
Hernández-Vega A, 2017, CELL REP, V20, P2304, DOI 10.1016/j.celrep.2017.08.042
Hilditch AT, 2024, J AM CHEM SOC, V146, P10240, DOI 10.1021/jacs.4c00256
Himmelstein DS, 2012, PHARMACOL THERAPEUT, V136, P8, DOI 10.1016/j.pharmthera.2012.07.001
Holzer M, 2018, MOLECULES, V23, DOI 10.3390/molecules23092335
Hoskin JL, 2019, EXPERT OPIN INV DRUG, V28, P545, DOI 10.1080/13543784.2019.1619694
Hou S, 2024, NAT COMMUN, V15, DOI 10.1038/s41467-024-46445-y
Howard R, 2020, JAMA NEUROL, V77, P164, DOI 10.1001/jamaneurol.2019.3762
Hu W, 2017, FRONT AGING NEUROSCI, V9, DOI 10.3389/fnagi.2017.00311
Huey ED, 2006, ANN NEUROL, V60, P374, DOI 10.1002/ana.20969
Hutton M, 2000, ANN NEUROL, V47, P417, DOI 10.1002/1531-8249(200004)47:4<417::AID-ANA1>3.3.CO;2-2
Hutton M, 1998, NATURE, V393, P702, DOI 10.1038/31508
Iqbal K, 2010, CURR ALZHEIMER RES, V7, P656, DOI 10.2174/156720510793611592
Iqbal K, 2005, BBA-MOL BASIS DIS, V1739, P198, DOI 10.1016/j.bbadis.2004.09.008
Iseki E, 2001, ACTA NEUROPATHOL, V102, P285
Iserman C, 2020, MOL CELL, V80, P1078, DOI 10.1016/j.molcel.2020.11.041
Jacobs WM, 2017, BIOPHYS J, V112, P683, DOI 10.1016/j.bpj.2016.10.043
Jadhav S, 2019, ACTA NEUROPATHOL COM, V7, DOI 10.1186/s40478-019-0664-z
Jain A, 2017, NATURE, V546, P243, DOI 10.1038/nature22386
Jarero-Basulto JJ, 2013, J NEUROPATH EXP NEUR, V72, P1145, DOI 10.1097/NEN.0000000000000013
Jeganathan S, 2008, BIOCHEMISTRY-US, V47, P10526, DOI 10.1021/bi800783d
Jellinger KA, 2010, J CELL MOL MED, V14, P457, DOI 10.1111/j.1582-4934.2010.01010.x
Jellinger KA, 2009, J NEURAL TRANSM, V116, P1111, DOI 10.1007/s00702-009-0240-y
Jensen MR, 2013, CURR OPIN STRUC BIOL, V23, P426, DOI 10.1016/j.sbi.2013.02.007
Jiji AC, 2017, CHEM-EUR J, V23, P16976, DOI 10.1002/chem.201704555
Jordan BD, 2013, NAT REV NEUROL, V9, P222, DOI 10.1038/nrneurol.2013.33
Kalia LV, 2015, LANCET, V386, P896, DOI 10.1016/S0140-6736(14)61393-3
Kanaan NM, 2020, NAT COMMUN, V11, DOI 10.1038/s41467-020-16580-3
Kar K, 2014, J MOL BIOL, V426, P816, DOI 10.1016/j.jmb.2013.11.019
Kaur T, 2019, BIOMOLECULES, V9, DOI 10.3390/biom9020071
Kawakami I, 2022, PSYCHIAT CLIN NEUROS, V76, P620, DOI 10.1111/pcn.13485
Khan S, 2023, AGEING RES REV, V87, DOI 10.1016/j.arr.2023.101924
Klunk WE, 2004, ANN NEUROL, V55, P306, DOI 10.1002/ana.20009
Knowles TPJ, 2014, NAT REV MOL CELL BIO, V15, P384, DOI 10.1038/nrm3810
Kobayashi T, 2003, ANN NEUROL, V53, P133, DOI 10.1002/ana.10447
Kontsekova E, 2014, ALZHEIMERS RES THER, V6, DOI 10.1186/alzrt278
Kostylev MA, 2018, MOL CELL, V72, P426, DOI 10.1016/j.molcel.2018.10.009
Kovacs GG, 2020, ACTA NEUROPATHOL, V140, P99, DOI 10.1007/s00401-020-02158-2

Kovacs GG, 2018, Neuroglia, V1, P339, DOI [10.3390/neuroglia1020023, 10.3390/neuroglia1020023, DOI 10.3390/NEUROGLIA1020023, DOI 10.3390/NEUROGLIA10]
Kroschwald S, 2015, ELIFE, V4, DOI 10.7554/eLife.06807
Kumar S, 2014, J BIOL CHEM, V289, P20318, DOI 10.1074/jbc.M114.554725
Kundel F., 2018, Hsp70 inhibits the nucleation and elongation of tau and sequesters tau aggregates with high affinity, DOI 0.1021/acschembio.7b01039
Kuznetsova IM, 2015, MOLECULES, V20, P1377, DOI 10.3390/molecules20011377
Kuznetsova IM, 2014, INT J MOL SCI, V15, P23090, DOI 10.3390/ijms151223090
Langerscheidt F, 2024, J NEUROL, V271, P2992, DOI 10.1007/s00415-024-12314-3
Lau HK, 2018, ADV SCI, V5, DOI 10.1002/advs.201701010
Li HR, 2018, J BIOL CHEM, V293, P6090, DOI 10.1074/jbc.AC117.001037
Li PL, 2012, NATURE, V483, P336, DOI 10.1038/nature10879
Li P, 2023, NEUROBIOL DIS, V183, DOI 10.1016/j.nbd.2023.106167
Li Q, 2020, NUCLEIC ACIDS RES, V48, pD320, DOI 10.1093/nar/gkz778
Li XH, 2024, INT J BIOL MACROMOL, V254, DOI 10.1016/j.ijbiomac.2023.127841
Lia LJ, 2004, J BIOL CHEM, V279, P37061, DOI 10.1074/jbc.M403672200
Lin Y, 2017, J BIOL CHEM, V292, P19110, DOI 10.1074/jbc.M117.800466
Lin Y, 2015, MOL CELL, V60, P208, DOI 10.1016/j.molcel.2015.08.018
Liu F, 2004, P NATL ACAD SCI USA, V101, P10804, DOI 10.1073/pnas.0400348101
Liu HL, 2020, PHYS CHEM CHEM PHYS, V22, P10968, DOI 10.1039/c9cp06954b
Liu J., 2021, Crit. Phenom. Liq. -Liq. Phase Sep. Biomol. Condens.
Liu Y, 2024, CELL COMMUN SIGNAL, V22, DOI 10.1186/s12964-023-01380-1
Luo HB, 2014, P NATL ACAD SCI USA, V111, P16586, DOI 10.1073/pnas.1417548111
Lyons DF, 2013, BIOPHYS J, V104, P2009, DOI 10.1016/j.bpj.2013.03.040
Lytle TK, 2019, ACS CENTRAL SCI, V5, P709, DOI 10.1021/acscentsci.9b00087
Ma OF, 2005, BIOPOLYMERS, V79, P74, DOI 10.1002/bip.20335
Magen I, 2013, NEUROPEPTIDES, V47, P489, DOI 10.1016/j.npep.2013.10.011
Maharana S, 2018, SCIENCE, V360, P918, DOI 10.1126/science.aar7366
Manglano-Artuñedo Z, 2024, NEURAL REGEN RES, V19, P509, DOI 10.4103/1673-5374.380900
Mann JR, 2019, NEURON, V102, P321, DOI 10.1016/j.neuron.2019.01.048
Marotta NP, 2015, NAT CHEM, V7, P913, DOI [10.1038/nchem.2361, 10.1038/NCHEM.2361]
Martin EW, 2018, BIOCHEMISTRY-US, V57, P2478, DOI 10.1021/acs.biochem.8b00008
Martin L, 2013, AGEING RES REV, V12, P289, DOI 10.1016/j.arr.2012.06.003
Mazanetz MP, 2007, NAT REV DRUG DISCOV, V6, P464, DOI 10.1038/nrd2111
MCKHANN G, 1984, NEUROLOGY, V34, P939, DOI 10.1212/WNL.34.7.939
Mees I, 2023, J HUNTINGTONS DIS, V12, P1, DOI 10.3233/JHD-230569
Melková K, 2019, BIOMOLECULES, V9, DOI 10.3390/biom9030105
Min SW, 2015, NAT MED, V21, P1154, DOI 10.1038/nm.3951
Mittag T, 2007, CURR OPIN STRUC BIOL, V17, P3, DOI 10.1016/j.sbi.2007.01.009
Molliex A, 2015, CELL, V163, P123, DOI 10.1016/j.cell.2015.09.015
Mondragón-Rodríguez S, 2013, OXID MED CELL LONGEV, V2013, DOI 10.1155/2013/940603
Montine TJ, 2012, ACTA NEUROPATHOL, V123, P1, DOI [10.1007/s00401-011-0910-3, 10.1016/j.jalz.2011.10.007]
Morales R, 2013, PLOS PATHOG, V9, DOI 10.1371/journal.ppat.1003537
Morris M, 2023, J NEUROPATH EXP NEUR, V82, P836, DOI 10.1093/jnen/nlad064
Morris M, 2023, medRxiv, DOI [10.1101/2023.02.22.23286323, 10.1101/2023.02.22.23286323, DOI 10.1101/2023.02.22.23286323, 10.1101/2023. 02.22.23286323]
Moutin MJ, 2021, DEV NEUROBIOL, V81, P253, DOI 10.1002/dneu.22774
Mroczek K.H., 2020, Genet. Neurol. Behav. Diet. Park. Dis. Neurosci. Park. Dis., V2, P447, DOI DOI 10.1016/B978-0-12-815950-7.00028-X
Mukherjee S, 2024, CHEM SOC REV, V53, P4976, DOI 10.1039/d3cs01065a

Mukrasch MD, 2005, J BIOL CHEM, V280, P24978, DOI 10.1074/jbc.M501565200
Mullard A, 2019, NAT REV DRUG DISCOV, V18, P324
Mummery CJ, 2023, NAT MED, V29, P1437, DOI 10.1038/s41591-023-02326-3
Munari F, 2020, INT J MOL SCI, V21, DOI 10.3390/ijms21124400
Muñoz-Braceras S, 2019, DIS MODEL MECH, V12, DOI 10.1242/dmm.036681
Murray DT, 2018, P NATL ACAD SCI USA, V115, pE9782, DOI 10.1073/pnas.1806174115
Murthy AC, 2019, NAT STRUCT MOL BIOL, V26, P637, DOI 10.1038/s41594-019-0250-x
Nam G, 2020, CHEM-US, V6, P2924, DOI 10.1016/j.chempr.2020.09.012
Narasimhan S, 2020, J EXP MED, V217, DOI 10.1084/jem.20190783
Neumann M, 2005, NEUROPATH APPL NEURO, V31, P362, DOI 10.1111/j.1365-2990.2005.00629.x
Neumann M, 2005, NEUROGENETICS, V6, P91, DOI 10.1007/s10048-005-0210-y
Nobuhara CK, 2017, AM J PATHOL, V187, P1399, DOI 10.1016/j.ajpath.2017.01.022
Nott TJ, 2015, MOL CELL, V57, P936, DOI 10.1016/j.molcel.2015.01.013
Pak CW, 2016, MOL CELL, V63, P72, DOI 10.1016/j.molcel.2016.05.042
Parhizkar S, 2022, SEMIN IMMUNOL, V59, DOI 10.1016/j.smim.2022.101594
Park SA, 2016, BMB REP, V49, P405, DOI 10.5483/BMBRep.2016.49.8.084
Patel A, 2015, CELL, V162, P1066, DOI 10.1016/j.cell.2015.07.047
Pattanashetty S.G., 2023, Droplets Life Membr. Organe Biomol. Condens. Biol. Liq. Phase, P233, DOI [10.1016/B978-0-12-823967-4.00012-9, DOI 10.1016/B978-0-12-823967-4.00012-9]
Peran I, 2020, CURR OPIN STRUC BIOL, V60, P17, DOI 10.1016/j.sbi.2019.09.007
Perluigi M, 2016, BBA-MOL BASIS DIS, V1862, P1871, DOI 10.1016/j.bbadis.2016.07.005
Permanne B, 2022, ACS CHEM NEUROSCI, V13, P1296, DOI 10.1021/acschemneuro.2c00057
Permenter C.M., 2023, Sport. Concussion Diagn. Manag, P99, DOI [10.1201/9781315153629, DOI 10.1201/9781315153629]
PETERSEN RB, 1995, NEUROLOGY, V45, P1062, DOI 10.1212/WNL.45.6.1062
Pickering-Brown SM, 2002, BRAIN, V125, P732, DOI 10.1093/brain/awf069
Pilpel Y, 2003, BIOCHEMISTRY-US, V42, P3519, DOI 10.1021/bi0266176
Pluta R., Alzheimers Disease: Drug Discovery, V69-82, DOI [DOI 10.36255/EXONPUBLICATIONS.ALZHEIMERSDISEASE.2020.CH4, 10.36255/EXONPUBLICATIONS.ALZHEIMERSDISEASE.2020.CH4]
Pockes S, 2023, TRANSL RES, V254, P34, DOI 10.1016/j.trsl.2022.10.009
Poewe W, 2017, NAT REV DIS PRIMERS, V3, DOI 10.1038/nrdp.2017.13
Pollack SJ, 2020, J MOL BIOL, V432, P4891, DOI 10.1016/j.jmb.2020.05.027
Poorkaj P, 2002, ANN NEUROL, V52, P511, DOI 10.1002/ana.10340
Popov KI, 2019, STRUCTURE, V27, P1710, DOI 10.1016/j.str.2019.09.003
Poschmann J., 2010, Role Pept. prolyl isomerase Rrd1 Transcr. Stress Response
Putnam A, 2019, NAT STRUCT MOL BIOL, V26, P220, DOI 10.1038/s41594-019-0193-2
Qamar S, 2018, CELL, V173, P720, DOI 10.1016/j.cell.2018.03.056
Rai SK, 2021, PROTEIN SCI, V30, P1294, DOI 10.1002/pro.4093
Rajendran L, 2006, P NATL ACAD SCI USA, V103, P11172, DOI 10.1073/pnas.0603838103
Rane JS, 2020, ACS CHEM NEUROSCI, V11, P291, DOI 10.1021/acschemneuro.9b00455
Rao BS, 2017, P NATL ACAD SCI USA, V114, pE9569, DOI 10.1073/pnas.1712396114
Rauscher S, 2017, ELIFE, V6, DOI 10.7554/eLife.26526
Rawat P, 2022, INT J MOL SCI, V23, DOI 10.3390/ijms232112841
Ray LB, 2017, SCIENCE, V357, p1250.10, DOI [10.1126/science.357.6357.1250-j, 10.1126/science.357.6357.1250-j, DOI 10.1126/SCIENCE.357.6357.1250-J]
Ray S, 2020, NAT CHEM, V12, DOI 10.1038/s41557-020-0465-9
Ritsch I, 2022, ANGEW CHEM INT EDIT, V61, DOI [10.1002/ange.202204311, 10.1002/anie.202204311]
Ritter ML, 2018, FRONT CELL NEUROSCI, V12, DOI 10.3389/fncel.2018.00202
Rizzu P, 1999, AM J HUM GENET, V64, P414, DOI 10.1086/302256
Roberts M, 2020, ACTA NEUROPATHOL COM, V8, DOI 10.1186/s40478-020-0884-2

Robertson LA, 2004, J ALZHEIMERS DIS, V6, P489
Roden C, 2021, NAT REV MOL CELL BIO, V22, P183, DOI 10.1038/s41580-020-0264-6
Rodríguez LC, 2024, BIOCHEM BIOPH RES CO, V741, DOI 10.1016/j.bbrc.2024.151053
Rodriguez Roberta Diehl, 2015, Dement. neuropsychol., V9, P2, DOI [10.1590/s1980-57642015dn91000002, 10.1590/S1980-57642015DN91000002]
Rodríguez-Martín T, 2013, NEUROBIOL AGING, V34, P2146, DOI 10.1016/j.neurobiolaging.2013.03.015
Rohn TT, 2010, APOPTOSIS, V15, P1403, DOI 10.1007/s10495-010-0463-2
Ros R, 2005, ARCH NEUROL-CHICAGO, V62, P1444, DOI 10.1001/archneur.62.9.1444
Rossi G, 2004, ANN NEUROL, V55, P448, DOI 10.1002/ana.20006
Rossi G, 2015, FRONT AGING NEUROSCI, V7, DOI 10.3389/fnagi.2015.00192
Rothblum-Oviatt C, 2016, ORPHANET J RARE DIS, V11, DOI 10.1186/s13023-016-0543-7
Ruff KM, 2018, J MOL BIOL, V430, P4619, DOI 10.1016/j.jmb.2018.06.031
Ryan VH, 2018, MOL CELL, V69, P465, DOI 10.1016/j.molcel.2017.12.022
Saar KL, 2021, P NATL ACAD SCI USA, V118, DOI 10.1073/pnas.2019053118
Sacco F, 2012, FEBS LETT, V586, P2732, DOI 10.1016/j.febslet.2012.05.008
Sahu MSR, 2025, bioRxiv, DOI [10.1101/2025.02.06.636870, 10.1101/2025.02.06.636870, DOI 10.1101/2025.02.06.636870]
Sallaberry CA, 2021, FRONT CELL DEV BIOL, V09, DOI 10.3389/fcell.2021.725241
Samudra N, 2023, J CLIN INVEST, V133, DOI 10.1172/JCI168553
Sandusky-Beltran LA, 2020, NEUROPHARMACOLOGY, V175, DOI 10.1016/j.neuropharm.2020.108104
Sarkar M, 2008, J NEUROSCI RES, V86, P2763, DOI 10.1002/jnr.21721
Savelieff MG, 2013, ACS CHEM BIOL, V8, P856, DOI 10.1021/cb400080f
Scheres SHW, 2020, CURR OPIN STRUC BIOL, V64, P17, DOI 10.1016/j.sbi.2020.05.011
Schneider A, 1999, BIOCHEMISTRY-US, V38, P3549, DOI 10.1021/bi981874p
Sethi P, 2024, AGEING RES REV, V100, DOI 10.1016/j.arr.2024.102411
Shah SJA, 2023, ACS CHEM NEUROSCI, V14, P3959, DOI 10.1021/acschemneuro.3c00578
Shakya A, 2018, ACS MACRO LETT, V7, P1220, DOI 10.1021/acsmacrolett.8b00565
SHEPILOV MP, 1992, J NON-CRYST SOLIDS, V146, P1, DOI 10.1016/S0022-3093(05)80472-7
Sheppard O., 2020, Alzheimers Disease: Drug Discovery [Internet]. in, DOI [10.36255/exonpublications.alzheimersdisease.2020.ch1, DOI 10.36255/EXONPUBLICATIONS.ALZHEIMERSDISEASE.2020.CH1]
Shih JW, 2012, BIOCHEM J, V441, P119, DOI 10.1042/BJ20110739
Signaevsky M, 2019, LAB INVEST, V99, P1019, DOI 10.1038/s41374-019-0202-4
Simic G, 2016, BIOMOLECULES, V6, DOI 10.3390/biom6010006
Singh G, 2022, ACS CHEM NEUROSCI, V13, P1549, DOI 10.1021/acschemneuro.2c00100
Singh V, 2020, J BIOL CHEM, V295, P5850, DOI 10.1074/jbc.AC120.013166
Smith J, 2016, ELIFE, V5, DOI 10.7554/eLife.21337
Sobrido MJ, 2003, ARCH NEUROL-CHICAGO, V60, P698, DOI 10.1001/archneur.60.5.698
Sonawane SK, 2021, CELL COMMUN SIGNAL, V19, DOI 10.1186/s12964-021-00704-3
Sonawane SK, 2020, SCI REP-UK, V10, DOI 10.1038/s41598-020-69429-6
Song HL, 2024, MOL NEURODEGENER, V19, DOI 10.1186/s13024-024-00769-x
Sopko R, 2020, NEUROBIOL DIS, V146, DOI 10.1016/j.nbd.2020.105120
Soragni A, 2008, BIOCHEMISTRY-US, V47, P10841, DOI 10.1021/bi8008856
Spina S, 2017, NEUROLOGY, V88, P758, DOI 10.1212/WNL.0000000000003636
Stieber A, 1996, AM J PATHOL, V148, P415
Stouffer KM, 2024, BRAIN, V147, P816, DOI 10.1093/brain/awad411
Strang KH, 2019, LAB INVEST, V99, P912, DOI 10.1038/s41374-019-0197-x
Su JF, 2024, Medicine Plus, V1, P100060, DOI [10.1016/j.medp.2024.100060, 10.1016/j.medp.2024.100060, DOI 10.1016/J.MEDP.2024.100060]
Sun J, 2024, NAT COMMUN, V15, DOI 10.1038/s41467-024-46901-9
Sun YL, 2017, BIOCHEMISTRY-US, V56, P809, DOI 10.1021/acs.biochem.6b01088

