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**Monthly Bulletin of Publications:  
Faculty, Scientists and Students of IISER Pune.  
DECEMBER 2023**

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# PATENT

**Inventor(s)** BRITTO, SANDANARAJ S.; BATHLA, PUNITA  
**Title** Process for determining enzyme activity in a cell by activity-based reporter gene technology (ABRGT)  
**Assignee** Indian Institute of Science Education and Research Pune  
**Patent No.** US11834698B2  
**DR URI** <http://dr.iiserpune.ac.in:8080/xmlui/handle/123456789/8333>  
**Date of Publication** 2023-12

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# BIOLOGY

## Journal Articles

- Author(s)** BAPAT, MRINMAYEE; PANDE, VANI; PANANGHAT, GAYATHRI  
**Title** Support Proteins: Getting bacterial cells into shape  
**Citation** eLife.  
**Publisher** eLife Sciences Publications Ltd.  
**URI** <https://doi.org/10.7554/eLife.93719>  
**DR URI** <http://dr.iiserpune.ac.in:8080/xmlui/handle/123456789/8379>  
**Date of Publication** 2023-12
- Author(s)** CHAVHAN, YASHRAJ; MALUSARE, SARTHAK; DEY, SUTIRTH  
**Title** Population size shapes trade-off dilution and adaptation to a marginal niche unconstrained by sympatric habitual conditions  
**Citation** Evolution  
**Publisher** Oxford University Press  
**URI** <https://doi.org/10.1093/evolut/qpad212>  
**DR URI** <http://dr.iiserpune.ac.in:8080/xmlui/handle/123456789/8381>  
**Date of Publication** 2023-12
- Author(s)** Gupta, Rohit; Priya, Anshu; Chowdhary, Manish; V. Batra, Vineeta; Nagarajan, Perumal; GOKHALE, RAJESH S.; Singh, Archana  
**Title** Pigmented skin exhibits accelerated wound healing compared to the nonpigmented skin in Guinea pig model  
**Citation** iScience, 26(11), 108159.  
**Publisher** Elsevier B.V.  
**URI** <https://doi.org/10.1016/j.isci.2023.108159>  
**DR URI** <http://dr.iiserpune.ac.in:8080/xmlui/handle/123456789/8361>  
**Date of Publication** 2023-11

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**Author(s)** MADABHUSHI, ABHINAVA JAGAN; WEWHARE, NAKUL; Binwal, Priya; Agarwal, Vaishnavi; Krishnan, Anand  
**Title** Higher-order dialectic variation and syntactic convergence in the complex warble song of budgerigars  
**Citation** Journal of Experimental Biology, 226(20).  
**Publisher** The Company of Biologists  
**URI** <https://doi.org/10.1242/jeb.245678>  
**DR URI** <http://dr.iiserpune.ac.in:8080/xmlui/handle/123456789/8342>  
**Date of Publication** 2023-10

**Author(s)** MAJUMDAR, SAYANTAN; Kalamkar, Saurabh D.; Dudhgaonkar, Shashikant; Shelgikar, Kishor M.; Ghaskadbi, Saroj; GOEL, PRANAY  
**Title** Evaluation of HbA1c from CGM traces in an Indian population  
**Citation** Frontiers in Endocrinology, 14.  
**Publisher** Frontiers Media S.A.  
**URI** <https://doi.org/10.3389/fendo.2023.1264072>  
**DR URI** <http://dr.iiserpune.ac.in:8080/xmlui/handle/123456789/8359>  
**Date of Publication** 2023-11

**Author(s)** Oza, Chirantap; Misha Antani; Mondkar, Shruti A.; Kajale, Neha; Ojha, Vikas; GOEL, PRANAY; Khadilkar, Vaman; Khadilkar, Anuradha V.  
**Title** BoneXpert-derived bone health index reference curves constructed on healthy Indian children and adolescents  
**Citation** Pediatric Radiology.  
**Publisher** Springer Nature  
**URI** <https://doi.org/10.1007/s00247-023-05824-1>  
**DR URI** <http://dr.iiserpune.ac.in:8080/xmlui/handle/123456789/8380>  
**Date of Publication** 2023-12

**Author(s)** PAL, SUMAN; UDGAONKAR, JAYANT B.  
**Title** Mutations of evolutionarily conserved aromatic residues suggest that misfolding of the mouse prion protein may commence in multiple ways  
**Citation** Journal of Neurochemistry, 167(05), 696-710.  
**Publisher** Wiley  
**URI** <https://doi.org/10.1111/jnc.16007>  
**DR URI** <http://dr.iiserpune.ac.in:8080/xmlui/handle/123456789/8341>  
**Date of Publication** 2023-12

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**Author(s)** PATKI, GAURI M.; RAJAMANI, SUDHA  
**Title** Nonenzymatic RNA replication in a mixture of 'spent' nucleotides  
**Citation** FEBS Letters, 597(24), 3125-3134.  
**Publisher** Wiley  
**URI** <https://doi.org/10.1002/1873-3468.14785>  
**DR URI** <http://dr.iiserpune.ac.in:8080/xmlui/handle/123456789/8378>  
**Date of Publication** 2023-12

**Author(s)** Phatak, Sanat; CHAKRABORTY, SOMASHREE; GOEL, PRANAY  
**Title** Computer vision detects inflammatory arthritis in standardized smartphone photographs in an Indian patient cohort  
**Citation** Frontiers in Medicine, 10.  
**Publisher** Frontiers Media S.A.  
**URI** <https://doi.org/10.3389/fmed.2023.1280462>  
**DR URI** <http://dr.iiserpune.ac.in:8080/xmlui/handle/123456789/8338>  
**Date of Publication** 2023-11

**Author(s)** Talwadekar, Manasi; Khatri, Subhash; Balaji, Chinthapalli; CHAKRABORTY, ARNAB; Basak, NandiniPal; KAMAT, SIDDHESH; Kolthur-Seetharam, Ullas  
**Title** Metabolic transitions regulate global protein fatty acylation  
**Citation** Journal of Biological Chemistry  
**Publisher** Elsevier B.V.  
**URI** <https://doi.org/10.1016/j.jbc.2023.105563>  
**DR URI** <http://dr.iiserpune.ac.in:8080/xmlui/handle/123456789/8352>  
**Date of Publication** 2023-12

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# CHEMISTRY

## Journal Articles

**Author(s)** Amin, Iram; Bhat, Sajad Ahmad; Bhat, Murtaza Manzoor; Sofi, Feroz Ahmad; Bhat, Aamir Y.; Ingole, Pravin P.; MONDAL, RITWIK; THOTIYL, MUSTHAFA OTTAKAM; Bhat, Mohsin Ahmad

**Title** Pt<sub>x</sub>Ag<sub>100-x</sub> nano-alloy decorated N-doped reduced graphene oxide: a promising electrocatalyst for direct urea fuel cells

**Citation** New Journal of Chemistry, 47(48), 22146-22156.

**Publisher** Royal Society of Chemistry

**URI** <https://doi.org/10.1039/D3NJ04229D>

**DR URI** <http://dr.iiserpune.ac.in:8080/xmlui/handle/123456789/8350>

**Date of Publication** 2023-12

**Author(s)** BANKAR, ONKAR S.; LAHA, DEBASISH; MEHER, KAJAL B.; BHAT, RAMAKRISHNA G.

**Title** Umpolung Reactivity of Diazo Arylidene Succinimides: Distal C–H Functionalization of  $\alpha$ -Thiocarbonyls from the Reactive Carbenoid Center