Sun ZH, 2011, PLOS BIOL, V9, DOI 10.1371/journal.pbio.1000614
Suzuki N, 2024, CHEM PHARM BULL, V72, P602, DOI 10.1248/cpb.c24-00069
Tai CY, 2023, ALZHEIMERS DEMENT, V19, DOI [10.1002/alz.076888, 10.1002/alz.076888, DOI 10.1002/ALZ.076888, 10.1002/ALZ.076888]
Talbott EO, 2016, HAND CLINIC, V138, P225, DOI 10.1016/B978-0-12-802973-2.00013-6
Tapia-Rojas C, 2019, PROG NEUROBIOL, V175, P54, DOI 10.1016/j.pneurobio.2018.12.005
Taylor JP, 2016, NATURE, V539, P197, DOI 10.1038/nature20413
Taylor JP, 2002, SCIENCE, V296, P1991, DOI 10.1126/science.1067122
Tian SR, 2020, MOLECULES, V25, DOI 10.3390/molecules25143130
Tracy TE, 2017, BIOESSAYS, V39, DOI 10.1002/bies.201600224
Trejo-Lopez JA, 2022, NEUROTHERAPEUTICS, V19, P173, DOI 10.1007/s13311-021-01146-y
Tsai RM, 2020, JAMA NEUROL, V77, P215, DOI 10.1001/jamaneurol.2019.3812
Umeda T, 2015, ANN CLIN TRANSL NEUR, V2, P241, DOI 10.1002/acn3.171
Uversky VN, 2017, CURR OPIN STRUC BIOL, V44, P18, DOI 10.1016/j.sbi.2016.10.015
Uversky VN, 2017, ADV COLLOID INTERFAC, V239, P97, DOI 10.1016/j.cis.2016.05.012
van Slegtenhorst M, 2000, EXP GERONTOL, V35, P461, DOI 10.1016/S0531-5565(00)00114-5
van Swieten J, 2007, BRAIN PATHOL, V17, P63, DOI 10.1111/j.1750-3639.2007.00052.x
VandeVrede L, 2020, NEUROTHERAPEUTICS, V17, P1563, DOI 10.1007/s13311-020-00888-5
Villalobos-Alva J, 2022, FRONT BIOENG BIOTECH, V10, DOI 10.3389/fbioe.2022.788300
Viña J, 2010, J ALZHEIMERS DIS, V20, pS527, DOI 10.3233/JAD-2010-100501
Vogels T, 2022, NEUROMETHODS, V173, P71, DOI 10.1007/978-1-0716-1712-0_4
Vogelsberg-Ragaglia V, 2000, MOL BIOL CELL, V11, P4093, DOI 10.1091/mbc.11.12.4093
von Bergen M, 2001, J BIOL CHEM, V276, P48165, DOI 10.1074/jbc.M105196200
Wade RH, 2009, MOL BIOTECHNOL, V43, P177, DOI 10.1007/s12033-009-9193-5
Walker FO, 2007, LANCET, V369, P218, DOI 10.1016/S0140-6736(07)60111-1
Wang B, 2021, SIGNAL TRANSDUCT TAR, V6, DOI 10.1038/s41392-021-00678-1
Wang C, 2020, MOL CELL, V79, P443, DOI 10.1016/j.molcel.2020.06.019
Wang J., 2019, HHS Public Access, V174, P688, DOI [10.1016/j.cell.2018.06.006.A, DOI 10.1016/J.CELL.2018.06.006.A]
Wang J, 2018, CELL, V174, P688, DOI 10.1016/j.cell.2018.06.006
Wang K, 2020, J MOL BIOL, V432, P2141, DOI 10.1016/j.jmb.2020.02.013
Wang X, 2024, CELL COMMUN SIGNAL, V22, DOI 10.1186/s12964-024-01518-9
Wang Y, 2020, NEUROPATH APPL NEURO, V46, P686, DOI 10.1111/nan.12647
Wang Z, 2022, J BIOL CHEM, V298, DOI 10.1016/j.jbc.2022.101782
Ward SM, 2012, BIOCHEM SOC T, V40, P667, DOI 10.1042/BST20120134
Watanabe H, 1999, PROG POLYM SCI, V24, P1253, DOI 10.1016/S0079-6700(99)00029-5
Weber SC, 2015, CURR BIOL, V25, P641, DOI 10.1016/j.cub.2015.01.012
Wegmann S, 2018, EMBO J, V37, DOI 10.15252/embj.201798049
Wei Z, 2008, NEUROPHARMACOLOGY, V54, P721, DOI 10.1016/j.neuropharm.2007.12.006
Weintraub D, 2005, AM J GERIAT PSYCHIAT, V13, P844, DOI 10.1176/appi.ajgp.13.10.844
Wen J, 2021, J AM CHEM SOC, V143, P13056, DOI 10.1021/jacs.1c03078
Wheeler RJ, 2020, EMERG TOP LIFE SCI, V4, P331, DOI 10.1042/ETLS20190176
WOOD JG, 1986, P NATL ACAD SCI USA, V83, P4040, DOI 10.1073/pnas.83.11.4040
Woodruff JB, 2018, TRENDS BIOCHEM SCI, V43, P81, DOI 10.1016/j.tibs.2017.11.005
Wszolek ZK, 2006, ORPHANET J RARE DIS, V1, DOI 10.1186/1750-1172-1-30
Wu Q, 2022, INT J BIOL MACROMOL, V219, P1180, DOI 10.1016/j.ijbiomac.2022.08.148
Xia YX, 2021, MOL NEURODEGENER, V16, DOI 10.1186/s13024-021-00460-5
Xia YX, 2019, J BIOL CHEM, V294, P18488, DOI 10.1074/jbc.RA119.010178
Xiang J, 2025, MOL NEURODEGENER, V20, DOI 10.1186/s13024-025-00854-9
Yadikar H, 2020, PLOS ONE, V15, DOI 10.1371/journal.pone.0224952
Yang PG, 2020, CELL, V181, P325, DOI 10.1016/j.cell.2020.03.046

Yang SY, 2025, ALZHEIMERS RES THER, V17, DOI 10.1186/s13195-025-01686-x
Yasuda M, 2000, ANN NEUROL, V47, P422, DOI 10.1002/1531-8249(200004)47:4<422::AID-ANA4>3.3.CO;2-7
Ye HQ, 2022, J MOL NEUROSCI, V72, P1557, DOI 10.1007/s12031-022-02002-0
Yin HH, 2023, CHINESE J CHEM ENG, V57, P63, DOI 10.1016/j.cjche.2022.09.013
Yoshizawa T, 2018, CELL, V173, P693, DOI 10.1016/j.cell.2018.03.003
Zagrovic B, 2018, FEBS LETT, V592, P2901, DOI 10.1002/1873-3468.13116
Zbinden A, 2020, DEV CELL, V55, P45, DOI 10.1016/j.devcel.2020.09.014
Zeng YF, 2021, CELL MOL LIFE SCI, V78, P1873, DOI 10.1007/s00018-020-03681-x
Zhang XY, 2024, TRANSL NEURODEGENER, V13, DOI 10.1186/s40035-024-00429-6
Zhang XM, 2017, PLOS BIOL, V15, DOI 10.1371/journal.pbio.2002183
Zhang Y, 2022, MOL NEURODEGENER, V17, DOI 10.1186/s13024-022-00533-z
Zhang YZH, 2023, NEURAL REGEN RES, V18, P1017, DOI 10.4103/1673-5374.355742
Zhang YW, 2011, MOL BRAIN, V4, DOI 10.1186/1756-6606-4-3
Zhang ZT, 2020, TRANSL NEURODEGENER, V9, DOI 10.1186/s40035-019-0179-3
Zhao J, 2017, BIOPHYS J, V112, P921, DOI 10.1016/j.bpj.2017.01.024
Zhou Z, 2009, J BIOL CHEM, V284, P30148, DOI 10.1074/jbc.M109.002832
Zhukareva V, 2002, ANN NEUROL, V51, P730, DOI 10.1002/ana.10222
Zweig YR, 2014, ALZHEIMERS RES THER, V6, DOI 10.1186/alzrt251

Cited Reference Count: 372

Abstract: Microtubule-associated protein tau (MAP) is a crucial component for cellular cytoskeleton stability. However, upon hyperphosphorylation, these tau proteins detach from microtubules, leading to the genesis of clumpy fibrillar-rich beta or paired helical filamental structures known as amyloids. Such deposits predispose a multitude of fatal disorders, including Alzheimer's Disease. The initial event behind such genesis is still a mystery. Today, numerous research studies try to untangle the initial events that lead to the formation of homogeneous and heterogeneous multicomponent plaques in AD, which remain elusive. Since tauopathies are linked to neurodegeneration and the tau tangles damage the neurons and glia, the question of what events trigger the phosphorylation of tau, leading to the molecular crowding of tau repeats, remains largely unknown. Such molecular crowding or initial events before primary nucleation are driven by liquid-liquid phase separation (LLPS), where tau or tau, along with various biomolecules forming dynamic interaction networks leading to the formation of homotypic and heterotypic condensates, ultimately result in co-existing phases before transitioning to nucleation. This review has explored the fundamental principles of LLPS in tau, aiming to establish a link between tau condensates and their pathogenic forms followed by the factors that modulate its phase transition. Our review hopes to provide the scientific community with a strong foundation to build upon, to understand the importance and gravity of studying tau phase separation and the new opportunities it hides within itself.

Accession Number: WOS:001597871700001

PubMed ID: 40865571

Language: English

Document Type: Review

Author Keywords: LLPS; Tau; Biomolecular condensates; Neurodegeneration; Homogeneous and heterogeneous protein; Plaques and tangles

KeyWords Plus: FAMILIAL FRONTOTEMPORAL DEMENTIA; PROGRESSIVE SUPRANUCLEAR PALSY; FTDP-17 MISSENSE MUTATIONS; ALZHEIMERS-DISEASE; AMYLOID-BETA; NEURODEGENERATIVE DISEASES; MEDIATED NEURODEGENERATION; NEUROFIBRILLARY TANGLES; AXONAL-TRANSPORT; LIQUID DROPLETS

Addresses: [Bhandari, Aurgha Kamal; Dhami, Aman Singh; Hemanthkumar, Rishi Thanvanthan; Mishra, Nishant; Roy, Sindhujit; Srinivasan, Jaisri; Anand, Bibin Gnanadhason] SRM Inst Sci & Technol, Sch Bioengn, Dept Biotechnol, Biomol Selfassembly Lab, Kattankulathur 603203, Tamil Nadu, India.

[Prajapati, Kailash Prasad; Kar, Karunakar] Jawaharlal Nehru Univ, Sch Life Sci, Biophys & Biomat Res Lab, New Delhi 110067, India.
[Joslyn, Beula; Prajapati, Kailash Prasad] Belhaven Univ, Dept Business Intelligence & Analyt, Jackson, MS 39202 USA.
[Roy, Sindhujit] Hsch Tech & Wirtschaft Saarlandes HTW Saar, Goebenstr 40, D-66117 Saarbrucken, Germany.
[Prajapati, Kailash Prasad] Univ Calif Santa Cruz, Dept Chem & Biochem, Santa Cruz, CA 95064 USA.

Corresponding Address: Anand, BG (corresponding author), SRM Inst Sci & Technol, Sch Bioengn, Dept Biotechnol, Biomol Selfassembly Lab, Kattankulathur 603203, Tamil Nadu, India.
Kar, K (corresponding author), Jawaharlal Nehru Univ, Sch Life Sci, Biophys & Biomat Res Lab, New Delhi 110067, India.

E-mail Addresses: karunakarkar@gmail.com; bibin.anand276@gmail.com

Affiliations: SRM Institute of Science & Technology Chennai; Jawaharlal Nehru University, New Delhi; Belhaven University; University of California System; University of California Santa Cruz

Author Identifiers:

Author	Web of Science ResearcherID	ORCID Number
Prajapati, Kailash Prasad		0000-0002-4931-3679
		0000-0001-7047-6539
prajapati, kailash	OLQ-5579-2025	
Roy, Sindhujit	KUD-2084-2024	
Anand, Bibin	O-1743-2019	
Anand, Bibin	H-6875-2017	0000-0001-7339-6657

Publisher: ELSEVIER IRELAND LTD

Publisher Address: ELSEVIER HOUSE, BROOKVALE PLAZA, EAST PARK SHANNON, CO, CLARE, 00000, IRELAND

Web of Science Index: Science Citation Index Expanded (SCI-EXPANDED)

Web of Science Categories: Cell Biology; Geriatrics & Gerontology

Research Areas: Cell Biology; Geriatrics & Gerontology

IDS Number: 8UV4E

ISSN: 1568-1637

eISSN: 1872-9649

29-char Source Abbrev.: AGEING RES REV

ISO Source Abbrev.: Ageing Res. Rev.

Source Item Page Count: 38

Output Date: 2025-11-11

Record 46 of 56

Title: Carglumic acid and mesalazine as potential anti-mycobacterial agents: a spectroscopic study for repurposing drugs against <i>Mycobacterium tuberculosis</i> targeting its essential enzyme ThyX

Author(s): Tanweer, S (Tanweer, Sana); Agarwal, M (Agarwal, Meetu); Malik, K (Malik, Kunal); Sharma, R (Sharma, Rahul); Muthu, SA (Muthu, Shivani A.); Siddiquee, MA (Siddiquee, Md Abrar); Sharma, K (Sharma, Khushbu); Pahuja, I (Pahuja, Isha); Ali, W (Ali, Waseem); Grover, A (Grover, Abhinav); Dwivedi, VP (Dwivedi, Ved Prakash); Ahmad, B (Ahmad, Basir); Grover, S (Grover, Sonam)

Source: MICROBIOLOGY SPECTRUM **Volume:** 13 **Issue:** 11 **DOI:** 10.1128/spectrum.02486-24 **Early Access Date:** OCT 2025 **Published Date:** 2025 NOV 4

Times Cited in Web of Science Core Collection: 0

Total Times Cited: 0

Usage Count (Last 180 days): 1

Usage Count (Since 2013): 1

Cited References: Ahmad B, 2012, J BIOL CHEM, V287, P9193, DOI 10.1074/jbc.M111.325548
Ahmad E, 2013, J BIOMOL STRUCT DYN, V31, P630, DOI 10.1080/07391102.2012.706081
[Anonymous], 2025, GLOBAL TUBERCULOSIS
Bhaskar A, 2020, INT IMMUNOPHARMACOL, V87, DOI 10.1016/j.intimp.2020.106809
Boguski MS, 2009, SCIENCE, V324, P1394, DOI 10.1126/science.1169920
Chi ZX, 2010, J AGR FOOD CHEM, V58, P10262, DOI 10.1021/jf101417w
Conradie F, 2020, NEW ENGL J MED, V382, P893, DOI 10.1056/NEJMoa1901814
Djaout K, 2016, SCI REP-UK, V6, DOI 10.1038/srep27792
Dookie N, 2018, J ANTIMICROB CHEMOTH, V73, P1138, DOI 10.1093/jac/dkx506
Field SK, 2015, THER ADV CHRONIC DIS, V6, P170, DOI 10.1177/2040622315582325
Fivian-Hughes AS, 2012, MICROBIOL-SGM, V158, P308, DOI 10.1099/mic.0.053983-0
Gattis SG, 2005, J AM CHEM SOC, V127, P832, DOI 10.1021/ja0432214
Gökoglu E, 2025, J PHOTOCH PHOTOBIO A, V459, DOI 10.1016/j.jphotochem.2024.116047
Graziani S, 2004, J BIOL CHEM, V279, P54340, DOI 10.1074/jbc.M409121200
Greenfield NJ, 2006, NAT PROTOC, V1, P2876, DOI 10.1038/nprot.2006.202
Griffin J, 2005, J BIOL CHEM, V280, P5456, DOI 10.1074/jbc.M412415200
Grover S, 2016, MOL BIOSYST, V12, P1615, DOI 10.1039/c5mb00810g
Haberle Johannes, 2011, Ther Clin Risk Manag, V7, P327, DOI 10.2147/TCRM.S12703
Hajian B, 2019, CELL CHEM BIOL, V26, P781, DOI 10.1016/j.chembiol.2019.02.013
Hurle MR, 2013, CLIN PHARMACOL THER, V93, P335, DOI 10.1038/clpt.2013.1
Jarmula A, 2007, BIOORGAN MED CHEM, V15, P2346, DOI 10.1016/j.bmc.2007.01.021
Krämer CEM, 2016, SCI REP-UK, V6, DOI 10.1038/srep32104
Lakowicz J.R., 2006, PRINCIPLES FLUORESCE, DOI DOI 10.1007/978-0-387-46312-4
Lee AL, 2018, FRONT MOL BIOSCI, V5, DOI 10.3389/fmolb.2018.00047
Mathews II, 2003, STRUCTURE, V11, P677, DOI 10.1016/S0969-2126(03)00097-2
Mayberry J, 2013, J GASTROINTEST LIVER, V22, P375
Myllykallio H, 2002, SCIENCE, V297, P105, DOI 10.1126/science.1072113
Papadopoulou A, 2005, J AGR FOOD CHEM, V53, P158, DOI 10.1021/jf048693g
Parchina A, 2013, CHEMMEDCHEM, V8, P1373, DOI 10.1002/cmdc.201300146
Phelan J, 2018, SCI REP-UK, V8, DOI 10.1038/s41598-017-18188-y
Pozzi C, 2019, MOLECULES, V24, DOI 10.3390/molecules24081638
Ramharack P, 2023, INT J MOL SCI, V24, DOI 10.3390/ijms241814021
Ratnaparkhi A, 2015, J BIOMOL STRUCT DYN, V33, P1866, DOI 10.1080/07391102.2014.975746
Rudrapal M., 2023, DRUG REPURPOSING HYP
Sapienza PJ, 2019, BIOCHEMISTRY-US, V58, P3302, DOI 10.1021/acs.biochem.9b00486
Sapienza PJ, 2016, BIOCHEMISTRY-US, V55, P5702, DOI 10.1021/acs.biochem.6b00838
Sarkar A, 2020, PLOS ONE, V15, DOI 10.1371/journal.pone.0228657
Sarzehi S, 2010, INT J BIOL MACROMOL, V47, P558, DOI 10.1016/j.ijbiomac.2010.08.002
Sassetti CM, 2003, MOL MICROBIOL, V48, P77, DOI 10.1046/j.1365-2958.2003.03425.x
Siddiqi N, 2002, ANTIMICROB AGENTS CH, V46, P443, DOI 10.1128/AAC.46.2.443-450.2002
Tanweer S, 2022, J BIOMOL STRUCT DYN, V40, P8508, DOI 10.1080/07391102.2021.1913230
Tinoco AD, 2005, J AM CHEM SOC, V127, P11218, DOI 10.1021/ja052768v
Wani Tanveer A, 2017, PLoS One, V12, pe0176015, DOI 10.1371/journal.pone.0176015
Zhao LN, 2023, FEBS J, V290, P2279, DOI 10.1111/febs.16439

Cited Reference Count: 44

Abstract: Mycobacterium tuberculosis (M.tb) needs a key enzyme called ThyX to make thymidylate, which is essential for DNA replication and cell survival. In our previous study, carglumic acid (CGA) and mesalazine (MSZ) emerged as promising candidates from a Food and Drug Administration-approved drug library, selected through in silico screening. Our current investigation delves into the impact of CGA and MSZ on ThyX's biophysical properties. Utilizing fluorescence quenching, thermal, chemical denaturation, characterization, and circular dichroism spectroscopy, we probed the interaction between ThyX and the drugs. Our results confirm that both CGA and MSZ effectively quench ThyX's intrinsic fluorescence via a static quenching mechanism, leading to structural alterations in the protein. In subsequent in vitro and ex vivo studies, we determined that MSZ and CGA exhibit minimum inhibitory concentrations of 6.25 and 3.12 mu g/mL, respectively, against M.tb. Notably, the survival of M.tb within RAW macrophages significantly decreased upon treatment with CGA and MSZ compared to untreated controls. In summary, our findings support the potential repurposing of CGA and MSZ as anti-tuberculosis (TB) drugs. Further validation in animal and clinical models is essential to assess their suitability for TB treatment.

Accession Number: WOS:001592384100001

PubMed ID: 41081391

Language: English

Document Type: Article

Author Keywords: M.tb; thymidylate synthase; tryptophan quenching; spectroscopy; FACS; in vitro; ex vivo; H(37)Rv; macrophages; propidium iodide (PI) staining

KeyWords Plus: BOVINE SERUM-ALBUMIN; THYMIDYLATE SYNTHASE; FUNCTIONAL-ANALYSIS; MECHANISM; BINDING; FLAVIN; AGGREGATION; TRANSFERRIN; RESISTANCE; SUBSTRATE

Addresses: [Tanweer, Sana; Agarwal, Meetu; Malik, Kunal; Sharma, Rahul; Muthu, Shivani A.; Sharma, Khushbu; Pahuja, Isha; Ali, Waseem; Grover, Sonam] Jamia Hamdard, Dept Mol Med, New Delhi, India.
[Siddiquee, Md Abrar] Jamia Millia Islamia, Ctr Interdisciplinary Res Basic Sci, New Delhi, India.
[Pahuja, Isha; Dwivedi, Ved Prakash] Int Ctr Genet Engn & Biotechnol, Immunobiol Lab, New Delhi, India.
[Grover, Abhinav] Jawaharlal Nehru Univ, Sch Biotechnol, New Delhi, India.
[Ahmad, Basir] Jamia Hamdard, Dept Med Elementol & Toxicol, New Delhi, India.

Corresponding Address: Grover, S (corresponding author), Jamia Hamdard, Dept Mol Med, New Delhi, India.
Ahmad, B (corresponding author), Jamia Hamdard, Dept Med Elementol & Toxicol, New Delhi, India.

E-mail Addresses: bashirahmad_sch@jamiahamdard.ac.in; sonamgbt@gmail.com

Affiliations: Jamia Hamdard University; Jamia Millia Islamia; Department of Biotechnology (DBT) India; International Center for Genetic Engineering & Biotechnology (ICGEB); International Center for Genetic Engineering & Biotechnology (ICGEB), New Delhi; Jawaharlal Nehru University, New Delhi; Jamia Hamdard University

Author Identifiers:

Author	Web of Science ResearcherID	ORCID Number
Siddiquee, Md Abrar	HTM-3577-2023	

Publisher: AMER SOC MICROBIOLOGY

Publisher Address: 1752 N ST NW, WASHINGTON, DC 20036-2904 USA

Web of Science Index: Science Citation Index Expanded (SCI-EXPANDED)

Web of Science Categories: Microbiology

Research Areas: Microbiology

IDS Number: 9IH8T

eISSN: 2165-0497

29-char Source Abbrev.: MICROBIOL SPECTR

ISO Source Abbrev.: Microbiol. Spectr.

Source Item Page Count: 15

Funding:

Funding Agency	Grant Number
Indian Council of Medical Research (ICMR), India	
University Grants Commission (UGC)	
Department of Biotechnology, India	
University Grants Commission, India	
DST-INSPIRE Faculty Fellowship	DST/INSPIRE/04/2019/002743
Department of Science and Technology, Government of India	
ICGEB, New Delhi, India	
UGC start -up grant	F.4-5/2018

Sana Tanweer acknowledges a Senior Research Fellowship from the Indian Council of Medical Research (ICMR), India. Kunal Malik, acknowledges a Junior Research Fellowship from the University Grants Commission (UGC). Rahul Sharma, acknowledges a Senior Research Fellowship from the Department of Biotechnology, India. Shivani A. Muthu acknowledges a Senior Research Fellowship from the Indian Council of Medical Research (ICMR), India. Basir Ahmad, Abhinav Grover, and Sonam Grover are grateful to the University Grants Commission, India, for the Faculty Recharge Position. Meetu Agarwal is the recipient of the DST-INSPIRE Faculty Fellowship (DST/INSPIRE/04/2019/002743), Department of Science and Technology, Government of India. Ved Prakash Dwivedi acknowledges ICGEB, New Delhi, India, for infrastructure and support. Sonam Grover is grateful to Jamia Hamdard for the DST Purse grant and the UGC start -up grant (F.4-5/2018(FRP-Start-Up-Grant) (Cycle IV) (BSR). All authors of this study are thankful to Jamia Hamdard for infrastructure and facilities.

Open Access: gold

Output Date: 2025-11-11

Record 47 of 56

Title: Moderate Dissociating Solvation Structure-Mediated Electrolytes for High-Voltage Lithium-Ion Batteries

Author(s): Li, Y (Li, Yi); Ma, Z (Ma, Zheng); Kumar, P (Kumar, Pushpendra); Liang, HH (Liang, Honghong); Zhao, F (Zhao, Fei); Huang, AK (Huang, Akang); Wang, J (Wang, Jia); Wahyudi, W (Wahyudi, Wandi); Zhu, H (Zhu, Hui); Yin, J (Yin, Jiao); Xie, HL (Xie, Hongliang); Li, Q (Li, Qian); Ming, J (Ming, Jun)

Source: ACS ENERGY LETTERS **DOI:** 10.1021/acsenergylett.5c02695 **Early Access Date:** OCT 2025 **Published Date:** 2025 OCT 9

Times Cited in Web of Science Core Collection: 0

Total Times Cited: 0

Usage Count (Last 180 days): 3

Usage Count (Since 2013): 3

Cited References: Aurbach D, 2002, ELECTROCHIM ACTA, V47, P1423, DOI 10.1016/S0013-4686(01)00858-1
Beltran SP, 2020, CHEM MATER, V32, P5973, DOI 10.1021/acs.chemmater.0c00987
Cai T, 2024, ADV ENERGY MATER, V14, DOI 10.1002/aenm.202400569
Cai T, 2022, J PHYS CHEM C, V126, P20302, DOI 10.1021/acs.jpcc.2c07094
Chen C, 2024, ACS APPL MATER INTER, V16, P8733, DOI 10.1021/acsami.3c16531
Chen YH, 2024, ENERG ENVIRON SCI, V17, P5613, DOI 10.1039/d4ee01831a
Cheng HR, 2024, ACS ENERGY LETT, V9, P1604, DOI 10.1021/acsenergylett.3c02789
Cheng HR, 2024, SCI CHINA CHEM, V67, P1378, DOI 10.1007/s11426-023-1716-7
Cheng HR, 2022, ACS ENERGY LETT, V7, P490, DOI 10.1021/acsenergylett.1c02425
Cui ZZ, 2024, NAT COMMUN, V15, DOI 10.1038/s41467-024-46186-y
Deng XC, 2015, J POWER SOURCES, V285, P146, DOI 10.1016/j.jpowsour.2015.03.091
Dong QY, 2020, ACS APPL ENERG MATER, V3, P695, DOI 10.1021/acsaem.9b01894
Dong X, 2024, ACS ENERGY LETT, V9, P5279, DOI 10.1021/acsenergylett.4c02081
Fan XL, 2018, CHEM-US, V4, P174, DOI 10.1016/j.chempr.2017.10.017
Goodenough JB, 2010, CHEM MATER, V22, P587, DOI 10.1021/cm901452z
Guo XR, 2025, MAT SCI ENG R, V166, DOI 10.1016/j.mser.2025.101063
Han SD, 2013, J PHYS CHEM C, V117, P5521, DOI 10.1021/jp309102c
Han XP, 2023, NANO LETT, DOI 10.1021/acs.nanolett.3c01679
Han YK, 2015, J MATER CHEM A, V3, P10900, DOI 10.1039/c5ta01253h
Hawari NH, 2023, RSC ADV, V13, P25673, DOI 10.1039/d3ra03184e
Hu YS, 2020, ACS ENERGY LETT, V5, P3633, DOI 10.1021/acsenergylett.0c02234
Huang A, 2024, NANO LETT, V24, P7499, DOI 10.1021/acs.nanolett.4c01591
Keasler KT, 2023, SCIENCE, V381, P1455, DOI 10.1126/science.adg8835
Kim JW, 2021, J MATER SCI TECHNOL, V86, P70, DOI 10.1016/j.jmst.2021.01.037
Kim J, 2021, J ELECTROCHEM SOC, V168, DOI 10.1149/1945-7111/ac1b00
Langdon J, 2021, ACS ENERGY LETT, V6, P3809, DOI 10.1021/acsenergylett.1c01714
Li GJ, 2022, ACS APPL MATER INTER, V14, P36656, DOI 10.1021/acsami.2c09103
Li GJ, 2022, CHEMSUSCHEM, V15, DOI 10.1002/cssc.202200543
Li JX, 2023, ACS ENERGY LETT, V8, P56, DOI 10.1021/acsenergylett.2c01853
Li S, 2025, ANGEW CHEM INT EDIT, V64, DOI 10.1002/anie.202504490
Liang HH, 2024, ACS ENERGY LETT, V9, P3536, DOI 10.1021/acsenergylett.4c00591
Liu JX, 2023, J ELECTROCHEM SOC, V170, DOI 10.1149/1945-7111/acb3fe
Liu X, 2024, ANGEW CHEM INT EDIT, V63, DOI 10.1002/anie.202406596
Lu D, 2024, NATURE, V627, DOI 10.1038/s41586-024-07045-4
McMillan R, 1999, J POWER SOURCES, V81, P20, DOI 10.1016/S0378-7753(98)00201-8
Meng YS, 2022, SCIENCE, V378, P1065, DOI 10.1126/science.abq3750
Ming J, 2019, ACS ENERGY LETT, V4, P2613, DOI 10.1021/acsenergylett.9b01441
Ming J, 2019, ACS ENERGY LETT, V4, P1584, DOI 10.1021/acsenergylett.9b00822
Ming J, 2018, ACS ENERGY LETT, V3, P335, DOI 10.1021/acsenergylett.7b01177
Mo YB, 2023, ADV ENERGY MATER, V13, DOI 10.1002/aenm.202301285
Oyakhire ST, 2022, ACS ENERGY LETT, V7, DOI 10.1021/acsenergylett.2c01227
Park JW, 2022, ENERGY STORAGE MATER, V50, P75, DOI 10.1016/j.ensm.2022.05.009
Pham HQ, 2020, J PHYS CHEM C, V124, P175, DOI 10.1021/acs.jpcc.9b09960
Qiu YJ, 2022, ACS APPL MATER INTER, V14, P11398, DOI 10.1021/acsami.1c23335
Sano A, 2009, J POWER SOURCES, V192, P714, DOI 10.1016/j.jpowsour.2009.02.075
Scrosati B, 2011, ENERG ENVIRON SCI, V4, P3287, DOI 10.1039/c1ee01388b
Sun QJ, 2022, ACS ENERGY LETT, V7, P3545, DOI 10.1021/acsenergylett.2c01408
Suo LM, 2013, NAT COMMUN, V4, DOI 10.1038/ncomms2513
Tarascon JM, 2001, NATURE, V414, P359, DOI 10.1038/35104644
Tran YHT, 2024, ACS ENERGY LETT, V10, P356, DOI 10.1021/acsenergylett.4c02860

Ueno K, 2016, J PHYS CHEM C, V120, P15792, DOI 10.1021/acs.jpcc.5b11642
Wang J, 2024, ACS ENERGY LETT, V9, P4386, DOI 10.1021/acsenergylett.4c01920
Wang S, 2023, ADV ENERGY MATER, V13, DOI 10.1002/aenm.202204036
Wang YQ, 2023, ACS ENERGY LETT, V8, P1477, DOI 10.1021/acsenergylett.3c00052
Weeks JA, 2024, ADV MATER, V36, DOI 10.1002/adma.202305645
Wen FJ, 2022, ACS APPL ENERG MATER, V5, P15491, DOI 10.1021/acsaem.2c03065
Xia DW, 2023, ACS ENERGY LETT, V8, P1379, DOI 10.1021/acsenergylett.2c02590
Xu K, 2004, CHEM REV, V104, P4303, DOI 10.1021/cr030203g
Yamada Y, 2019, NAT ENERGY, V4, P269, DOI 10.1038/s41560-019-0336-z
Yu L, 2018, ACS ENERGY LETT, V3, P2059, DOI 10.1021/acsenergylett.8b00935
Yuan LX, 2011, ENERG ENVIRON SCI, V4, P269, DOI 10.1039/c0ee00029a
Zhang JM, 2023, ACS ENERGY LETT, V8, P1752, DOI 10.1021/acsenergylett.3c00181
Zhang M, 2025, ACS ENERGY LETT, V10, P552, DOI 10.1021/acsenergylett.4c03504
Zhao Q, 2022, CHEM ENG J, V440, DOI 10.1016/j.cej.2022.135939
Zhao WA, 2023, MATER TODAY ENERGY, V34, DOI 10.1016/j.mtener.2023.101301
Zheng XY, 2021, ACS ENERGY LETT, V6, P2054, DOI 10.1021/acsenergylett.1c00647
Zhou S, 2023, NATURE, V624, P69, DOI 10.1038/s41586-023-06707-z
Zhu CN, 2022, ACS ENERGY LETT, V7, P1338, DOI 10.1021/acsenergylett.2c00232
Zou YG, 2023, ADV ENERGY MATER, V13, DOI 10.1002/aenm.202300443
Zou YG, 2023, ANGEW CHEM INT EDIT, V62, DOI 10.1002/anie.202216189
Zou YG, 2021, ADV MATER, V33, DOI 10.1002/adma.202102964
Zou ZH, 2023, CHEM ENG J, V474, DOI 10.1016/j.cej.2023.145724

Cited Reference Count: 72

Abstract: Lithium-ion batteries (LIBs) face challenges in the stability and electrode compatibility of conventional electrolytes at high voltages and extreme temperatures. Here, we present an electrolyte design featuring a moderately dissociating solvation structure, achieved by combining lithium difluoro(oxalato)borate (LiDFOB) with ethyl propionate (EP). This formulation promotes the formation of abundant contact ion pairs (CIPs), which effectively weaken Li+-solvent interactions, enhance oxidative stability, and lower Li+ desolvation energy. As a result, graphite || LiNi0.8Co0.1Mn0.1O2 (NCM811) full cells deliver outstanding long-term cycling stability at 4.5 V (vs Li/Li+) across a wide temperature range, retaining 94.2% capacity after 300 cycles at -20 degrees C and 92.5% after 100 cycles at 60 degrees C. An interfacial model reveals how the optimized solvation structure, governed by moderately dissociating Li+-anion interactions, enhances interfacial stability and cycling performance under demanding conditions. This work underscores the pivotal role of solvation structure engineering in advancing electrolyte stability in next-generation LIBs.

Accession Number: WOS:001591486800001

Language: English

Document Type: Article; Early Access

KeyWords Plus: INTERFACIAL MODEL; LI-ION; CHALLENGES; CATHODE; ANODE; PERFORMANCE; INSIGHTS

Addresses: [Li, Yi; Ma, Zheng; Liang, Honghong; Zhao, Fei; Huang, Akang; Wang, Jia; Xie, Hongliang; Li, Qian; Ming, Jun] Chinese Acad Sci, Changchun Inst Appl Chem, State Key Lab Rare Earth Resource Utilizat, Changchun 130022, Peoples R China.
[Li, Yi; Ming, Jun] Univ Sci & Technol China, Sch Appl Chem & Engn, Hefei 230026, Peoples R China.
[Kumar, Pushpendra] Jawaharlal Nehru Univ, Sch Phys Sci, New Delhi 110067, India.
[Zhu, Hui; Yin, Jiao] Chinese Acad Sci, Xinjiang Tech Inst Phys & Chem, Xinjiang Key Lab Separat Mat & Technol, Urumqi 830011, Peoples R China.
[Wahyudi, Wandi] King Abdullah Univ Sci & Technol, Mat Sci & Engn, Thuwal 239556900, Saudi Arabia.

Corresponding Address: Ma, Z; Li, Q; Ming, J (corresponding author), Chinese Acad Sci, Changchun Inst Appl Chem, State Key Lab Rare Earth Resource Utilizat, Changchun 130022, Peoples R China.
Ming, J (corresponding author), Univ Sci & Technol China, Sch Appl Chem & Engn, Hefei 230026, Peoples R China.

E-mail Addresses: zheng.ma@ciac.ac.cn; qianli@ciac.ac.cn; jun.ming@ciac.ac.cn

Affiliations: Chinese Academy of Sciences; Changchun Institute of Applied Chemistry, CAS; Chinese Academy of Sciences; University of Science & Technology of China, CAS; Jawaharlal Nehru University, New Delhi; Chinese Academy of Sciences; Xinjiang Technical Institute of Physics & Chemistry, CAS; King Abdullah University of Science & Technology

Author Identifiers:

Author	Web of Science ResearcherID	ORCID Number
Ming, Jun	B-5193-2016	

Publisher: AMER CHEMICAL SOC

Publisher Address: 1155 16TH ST, NW, WASHINGTON, DC 20036 USA

Web of Science Index: Science Citation Index Expanded (SCI-EXPANDED)

Web of Science Categories: Chemistry, Physical; Electrochemistry; Energy & Fuels; Nanoscience & Nanotechnology; Materials Science, Multidisciplinary

Research Areas: Chemistry; Electrochemistry; Energy & Fuels; Science & Technology - Other Topics; Materials Science

IDS Number: 8LL6S

ISSN: 2380-8195

29-char Source Abbrev.: ACS ENERGY LETT

ISO Source Abbrev.: ACS Energy Lett.

Source Item Page Count: 11

Funding:

Funding Agency	Grant Number
National Natural Science Foundation of China	22379136 22479142 U21A20330 52403341
National Natural Science Foundation of China	2024YFE0209600
National Key Research and Development Program of China	20230101028JC
Scientific and Technological Developing Project of Jilin Province	

The research was supported by the National Natural Science Foundation of China (22379136, 22479142, U21A20330, 52403341). The authors also thank the National Key Research and Development Program of China (2024YFE0209600) and the Scientific and Technological Developing Project of Jilin Province (20230101028JC). The computational work was done on the KAUST supercomputer.

Output Date: 2025-11-11

Record 48 of 56

Title: Advancements in CRISPR-Mediated Multiplex Genome Editing: Transforming Plant Breeding for Crop Improvement and Polygenic Trait Engineering

Author(s): Kumar, U (Kumar, Uday); Dwivedi, D (Dwivedi, Dyumn); Das, U (Das, Uddalak)
Source: BIOTECHNOLOGY JOURNAL **Volume:** 20 **Issue:** 11 **Article Number:** e70148 **DOI:** 10.1002/biot.70148 **Published Date:** 2025 OCT 30
Times Cited in Web of Science Core Collection: 0
Total Times Cited: 0
Usage Count (Last 180 days): 0
Usage Count (Since 2013): 0
Cited References: Abdallah NA, 2022, GM CROPS FOOD, DOI 10.1080/21645698.2022.2120313
Abdelrahman M, 2021, FRONT PLANT SCI, V12, DOI 10.3389/fpls.2021.721203
Abe F, 2019, CELL REP, V28, P1362, DOI 10.1016/j.celrep.2019.06.090
Agudelo D, 2020, GENOME RES, V30, P107, DOI 10.1101/gr.255414.119
Ahmad A, 2021, INT J MOL SCI, V22, DOI 10.3390/ijms222111753
Ahmad N, 2023, FRONT PLANT SCI, V14, DOI 10.3389/fpls.2023.1152468
Al-Shayeb B, 2022, CELL, V185, P4574, DOI 10.1016/j.cell.2022.10.020
Amack SC, 2020, CURR PLANT BIOL, V24, DOI 10.1016/j.cpb.2020.100179
Andersson M, 2018, PHYSIOL PLANTARUM, V164, P378, DOI 10.1111/ppl.12731
Anthon C, 2022, BIOINFORMATICS, V38, P5437, DOI 10.1093/bioinformatics/btac697
Arunakumari K, 2016, RICE SCI, V23, P306, DOI 10.1016/j.rsci.2016.04.005
Aziz MA, 2025, HORTIC PLANT J, V11, P15, DOI 10.1016/j.hpj.2024.01.004
Babaeianjelodar N, 2025, CURR PLANT BIOL, V41, DOI 10.1016/j.cpb.2025.100433
Bae S, 2014, BIOINFORMATICS, V30, P1473, DOI 10.1093/bioinformatics/btu048
Bahariah B, 2021, J GENET ENG BIOTECHN, V19, DOI 10.1186/s43141-021-00185-4
Bandyopadhyay A, 2020, FRONT PLANT SCI, V11, DOI 10.3389/fpls.2020.584151
Bent A, 2006, METH MOL B, V343, P87
Berman A, 2025, NAT COMMUN, V16, DOI 10.1038/s41467-025-59280-6
Bird JE, 2022, ACS SYNTH BIOL, V11, P3551, DOI 10.1021/acssynbio.2c00355
Biswas S, 2023, PLANT GENOME-US, V16, DOI 10.1002/tpg2.20225
Bothmer A, 2020, CRISPR J, V3, P177, DOI 10.1089/crispr.2019.0074
Brant EJ, 2024, PLANT BIOTECHNOL J, V22, P2660, DOI 10.1111/pbi.14380
Carroll D, 2011, GENETICS, V188, P773, DOI 10.1534/genetics.111.131433
Casini A, 2018, NAT BIOTECHNOL, V36, P265, DOI 10.1038/nbt.4066
Cermák T, 2017, PLANT CELL, V29, P1196, DOI 10.1105/tpc.16.00922
Chavhan RL, 2025, FRONT GENOME EDIT, V7, DOI 10.3389/fgeed.2025.1524767
Chen JL, 2022, PLANT PHYSIOL, V188, P1780, DOI 10.1093/plphys/kiac037
Chen SY, 2021, BMC PLANT BIOL, V21, DOI 10.1186/s12870-021-02907-9
CHRISTOU P, 1992, PLANT J, V2, P275, DOI 10.1111/j.1365-313X.1992.00275.x
Chuai GH, 2018, GENOME BIOL, V19, DOI 10.1186/s13059-018-1459-4
Collard BCY, 2008, PHILOS T R SOC B, V363, P557, DOI 10.1098/rstb.2007.2170
Collonnier C, 2017, PLANT BIOTECHNOL J, V15, P122, DOI 10.1111/pbi.12596
Concordet JP, 2018, NUCLEIC ACIDS RES, V46, pW242, DOI 10.1093/nar/gky354
Dalla Costa L, 2020, SCI REP-UK, V10, DOI 10.1038/s41598-020-77110-1
Das U., 2025, Medicine in Drug Discovery, V27, DOI [10.1016/j.medidd.2025.100213, DOI 10.1016/J.MEDIDD.2025.100213]
Das U., 2024, Cancer Pathogenesis and Therapy, V3
Das U, 2025, Cancer Plus, V7, P64, DOI 10.36922/cp025060008
Das U, 2025, ASPECTS MOL MED, V5, P100058, DOI [10.1016/j.amolm.2024.100058, 10.1016/j.amolm.2024.100058, DOI 10.1016/J.AMOLM.2024.100058]
Das U, 2025, Vacunas, P500391, DOI [10.1016/j.vacun.2025.500391, 10.1016/j.vacun.2025.500391, DOI 10.1016/J.VACUN.2025.500391]
Das U, 2025, In Silico Research in Biomedicine, V1, P100006, DOI [10.1016/j.insi.2025.100006, 10.1016/

j.insi.2025.100006, DOI 10.1016/J.INSI.2025.100006]
Das U, 2024, bioRxiv, DOI [10.1101/2024.10.14.618373, 10.1101/2024.10.14.618373, DOI 10.1101/2024.10.14.618373]
Ding F, 2022, ENVIRON EXP BOT, V203, DOI 10.1016/j.envexpbot.2022.105073
Ebrahimi S, 2023, IRAN BIOMED J, V27, P219, DOI [10.61186/ibj.27.5.219, 10.52547/ibj.3898, 10.61186/ibj.27.5.219]
Ezura H, 2022, PLANT CELL PHYSIOL, V63, P731, DOI 10.1093/pcp/pcac048
Feng XM, 2019, BMC PLANT BIOL, V19, DOI 10.1186/s12870-019-1868-x
Fulco CP, 2019, NAT GENET, V51, P1664, DOI 10.1038/s41588-019-0538-0
Gaj T, 2013, TRENDS BIOTECHNOL, V31, P397, DOI 10.1016/j.tibtech.2013.04.004
Ge ZX, 2019, PLANT BIOTECHNOL J, V17, P1865, DOI 10.1111/pbi.13148
Geilenkeuser J, 2025, CELL, V188, DOI [10.1016/j.cell.2025.03.015, 10.1016/j.cell.2025.03.015]
Gondalia N, 2025, PLANT BIOTECHNOL J, V23, P1375, DOI 10.1111/pbi.14533
Grützner R, 2021, PLANT COMMUN, V2, DOI 10.1016/j.xplc.2020.100135
Guo CT, 2023, FRONT BIOENG BIOTECH, V11, DOI 10.3389/fbioe.2023.1143157
Guo LY, 2022, NAT CELL BIOL, V24, P590, DOI 10.1038/s41556-022-00870-7
Hamdan MF, 2025, HORTIC PLANT J, V11, P1807, DOI [10.1016/j.hpj.2024.02.012, 10.1016/j.hpj.2024.02.012]
Hayta S, 2021, CURR PROTOC, V1, DOI 10.1002/cpz1.58
He YB, 2022, PLANT PHYSIOL, V188, P1757, DOI 10.1093/plphys/kiab574
He YB, 2017, J GENET GENOMICS, V44, P469, DOI 10.1016/j.jgg.2017.08.003
Hsieh-Feng V, 2020, ABIOTECH, V1, P123, DOI 10.1007/s42994-019-00014-w
Hsu JY, 2021, NAT COMMUN, V12, DOI 10.1038/s41467-021-21337-7
Hsu PD, 2014, CELL, V157, P1262, DOI 10.1016/j.cell.2014.05.010
Hu JH, 2018, NATURE, V556, P57, DOI 10.1038/nature26155
Hua K, 2019, MOL PLANT, V12, P1047, DOI 10.1016/j.molp.2019.06.009
Huang SS, 2022, MOL THER, V30, P2923, DOI 10.1016/j.ymthe.2022.07.002
Hunt JMT, 2023, HUM GENET, V142, P705, DOI 10.1007/s00439-023-02561-1
Hwang Gue-Ho, 2021, Nucleic Acids Res, V49, pW499, DOI 10.1093/nar/gkab319
Iohannes SD, 2023, NEW PHYTOL, V240, P1381, DOI 10.1111/nph.19267
Jiao YP, 2017, NATURE, V546, P524, DOI 10.1038/nature22971
Jinek M, 2012, SCIENCE, V337, P816, DOI 10.1126/science.1225829
Kang YC, 2020, PLANT PATHOL, V69, P601, DOI 10.1111/ppa.13166
Kannan B, 2018, PLANT BIOTECHNOL J, V16, P856, DOI 10.1111/pbi.12833
Karginov FV, 2010, MOL CELL, V37, P7, DOI 10.1016/j.molcel.2009.12.033
Karvelis T, 2015, GENOME BIOL, V16, DOI 10.1186/s13059-015-0818-7
Kato K, 2022, CELL, V185, P2324, DOI 10.1016/j.cell.2022.05.003
Kavuri NR, 2022, CELLS-BASEL, V11, DOI 10.3390/cells11172665
Kaya H, 2017, PLANT CELL PHYSIOL, V58, P643, DOI 10.1093/pcp/pcx034
Kelliher T, 2019, NAT BIOTECHNOL, V37, P287, DOI 10.1038/s41587-019-0038-x
Kellner MJ, 2019, NAT PROTOC, V14, P2986, DOI 10.1038/s41596-019-0210-2
Khakhar A, 2021, FRONT PLANT SCI, V12, DOI 10.3389/fpls.2021.668580
Khan MS, 2015, ELECTRON J BIOTECHN, V18, P257
Kim DY, 2024, NUCLEIC ACIDS RES, V52, P10563, DOI 10.1093/nar/gkae723
Kim HK, 2020, NAT BIOMED ENG, V4, P111, DOI 10.1038/s41551-019-0505-1
Kim HK, 2019, SCI ADV, V5, DOI 10.1126/sciadv.aax9249
Kleinstiver BP, 2019, NAT BIOTECHNOL, V37, P276, DOI 10.1038/s41587-018-0011-0
Kleinstiver BP, 2015, NATURE, V523, P481, DOI 10.1038/nature14592
Knopp Y, 2018, MOL THER-NUCL ACIDS, V13, P256, DOI 10.1016/j.omtn.2018.09.006
Kor SD, 2023, FRONT GENET, V13, DOI 10.3389/fgene.2022.989199
Kuzmin AA, 2023, INT J MOL SCI, V24, DOI 10.3390/ijms24010397