**Citation** Chemistry - An Asian Journal,18(23).

**Publisher** Wiley

**URI** <https://doi.org/10.1002/asia.202300774>

**DR URI** <http://dr.iiserpune.ac.in:8080/xmlui/handle/123456789/8348>

**Date of Publication** 2023-12

**Author(s)** BHOWMICK, ANINDITA; CHATTERJEE, ABHIJIT; PATHAK, SIDHARTH S.; BHAT, RAMAKRISHNA G

**Title** A visible light-driven direct synthesis of industrially relevant glutaric acid diesters from aldehydes

**Citation** Chemical Communications, 59(79), 11875-11878.

**Publisher** Royal Society of Chemistry

**URI** <https://doi.org/10.1039/D3CC02557H>

**DR URI** <http://dr.iiserpune.ac.in:8080/xmlui/handle/123456789/8384>

**Date of Publication** 2023-10

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**Author(s)** MUKHOPADHYAY, SANCHAYITA; RAJA, ALAGAR; DEVENDRACHARI, MRUTHUNJAYACHARI CHATTANAHALLI; MENDHE, RAHUL MAHADEO; Kotresh, Harish Makri Nimbegondi; Prabhakaran, Vinod; THOTIYL, MUSTHAFA OTTAKAM

**Title** Electrochemical energy storage in organic supercapacitor via a non-electrochemical proton charge assembly

**Citation** Chemical Science

**Publisher** Royal Society of Chemistry

**URI** <https://doi.org/10.1039/D3SC05639B>

**DR URI** <http://dr.iiserpune.ac.in:8080/xmlui/handle/123456789/8375>

**Date of Publication** 2023-12

**Author(s)** Nandi, Shyamapada; SINGH, HIMAN DEV; SHEKHAR, PRAGALBH; CHAKRABORTY, DEBANJAN; KUSHWAHA, RINKU; VAIDHYANATHAN, RAMANATHAN

**Title** An intrinsically zwitter-ionic COF: a carboxylic acid and pseudo-tetrahedral  $sp^3$  nitrogen functionalized covalent organic framework with potential for humidity sensing

**Citation** Journal of Materials Chemistry A.

**Publisher** Royal Society of Chemistry

**URI** <https://doi.org/10.1039/D3TA05416K>

**DR URI** <http://dr.iiserpune.ac.in:8080/xmlui/handle/123456789/8349>

**Date of Publication** 2023-11

**Author(s)** NINAWA, PRANAY; Jain, Anil; Sangole, Mayur; Anas, Mohd; UGALE, AJAY; Malik, Vivek K.; Yusuf, Seikh M.; Singh, Kirandeep; BALLAV, NIRMALYA

**Title** Robust Spin Liquidity in 2D Metal-Organic Framework  $Cu_3$  (HHTP)<sub>2</sub> with  $S=1/2$  Kagome Lattice

**Citation** Chemistry—A European Journal.

**Publisher** Wiley

**URI** <https://doi.org/10.1002/chem.202303718>

**DR URI** <http://dr.iiserpune.ac.in:8080/xmlui/handle/123456789/8362>

**Date of Publication** 2023-11

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**Author(s)** PAHAN, SAIKAT; DEY, SANJIT; GEORGE, GIJO; MAHAPATRA, SOUVIK PANDA; PUNEETH KUMAR, DRGKOPPALU R.; GOPI, HOSAHUDYA. N.