Labun K, 2019, NUCLEIC ACIDS RES, V47, pW171, DOI 10.1093/nar/gkz365
Lacroix BT, 2020, METHODS MOL BIOL, V2124, P125, DOI 10.1007/978-1-0716-0356-7_6
Le Rhun A, 2019, RNA BIOL, V16, P380, DOI 10.1080/15476286.2019.1582974
Lee HY, 2013, P NATL ACAD SCI USA, V110, P5416, DOI 10.1073/pnas.1302807110
Lei Y, 2014, MOL PLANT, V7, P1494, DOI 10.1093/mp/ssu044
Lemmon ZH, 2018, NAT PLANTS, V4, P766, DOI 10.1038/s41477-018-0259-x
Li AX, 2018, PLANT PHYSIOL, V177, P1425, DOI 10.1104/pp.18.00200
Li J, 2021, MOL PLANT, V14, P352, DOI 10.1016/j.molp.2020.12.017
Li MM, 2022, AGRICULTURE-BASEL, V12, DOI 10.3390/agriculture12091419
Lin H, 2020, FRONT PLANT SCI, V11, DOI 10.3389/fpls.2020.564463
Lin MT, 2022, SCI ADV, V8, DOI 10.1126/sciadv.abm6871
Liu H, 2022, FRONT PLANT SCI, V13, DOI 10.3389/fpls.2022.1034215
Liu SF, 2025, DISCOV NANO, V20, DOI 10.1186/s11671-025-04207-9
Liu TY, 2020, J BIOL CHEM, V295, P14473, DOI 10.1074/jbc.REV120.007034
Lowder LG, 2015, PLANT PHYSIOL, V169, P971, DOI 10.1104/pp.15.00636
Lowe K, 2016, PLANT CELL, V28, P1998, DOI 10.1105/tpc.16.00124
Macioszek VK, 2023, CELLS-BASEL, V12, DOI 10.3390/cells12071027
Mahmood MA, 2025, VIRUSES-BASEL, V17, DOI 10.3390/v17050631
Mao YF, 2016, PLANT BIOTECHNOL J, V14, P519, DOI 10.1111/pbi.12468
Matsumoto D, 2023, FEBS LETT, V597, P985, DOI 10.1002/1873-3468.14608
McCarty NS, 2020, NAT COMMUN, V11, DOI 10.1038/s41467-020-15053-x
Meng XD, 2008, NAT BIOTECHNOL, V26, P695, DOI 10.1038/nbt1398
Mengstie MA, 2021, BIOL-TARGETS THER, V15, P353, DOI 10.2147/BTT.S326422
Merlin JPJ, 2024, BIOMED PHARMACOTHER, V180, DOI 10.1016/j.biopha.2024.117516
Miao CB, 2018, P NATL ACAD SCI USA, V115, P6058, DOI 10.1073/pnas.1804774115
Ming ML, 2020, NAT PLANTS, V6, P202, DOI 10.1038/s41477-020-0614-6
Naeem M, 2024, S AFR J BOT, V172, P277, DOI 10.1016/j.sajb.2024.07.038
Naeem M, 2020, CELLS-BASEL, V9, DOI 10.3390/cells9071608
Nakanishi T, 2019, J GENE MED, V21, DOI 10.1002/jgm.3115
Neelakandan AK, 2012, PLANT CELL REP, V31, P597, DOI 10.1007/s00299-011-1202-z
Ng W. A., 2019, bioRxiv, DOI DOI 10.1101/815431
Patel-Tupper D, 2024, SCI ADV, V10, DOI 10.1126/sciadv.adm7452
Pausch P, 2020, SCIENCE, V369, P333, DOI 10.1126/science.abb1400
Peng AH, 2017, PLANT BIOTECHNOL J, V15, P1509, DOI 10.1111/pbi.12733
Quiroz LF, 2025, HORTIC RES-ENGLAND, V12, DOI 10.1093/hr/uhae292
Rahim AA, 2024, J KING SAUD UNIV SCI, V36, DOI 10.1016/j.jksus.2023.103063
Rahman F, 2022, FRONT GENOME EDIT, V4, DOI 10.3389/fgeed.2022.870108
Reed KM, 2021, FRONT GENOME EDIT, V3, DOI 10.3389/fgeed.2021.734951
Ren QR, 2019, FRONT PLANT SCI, V10, DOI 10.3389/fpls.2019.01173
Safari F, 2019, CELL BIOSCI, V9, DOI 10.1186/s13578-019-0298-7
Saha M., 2025, Current Biotechnology, V14, P198
Saini Himanshu, 2023, GM Crops Food, V14, P1, DOI [10.1080/21645698.2023.2256930, 10.1080/21645698.2023.2256930]
Saito M, 2021, CELL, V184, P2441, DOI 10.1016/j.cell.2021.03.006
Sánchez-León S, 2024, J EXP BOT, V75, P7079, DOI 10.1093/jxb/erae376
Sander JD, 2014, NAT BIOTECHNOL, V32, P347, DOI 10.1038/nbt.2842
Saqib S, 2025, BIOL CONSERV, V302, DOI 10.1016/j.biocon.2025.110994
Saqib S, 2019, APPL ORGANOMET CHEM, V33, DOI 10.1002/aoc.5190
Sarrion-Perdigones A, 2011, PLOS ONE, V6, DOI 10.1371/journal.pone.0021622
Sfeir A, 2015, TRENDS BIOCHEM SCI, V40, P701, DOI 10.1016/j.tibs.2015.08.006
Shawky A, 2024, PLANTS-BASEL, V13, DOI 10.3390/plants13162269

Shi JH, 2022, GENES-BASEL, V13, DOI 10.3390/genes13101681
Shmakov S, 2015, MOL CELL, V60, P385, DOI 10.1016/j.molcel.2015.10.008
Shui SL, 2022, BIOENGINEERING-BASEL, V9, DOI 10.3390/bioengineering9020083
Singer SD, 2021, CRIT REV PLANT SCI, V40, P68, DOI 10.1080/07352689.2021.1883826
Stemmer M, 2015, PLOS ONE, V10, DOI 10.1371/journal.pone.0124633
Stinson BM, 2021, ANNU REV BIOCHEM, V90, P137, DOI 10.1146/annurev-biochem-080320-110356
Stuttmann J, 2021, PLANT J, V106, P8, DOI 10.1111/tpj.15197
Sun QF, 2018, INT J MOL SCI, V19, DOI 10.3390/ijms19092716
Svitashev S, 2016, NAT COMMUN, V7, DOI 10.1038/ncomms13274
Tanaka T, 2021, ALGAL RES, V57, DOI 10.1016/j.algal.2021.102345
Tang X, 2016, MOL PLANT, V9, P1088, DOI 10.1016/j.molp.2016.05.001
Tang Y, 2023, J EXP BOT, V74, P3518, DOI 10.1093/jxb/erad096
Tang YY, 2018, CELL BIOSCI, V8, DOI 10.1186/s13578-018-0255-x
Thompson Mitchell G, 2020, Biodes Res, V2020, P8189219, DOI [10.34133/2020/8189219, 10.34133/2020/8189219]
Tian XY, 2021, J BIOL CHEM, V296, DOI 10.1016/j.jbc.2021.100509
Ullah A, 2025, J PLANT GROWTH REGUL, V44, P3853, DOI 10.1007/s00344-025-11654-2
Urbaitis T, 2022, EMBO REP, V23, DOI 10.15252/embr.202255481
Vasudevan R, 2019, PLANT PHYSIOL, V180, P39, DOI 10.1104/pp.18.01401
Vats S, 2022, PLANT NANO BIOL, V1, DOI 10.1016/j.plana.2022.100001
Vats S, 2019, CELLS-BASEL, V8, DOI 10.3390/cells8111386
Vollen K, 2025, PLANT J, V121, DOI 10.1111/tpj.70099
Wang FJ, 2016, PLOS ONE, V11, DOI [10.1371/journal.pone.0154027, 10.1371/journal.pone.0146453]
Wang H, 2005, PLANT CELL, V17, P2676, DOI 10.1105/tpc.105.033415
Wang L, 2025, NEW PHYTOL, V245, P2103, DOI 10.1111/nph.20141
Wang Linli, 2024, Heliyon, V10, pe38588, DOI [10.1016/j.heliyon.2024.e38588, 10.1016/j.heliyon.2024.e38588]
Wang Q, 2024, BIOTECHNOL J, V19, DOI 10.1002/biot.202400204
Wang XP, 2021, HORTIC RES-ENGLAND, V8, DOI 10.1038/s41438-021-00646-4
Wang YJ, 2011, PLANT CELL REP, V30, P267, DOI 10.1007/s00299-010-0938-1
Wang ZP, 2015, GENOME BIOL, V16, DOI 10.1186/s13059-015-0715-0
Weber E, 2011, PLOS ONE, V6, DOI 10.1371/journal.pone.0016765
Wu ST, 2024, CROP J, V12, P569, DOI 10.1016/j.cj.2024.01.010
Wu XY, 2024, VIROLOGY, V589, DOI 10.1016/j.virol.2023.109922
Xie KB, 2015, P NATL ACAD SCI USA, V112, P3570, DOI 10.1073/pnas.1420294112
Xie ZZ, 2024, PLANT COMMUN, V5, DOI 10.1016/j.xplc.2023.100782
Xin CC, 2022, NAT COMMUN, V13, DOI 10.1038/s41467-022-33346-1
Xing HL, 2014, BMC PLANT BIOL, V14, DOI 10.1186/s12870-014-0327-y
Xiong X, 2016, ANNU REV GENOM HUM G, V17, P131, DOI 10.1146/annurev-genom-083115-022258
Xu H, 2015, GENOME RES, V25, P1147, DOI 10.1101/gr.191452.115
Xu L, 2017, NUCLEIC ACIDS RES, V45, DOI 10.1093/nar/gkw1048
Xue CY, 2021, TRENDS GENET, V37, P639, DOI 10.1016/j.tig.2021.02.008
Yang C, 2024, CELL REP, V43, DOI 10.1016/j.celrep.2024.114225
Yang TX, 2023, HORTIC RES-ENGLAND, V10, DOI 10.1093/hr/uhac214
Zaman QU, 2019, BIOMOLECULES, V9, DOI 10.3390/biom9110725
Zeng YF, 2020, FRONT PLANT SCI, V10, DOI 10.3389/fpls.2019.01663
Zhang JZ, 2024, NATURE, V635, DOI 10.1038/s41586-024-08186-2
Zhang YX, 2021, NAT COMMUN, V12, DOI 10.1038/s41467-021-22330-w
Zhao X, 2017, NAT PLANTS, V3, P956, DOI 10.1038/s41477-017-0063-z
Zheng N, 2020, FRONT PLANT SCI, V11, DOI 10.3389/fpls.2020.00800
Zhi H, 2022, INT J MOL SCI, V23, DOI 10.3390/ijms23158501

Zhong H, 2024, PLANT COMMUN, V5, DOI 10.1016/j.xplc.2024.101063
Zhou HB, 2014, NUCLEIC ACIDS RES, V42, P10903, DOI 10.1093/nar/gku806
Zhu XB, 2016, PLANT BIOTECHNOL J, V14, P709, DOI 10.1111/pbi.12421
Zhu YF, 2018, BIOSCIENCE REP, V38, DOI 10.1042/BSR20170788
Zsögön A, 2018, NAT BIOTECHNOL, V36, P1211, DOI 10.1038/nbt.4272

Cited Reference Count: 191

Abstract: With accelerating climate change and the urgent need to stack polygenic traits, multiplex CRISPR/Cas offers a scalable route to resilient crops-yet low editing efficiency and regeneration bottlenecks remain critical constraints. This review centers on multiplex strategies for polygenic trait engineering in plants, surveying compact nucleases (Cas9, Cas12, Cas13 and emerging ultra-compact variants), polycistronic gRNA platforms (tRNA-gRNA arrays, self-cleaving ribozymes, Csy4 processing), and delivery routes (Agrobacterium, biolistics, protoplast transfection, viral vectors). We highlight concrete outcomes-for example, targeted edits in PYL ABA-receptors increased rice grain yield by up to 31% in field tests-and applications from yield and disease resistance to abiotic-stress tolerance, nutrient biofortification and de novo domestication. Technical risks (off-targets, mosaicism, chromosomal rearrangements, transformability) are appraised alongside emerging fixes: compact/engineered nucleases, RNA-processing arrays, morphogenic regulators, and AI-driven sgRNA design integrated with multi-omics. By prioritizing multiplex approaches for polygenic trait stacking, the review argues that these tools are essential to accelerate precision breeding for climate-adapted agriculture.

Accession Number: WOS:001604379200001

PubMed ID: 41165418

Language: English

Document Type: Review

Author Keywords: CRISPR/Cas multiplexing; plant genome editing; polygenic trait engineering; precision crop improvement; sgRNA expression strategies

KeyWords Plus: PAM COMPATIBILITY; GUIDE RNAS; IN-VIVO; EFFICIENT; CAS; SYSTEM; SPCAS9; GENES; TOOL; ARABIDOPSIS

Addresses: [Kumar, Uday] Punjab Agr Univ PAU, Coll Agr, Sch Agr Biotechnol, Ludhiana, Punjab, India.
[Dwivedi, Dyumn] Univ Milano Statale, Ctr Multidisciplinary Res Hlth Sci MACH, Milan, Italy.
[Dwivedi, Dyumn] MAX Healthcare Inst Ltd, Acad Sci & Innovat Res, Educat Div MAX Soc Med Acad Innovat & Res, AcSIR MSMAIR,Max Healthcare, New Delhi, India.
[Dwivedi, Dyumn; Das, Uddalak] Jawaharlal Nehru Univ JNU, Sch Biotechnol SBT, New Delhi, India.
[Das, Uddalak] Indian Agr Res Inst IARI, Natl Inst Plant Biotechnol ICAR NIPB, Indian Council Agr Res, New Delhi, India.

Corresponding Address: Das, U (corresponding author), Jawaharlal Nehru Univ JNU, Sch Biotechnol SBT, New Delhi, India.
Das, U (corresponding author), Indian Agr Res Inst IARI, Natl Inst Plant Biotechnol ICAR NIPB, Indian Council Agr Res, New Delhi, India.

E-mail Addresses: uddalak_13085@iari.res.in

Affiliations: Punjab Agricultural University; University of Milan; Academy of Scientific & Innovative Research (AcSIR); Jawaharlal Nehru University, New Delhi; Indian Council of Agricultural Research (ICAR); ICAR - Indian Agricultural Research Institute

Publisher: WILEY-V C H VERLAG GMBH

Publisher Address: POSTFACH 101161, 69451 WEINHEIM, GERMANY

Web of Science Index: Science Citation Index Expanded (SCI-EXPANDED)

Web of Science Categories: Biochemical Research Methods; Biotechnology & Applied Microbiology

Research Areas: Biochemistry & Molecular Biology; Biotechnology & Applied Microbiology

IDS Number: 9EK5P
ISSN: 1860-6768
eISSN: 1860-7314
29-char Source Abbrev.: BIOTECHNOL J
ISO Source Abbrev.: Biotechnol. J.
Source Item Page Count: 22
Funding:

Funding Agency	Grant Number
Indian Council of Agricultural Research	AICE-JRF/SRF-KK04002406
Department of Biotechnology	DBTHRDPMU/JRF/BET-24/I/2024-25/376
Council of Scientific and Industrial Research	24J/01/00130
Indian Council of Medical Research	3/1/3/BRET-2024/HRD (L1)

The authors have nothing to report.

Output Date: 2025-11-11

Record 49 of 56

Title: Overexpression of CCK Neuropeptide in brain is linked to ZBTB20 mutations: potential diagnostic relevance in glioblastoma

Author(s): Dakal, TC (Dakal, Tikam Chand); Sharma, NK (Sharma, Narendra Kumar); Yadav, V (Yadav, Vikas); Kumar, A (Kumar, Abhishek); Chen, P (Chen, Peng); Schmidt-Wolf, I (Schmidt-Wolf, Ingo); Maciaczyk, J (Maciaczyk, Jarek); Sharma, A (Sharma, Amit)

Source: BMC MEDICAL GENOMICS **Volume:** 18 **Issue:** 1 **Article Number:** 150 **DOI:** 10.1186/s12920-025-02218-0 **Published Date:** 2025 OCT 7

Times Cited in Web of Science Core Collection: 0

Total Times Cited: 0

Usage Count (Last 180 days): 1

Usage Count (Since 2013): 1

Cited References: Brat DJ, 2015, NEW ENGL J MED, V372, P2481, DOI 10.1056/NEJMoa1402121
Cai Jinquan, 2016, Oncoscience, V3, P258, DOI [10.18632/oncoscience.317, 10.18632/oncoscience.317]
Ceccarelli M, 2016, CELL, V164, P550, DOI 10.1016/j.cell.2015.12.028
Connor AA, 2019, CANCER CELL, V35, P267, DOI 10.1016/j.ccell.2018.12.010
Dahiya S, 2013, ACTA NEUROPATHOL, V125, P901, DOI 10.1007/s00401-013-1120-y
Eckel-Passow JE, 2015, NEW ENGL J MED, V372, P2499, DOI 10.1056/NEJMoa1407279
Henson JD, 2009, NAT BIOTECHNOL, V27, P1181, DOI 10.1038/nbt.1587
Jeuken J, 2007, ACTA NEUROPATHOL, V114, P121, DOI 10.1007/s00401-007-0239-0
Johnson BE, 2014, SCIENCE, V343, P189, DOI 10.1126/science.1239947
Kannan K, 2012, ONCOTARGET, V3, P1194
Karsy M, 2017, CURR NEUROL NEUROSCI, V17, DOI 10.1007/s11910-017-0722-5
Liu XY, 2012, ACTA NEUROPATHOL, V124, P615, DOI 10.1007/s00401-012-1031-3
Louis DN, 2016, ACTA NEUROPATHOL, V131, P803, DOI 10.1007/s00401-016-1545-1
Lyustikman Y, 2008, NEOPLASIA, V10, P501, DOI 10.1593/neo.08206
Modrek AS, 2017, CELL REP, V21, P1267, DOI 10.1016/j.celrep.2017.10.009
Nagy A, 2021, INT J CANCER, V148, P502, DOI 10.1002/ijc.33283

Parsons DW, 2008, SCIENCE, V321, P1807, DOI 10.1126/science.1164382
Shibahara I, 2018, BRAIN TUMOR PATHOL, V35, P10, DOI 10.1007/s10014-017-0302-z
Sievert AJ, 2009, BRAIN PATHOL, V19, P449, DOI 10.1111/j.1750-3639.2008.00225.x
Yan H, 2009, NEW ENGL J MED, V360, P765, DOI 10.1056/NEJMoa0808710

Cited Reference Count: 20

Abstract: Glioblastoma (GBM), the most malignant central nervous system cancer, has a median survival rate of 14-16 months. GBM patients have a poor prognosis despite rigorous multi-modal treatments like surgical resection, chemotherapy, and radiation. A systematic bioinformatics analysis of GXA gene expression datasets showed thirty-three overexpressed genes in GBM that were enriched in neuroactive ligand receptor interaction. Subsequently, bulk brain tissue gene expression profiling showed high to moderate expression of CCK, VGF, APLN, CNR1, GRIA4, and PDYN in the cortex, frontal cortex-BA9, BA24 region, cerebellar hemisphere, cerebellum, hippocampus, amygdala, basal ganglia, hypothalamus, substantia nigra, and spinal cord. Interesting, the cortex, frontal cortex-BA9, and BA24 regions had unbelievably high CCK expression. Brain cortex and frontal lobe mutational scoring showed significant rates of IDH1 (49%), TERT (25%), SETD2 (17%), and BRAF (9%). We initially confirmed glioblastoma (GBM) malignancy and therapeutic responses to CCK overexpression and IDH1 mutations in cerebral cortex and frontal cortex tissue samples. However, Mann-Whitney analysis revealed ZBTB20 mutations cause CCK expression, not IDH1 mutations. Overall, CCK expression and ZBTB20 mutations may be used in therapeutic treatments as predictive and diagnostic markers. The expression of CCK was not linked with overall survival and excludes its potential application as prognostic biomarker for GBM. This study showed that CCK and ZBTB20 based predictive and diagnostic technologies can improve precision and personalization of targeted cancer therapies for GBM patients. Nevertheless, experimental evidences have yet to reveal additional therapeutically meaningful connections between CCK expression and ZBTB20 mutations.

Accession Number: WOS:001589470400004

PubMed ID: 41057875

Language: English

Document Type: Article

Author Keywords: Glioblastoma; CCK gene expression; IDH1 mutations; Brain cortex; Brain frontal cortex

KeyWords Plus: IDH1; ACTIVATION; REVEALS; TUMORS

Addresses: [Dakal, Tikam Chand] Mohanlal Sukhadia Univ, Dept Biotechnol, Genome & Computat Biol Lab, Udaipur 313001, Rajasthan, India.
[Sharma, Narendra Kumar] Banasthali Vidyapith, Dept Biosci & Biotechnol, Tonk 304022, Rajasthan, India.
[Yadav, Vikas] Jawaharlal Nehru Univ, Sch Life Sci, New Delhi 110067, India.
[Kumar, Abhishek] Inst Bioinformat, Int Technol Pk, Bangalore 560066, India.
[Kumar, Abhishek] MAHE, Manipal 576104, Karnataka, India.
[Chen, Peng; Schmidt-Wolf, Ingo; Sharma, Amit] Univ Hosp Bonn, CIO, Dept Integrated Oncol, D-53127 Bonn, Germany.
[Maciaczyk, Jarek; Sharma, Amit] Univ Hosp Bonn, Dept Stereotact & Funct Neurosurg, D-53127 Bonn, Germany.