**Title** Design of Chiral  $\beta$ -Double Helices from  $\gamma$ -Peptide Foldamers

**Citation** Angewandte Chemie International Edition

**Publisher** Wiley

**URI** <https://doi.org/10.1002/anie.202316309>

**DR URI** <http://dr.iiserpune.ac.in:8080/xmlui/handle/123456789/8356>

**Date of Publication** 2023-11

**Author(s)** PEDDI, BALAKRISHNA; KHAN, SOUVIK; Gonnade, Rajesh G.; Yildiz, Cem B.; MAJUMDAR, MOUMITA

**Title** Intramolecular donor-stabilized tetra-coordinated germanium(IV) di-cations and their Lewis acidic properties

**Citation** Chemical Science, 14(47), 13755-13764.

**Publisher** Royal Society of Chemistry

**URI** <https://doi.org/10.1039/D3SC03717G>

**DR URI** <http://dr.iiserpune.ac.in:8080/xmlui/handle/123456789/8351>

**Date of Publication** 2023-12

**Author(s)** ROY, SOUVIK; CHATURVEDI, AMAN; DEY, SANJIT; KUMAR, DRGKOPPALU R. PUNEETH; PAHAN, SAIKAT; MAHAPATRA, SOUVIK PANDA; MANDAL, PANKAJ; GOPI, HOSAHUDYA N.

**Title** Anion Tuned Structural Modulation and Nonlinear Optical Effects of Metal-Ion Directed  $3_{10}$ -Helix Networks

**Citation** Chemistry—A European Journal, 29(72).

**Publisher** Wiley

**URI** <https://doi.org/10.1002/chem.202303135>

**DR URI** <http://dr.iiserpune.ac.in:8080/xmlui/handle/123456789/8340>

**Date of Publication** 2023-12

**Author(s)** HOSSAIN, SK MUJAFFAR; Kumar, Nikhil; Debnath, Bharati; OGALE, SATISHCHANDRA

**Title** Core-shell  $\text{Cu}_{1-x}\text{Ni}_x\text{Co}_3\text{-y}/\text{a-CuFeCo}$  antiperovskite as high-performance anode for Li-ion batteries

**Citation** Journal of Physics: Energy, 6 (1).

**Publisher** IOP Publishing

**URI** <https://doi.org/10.1088/2515-7655/ad08d9>

**DR URI** <http://dr.iiserpune.ac.in:8080/xmlui/handle/123456789/8357>

**Date of Publication** 2024-01

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# EARTH AND CLIMATE SCIENCE

## Journal Articles

**Author(s)** BANERJEE, ARGHA; Sarangi, Chandan; Rashid, Irfan; Vijay, Saurabh; Najar, Nadeem Ahmad; Chandel, Amit Singh

**Title** A Scaling Relation for Cryoconite Holes

**Citation** Geophysical Research Letters, 50(22).

**Publisher** Wiley

**URI** <https://doi.org/10.1029/2023GL104942>

**DR URI** <http://dr.iiserpune.ac.in:8080/xmlui/handle/123456789/8346>

**Date of Publication** 2023-11

**Author(s)** CHAUHAN, IKTESH; SWAMINADHAN, SUJITH; DEHIYA, RAHUL

**Title** Two-dimensional anisotropic acoustic wave modelling using the support operator method

**Citation** Geophysical Prospecting

**Publisher** Wiley

**URI** <https://doi.org/10.1111/1365-2478.13459>

**DR URI** <http://dr.iiserpune.ac.in:8080/xmlui/handle/123456789/8360>

**Date of Publication** 2023-11

**Author(s)** KUMAR, VIVEK

**Title** Preserved and modified arc crust beneath the Kohistan-Ladakh arc in the western Himalaya-Karakoram region: evidence from ambient noise and earthquake data

**Citation** Frontiers in Earth Science, 11.

**Publisher** Frontiers Media S.A.

**URI** <https://doi.org/10.3389/feart.2023.1264415>

**DR URI** <http://dr.iiserpune.ac.in:8080/xmlui/handle/123456789/8347>

**Date of Publication** 2023-11

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**Author(s)** ROUT, RAKESH KUMAR; TRIPATHY, GYANA RANJAN  
**Title** Net effect of chemical erosion in a tropical basin on carbon cycle: Constraints from elemental and sulfur isotopic composition of the Mahanadi river water  
**Citation** Chemical Geology, 644, 121859.  
**Publisher** Elsevier B.V.  
**URI** <https://doi.org/10.1016/j.chemgeo.2023.121859>  
**DR URI** <http://dr.iiserpune.ac.in:8080/xmlui/handle/123456789/8376>  
**Date of Publication** 2024-01