Corresponding Address: Dakal, TC (corresponding author), Mohanlal Sukhadia Univ, Dept Biotechnol, Genome & Computat Biol Lab, Udaipur 313001, Rajasthan, India.
Sharma, A (corresponding author), Univ Hosp Bonn, CIO, Dept Integrated Oncol, D-53127 Bonn, Germany.
Sharma, A (corresponding author), Univ Hosp Bonn, Dept Stereotact & Funct Neurosurg, D-53127 Bonn, Germany.

E-mail Addresses: tc.dakal@mlsu.ac.in; Amit.Sharma@ukbonn.de

Affiliations: Mohanlal Sukhadia University; Banasthali Vidyapith; Jawaharlal Nehru University, New Delhi; Manipal Academy of Higher Education (MAHE); University of Bonn; University of Bonn

Publisher: BMC

Publisher Address: CAMPUS, 4 CRINAN ST, LONDON N1 9XW, ENGLAND

Web of Science Index: Science Citation Index Expanded (SCI-EXPANDED)

Web of Science Categories: Genetics & Heredity

Research Areas: Genetics & Heredity

IDS Number: 8IM5C

eISSN: 1755-8794

29-char Source Abbrev.: BMC MED GENOMICS

ISO Source Abbrev.: BMC Med. Genomics

Source Item Page Count: 21

Funding:

Funding Agency	Grant Number
Universittsklinikum Bonn (8930)	

Not applicable.

Open Access: Green Submitted, gold

Output Date: 2025-11-11

Record 50 of 56

Title: Addition of two new genera-<i>Marcstadlera</i> gen. nov. and <i>Neoclypeosphaerella</i> gen. nov. (<i>Mycosphaerellaceae</i>)-based on polyphasic evidence

Author(s): Singh, G (Singh, Gargee); Rajwar, S (Rajwar, Soumyadeep); Khatoon, S (Khatoon, Sahana); Yadav, S (Yadav, Sanjay); Kumari, P (Kumari, Pooja); Singh, R (Singh, Raghvendra); Kumar, K (Kumar, Kamalesh); Mall, S (Mall, Smriti); Singh, PN (Singh, Paras N.); Kumar, S (Kumar, Shambhu); Braun, U (Braun, Uwe)

Source: FRONTIERS IN CELLULAR AND INFECTION MICROBIOLOGY **Volume:** 15 **Article Number:** 1668928 **DOI:** 10.3389/fcimb.2025.1668928 **Published Date:** 2025 OCT 23

Times Cited in Web of Science Core Collection: 0

Total Times Cited: 0

Usage Count (Last 180 days): 0

Usage Count (Since 2013): 0

Cited References: Abdollahzadeh J, 2020, STUD MYCOL, P381, DOI 10.1016/j.simyco.2020.02.004
An YY, 2021, BIODIVERS DATA J, V9, DOI 10.3897/BDJ.9.e59001
[Anonymous], **DATA OBJECT**
Archana Singh Archana Singh, 2008, Indian Phytopathology, V61, P348
Arzanlou M, 2010, EUKARYOT CELL, V9, P164, DOI 10.1128/EC.00194-09
Aylward J, 2022, MOL PHYLOGENET EVOL, V171, DOI 10.1016/j.ympev.2022.107456
Bakhshi M., 2024, Fungal Systematics and Evolution, V14, P1, DOI [10.3114/fuse.2024.14.01, 10.3114/fuse.2024.14.01]
Bakhshi M., 2020, Iranian Journal of Plant Pathology, V56, P17
Bakhshi M, 2022, MYCOL PROG, V21, DOI 10.1007/s11557-022-01824-x
Bakhshi M, 2021, MYCOL PROG, V20, P1157, DOI 10.1007/s11557-021-01725-5

Bhalla K, 1997, MYCOL RES, V101, P1496, DOI 10.1017/S0953756297004310
Braun U., 2000, Schlechtendalia, P31
Braun U, 2016, IMA FUNGUS, V7, P161, DOI 10.5598/imafungus.2016.07.01.10
Braun U, 2015, IMA FUNGUS, V6, P373, DOI 10.5598/imafungus.2015.06.02.09
Braun U, 2013, IMA FUNGUS, V4, P265, DOI 10.5598/imafungus.2013.04.02.12
Braun Uwe, 2009, Schlechtendalia, P63
Braun Uwe, 2000, Schlechtendalia, P57
Braun Uwe, 1996, Sydowia, V48, P205
Bruen TC, 2006, GENETICS, V172, P2665, DOI 10.1534/genetics.105.048975
Cheewangkoon R, 2008, PERSOONIA, V21, P77, DOI 10.3767/003158508X370857
Chen Q, 2022, STUD MYCOL, P417, DOI 10.3114/sim.2022.101.06
Chupp C., 1954, A monograph of the fungus genus Cercospoia.
Crous PW, 2008, PERSOONIA, V20, P59, DOI 10.3767/003158508X323949
Crous PW, 2007, STUD MYCOL, P1, DOI 10.3114/sim.2007.58.01
Crous PW, 2020, PERSOONIA, V45, P251, DOI 10.3767/persoonia.2020.45.10
Crous P. W., 2020, Fungal Systematics and Evolution, V6, P157, DOI [10.3114/fuse.2020.06.09, 10.3114/fuse.2020.06.09]
Crous PW, 2019, STUD MYCOL, P125, DOI 10.1016/j.simyco.2019.08.001
Crous P. W., 2003, Mycosphaerellaand its anamorphs: 1. Names published in Cercosporaand Passalora
Crous PW, 2014, PERSOONIA, V32, P184, DOI 10.3767/003158514X682395
Crous PW, 2013, PERSOONIA, V31, P188, DOI 10.3767/003158513X675925
Crous PW, 2013, STUD MYCOL, P37, DOI 10.3114/sim0005
Crous PW, 2009, PERSOONIA, V23, P99, DOI 10.3767/003158509X479487
Crous PW, 2001, MYCOLOGIA, V93, P1081, DOI 10.2307/3761670
DEIGHTON FC, 1981, T BRIT MYCOL SOC, V77, P200, DOI 10.1016/S0007-1536(81)80200-8
Deighton FC., 1976, PETR MYCOL PAP, V140, P1
Geiser DM, 1998, P NATL ACAD SCI USA, V95, P388, DOI 10.1073/pnas.95.1.388
Goh T. K., 1987, Transactions of the Mycological Society of Republic of China, V2, P125
Groenewald JZ, 2013, STUD MYCOL, P115, DOI 10.3114/sim0012
Guatimosim E, 2016, PERSOONIA, V37, P106, DOI 10.3767/003158516X690934
Haldar D., 2001, Journal of Mycopathological Research, V39, P43
Hariharan G, 2021, FRONT CELL INFECT MI, V10, DOI 10.3389/fcimb.2020.600234
Hawksworth D. K., 1974, Mycologist's handbook.
Hunter GC, 2006, STUD MYCOL, P147, DOI 10.3114/sim.55.1.147
Hunter GC, 2011, FUNGAL DIVERS, V50, P145, DOI 10.1007/s13225-011-0131-z
Huson DH, 2006, MOL BIOL EVOL, V23, P254, DOI 10.1093/molbev/msj030
Huson DH, 1998, BIOINFORMATICS, V14, P68, DOI 10.1093/bioinformatics/14.1.68
KAMAL, 1990, MYCOL RES, V94, P714, DOI 10.1016/S0953-7562(09)80676-X
Kamal A., 2010, Cercosporoid fungi of India, P1
Katoh K, 2019, BRIEF BIOINFORM, V20, P1160, DOI 10.1093/bib/bbx108
Kharwar RN, 1996, MYCOL RES, V100, P689, DOI 10.1016/S0953-7562(96)80200-0
Kirschner R, 2015, MYCOL PROG, V14, DOI 10.1007/s11557-015-1085-4
Ko YZ, 2025, IMA FUNGUS, V16, DOI 10.3897/imafungus.16.147543
Koufopanou V, 1997, P NATL ACAD SCI USA, V94, P5478, DOI 10.1073/pnas.94.10.5478
Kumar S., 2014, J NEW BIOL REP, V3, P252
Kumar S, 2016, MYCOTAXON, V131, P25, DOI 10.5248/131.25
Kumar S, 2015, SYDOWIA, V67, P21
Kushwaha P, 2020, PHYTOTAXA, V429, P274, DOI 10.11646/phytotaxa.429.4.3
Li JM, 2020, FUNGAL GENET BIOL, V144, DOI 10.1016/j.fgb.2020.103447
Liu YJJ, 1999, MOL BIOL EVOL, V16, P1799, DOI 10.1093/oxfordjournals.molbev.a026092
Lombard L, 2010, PERSOONIA, V24, P1, DOI 10.3767/003158510X486568

Machado AR, 2012, PLANT DIS, V96, P1702, DOI 10.1094/PDIS-06-12-0614-PDN
Maddison W. P., 2018, Mesquite: A modular system for evolutionary analysis. Version 3.61
Mehta Y. R., 2016, American Journal of Plant Sciences, V7, P1415, DOI [10.4236/ajps.2016.710135, 10.4236/ajps.2016.710135]
Melo JAD, 2025, MYCOL PROG, V24, DOI 10.1007/s11557-025-02034-x
Menicucci A, 2025, FRONT FUNGAL BIOL, V6, DOI 10.3389/ffunb.2025.1540469
Nakashima C, 2016, MYCOL PROG, V15, P1093, DOI 10.1007/s11557-016-1231-7
Patel R, 2022, HELIYON, V8, DOI 10.1016/j.heliyon.2022.e11855
PETRAK F., 1956, SYDOWIA, V10, P122
Quaedvlieg W, 2014, PERSOONIA, V33, P1, DOI 10.3767/003158514X681981
Quaedvlieg W, 2011, PERSOONIA, V26, P57, DOI 10.3767/003158511X571841
Raghvendra Singh Raghvendra Singh, 2007, Indian Phytopathology, V60, P506
Raghvendra Singh Raghvendra Singh, 2017, Kavaka, V48, P50
Rajeshkumar K C, 2021, Fungal Syst Evol, V7, P165, DOI [10.3114/fuse.2021.07.08, 10.3114/fuse.2021.07.08]
REHNER SA, 1994, MYCOL RES, V98, P625, DOI 10.1016/S0953-7562(09)80409-7
Robert V, 2013, IMA FUNGUS, V4, P371, DOI 10.5598/imafungus.2013.04.02.16
Ronquist F, 2012, SYST BIOL, V61, P539, DOI 10.1093/sysbio/sys029
Saccardo P. A., 1914, Ann. Mycol, V12, P282
Savile D. B. O., 1962, Collection and care of botanical specimens, V1113, P1, DOI [10.5962/bhl.title.53755, DOI 10.5962/BHL.TITLE.53755]
Shivas RG, 2015, FUNGAL BIOL-UK, V119, P362, DOI 10.1016/j.funbio.2014.09.004
Simon UK, 2009, PERSOONIA, V22, P49, DOI 10.3767/003158509X425350
Singh A, 2014, SYDOWIA, V66, P309
Singh G, 2022, MYCOTAXON, V137, P89, DOI 10.5248/137.89
Singh R, 2020, PHYTOTAXA, V458, P281, DOI 10.11646/phytotaxa.458.4.4
Singh R, 2020, MYCOTAXON, V135, P315, DOI 10.5248/135.315
Singh R, 2014, NOVA HEDWIGIA, V98, P257, DOI 10.1127/0029-5035/2013/0137
Singh R, 2013, MYCOL PROG, V12, P637, DOI 10.1007/s11557-012-0870-6
Singh R, 2012, MYCOTAXON, V120, P461, DOI 10.5248/120.461
Singh R, 2011, MYCOTAXON, V117, P137, DOI 10.5248/117.137
Stamatakis A, 2014, BIOINFORMATICS, V30, P1312, DOI 10.1093/bioinformatics/btu033
Starkey DE, 2007, FUNGAL GENET BIOL, V44, P1191, DOI 10.1016/j.fgb.2007.03.001
Stengel A, 2022, FRONT MICROBIOL, V13, DOI 10.3389/fmicb.2022.847067
Sultan A, 2011, STUD MYCOL, P237, DOI 10.3114/sim.2011.68.11
Summerell BA, 2006, FUNGAL DIVERS, V23, P323
Sung GH, 2007, MOL PHYLOGENET EVOL, V44, P1204, DOI 10.1016/j.ympev.2007.03.011
Taylor JW, 2000, FUNGAL GENET BIOL, V31, P21, DOI 10.1006/fgbi.2000.1228
Tj White., 1990, PCR PROTOCOLS GUIDE, P315, DOI DOI 10.1016/B978-0-12-372180-8.50042-1
Van Burik JAH, 1998, MED MYCOL, V36, P299, DOI 10.1080/02681219880000471
Verkley GJM, 2013, STUD MYCOL, P213, DOI 10.3114/sim0018
Verma SK, 2022, MYCOTAXON, V137, P679, DOI 10.5248/137.679
Verma Sanjeet Kumar, 2021, Sydowia, V74, P79
Verma SK, 2021, PHYTOTAXA, V525, P205, DOI [10.11646/phytotaxa.525.3.3, 10.11646/PHYTOTAXA.525.3.3]
Verma SK, 2021, PHYTOTAXA, V523, P208, DOI [10.11646/phytotaxa.523.3.2, 10.11646/PHYTOTAXA.523.3.2]
Videira SIR, 2017, STUD MYCOL, P257, DOI 10.1016/j.simyco.2017.09.003
Videira SIR, 2016, STUD MYCOL, P49, DOI 10.1016/j.simyco.2016.06.001
VILGALYS R, 1990, J BACTERIOL, V172, P4238, DOI 10.1128/jb.172.8.4238-4246.1990
Vu D, 2019, STUD MYCOL, P135, DOI 10.1016/j.simyco.2018.05.001

Wijayawardene NN, 2014, FUNGAL DIVERS, V69, P1, DOI 10.1007/s13225-014-0309-2
Wilkinson PM, 2005, AUSTRALAS PLANT PATH, V34, P95, DOI 10.1071/AP04074
Yadav S, 2023, MYCOL PROG, V22, DOI 10.1007/s11557-023-01871-y
Yadav S, 2022, PHYTOTAXA, V571, P141, DOI [10.11646/phytotaxa.571.2.3, 10.11646/PHYTOTAXA.571.2.3]
Yadav S, 2021, PHYTOTAXA, V501, P281, DOI 10.11646/phytotaxa.501.2.3
Zhang T, 2023, NAT COMMUN, V14, DOI 10.1038/s41467-023-39952-x

Cited Reference Count: 112

Abstract: During a survey of foliicolous fungi in India, two interesting anamorphic hyphomycetous fungal specimens were collected from infected leaves of Calotropis spp. and Mallotus philippensis. Calotropis spp. produce fascicles of conidiophores from stromata, accompanied by secondary superficial hyphae bearing solitary conidiophores. The specimen on Mallotus philippensis resembled Mycovellosiella, characterized by secondary superficial hyphae bearing micronematous to semi-macronematous, mononematous, unbranched, and aseptate conidiophores. A polyphasic approach-including morphological, cultural, and multilocus phylogenetic analyses (LSU-Rpb2-ITS), coupled with genealogical concordance phylogenetic species recognition-identified its relationship with cercosporoid fungi within the family Mycosphaerellaceae. The analysis confirmed that these fungal specimens represent distinct lineages without known morphological or DNA sequence counterparts. Consequently, two new genera are proposed: Marcstadlera and Neoclypeosphaerella, with M. malloti comb. nov. and N. calotropidis comb. nov. as their respective type species. Additionally, Clypeosphaerella calotropidis, Clypeosphaerella quasiparkii, and Pseudocercospora malloti are recognized as new synonyms. Several genera in the Mycosphaerellaceae, including Marcstadlera and Neoclypeosphaerella, are monophyletic. The ultrastructure of the conidiogenous loci and hila differs between these two genera. In Marcstadlera, the loci are cylindrical or peg-like, truncate at the apex, while the conidial base is narrowly obconically truncate. In Neoclypeosphaerella, the loci are slightly protuberant and surrounded by a circular rim-like structure, forming a truncated apex with a centrally positioned small apical depression. The conidial base is obconically truncated and also surrounded by a circular rim-like structure.

Accession Number: WOS:001608173400001

Language: English

Document Type: Article

Author Keywords: anamorph; <italic>Dothideomycetes</italic>; multigene-phylogeny; <italic>Mycosphaerellales</italic>; new taxa; nomenclature

KeyWords Plus: NORTHEASTERN UTTAR-PRADESH; RAMULARIOID COMPLEX; MULTIGENE PHYLOGENY; SP. NOV.; MYCOSPHAERELLACEAE; PSEUDOCERCOSPORA; PASSALORA; FUNGI; EUCALYPTUS; MORPHOLOGY

Addresses: [Singh, Gargee; Mall, Smriti] DDU Gorakhpur Univ, Dept Bot, Gorakhpur, Uttar Pradesh, India.
[Rajwar, Soumyadeep; Khatoon, Sahana; Yadav, Sanjay; Singh, Raghvendra] Banaras Hindu Univ, Inst Sci, Ctr Adv Study Bot, Varanasi, Uttar Pradesh, India.
[Kumari, Pooja] Jawaharlal Nehru Univ, Sch Life Sci, New Delhi, India.
[Kumar, Kamalesh] Banaras Hindu Univ, Inst Sci, Dept Chem, Varanasi, Uttar Pradesh, India.
[Singh, Paras N.] MACS Agharkar Res Inst, Natl Fungal Culture Collect India NFCCI, Biodivers & Palaeobiol Grp, Pune, Maharashtra, India.
[Kumar, Shambhu] KSCSTE Kerala Forest Res Inst, Forest Pathol Dept, Trichur, Kerala, India.
[Braun, Uwe] Martin Luther Univ Halle Wittenberg, Inst Biol, Herbarium, Bereich Geobot & Bot Garten, D-06099 Halle An Der Saale, Germany.

Corresponding Address: Singh, R (corresponding author), Banaras Hindu Univ, Inst Sci, Ctr Adv Study Bot, Varanasi, Uttar Pradesh, India.

E-mail Addresses: singhr.bot@bhu.ac.in

Affiliations: Deen Dayal Upadhyaya Gorakhpur University; Banaras Hindu University (BHU); Jawaharlal Nehru University, New Delhi; Banaras Hindu University (BHU); Department of Science & Technology (India); Agharkar Research Institute (ARI); Martin Luther University Halle Wittenberg

Publisher: FRONTIERS MEDIA SA

Publisher Address: AVENUE DU TRIBUNAL FEDERAL 34, LAUSANNE, CH-1015, SWITZERLAND

Web of Science Index: Science Citation Index Expanded (SCI-EXPANDED)

Web of Science Categories: Immunology; Microbiology

Research Areas: Immunology; Microbiology

IDS Number: 9JZ3E

ISSN: 2235-2988

29-char Source Abbrev.: FRONT CELL INFECT MI

ISO Source Abbrev.: Front. Cell. Infect. Microbiol.

Source Item Page Count: 25

Funding:

Funding Agency	Grant Number
Science & Engineering Research Board (SERB), Department of Science & Technology (DST)	CRG/2020/006053
Institution of Eminence (R/Dev)	2021-22/32387
BHU, Varanasi	
Bridge Grant	SRICC/Bridge Grant/2024-25/3151
Raja Jwala Prasad Post-Doctoral Fellowship	SRICC/RJP-PDF/2023-24/6158

The author(s) declare financial support was received for the research and/or publication of this article. Raghvendra Singh thanks the Science & Engineering Research Board (SERB), Department of Science & Technology (DST), Govt. of India (Scheme No. CRG/2020/006053); Institution of Eminence (R/Dev./D/IoE/Incentive/2021-22/32387), BHU, Varanasi; Bridge Grant (No. SRICC/Bridge Grant/2024-25/3151), BHU, Varanasi; and Sanjay Yadav thanks Raja Jwala Prasad Post-Doctoral Fellowship (No. SRICC/RJP-PDF/2023-24/6158) under Institution of Eminence, BHU, Varanasi for providing financial support.

Open Access: gold

Output Date: 2025-11-11

Record 51 of 56

Title: Engineering magnetic phase transitions and bandgap tunability in Co-doped NiO nanoparticles for spintronic and optoelectronic applications

Author(s): Kumar, A (Kumar, Arvind); Kumar, M (Kumar, Manish); Patel, PC (Patel, Prayas Chandra); Sati, PC (Sati, Prakash Chandra); Dabas, S (Dabas, Samiksha); Srivastava, MK (Srivastava, Manish Kumar)

Source: SOLID STATE SCIENCES **Volume:** 168 **Article Number:** 108027 **DOI:** 10.1016/j.solidstatesciences.2025.108027 **Published Date:** 2025 OCT

Times Cited in Web of Science Core Collection: 2

Total Times Cited: 2

Usage Count (Last 180 days): 1

Usage Count (Since 2013): 1

Cited References: Adler D, 1970, PHYS REV B-SOLID ST, V2, P3112, DOI 10.1103/PhysRevB.2.3112
Agrawal S, 2017, J LUMIN, V184, P250, DOI 10.1016/j.jlumin.2016.12.035
Al Boukhari J, 2020, APPL PHYS A-MATER, V126, DOI 10.1007/s00339-020-03508-3
AVERY DG, 1954, P PHYS SOC LOND B, V67, P761, DOI 10.1088/0370-1301/67/10/304
Bala N, 2020, PHYS REV B, V102, DOI 10.1103/PhysRevB.102.024423
Bharathy G, 2018, PHYSICA B, V530, P75, DOI 10.1016/j.physb.2017.10.106
BURSTEIN E, 1954, PHYS REV, V93, P632, DOI 10.1103/PhysRev.93.632
Chavali MS, 2019, SN APPL SCI, V1, DOI 10.1007/s42452-019-0592-3
Du Y, 2012, MATER LETT, V68, P168, DOI 10.1016/j.matlet.2011.10.039
El-Kemary M, 2013, MAT SCI SEMICON PROC, V16, P1747, DOI 10.1016/j.mssp.2013.05.018
Gandhi AC, 2020, AIP ADV, V10, DOI 10.1063/1.5129785
Goodenough J.B., 1963, MAGNETISM CHEM BOND
Jiang N, 2024, RESULTS PHYS, V57, DOI 10.1016/j.rinp.2024.107394
Kotta A, 2020, APPL SCI-BASEL, V10, DOI 10.3390/app10165415
Kumar A, 2021, CURR APPL PHYS, V32, P24, DOI 10.1016/j.cap.2021.09.002
Kumar S, 2020, J MATER SCI-MATER EL, V31, P7715, DOI 10.1007/s10854-020-03307-9
Li F, 2002, J ELECTROANAL CHEM, V531, P53, DOI 10.1016/S0022-0728(02)01019-7
Mai YJ, 2011, J POWER SOURCES, V196, P6388, DOI 10.1016/j.jpowsour.2011.03.089
Moura KO, 2014, NANOSCALE, V6, P352, DOI [10.1039/c3r04926d, 10.1039/c3nr04926d]
Nattestad A, 2008, NANOTECHNOLOGY, V19, DOI 10.1088/0957-4484/19/29/295304
Pankove J., 1975, OPTICAL PROCESSES SE
Ramachandran H, 2020, RSC ADV, V10, P3951, DOI 10.1039/c9ra08466e
Ravikumar P, 2015, AIP ADV, V5, DOI 10.1063/1.4928426
Rinaldi-Montes N, 2014, NANOSCALE, V6, P457, DOI 10.1039/c3nr03961g
SHANNON RD, 1976, ACTA CRYSTALLOGR A, V32, P751, DOI 10.1107/S0567739476001551
Sheena PA, 2019, MATER CHEM PHYS, V229, P412, DOI 10.1016/j.matchemphys.2019.03.033
Singh P.K., 2017, Journal of Advances in Nanomaterials, V2, P161, DOI [10.22606/jan.2017.23004, DOI 10.22606/JAN.2017.23004]
Tadic M, 2015, J ALLOY COMPD, V647, P1061, DOI 10.1016/j.jallcom.2015.06.027
Tasköprü T, 2015, PHILOS MAG, V95, P32, DOI 10.1080/14786435.2014.984788
Wan X, 2013, APPL SURF SCI, V277, P40, DOI 10.1016/j.apsusc.2013.03.126
Wang Q, 2016, PHYS REV B, V94, DOI 10.1103/PhysRevB.94.245305

Cited Reference Count: 31

Abstract: This study presents a comprehensive investigation of the structural, optical, and magnetic properties of cobalt-doped nickel oxide (Ni1-xCoxO, 0.0 <= x <= 0.08) nanoparticles synthesized via a citrate-assisted sol-gel method. X-ray diffraction (XRD) combined with Rietveld refinement reveals a doping-induced phase evolution from a mixed-phase system (NiO and metallic Ni) to a single-phase cubic NiO structure at x = 0.08. Raman and FTIR analyses confirm the incorporation of Co into the NiO lattice, along with strain-induced structural distortions and lattice disorder. Magnetic measurements demonstrate a distinct transition from ferromagnetic (FM) behaviour at x = 0.04 to antiferromagnetic (AFM) ordering at x = 0.08, attributed to Co-mediated exchange interactions and strain-induced modulation of spin correlations. Optical absorption spectra show bandgap tuning in the range of 2.9-3.5 eV, driven by defect-induced states at low Co content and quantum confinement at higher doping levels. These results highlight the crucial role of Co doping in simultaneously tailoring the structural, magnetic, and optical properties of NiO nanoparticles, establishing their potential for multifunctional applications in spintronic, optoelectronic, and photovoltaic devices.

Accession Number: WOS:001536527400001

Language: English

Document Type: Article

Author Keywords: Magnetic nanoparticle; Cobalt doping; Sol-gel synthesis; Magnetic-phase transition; Bandgap tuning; NiO nanoparticles

KeyWords Plus: OPTICAL-PROPERTIES; TEMPERATURE

Addresses: [Kumar, Arvind] Jawaharlal Nehru Univ, Sch Phys Sci, New Delhi 110067, India.
[Kumar, Manish] Univ Delhi, ARSD Coll, Dept Phys, Expt Res Lab, New Delhi 110021, India.
[Patel, Prayas Chandra] Indian Inst Technol Delhi, Dept Mat Sci & Engn, New Delhi 110016, India.
[Sati, Prakash Chandra] Rajiv Gandhi Govt Post Grad Coll, Dept Phys, Mandsaur 458001, Madhya Pradesh, India.
[Dabas, Samiksha] NSUT, Dept Phys, New Delhi 110078, India.
[Srivastava, Manish Kumar] Banasthali Vidyapith, Dept Phys, Banasthali 304022, Rajasthan, India.

Corresponding Address: Kumar, A (corresponding author), Jawaharlal Nehru Univ, Sch Phys Sci, New Delhi 110067, India.

E-mail Addresses: arvind@jnu.ac.in

Affiliations: Jawaharlal Nehru University, New Delhi; University of Delhi; Atma Ram Sanatan Dharma College; Indian Institute of Technology System (IIT System); Indian Institute of Technology (IIT) - Delhi; Netaji Subhas University of Technology; Banasthali Vidyapith

Author Identifiers:

Author	Web of Science ResearcherID	ORCID Number
Sati, Prakash	AAP-7222-2021	
Patel, Prayas	AAE-8447-2022	
KUMAR, ARVIND		0009-0009-1715-5686
Srivastava, Manish Kumar	GYV-1083-2022	
Dabas, Samiksha	AEQ-1219-2022	

Publisher: ELSEVIER

Publisher Address: RADARWEG 29, 1043 NX AMSTERDAM, NETHERLANDS

Web of Science Index: Science Citation Index Expanded (SCI-EXPANDED)

Web of Science Categories: Chemistry, Inorganic & Nuclear; Chemistry, Physical; Physics, Condensed Matter

Research Areas: Chemistry; Physics

IDS Number: 5IO2J

ISSN: 1293-2558

eISSN: 1873-3085

29-char Source Abbrev.: SOLID STATE SCI

ISO Source Abbrev.: Solid State Sci.

Source Item Page Count: 9

Funding:

Funding Agency	Grant Number
UGC-BSR Research Start-up, New Delhi, India	F.30-374/2017
IIT Kanpur, India	

Arvind Kumar wants to acknowledge the financial support received from the UGC in form of UGC-BSR Research Start-up Grant (F.30-374/2017 (BSR) , New Delhi, India. Authors are thankful to Department of Physics, BHU, Varanasi and Banasthali Vidyapith, Rajasthan, India for the characterization facility. Authors also thankful to Mr. M. Sivakumar (ACMS Building, IIT Kanpur, India) for the magnetic measurements

---

Record 52 of 56

Title: Substrate-bias driven sputter deposited <i>β</i>-phase dominated tungsten film for spintronic applications

Author(s): Rajawat, AS (Rajawat, Abhay Singh); Ahmad, N (Ahmad, Naim); Nasril, R (Nasril, Risvana); Sheikh, T (Sheikh, Tasneem); Muhiuddin, M (Muhiuddin, Mohammad); Sahu, S (Sahu, Savita); Gautam, A (Gautam, Ashwani); Kumar, A (Kumar, Arvind); Ahmad, MI (Ahmad, Md. Imteyaz); Basheed, GA (Basheed, G. A.); Rahman, MR (Rahman, Mohammad R.); Akhtar, W (Akhtar, Waseem)

Source: THIN SOLID FILMS **Volume:** 828 **Article Number:** 140795 **DOI:** 10.1016/j.tsf.2025.140795 **Published Date:** 2025 OCT 15

Times Cited in Web of Science Core Collection: 0

Total Times Cited: 0

Usage Count (Last 180 days): 2

Usage Count (Since 2013): 2

Cited References: Ahn SM, 2023, ELECTRON MATER LETT, V19, P298, DOI 10.1007/s13391-022-00399-9
Akhter MA, 1997, J APPL PHYS, V81, P4122, DOI 10.1063/1.365100
Babich E, 2022, SENSORS-BASEL, V22, DOI 10.3390/s22020593
Bansal R, 2018, APPL PHYS LETT, V112, DOI 10.1063/1.5033418
Barmak K, 2017, J VAC SCI TECHNOL A, V35, DOI 10.1116/1.5003628
Chattaraj A, 2020, SCI REP-UK, V10, DOI 10.1038/s41598-020-71650-2
Chen SQ, 2021, J MATER SCI TECHNOL, V90, P66, DOI 10.1016/j.jmst.2021.02.027
Choi D, 2017, MICROELECTRON ENG, V183, P19, DOI 10.1016/j.mee.2017.10.006
Colin JJ, 2017, ACTA MATER, V126, P481, DOI 10.1016/j.actamat.2016.12.030
Demasius KU, 2016, NAT COMMUN, V7, DOI 10.1038/ncomms10644
Djerdj I, 2005, VACUUM, V80, P151, DOI 10.1016/j.vacuum.2005.08.017
Durand N, 1996, THIN SOLID FILMS, V275, P168, DOI 10.1016/0040-6090(96)80096-4
Eftekhari L, 2022, SEMICOND SCI TECH, V37, DOI 10.1088/1361-6641/ac84fa
Fan X, 2014, NAT COMMUN, V5, DOI 10.1038/ncomms4042
HAGHIRIGOSNET AM, 1989, APPL SURF SCI, V38, P295, DOI 10.1016/0169-4332(89)90550-3
Hait S, 2022, SURF INTERFACES, V33, DOI 10.1016/j.surfin.2022.102259
Hait S, 2022, ACS APPL MATER INTER, V14, P37182, DOI 10.1021/acsami.2c09941
Hait S, 2022, APPL SURF SCI, V572, DOI 10.1016/j.apsusc.2021.151423
Hao Q, 2015, APPL PHYS LETT, V106, DOI 10.1063/1.4919867
Hirsch JE, 1999, PHYS REV LETT, V83, P1834, DOI 10.1103/PhysRevLett.83.1834
Jamali M, 2013, PHYS REV LETT, V111, DOI 10.1103/PhysRevLett.111.246602
Karabacak T, 2003, APPL PHYS LETT, V83, P3096, DOI 10.1063/1.1618944
Khodadadi B, 2017, PHYS REV B, V96, DOI 10.1103/PhysRevB.96.054436
Kim GW, 2021, NPG ASIA MATER, V13, DOI 10.1038/s41427-021-00326-8
KITTEL C, 1948, PHYS REV, V73, P155, DOI 10.1103/PhysRev.73.155
Lee JS, 2016, J VAC SCI TECHNOL A, V34, DOI 10.1116/1.4936261
Li J, 2005, PHYS REV B, V71, DOI 10.1103/PhysRevB.71.241305
Li P, 2016, NAT COMMUN, V7, DOI 10.1038/ncomms12688
Liu JX, 2016, ACTA MATER, V104, P223, DOI 10.1016/j.actamat.2015.11.049
Liu LQ, 2012, SCIENCE, V336, P555, DOI 10.1126/science.1218197
Ma X, 2016, PHYS REV B, V94, DOI 10.1103/PhysRevB.94.180408
Maillé L, 2003, THIN SOLID FILMS, V428, P237, DOI 10.1016/S0040-6090(02)01277-4
MAYADAS AF, 1970, PHYS REV B-SOLID ST, V1, P1382, DOI 10.1103/PhysRevB.1.1382

Miron IM, 2011, NATURE, V476, P189, DOI 10.1038/nature10309
Nagakubo A, 2020, APPL PHYS LETT, V116, DOI 10.1063/1.5131768
Nan TX, 2015, PHYS REV B, V91, DOI 10.1103/PhysRevB.91.214416
Noyan IC, 1997, J APPL PHYS, V82, P4300, DOI 10.1063/1.366237
Pai CF, 2012, APPL PHYS LETT, V101, DOI 10.1063/1.4753947
Peng SZ, 2019, ADV ELECTRON MATER, V5, DOI 10.1002/aelm.201900134
PETROFF P, 1973, J APPL PHYS, V44, P2545, DOI 10.1063/1.1662611
Radic N, 2004, SURF COAT TECH, V180, P66, DOI 10.1016/j.surfcoat.2003.10.038
Ramaswamy R, 2018, APPL PHYS REV, V5, DOI 10.1063/1.5041793
Rao SG, 2012, APPL SURF SCI, V258, P5195, DOI 10.1016/j.apsusc.2012.01.096
ROSSING TD, 1963, J APPL PHYS, V34, P995, DOI 10.1063/1.1729582
Rossnagel SM, 2002, J VAC SCI TECHNOL B, V20, P2047, DOI 10.1116/1.1506905
Ruiz-Calaforra A, 2015, J APPL PHYS, V117, DOI 10.1063/1.4918909
Sethu KKV, 2021, PHYS REV APPL, V16, DOI 10.1103/PhysRevApplied.16.064009
Shen YG, 2000, MAT SCI ENG A-STRUCT, V284, P176, DOI 10.1016/S0921-5093(00)00745-0
Sriram K, 2023, J PHYS CHEM C, V127, P22704, DOI 10.1021/acs.jpcc.3c04404
Torrejon J, 2014, NAT COMMUN, V5, DOI 10.1038/ncomms5655
Tserkovnyak Y, 2002, PHYS REV LETT, V88, DOI 10.1103/PhysRevLett.88.117601
Vüllers FTN, 2015, THIN SOLID FILMS, V577, P26, DOI 10.1016/j.tsf.2015.01.030
Wang X., 2019, Adv. Mater. Interfaces, V6, DOI DOI 10.1002/ADMI.201900031
WEERASEKERA IA, 1994, APPL PHYS LETT, V64, P3231, DOI 10.1063/1.111318
Woo S, 2014, APPL PHYS LETT, V105, DOI 10.1063/1.4902529
Xie FY, 2012, J ELECTRON SPECTROSC, V185, P112, DOI 10.1016/j.elspec.2012.01.004
Yan H, 2024, ADV MATER INTERFACES, V11, DOI 10.1002/admi.202300265
Zhu LJ, 2019, PHYS REV LETT, V122, DOI 10.1103/PhysRevLett.122.077201

Cited Reference Count: 58

Abstract: /i-Tungsten (/i-W), an A15 cubic phase of tungsten, exhibits a giant spin Hall angle compared to its bcc-phase a-Tungsten (a-W), making high-quality /i-W films desirable for spintronic applications. We report the controlled growth of /i-W films on SiO2/Si substrates via DC sputtering, where substrate bias serves as a critical factor in stabilizing the /i phase by regulating the energy of deposited atoms. This approach enables the formation of /i-W films over a wide thickness range. Power spectral density analysis of the atomic force microscopy images revealed that the /i-W film grown at a positive substrate bias of +50 V exhibits low surface roughness along with small grain size. Additionally, we studied the spin pumping phenomena in different tungsten phases achieved through substrate bias. Ferromagnetic resonance measurements reveal an enhancement in the magnetic damping for /i-W/Py compared to a-W/Py dominated film. Importantly, the use of substrate bias does not deteriorate the interface quality, underscoring its effectiveness. These findings highlight the potential of substrate bias in thin-film engineering, paving the way for its advanced utilization in spintronic applications.

Accession Number: WOS:001578622200002

Language: English

Document Type: Article

Author Keywords: DC sputtering; Substrate bias; /i-Tungsten; Atomic force microscopy; Ferromagnetic resonance

KeyWords Plus: THIN-FILMS; TRANSFORMATION; MICROSTRUCTURE; RESISTIVITY; STABILITY; PERMALLOY; STRESSES; GROWTH

Addresses: [Rajawat, Abhay Singh; Ahmad, Naim; Nasril, Risvana; Akhtar, Waseem] Jamia Millia Islamia, Dept Phys, New Delhi 110025, India.
[Muhiuddin, Mohammad; Rahman, Mohammad R.] Natl Inst Technol, Dept Met & Mat Engn, Bengaluru 575014, Karnataka, India.

[Sahu, Savita; Basheed, G. A.] CSIR Natl Phys Lab, New Delhi 110012, India.
[Gautam, Ashwani; Ahmad, Md. Imteyaz] Indian Inst Technol BHU, Dept Ceram Engn, Varanasi 221005, India.
[Kumar, Arvind] Jawaharlal Nehru Univ, Sch Phys Sci, New Delhi 110067, India.

Corresponding Address: Akhtar, W (corresponding author), Jamia Millia Islamia, Dept Phys, New Delhi 110025, India.

E-mail Addresses: makhtar5@jmi.ac.in

Affiliations: Jamia Millia Islamia; Council of Scientific & Industrial Research (CSIR) - India; CSIR - National Physical Laboratory (NPL); Indian Institute of Technology System (IIT System); Indian Institute of Technology BHU Varanasi (IIT BHU Varanasi); Jawaharlal Nehru University, New Delhi

Author Identifiers:

Author	Web of Science ResearcherID	ORCID Number
Ahmad, Mohammad Imteyaz	IZP-9342-2023	

Publisher: ELSEVIER SCIENCE SA

Publisher Address: PO BOX 564, 1001 LAUSANNE, SWITZERLAND

Web of Science Index: Science Citation Index Expanded (SCI-EXPANDED)

Web of Science Categories: Materials Science, Multidisciplinary; Materials Science, Coatings & Films; Physics, Applied; Physics, Condensed Matter

Research Areas: Materials Science; Physics

IDS Number: 7SN1Q

ISSN: 0040-6090

eISSN: 1879-2731

29-char Source Abbrev.: THIN SOLID FILMS

ISO Source Abbrev.: Thin Solid Films

Source Item Page Count: 9

Funding:

Funding Agency	Grant Number
Science and Engineering Research Board (SERB) Start-Up Research Grant	SRG/2021/002186
University Grants Commission (UGC) Start-up research grant	F.30-569/2021

This work was financially supported by Science and Engineering Research Board (SERB) Start-Up Research Grant (SRG/2021/002186) and University Grants Commission (UGC) Start-up research grant (F.30-569/2021) . The authors gratefully acknowledge the Central Research Facility, National Institute of Technology, Karnataka for the XRR measurement.

Output Date: 2025-11-11

Record 53 of 56

Title: Emergence of luminescence in Na5Bi(WO4)4:RE3+(RE = Sm, Eu, Tb and Dy) for optoelectronic applications

Author(s): Pusdekar, A (Pusdekar, Ashvini); Ugemuge, NS (Ugemuge, Nilesh S.); Kshetrapal, S (Kshetrapal, Supriya); Dhakla, S (Dhakla, Shweta); Deendyal, PK (Deendyal, Parvesh K.); Kumar, P (Kumar, Pankaj); Kashyap, MK (Kashyap, Manish K.); Moharil, SV (V. Moharil, Sanjiv)

Source: INORGANIC CHEMISTRY COMMUNICATIONS **Volume:** 180 **Article Number:** 114947 **DOI:** 10.1016/j.inoche.2025.114947 **Published Date:** 2025 OCT **Part:** 1

Times Cited in Web of Science Core Collection: 2

Total Times Cited: 2

Usage Count (Last 180 days): 4

Usage Count (Since 2013): 4

Cited References: Babu AM, 2011, J ALLOY COMPD, V509, P4743, DOI 10.1016/j.jallcom.2011.01.136
Baby B, 2023, J LUMIN, V254, DOI 10.1016/j.jlumin.2022.119510
Binnemans K, 2015, COORDIN CHEM REV, V295, P1, DOI 10.1016/j.ccr.2015.02.015
BLASSE G, 1984, J LUMIN, V29, P497, DOI 10.1016/0022-2313(84)90010-3
BLASSE G, 1968, PHYS LETT A, VA 28, P444, DOI 10.1016/0375-9601(68)90486-6
Blasse G., 1994, LUMINESCENT MAT, DOI [10.1007/978-3-642-79017-1_1, DOI 10.1007/978-3-642-79017-1_1]
Bolaños W, 2009, CRYST GROWTH DES, V9, P3525, DOI 10.1021/cg900259x
Callister W.D., 2003, MAT SCI ENG
CARNALL WT, 1968, J CHEM PHYS, V49, P4424, DOI 10.1063/1.1669893
Chen J, 2010, J ALLOY COMPD, V492, P667, DOI 10.1016/j.jallcom.2009.12.009
Chen SJ, 2003, J CRYST GROWTH, V253, P361, DOI 10.1016/S0022-0248(03)01089-3
Chen WB, 2001, OPT COMMUN, V194, P401, DOI 10.1016/S0030-4018(01)01148-8
Choe JY, 2001, APPL PHYS LETT, V78, P3800, DOI 10.1063/1.1378313
Dai QL, 2007, J APPL PHYS, V102, DOI 10.1063/1.2773639
Dutta S, 2013, SOLID STATE SCI, V18, P114, DOI 10.1016/j.solidstatesciences.2013.01.012
Errandonea D, 2005, PHYS STATUS SOLIDI B, V242, pR125, DOI 10.1002/pssb.200541334
Fan XY, 2012, MATER LETT, V68, P374, DOI 10.1016/j.matlet.2011.11.021
Feldmann C, 2003, ADV FUNCT MATER, V13, P511, DOI 10.1002/adfm.200301005
Giannozzi P, 2017, J PHYS-CONDENS MAT, V29, DOI 10.1088/1361-648X/aa8f79
Giannozzi P, 2009, J PHYS-CONDENS MAT, V21, DOI 10.1088/0953-8984/21/39/395502
GRASSER R, 1976, J LUMIN, V12, P473, DOI 10.1016/0022-2313(76)90125-3
Guo L, 2011, DALTON T, V40, P632, DOI 10.1039/c0dt00981d
Hämmer M, 2020, DALTON T, V49, P8209, DOI 10.1039/d0dt00782j
Hakeem DA, 2018, INORG CHEM FRONT, V5, P1336, DOI 10.1039/c8qi00111a
Huang YL, 2012, MATER LETT, V84, P107, DOI 10.1016/j.matlet.2012.06.051
Jia PY, 2006, CHEM PHYS LETT, V424, P358, DOI 10.1016/j.cplett.2006.04.088
Jia PY, 2006, NANOTECHNOLOGY, V17, P734, DOI 10.1088/0957-4484/17/3/020
Joseph LK, 2008, SPECTROCHIM ACTA A, V71, P1281, DOI 10.1016/j.saa.2008.03.030
Jüstel T, 2001, J LUMIN, V93, P179, DOI 10.1016/S0022-2313(01)00199-5
Kaczmarek AM, 2014, INORG CHEM, V53, P9498, DOI 10.1021/ic5005837
Kaczmarek AM, 2013, CHEM SOC REV, V42, P8835, DOI 10.1039/c3cs60166h
Kaminskii AA, 1999, APPL OPTICS, V38, P4533, DOI 10.1364/AO.38.004533
Kodaira CA, 2003, J SOLID STATE CHEM, V171, P401, DOI 10.1016/S0022-4596(02)00221-9
Kolobanov VN, 2002, NUCL INSTRUM METH A, V486, P496, DOI 10.1016/S0168-9002(02)00760-X
Kresse G, 1999, PHYS REV B, V59, P1758, DOI 10.1103/PhysRevB.59.1758
Kshetrapal S, 2023, RADIAT EFF DEFECT S, V178, P1211, DOI 10.1080/10420150.2023.2240935
Lehmann O, 2003, J PHYS CHEM B, V107, P7449, DOI 10.1021/jp030012h
Lei F, 2008, J SOLID STATE CHEM, V181, P855, DOI 10.1016/j.jssc.2008.01.033
Li CG, 2012, DALTON T, V41, P4890, DOI 10.1039/c2dt30064h
Li FF, 2013, NANOSCALE, V5, P6950, DOI 10.1039/c3nr01530k
Li LZ, 2011, J MATER SCI-MATER EL, V22, P1040, DOI 10.1007/s10854-010-0256-y
Li NN, 2013, DISPLAYS, V34, P341, DOI 10.1016/j.displa.2013.06.003
Liu XL, 2013, DALTON T, V42, P11445, DOI 10.1039/c3dt50562f
Lokeswara Reddy G., 2013, Mater. Lett., V4, P841
Lou XM, 2008, MATER LETT, V62, P1681, DOI 10.1016/j.matlet.2007.09.066