**Author(s)** SAHA, GOKUL; KUMAR, VIVEK; CHAUBEY, DIPAK K.; RAI, SHYAM S.  
**Title** Cryptic Magma Chamber in the Deccan Traps Imaged Using Receiver Functions and Surface Wave Dispersion  
**Citation** Geophysical Research Letters, 50(23).  
**Publisher** Wiley  
**URI** <https://doi.org/10.1029/2023GL105359>  
**DR URI** <http://dr.iiserpune.ac.in:8080/xmlui/handle/123456789/8344>  
**Date of Publication** 2023-12

**Author(s)** Uchale, Gayatri; Burman, Pramit Kumar Deb; Tiwari, Yogesh K.; Datye, Amev; SARKAR. AHARNA  
**Title** Investigating Terrestrial Carbon Uptake Over India Using Multimodel Simulations of Gross Primary Productivity and Satellite-Based Biophysical Product  
**Citation** Journal of Geophysical Research-Biogeosciences, 128(11).  
**Publisher** Wiley  
**URI** <https://doi.org/10.1029/2023JG007468>  
**DR URI** <http://dr.iiserpune.ac.in:8080/xmlui/handle/123456789/8343>  
**Date of Publication** 2023-11

**Author(s)** VENUGOPAL, ACHYUTH; TRIPATHY, GYANA RANJAN; Goswami, Vineet; Ghosh, Sumit K.; Singh, Deependra  
**Title** Oceanic Redox State During the Early Cambrian: Insights From Mo-S Isotopes and Geochemistry of Himalayan Shales  
**Citation** Geochemistry, Geophysics, Geosystems, 24(12).  
**Publisher** Wiley  
**URI** <https://doi.org/10.1029/2023GC011182>  
**DR URI** <http://dr.iiserpune.ac.in:8080/xmlui/handle/123456789/8377>  
**Date of Publication** 2023-12

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# MATHEMATICS

## Journal Articles

**Author(s)** ANAMBY, PRAMATH  
**Title** Non-vanishing of theta components of Jacobi forms with level and an application  
**Citation** International Journal of Number Theory  
**Publisher** World Scientific Publishing Co Pte Ltd  
**URI** <https://doi.org/10.1142/S1793042124500295>  
**DR URI** <http://dr.iiserpune.ac.in:8080/xmlui/handle/123456789/8354>  
**Date of Publication** 2023-11

**Author(s)** BANERJEE, DEBARGHA; Merel, Loic  
**Title** The Eisenstein cycles and Manin-Drinfeld properties  
**Citation** Forum Mathematicum  
**Publisher** Walter De Gruyter  
**URI** <https://doi.org/10.1515/forum-2022-0116>  
**DR URI** <http://dr.iiserpune.ac.in:8080/xmlui/handle/123456789/8358>  
**Date of Publication** 2023-11

**Author(s)** Das, B. Krishna; SAU, HARIPADA  
**Title** Pure inner functions, distinguished varieties and toral algebraic commutative contractive pairs  
**Citation** Proceedings of the American Mathematical Society, 152(1).  
**Publisher** American Mathematical Society  
**URI** <https://doi.org/10.1090/proc/16590>  
**DR URI** <http://dr.iiserpune.ac.in:8080/xmlui/handle/123456789/8382>  
**Date of Publication** 2023-12

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# PHYSICS

## Journal Articles

**Author(s)** CMS Collaboration; Tumasyan, A.; ALPANA, A.; DUBE, SOURABH; KANSAL, B.; LAHA, A.; PANDEY, S.; RASTOGI, A.; SHARMA, SEEMA et al.