Mahalingam V, 2015, J MATER SCI-MATER EL, V26, P4344, DOI 10.1007/s10854-015-2987-2
Mahalingam V, 2016, SPECTROCHIM ACTA A, V152, P172, DOI 10.1016/j.saa.2015.06.129
MCCAMY CS, 1992, COLOR RES APPL, V17, P142, DOI 10.1002/col.5080170211
Mikhailik VB, 2005, J APPL PHYS, V97, DOI 10.1063/1.1872198
Mungale A, 2024, J MATER SCI-MATER EL, V35, DOI 10.1007/s10854-024-13151-w
Pang ML, 2004, J SOLID STATE CHEM, V177, P2237, DOI 10.1016/j.jssc.2004.02.031
Park JY, 2020, J ALLOY COMPD, V824, DOI 10.1016/j.jallcom.2020.153994
Perdew JP, 1996, PHYS REV LETT, V77, P3865, DOI [10.1103/PhysRevLett.77.3865, 10.1103/PhysRevLett.78.1396]
Pfrommer BG, 1997, J COMPUT PHYS, V131, P233, DOI 10.1006/jcph.1996.5612
Piatkowska M, 2018, J RARE EARTH, V36, P635, DOI 10.1016/j.jre.2018.01.005
Pode RB, 1997, PHYS STATUS SOLIDI B, V203, P571, DOI 10.1002/1521-3951(199710)203:2<571::AID-PSSB571>3.0.CO;2-S
Podhorodecki A, 2010, J ELECTROCHEM SOC, V157, pH628, DOI 10.1149/1.3373123
Pradeep SG, 2020, J LUMIN, V226, DOI 10.1016/j.jlumin.2020.117484
Pusdekar A, 2024, PHYS SOLID STATE+, V66, P291, DOI 10.1134/S1063783424601188
Pusdekar A, 2025, J MOL STRUCT, V1319, DOI 10.1016/j.molstruc.2024.139409
Pusdekar A, 2024, J MATER SCI-MATER EL, V35, DOI 10.1007/s10854-024-12053-1
Pusdekar A, 2024, RADIAT EFF DEFECT S, V179, P315, DOI 10.1080/10420150.2023.2271625
Qiu ZF, 2007, ACTA MATER, V55, P2615, DOI 10.1016/j.actamat.2006.12.018
Rahimi-Nasrabadi M, 2016, J MATER SCI-MATER EL, V27, P12860, DOI 10.1007/s10854-016-5421-5
Rajendran M, 2021, J INFORM DISPLAY, V22, P63, DOI 10.1080/15980316.2020.1831630
Shah MD, 2015, MATER SCI-POLAND, V33, P685, DOI 10.1515/msp-2015-0098
Shionoya S., 2018, Phosphor handbook
Shivakumara C, 2016, DYES PIGMENTS, V126, P154, DOI 10.1016/j.dyepig.2015.10.032
Soni AK, 2014, DALTON T, V43, P13563, DOI 10.1039/c4dt01266f
STEDMAN NJ, 1994, J MATER CHEM, V4, P707, DOI 10.1039/jm9940400707
Stefanski M, 2015, J CHEM PHYS, V142, DOI 10.1063/1.4919880
Takai S, 1999, MATER RES BULL, V34, P193, DOI 10.1016/S0025-5408(99)00010-0
Ugemuge NS, 2012, INT J SELF-PROPAG HI, V21, P162, DOI 10.3103/S1061386212030089
Ugemuge NS, 2011, PHYSICA B, V406, P45, DOI 10.1016/j.physb.2010.10.009
Ungelenk J, 2014, SOLID STATE SCI, V31, P62, DOI 10.1016/j.solidstatesciences.2014.02.020
Vats BG, 2021, J ALLOY COMPD, V865, DOI 10.1016/j.jallcom.2021.158818
Vishwakarma AK, 2016, J LUMIN, V176, P112, DOI 10.1016/j.jlumin.2016.03.025
WANG H, 1994, J PHYS-CONDENS MAT, V6, P5373, DOI 10.1088/0953-8984/6/28/012
Wang WS, 2008, J PHYS CHEM C, V112, P19390, DOI 10.1021/jp8074783
Wang Y, 2020, ARAB J CHEM, V13, P5581, DOI 10.1016/j.arabjc.2020.03.018
Warutkar GN, 2023, RADIAT EFF DEFECT S, V178, P1479, DOI 10.1080/10420150.2023.2258435
WEINERT M, 1982, PHYS REV B, V26, P4571, DOI 10.1103/PhysRevB.26.4571
Wen FS, 2002, MATER LETT, V55, P152, DOI 10.1016/S0167-577X(01)00638-3
Xia CL, 2025, J LUMIN, V279, DOI 10.1016/j.jlumin.2024.121045
Yan SA, 2011, OPT MATER, V34, P147, DOI 10.1016/j.optmat.2011.07.028
Yan SA, 2011, J ALLOY COMPD, V509, P5777, DOI 10.1016/j.jallcom.2011.02.103
Zhang F, 2011, OPT MATER, V33, P475, DOI 10.1016/j.optmat.2010.10.035
Zhang XM, 2011, J ALLOY COMPD, V509, P2007, DOI 10.1016/j.jallcom.2010.10.119
Zhang XL, 2009, J ALLOY COMPD, V469, pL6, DOI 10.1016/j.jallcom.2008.01.117

Cited Reference Count: 89

Abstract: New results on synthesis and luminescence of RE3+ (RE = Sm, Eu, Tb and Dy) doped phosphors Na5Bi(WO4)4 are reported. The density functional theory (DFT) simulations also support the experimental findings, confirming the electronic properties and band gap of pristine Na5Bi(WO4)4. The calculated band gap (3.54 eV) matches closely with the experimental value (3.57 eV), obtained from UV-Vis analysis. All

RE3+ ions have shown characteristic emissions under typical excitations. Apart from that, an excitation band around 275 nm, indicating host sensitization, has also been observed for all the activators. The present investigation indicates that RE3+-doped Na5Bi (WO4)4 phosphors (RE = Sm, Eu, Tb and Dy) are the potential candidates for optoelectronic applications.

Accession Number: WOS:001526898900001

Language: English

Document Type: Article

Author Keywords: Luminescence; Tungstate; Rare-earth; DFT; Phosphor

KeyWords Plus: TUNGSTATE NANOPARTICLES; HYDROTHERMAL SYNTHESIS; TEMPERATURE SYNTHESIS; OPTICAL-PROPERTIES; CRYSTAL-STRUCTURES; UP-CONVERSION; PHOSPHORS; PHOTOLUMINESCENCE; NANOCRYSTALS; GROWTH

Addresses: [Pusdekar, Ashvini; Ugemuge, Nilesh S.; Kshetrapal, Supriya] Anand Niketan Coll Sci Arts & Commerce, Dept Phys, IHLR & SS, Warora 442907, India.
[Kshetrapal, Supriya] SFS Coll, Dept Phys, Nagpur 440001, India.
[Dhakla, Shweta; Deendyal, Parvesh K.; Kashyap, Manish K.] Jawaharlal Nehru Univ, Sch Phys Sci, Renewable Energy Lab, New Delhi 110067, India.
[Deendyal, Parvesh K.] Govt Polytech Women, Dept Appl Sci, Faridabad 121006, Haryana, India.
[Kumar, Pankaj] Guru Jambheshwar Univ Sci & Technol, Dept Phys, Hisar 125001, Haryana, India.
[V. Moharil, Sanjiv] RTM Nagpur Univ, Dept Phys, Nagpur 440033, India.

Corresponding Address: Ugemuge, NS (corresponding author), Anand Niketan Coll Sci Arts & Commerce, Dept Phys, IHLR & SS, Warora 442907, India.
Kashyap, MK (corresponding author), Jawaharlal Nehru Univ, Sch Phys Sci, Renewable Energy Lab, New Delhi 110067, India.

E-mail Addresses: nileshugemuge@gmail.com; mkkashyap@mail.jnu.ac.in

Affiliations: Jawaharlal Nehru University, New Delhi; Guru Jambheshwar University of Science & Technology; Rashtrasant Tukadoji Maharaj Nagpur University

Author Identifiers:

Author	Web of Science ResearcherID	ORCID Number
Ugemuge, Nilesh	AAE-6805-2020	
Kashyap, Manish	ABE-6515-2020	
Pusdekar, Ashvini Raju		0000-0001-8530-0659
Pusdekar, Ashvini	OPN-2021-2025	

Publisher: ELSEVIER

Publisher Address: RADARWEG 29, 1043 NX AMSTERDAM, NETHERLANDS

Web of Science Index: Science Citation Index Expanded (SCI-EXPANDED)

Web of Science Categories: Chemistry, Inorganic & Nuclear

Research Areas: Chemistry

IDS Number: 4UJ8P

ISSN: 1387-7003

eISSN: 1879-0259

29-char Source Abbrev.: INORG CHEM COMMUN

ISO Source Abbrev.: Inorg. Chem. Commun.

Source Item Page Count: 17

Funding:

Funding Agency	Grant Number
Government of Maharashtra, India	MAHAJYOTI/2022/PhD Fellow/1002
Haryana State Council for Science Innovation & Technology (HSCSIT) , Panchkula, Haryana	HSCST/4365-66

AP acknowledges the financial support from the government of Maharashtra, India in the form of junior research fellowship under Mahtma Jyotiba Phule Research Fellowship Scheme via grant no. MAHAJYOTI/2022/PhD Fellow/1002 (148) . PK would like to acknowledge the financial support from Haryana State Council for Science Innovation & Technology (HSCSIT) , Panchkula, Haryana in the form of Junior Research Fellowship (JRF) via grant no. HSCST/4365-66. MKK, SD and PKK are grateful to Ultra International India Pvt. Ltd., Ghaziabad, India for providing the lab furniture for Renewable Energy Laboratory at SPS, JNU. The computational work has been carried out by using the resources of the National PARAM Supercomputing Facility (NPSF) at the Center for Development of Advanced Computing (C- DAC) Pune, which is an Autonomous Society of Ministry of Electronics and Information Technology (MeitY) , Govt. of India.

Output Date: 2025-11-11

Record 54 of 56

Title: Development of Charged Polyampholyte Interfaces: Synthesis, Properties, and Antifouling Application

Author(s): Babu, A (Babu, Anashwara); Sivakumar, G (Sivakumar, Gomathi); Kim, M (Kim, Minjae); Chauhan, D (Chauhan, Deepika); Badri, R (Badri, Rahul); Nagorna, Z (Nagorna, Zlata); Kar, P (Kar, Pradip); Sasmal, PK (Sasmal, Pijus K.); Van Guyse, JFR (Van Guyse, Joachim F. R.); Banerjee, S (Banerjee, Susanta); Lee, Y (Lee, Yan); Maji, S (Maji, Samarendra)

Source: ACS BIOMATERIALS SCIENCE & ENGINEERING **DOI:** 10.1021/acsbiomaterials.5c01247 **Early Access Date:** OCT 2025 **Published Date:** 2025 OCT 28

Times Cited in Web of Science Core Collection: 0

Total Times Cited: 0

Usage Count (Last 180 days): 1

Usage Count (Since 2013): 1

Cited References: Amoako K, 2025, LANGMUIR, V41, P2994, DOI 10.1021/acs.langmuir.4c04532
Anwar A, 2017, NANOTECHNOL REV, V6, P149, DOI 10.1515/ntrev-2016-0020
Asha AB, 2021, CHEM SOC REV, V50, P11668, DOI 10.1039/d1cs00658d
Babu A, 2024, POLYM CHEM-UK, V15, P2763, DOI 10.1039/d4py00595c
Bernards M, 2014, J BIOMAT SCI-POLYM E, V25, P1479, DOI 10.1080/09205063.2014.938976
Chen Q, 2019, J AM CHEM SOC, V141, P16772, DOI 10.1021/jacs.9b07105
Dhaliwal JS, 2021, FRONT CELL INFECT MI, V11, DOI 10.3389/fcimb.2021.736186
Dorozhkin SV, 2009, MATERIALS, V2, P399, DOI 10.3390/ma2020399
Erathodiyil N, 2020, MATER TODAY, V38, P84, DOI 10.1016/j.mattod.2020.03.024
Farzadi A, 2011, CERAM INT, V37, P65, DOI 10.1016/j.ceramint.2010.08.021
Ferreira M, 2020, SOFT MATTER, V16, P10280, DOI 10.1039/d0sm01565b
Lopez CG, 2024, SOFT MATTER, V20, P2635, DOI 10.1039/d3sm00468f
Gao CD, 2017, BONE RES, V5, DOI 10.1038/boneres.2017.59
Gao M, 2014, EUR POLYM J, V53, P65, DOI 10.1016/j.eurpolymj.2014.01.014
Gautam A, 2025, INORG CHEM, V64, P2905, DOI 10.1021/acs.inorgchem.4c05064
Gregory A, 2012, PROG POLYM SCI, V37, P38, DOI 10.1016/j.progpolymsci.2011.08.004

Gupta A, 2023, J MED CHEM, V66, P8687, DOI 10.1021/acs.jmedchem.3c00336
Haag SL, 2017, GELS-BASEL, V3, DOI 10.3390/gels3040041
He MR, 2016, ACTA BIOMATER, V40, P142, DOI 10.1016/j.actbio.2016.03.038
Hojo K, 2009, J DENT RES, V88, P982, DOI 10.1177/0022034509346811
Ielo I, 2022, INT J MOL SCI, V23, DOI 10.3390/ijms23179721
Kang M, 2019, ACS APPL MATER INTER, V11, P7686, DOI 10.1021/acsami.8b18301
Kang S, 2016, ACTA BIOMATER, V40, P70, DOI 10.1016/j.actbio.2016.03.006
Keefe AJ, 2012, NAT CHEM, V4, P60, DOI 10.1038/nchem.1213
Król-Morkisz K, 2022, J THERM ANAL CALORIM, V147, P14241, DOI 10.1007/s10973-022-11612-0
Lee JH, 2012, J MATER CHEM, V22, P11556, DOI 10.1039/c2jm31224g
Liu WJ, 2025, J FUNCT BIOMATER, V16, DOI [10.3390/jfb16040127, 10.3390/jfb16040127]
Maji S, 2014, MACROMOL RAPID COMM, V35, P214, DOI 10.1002/marc.201300540
Masters EA, 2019, BONE RES, V7, DOI 10.1038/s41413-019-0061-z
Moayedi S, 2024, LANGMUIR, V40, P23125, DOI 10.1021/acs.langmuir.4c02664
Mondal S, 2023, ADV COLLOID INTERFAC, V321, DOI 10.1016/j.cis.2023.103013
Mullick P, 2019, ACS APPL BIO MATER, V2, P2927, DOI 10.1021/acsabm.9b00293
Neitzel AE, 2021, CURR OPIN SOLID ST M, V25, DOI 10.1016/j.cossms.2020.100897
Oliveira C., 2010, XII International MacromolecularColloquium and 7th International Symposium on Natural Polymers andComposites
Pohlmeier A, 2004, J COLLOID INTERF SCI, V273, P369, DOI 10.1016/j.jcis.2004.02.047
Qiu HY, 2022, PROG POLYM SCI, V127, DOI 10.1016/j.progpolymsci.2022.101516
Roka N, 2022, POLYMERS-BASEL, V14, DOI 10.3390/polym14040701
Salimi E., 2012, Int. Scholarly Res. Not, V2012, P1, DOI [DOI 10.5402/2012/960915, 10.5402/2012/960915]
Schlenoff JB, 2014, LANGMUIR, V30, P9625, DOI 10.1021/la500057j
Schönemann E, 2019, POLYMERS-BASEL, V11, DOI 10.3390/polym11061014
Stubbs C, 2020, BIOMACROMOLECULES, V21, P7, DOI 10.1021/acs.biomac.9b01053
Sung YM, 2004, J CRYST GROWTH, V262, P467, DOI 10.1016/j.jcrysgro.2003.10.001
Supeno, 2014, AIP CONF PROC, V1614, P178, DOI 10.1063/1.4895192
Van Nieuwenhove I, 2017, POLYM CHEM-UK, V8, P2433, DOI 10.1039/c6py02224c
Venault A, 2014, ACS APPL MATER INTER, V6, P3201, DOI 10.1021/am404780w
Verma G, 2018, NEW J CHEM, V42, P6283, DOI 10.1039/c7nj04706a
Zardehi-Tabriz A, 2023, MACROMOL MATER ENG, V308, DOI 10.1002/mame.202300179
Zhang M, 2022, J MATER CHEM B, V10, P2338, DOI 10.1039/d1tb02323c
Zhou L, 2020, INT J NANOMED, V15, P8963, DOI 10.2147/IJN.S281014
Zoppe JO, 2017, CHEM REV, V117, P1105, DOI 10.1021/acs.chemrev.6b00314
Zurick KM, 2014, J APPL POLYM SCI, V131, DOI 10.1002/app.40069

Cited Reference Count: 51

Abstract: Biocompatible hydroxyapatite (HA) is a biomaterial widely used in the regeneration and replacement of dental and bone tissue. On these HA surfaces, complex multicellular communities known as biofilms are established by pathogenic microorganisms, contributing to 75% of all bacterial infections and presenting a significant public health concern. Among the various charged polymers, zwitterionic polymers are commonly used for antifouling applications due to their ability to form a strong hydration layer. In contrast, charged polymers like polyampholytes with both positively and negatively charged groups remain largely unexplored for this application. Polyampholytes can be modified to be neutral, cationic, or anionic, as they are composed of two monomers with opposite charges. In this study, we aim to investigate the preparation of polyampholytes with different charges through Reversible Addition-Fragmentation chain Transfer (RAFT) polymerization, coating these polymers onto HA discs and evaluating their antifouling capabilities using bacterial adhesion experiments. We synthesized charged polyampholytes using [2-(methacryloyloxy)ethyl]trimethylammonium chloride (MAETMA) and sodium-p-vinylbenzenesulfonate (VBS), which are cationic and anionic monomers, respectively, in a DI water/dioxane medium via RAFT polymerization. Next, HA discs were coated with a series of synthesized charged polymers, resulting in surfaces with systematically tuned net charges ranging from fully positive to fully negative, labeled as HAP1-HAP5. Cytotoxicity assessments using NIH-3T3 fibroblast cells confirmed the biocompatibility of the polymer-coated HA surfaces. To confirm the antifouling property, adherence studies of Streptococcus mutans (S. mutans), a bacterium that causes dental caries (tooth decay) and dental plaque, were analyzed using a scanning electron microscope (SEM). Among all samples, HAP3 exhibited the minimum bacterial adhesion and the most effective resistance to protein adsorption, significantly outperforming the uncoated HA control.

Accession Number: WOS:001603155000001

PubMed ID: 41147223

Language: English

Document Type: Article; Early Access

Author Keywords: hydroxyapatite; polyampholytes; antifoulingcoating; RAFT polymerization; <italic>Streptococcusmutans</italic>

KeyWords Plus: HYDROXYAPATITE NANOPARTICLES; ZWITTERIONIC POLYMERS; RAFT POLYMERIZATION; SURFACE; ACID

Addresses: [Babu, Anashwara; Sivakumar, Gomathi; Maji, Samarendra] SRM Inst Sci & Technol SRMIST, Fac Engn & Technol, Dept Chem, Kattankulathur 603203, Tamil Nadu, India.
[Kim, Minjae; Lee, Yan] Seoul Natl Univ, Coll Nat Sci, Dept Chem, Seoul 08826, South Korea.
[Chauhan, Deepika; Sasmal, Pijus K.] Jawaharlal Nehru Univ, Sch Phys Sci, New Delhi 110067, India.
[Badri, Rahul; Banerjee, Susanta] Indian Inst Technol Kharagpur, Mat Sci Ctr, Kharagpur 721302, India.
[Nagorna, Zlata; Van Guyse, Joachim F. R.] Leiden Acad Ctr Drug Res, NL-2333 CC Leiden, Netherlands.
[Kar, Pradip] Birla Inst Technol, Dept Chem, Ranchi 835215, Jharkhand, India.

Corresponding Address: Maji, S (corresponding author), SRM Inst Sci & Technol SRMIST, Fac Engn & Technol, Dept Chem, Kattankulathur 603203, Tamil Nadu, India.
Lee, Y (corresponding author), Seoul Natl Univ, Coll Nat Sci, Dept Chem, Seoul 08826, South Korea.

E-mail Addresses: gacn@snu.ac.kr; samarenr@srmist.edu.in

Affiliations: SRM Institute of Science & Technology Chennai; Seoul National University (SNU); Jawaharlal Nehru University, New Delhi; Indian Institute of Technology System (IIT System); Indian Institute of Technology (IIT) - Kharagpur; Birla Institute of Technology Mesra

Author Identifiers:

Author	Web of Science ResearcherID	ORCID Number
Van+Guyse, Joachim	AAD-4363-2022	
KAR, Pradip	F-5815-2015	
Maji, Samarendra	C-9115-2018	

Publisher: AMER CHEMICAL SOC

Publisher Address: 1155 16TH ST, NW, WASHINGTON, DC 20036 USA

Web of Science Index: Science Citation Index Expanded (SCI-EXPANDED)

Web of Science Categories: Materials Science, Biomaterials

Research Areas: Materials Science

IDS Number: 9CP9J

ISSN: 2373-9878

29-char Source Abbrev.: ACS BIOMATER SCI ENG

ISO Source Abbrev.: ACS Biomater. Sci. Eng.

Source Item Page Count: 12

Funding:

Funding Agency	Grant Number
SRM Institute of Science and Technology	NA
Science and Engineering Research Board	CRG/2021/004203

A.B and G.S thank SRM IST for providing a fellowship to support the Ph.D. program. S.M. acknowledged SRMIST for providing a seed grant and the Science and Engineering Research Board (SERB), India, for a core research grant (CRG/2021/004203).

Output Date: 2025-11-11

Record 55 of 56

Title: Quantum Phase Transitions in Graphene Coupled to a Twisted WSe2 Moiré Ferroelectricity

Author(s): Singh, B (Singh, Budhi); Hassan, Y (Hassan, Yasir); Ali, N (Ali, Nasir); Durairaj, S (Durairaj, Santosh); Jang, J (Jang, Jimin); Ngo, TD (Ngo, Tien Dat); Saini, J (Saini, Jyoti); Abbas, MS (Abbas, Muhammad Sabbtain); Watanabe, K (Watanabe, Kenji); Taniguchi, T (Taniguchi, Takashi); Choi, MS (Choi, Min Sup); Ghosh, S (Ghosh, Subhasis); Kim, T (Kim, Taesung); Jeong, HM (Jeong, Hyung Mo); Lee, S (Lee, Sungjoo); Yoo, WJ (Yoo, Won Jong); Srivastava, PK (Srivastava, Pawan Kumar); Lee, C (Lee, Changgu)

Source: ADVANCED MATERIALS **DOI:** 10.1002/adma.202514744 **Early Access Date:** OCT 2025 **Published Date:** 2025 OCT 22

Times Cited in Web of Science Core Collection: 0

Total Times Cited: 0

Usage Count (Last 180 days): 1

Usage Count (Since 2013): 1

Cited References: Ali N, 2024, ACS NANO, V18, P11978, DOI 10.1021/acsnano.4c02432
Cao Y, 2018, NATURE, V556, P43, DOI 10.1038/nature26160
Chen ZG, 2014, NAT COMMUN, V5, DOI 10.1038/ncomms5461
Evers F, 2008, REV MOD PHYS, V80, P1355, DOI 10.1103/RevModPhys.80.1355
Furukawa T, 2015, NAT PHYS, V11, P221, DOI 10.1038/NPHYS3235
Gegenwart P, 2008, NAT PHYS, V4, P186, DOI 10.1038/nphys892
Ghiotto A, 2021, NATURE, V597, P345, DOI 10.1038/s41586-021-03815-6
Hassan Y, 2024, ADV MATER, V36, DOI 10.1002/adma.202406290
Jindal A, 2023, NATURE, V613, P48, DOI 10.1038/s41586-022-05521-3
Kang KF, 2023, NAT NANOTECHNOL, V18, P861, DOI 10.1038/s41565-023-01376-5
Kaur S, 2024, NAT COMMUN, V15, DOI 10.1038/s41467-024-52927-w
Kormányos A, 2015, 2D MATER, V2, DOI 10.1088/2053-1583/2/2/022001
KRAVCHENKO SV, 1994, PHYS REV B, V50, P8039, DOI 10.1103/PhysRevB.50.8039
Li Q, 2022, NATURE, V609, DOI 10.1038/s41586-022-05106-0
Li TX, 2021, NATURE, V597, P350, DOI 10.1038/s41586-021-03853-0
Mann HK, 2025, PHYS REV B, V111, DOI 10.1103/PhysRevB.111.235118
Movva HCP, 2015, ACS NANO, V9, P10402, DOI 10.1021/acsnano.5b04611
Page MJ, 2021, BMJ-BRIT MED J, V372, DOI [10.1136/bmj.n71, 10.1136/bmj.n160]
Pradhan NR, 2015, NANO LETT, V15, P8377, DOI 10.1021/acs.nanolett.5b04100
Pudalov VM, 1997, JETP LETT+, V66, P175, DOI 10.1134/1.567498
Radisavljevic B, 2013, NAT MATER, V12, P815, DOI [10.1038/NMAT3687, 10.1038/nmat3687]
Saito Y, 2018, NAT COMMUN, V9, DOI 10.1038/s41467-018-03275-z
Schedin F, 2007, NAT MATER, V6, P652, DOI 10.1038/nmat1967
Singh B., 2025, Uniqueness and Future Perspectives of 2D Ferroelectric Devices: Applications in Emerging

Computing Paradigms and Hardware Security
Tan YT, 2022, NAT COMMUN, V13, DOI 10.1038/s41467-022-35103-w
Terletska H, 2011, PHYS REV LETT, V107, DOI 10.1103/PhysRevLett.107.026401
Trenkwalder A, 2016, NAT PHYS, V12, P826, DOI 10.1038/nphys3743
Vojta M, 2003, REP PROG PHYS, V66, P2069, DOI 10.1088/0034-4885/66/12/R01
Wang L, 2020, NAT MATER, V19, P861, DOI 10.1038/s41563-020-0708-6
Wang XR, 2025, NAT COMMUN, V16, DOI 10.1038/s41467-024-55432-2
Wang XR, 2022, NAT NANOTECHNOL, V17, P367, DOI 10.1038/s41565-021-01059-z
Weston A, 2022, NAT NANOTECHNOL, V17, P390, DOI 10.1038/s41565-022-01072-w
Zhang S, 2023, NAT COMMUN, V14, DOI 10.1038/s41467-023-41773-x
Zheng ZR, 2020, NATURE, V588, P71, DOI 10.1038/s41586-020-2970-9
Zhou YZ, 2022, NAT PHYS, V18, P406, DOI 10.1038/s41567-022-01513-2

Cited Reference Count: 35

Abstract: Sublattice symmetry in graphene governs its Dirac semimetal behavior, where electrons exhibit linear dispersion, limiting its potential for technological applications. Here, moir & eacute; ferroelectricity in twisted WSe2 (t-WSe2) is exploited to break graphene's sublattice symmetry, inducing a metal-to-insulator transition (MIT) near room temperature. The periodic polarization domains in t-WSe2 imprint an electrostatic potential onto graphene, breaking its sublattice symmetry and leading to the emergence of a local Dirac point, as observed in the transfer characteristics of a t-WSe2/graphene field-effect transistor. Temperature-dependent transport measurements reveal multiple MIT points at relatively high temperatures, attributed to the room-temperature ferroelectric polarization in t-WSe2. Furthermore, A distinct metallic phases is identified exhibiting T 2 and linear-T dependent longitudinal resistance under electrostatic doping, indicative of Fermi-liquid and non-Fermi-liquid metallic behavior, respectively. Finally, finite-size scaling analysis of R xx near the MIT points indicates continuous quantum phase transitions near room temperature, establishing moir & eacute; ferroelectricity as a pathway for engineering quantum electronic phases of monolayer graphene at ambient conditions.

Accession Number: WOS:001597084800001

PubMed ID: 41122053

Language: English

Document Type: Article; Early Access

Author Keywords: Dirac point; metal-insulator transition; moir & eacute; ferroelectricity; quantum phase transitions; sublattice symmetry breaking; twisted WSe2; t-WSe2/graphene field-effect transistor

KeyWords Plus: METAL-INSULATOR-TRANSITION; MOTT TRANSITION; CRITICALITY; SUPERCONDUCTIVITY

Addresses: [Singh, Budhi; Ali, Nasir; Jang, Jimin; Ngo, Tien Dat; Lee, Sungjoo; Yoo, Won Jong; Lee, Changgu] Sungkyunkwan Univ, SKKU Adv Inst Nanotechnol SAINT, Suwon 16419, South Korea.
[Hassan, Yasir; Choi, Min Sup] Chungnam Natl Univ, Dept Mat Sci & Engn, Daejeon, South Korea.
[Durairaj, Santosh; Kim, Taesung; Jeong, Hyung Mo; Srivastava, Pawan Kumar; Lee, Changgu] Sungkyunkwan Univ, Sch Mech Engn, Suwon 16419, South Korea.
[Saini, Jyoti; Ghosh, Subhasis] Jawaharlal Nehru Univ, Sch Phys Sci, New Delhi 110067, India.
[Abbas, Muhammad Sabbtain] Seoul Natl Univ, Inst Appl Phys, Seoul 08826, South Korea.
[Abbas, Muhammad Sabbtain] Govt Coll Univ, Ctr Adv Studies Phys, Lahore 54000, Pakistan.
[Watanabe, Kenji; Taniguchi, Takashi] Natl Inst Mat Sci, Namiki 1-1, Tsukuba, Ibaraki 3050044, Japan.
[Srivastava, Pawan Kumar] Sungkyunkwan Univ SKKU, Inst Basic Sci IBS, Ctr 2D Quantum Heterostruct, Suwon 16419, South Korea.
[Srivastava, Pawan Kumar] Natl Univ Singapore, Dept Phys, Sci Dr 3, Singapore 117542, Singapore.

Corresponding Address: Lee, C (corresponding author), Sungkyunkwan Univ, SKKU Adv Inst Nanotechnol SAINT, Suwon 16419, South Korea.
Srivastava, PK; Lee, C (corresponding author), Sungkyunkwan Univ, Sch Mech Engn, Suwon 16419, South

Korea.
Srivastava, PK (corresponding author), Sungkyunkwan Univ SKKU, Inst Basic Sci IBS, Ctr 2D Quantum Heterostruct, Suwon 16419, South Korea.
Srivastava, PK (corresponding author), Natl Univ Singapore, Dept Phys, Sci Dr 3, Singapore 117542, Singapore.

E-mail Addresses: pksri08@nus.edu.sg; peterlee@skku.edu

Affiliations: Sungkyunkwan University (SKKU); Chungnam National University; Sungkyunkwan University (SKKU); Jawaharlal Nehru University, New Delhi; Seoul National University (SNU); Government College University Lahore; National Institute for Materials Science; Institute for Basic Science - Korea (IBS); Sungkyunkwan University (SKKU); National University of Singapore

Author Identifiers:

Author	Web of Science ResearcherID	ORCID Number
Ngo, Tien Dat	FGA-3218-2022	
Yoo, Won	AAR-2052-2021	

Publisher: WILEY-V C H VERLAG GMBH

Publisher Address: POSTFACH 101161, 69451 WEINHEIM, GERMANY

Web of Science Index: Science Citation Index Expanded (SCI-EXPANDED)

Web of Science Categories: Chemistry, Multidisciplinary; Chemistry, Physical; Nanoscience & Nanotechnology; Materials Science, Multidisciplinary; Physics, Applied; Physics, Condensed Matter

Research Areas: Chemistry; Science & Technology - Other Topics; Materials Science; Physics

IDS Number: 8TR4I

ISSN: 0935-9648

eISSN: 1521-4095

29-char Source Abbrev.: ADV MATER

ISO Source Abbrev.: Adv. Mater.

Source Item Page Count: 9

Funding:

Funding Agency	Grant Number
National Research Foundation of Korea (NRF) - Korean government (MSIT)	RS-2021-NR060128 2022R1A3B1078163 RS-2024-00346656 RS-2024-00444574

This research was supported by the Basic Science Research Program through the National Research Foundation of Korea (NRF) (RS-2021-NR060128, 2022R1A3B1078163, RS-2024-00346656, and RS-2024-00444574) funded by the Korean government (MSIT).

Open Access: hybrid

Output Date: 2025-11-11

Record 56 of 56

Title: Enhanced photovoltaic performance in MA-free triple-cation-based perovskite solar cells with guanidinium modification

Author(s): Dhakla, S (Dhakla, Shweta); Deendyal, PK (Deendyal, Parvesh K.); Suman, H (Suman, Harishankar); Ranjan, S (Ranjan, Sudhir); Taya, A (Taya, Ankur); Saini, HS (Saini, Hardev S.); Kumar, S (Kumar, Sarvesh); Gupta, RK (Gupta, Raju Kumar); Garg, A (Garg, Ashish); Kashyap, MK (Kashyap, Manish K.)

Source: JOURNAL OF MATERIALS CHEMISTRY A **Volume:** 13 **Issue:** 42 **Pages:** 36277-36292 **DOI:** 10.1039/d5ta04565g **Early Access Date:** OCT 2025 **Published Date:** 2025 OCT 28

Cited References: Alharbi EA, 2019, RESEARCH-CHINA, V2019, DOI 10.34133/2019/8474698
[Anonymous], 2019, Champion Photovoltaic Module Efficiency Chart
BLOCHL PE, 1994, PHYS REV B, V49, P16223, DOI 10.1103/PhysRevB.49.16223
Chavan RD, 2020, ADV MATER INTERFACES, V7, DOI 10.1002/admi.202000105
Chen R, 2022, ENERG ENVIRON SCI, V15, P2567, DOI 10.1039/d2ee00433j
De Marco N, 2016, NANO LETT, V16, P1009, DOI 10.1021/acs.nanolett.5b04060
Deendyal PK, 2024, SOL RRL, V8, DOI 10.1002/solr.202300957
Deendyal PK, 2023, CHEMISTRYSELECT, V8, DOI 10.1002/slct.202302252
Dhakla S, 2024, IEEE J PHOTOVOLT, V14, P85, DOI 10.1109/JPHOTOV.2023.3319603
Dong H, 2025, ADV ENERGY MATER, V15, DOI 10.1002/aenm.202403965
Embrose K, 2025, ACS APPL ENERG MATER, V8, P2011, DOI 10.1021/acsaem.4c02404
Gao LL, 2020, ACS APPL MATER INTER, V12, P43885, DOI 10.1021/acsami.0c14925
Giorgi G, 2015, J PHYS CHEM C, V119, P4694, DOI 10.1021/acs.jpcc.5b00051
Jodlowski AD, 2017, NAT ENERGY, V2, P972, DOI 10.1038/s41560-017-0054-3
Kieslich G, 2014, CHEM SCI, V5, P4712, DOI 10.1039/c4sc02211d
Kojima A, 2009, J AM CHEM SOC, V131, P6050, DOI 10.1021/ja809598r
Kresse G, 1996, PHYS REV B, V54, P11169, DOI 10.1103/PhysRevB.54.11169
Kubicki DJ, 2018, J AM CHEM SOC, V140, P3345, DOI 10.1021/jacs.7b12860
Lee JW, 2015, ADV ENERGY MATER, V5, DOI 10.1002/aenm.201501310
Liu TH, 2018, ADV ENERGY MATER, V8, DOI 10.1002/aenm.201800232
Lou Q, 2025, CELL REP PHYS SCI, V6, DOI [10.1016/j.xcrp.2025.102515, 10.1016/j.xcrp.2025.102515]
Marinova N, 2015, ACS NANO, V9, P4200, DOI 10.1021/acsnano.5b00447
Momma K, 2011, J APPL CRYSTALLOGR, V44, P1272, DOI 10.1107/S0021889811038970
Pham ND, 2019, ADV FUNCT MATER, V29, DOI 10.1002/adfm.201806479
Noel NK, 2014, ACS NANO, V8, P9815, DOI 10.1021/nn5036476
Othman M, 2023, SOL RRL, V7, DOI 10.1002/solr.202200852
Perdew JP, 1996, PHYS REV LETT, V77, P3865, DOI [10.1103/PhysRevLett.77.3865, 10.1103/PhysRevLett.78.1396]
Qiu LB, 2020, J MATER CHEM A, V8, P23404, DOI 10.1039/d0ta09007g
Singh H, 2024, J PHYS CHEM SOLIDS, V193, DOI 10.1016/j.jpcs.2024.112145
Soultati A, 2023, ENERGY ADV, V2, P1075, DOI 10.1039/d3ya00098b
Su J, 2024, ADV FUNCT MATER, V34, DOI 10.1002/adfm.202406324
Sun Y, 2017, SCI REP-UK, V7, DOI 10.1038/srep46193
TAUC J, 1968, MATER RES BULL, V3, P37, DOI 10.1016/0025-5408(68)90023-8
Wang J, 2020, NAT COMMUN, V11, DOI 10.1038/s41467-019-13909-5
Wei QB, 2024, J MATER CHEM A, V12, P1573, DOI 10.1039/d3ta07077h
Weller MT, 2015, J PHYS CHEM LETT, V6, P3209, DOI 10.1021/acs.jpclett.5b01432
Wu SF, 2019, CHEM COMMUN, V55, P4315, DOI 10.1039/c9cc00016j
Yi CY, 2016, ENERG ENVIRON SCI, V9, P656, DOI 10.1039/c5ee03255e
Yu Y, 2016, CHEMSUSCHEM, V9, P3288, DOI 10.1002/cssc.201601027

Zhang M, 2014, CHEM COMMUN, V50, P11727, DOI 10.1039/c4cc04973j
Zhang WH, 2019, J MATER CHEM A, V7, P9486, DOI 10.1039/c9ta01893j
Zhou WW, 2024, ADV FUNCT MATER, V34, DOI 10.1002/adfm.202407897
Zhou Y, 2019, ADV FUNCT MATER, V29, DOI 10.1002/adfm.201905739
Zhu HW, 2023, NAT REV MATER, V8, P569, DOI 10.1038/s41578-023-00582-w

Cited Reference Count: 44

Abstract: Hybrid halide perovskite (HHP)-based solar cells have revolutionized the photovoltaic landscape with their exceptional photovoltaic performance and potential as a low-cost solar technology. Herein, we demonstrate the use of guanidinium cation (GA+) as a dopant to tailor the properties of the mixed cation perovskite, formamidinium-cesium lead triiodide (FA0.83Cs0.17PbI3), for improved photovoltaic performance in perovskite solar cells (PSCs). X-ray diffraction (XRD) results reveal that the GA content plays a pivotal role in the formation of alpha and delta phases in the resultant perovskite structure. Our results indicate that the low/high concentration of GA improves/diminishes device performance. The champion PSC device demonstrates an incredible power conversion efficiency (PCE) of 20.7% and an impressive open-circuit voltage (Voc) of 1.12 V under one sun illumination and an optimal content of 3% GA+ dopant, which is remarkable for an MA-free device. Furthermore, the GA-incorporated perovskite films show much improved moisture and thermal stabilities and increased carrier lifetimes compared with FA-Cs counterparts. This work underscores the potential of GA-doped FA-Cs perovskites in the development of high-performance, stable, and MA-free PSCs, paving the way for their applications in commercial photovoltaic technologies.

Accession Number: WOS:001587001300001

Language: English

Document Type: Article

KeyWords Plus: LEAD IODIDE; HALIDE PEROVSKITES; EFFICIENT; LIFETIME; PHOTOLUMINESCENCE; METHYLAMMONIUM; RECOMBINATION; FORMAMIDINIUM; LAYER

Addresses: [Dhakla, Shweta; Deendyal, Parvesh K.; Kashyap, Manish K.] Jawaharlal Nehru Univ, Sch Phys Sci, Renewable Energy Lab, New Delhi 110067, India.
[Deendyal, Parvesh K.] Govt Polytech Women, Faridabad 121006, Haryana, India.
[Suman, Harishankar] Indian Inst Technol Roorkee, Dept Phys, Roorkee 247667, Uttarakhand, India.
[Suman, Harishankar; Gupta, Raju Kumar; Garg, Ashish] Indian Inst Technol Kanpur, Dept Sustainable Energy Engn, Kanpur 208016, Uttar Pradesh, India.
[Ranjan, Sudhir; Gupta, Raju Kumar] Indian Inst Technol Kanpur, Dept Chem Engn, Kanpur 208016, Uttar Pradesh, India.
[Taya, Ankur] Mukand Lal Natl Coll, Dept Phys, Yamunanagar 135001, Haryana, India.
[Saini, Hardev S.] Guru Jambheshwar Univ Sci & Technol, Dept Phys, Hisar 125001, Haryana, India.
[Kumar, Sarvesh] Univ Delhi, Dept Phys & Astrophys, Delhi 110007, India.
[Kumar, Sarvesh] Interuniv Accelerator Ctr, Aruna Asaf Ali Marg, New Delhi 110067, India.
[Gupta, Raju Kumar; Garg, Ashish] Indian Inst Technol Kanpur, Chandrakanta Kesavan Ctr Energy Policy & Climate S, Kanpur 208016, Uttar Pradesh, India.
[Gupta, Raju Kumar] Indian Inst Technol Kanpur, Ctr Environm Sci & Engn, Kanpur 208016, Uttar Pradesh, India.
[Garg, Ashish] Indian Inst Technol Kanpur, Kotak Sch Sustainabil, Kanpur 208016, Uttar Pradesh, India.

Corresponding Address: Kashyap, MK (corresponding author), Jawaharlal Nehru Univ, Sch Phys Sci, Renewable Energy Lab, New Delhi 110067, India.

E-mail Addresses: manishdft@gmail.com

Affiliations: Jawaharlal Nehru University, New Delhi; Indian Institute of Technology System (IIT System); Indian Institute of Technology (IIT) - Roorkee; Indian Institute of Technology System (IIT System); Indian Institute of Technology (IIT) - Kanpur; Indian Institute of Technology System (IIT System); Indian Institute of Technology (IIT) - Kanpur; Guru Jambheshwar University of Science & Technology; University of Delhi;

Inter-University Accelerator Centre; Indian Institute of Technology System (IIT System); Indian Institute of Technology (IIT) - Kanpur; Indian Institute of Technology System (IIT System); Indian Institute of Technology (IIT) - Kanpur; Indian Institute of Technology System (IIT System); Indian Institute of Technology (IIT) - Kanpur

Author Identifiers:

Author	Web of Science ResearcherID	ORCID Number
Singh, HARDEV		0000-0002-8520-4963
Kashyap, Manish	ABE-6515-2020	
Kumar, Sarvesh		0000-0003-0663-2482
, Shweta Dhakla		0000-0002-3126-2789
Taya, Ankur	HMD-1772-2023	
Kumar, Sarvesh	H-5446-2012	
Gupta, Raju	AAI-9979-2020	
, Parvesh Kumar		0000-0002-5649-6952

Publisher: ROYAL SOC CHEMISTRY

Publisher Address: THOMAS GRAHAM HOUSE, SCIENCE PARK, MILTON RD, CAMBRIDGE CB4 0WF, CAMBS, ENGLAND

Web of Science Index: Science Citation Index Expanded (SCI-EXPANDED)

Web of Science Categories: Chemistry, Physical; Energy & Fuels; Materials Science, Multidisciplinary

Research Areas: Chemistry; Energy & Fuels; Materials Science

IDS Number: 9AH9M

ISSN: 2050-7488

eISSN: 2050-7496

29-char Source Abbrev.: J MATER CHEM A

ISO Source Abbrev.: J. Mater. Chem. A

Source Item Page Count: 16

Funding:

Funding Agency	Grant Number
M/S/Ultra International Pvt. Ltd, Ghaziabad, India	
DST	
EPSRC UK for perovskite cell research	

The authors, M. K. K., S. D. and P. K. D., are grateful to M/S/Ultra International Pvt. Ltd, Ghaziabad, India, for providing the lab furniture for the Renewable Energy Laboratory at SPS, JNU. PSC device fabrication and testing were done in the Solar Energy Innovation Lab, IIT Kanpur. The computational work was performed on Param Rudra Supercomputing facilities at Inter-University Accelerator Centre (IUAC), New Delhi. A. G. thanks support from DST and EPSRC UK for perovskite cell research.

Output Date: 2025-11-11

End of File