**Title** Measurements of the Higgs boson production cross section and couplings in the W boson pair decay channel in proton-proton collisions at  $\sqrt{s}=13$  TeV

**Citation** European Physical Journal C, 83, 667.

**Publisher** Springer Nature

**URI** <https://doi.org/10.1140/epjc/s10052-023-11632-6>

**DR URI** <http://dr.iiserpune.ac.in:8080/xmlui/handle/123456789/8345>

**Date of Publication** 2023-07

**Author(s)** CMS Collaboration; Tumasyan, A.; ALPANA, A.; DUBE, SOURABH; KANSAL, B.; LAHA, A.; PANDEY, S.; RASTOGI, A.; SHARMA, SEEMA et al.

**Title** Measurements of the Higgs boson production cross section and couplings in the W boson pair decay channel in proton-proton collisions at  $\sqrt{s}=13$  TeV

**Citation** European Physical Journal C, 83, 667.

**Publisher** Springer Nature

**URI** <https://doi.org/10.1140/epjc/s10052-023-11632-6>

**DR URI** <http://dr.iiserpune.ac.in:8080/xmlui/handle/123456789/8345>

**Date of Publication** 2023-07

**Author(s)** HOSSAIN, SK MUJAFFAR; Kumar, Nikhil; Debnath, Bharati; OGALE, SATISHCHANDRA

**Title** Core-shell  $\text{Cu}_{1-x}\text{Ni}_x\text{Co}_3\text{-y}$ /a-CuFeCo antiperovskite as high-performance anode for Li-ion batteries

**Citation** Journal of Physics: Energy, 6 (1).

**Publisher** IOP Publishing

**URI** <https://doi.org/10.1088/2515-7655/ad08d9>

**DR URI** <http://dr.iiserpune.ac.in:8080/xmlui/handle/123456789/8357>

**Date of Publication** 2024-01

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**Author(s)** LAKHCHAURA, SURAJ; GOKUL, M. A.; RAHMAN, ATIKUR  
**Title** Ultrahigh responsivity of non-van der Waals Bi<sub>2</sub>O<sub>2</sub>Se photodetector  
**Citation** Nanotechnology, 35(07).  
**Publisher** IOP Publishing  
**URI** <https://doi.org/10.1088/1361-6528/ad0bd3>  
**DR URI** <http://dr.iiserpune.ac.in:8080/xmlui/handle/123456789/8353>  
**Date of Publication** 2024-02

**Author(s)** PATTANAYAK, NAMRATA; Pradhan, Monalisa; Panda, Padmalochan; Giri, Bimalesh; Pradhan, Gopal K.; Samal, Debakanta  
**Title** Thermoremanent magnetization and Raman study in weak ferromagnet FeBO<sub>3</sub>  
**Citation** Journal of Magnetism and Magnetic Materials, 588, Part A, 171453.  
**Publisher** Elsevier B.V.  
**URI** <https://doi.org/10.1016/j.jmmm.2023.171453>  
**DR URI** <http://dr.iiserpune.ac.in:8080/xmlui/handle/123456789/8363>  
**Date of Publication** 2023-12

**Author(s)** SHARMA, SEEMA  
**Title** Probing elementary particles at the CMS experiment  
**Citation** European Physical Journal Special Topics, 232, 2797-2830.  
**Publisher** Springer Nature  
**URI** <https://doi.org/10.1140/epjs/s11734-023-01040-y>  
**DR URI** <http://dr.iiserpune.ac.in:8080/xmlui/handle/123456789/8383>  
**Date of Publication** 2023-12

**Author(s)** Taneja, Vaishali; Das, Subarna; Dolui, Kapildeb; Ghosh, Tanmoy; Bhui, Animesh; Bhat, Usha; KEDIA, DINESH KUMAR; Pal, Koushik; Datta, Ranjan; Biswas, Kanishka  
**Title** High Thermoelectric Performance in Phonon-Glass Electron-Crystal Like AgSbTe<sub>2</sub>  
**Citation** Advanced Materials  
**Publisher** Wiley  
**URI** <https://doi.org/10.1002/adma.202307058>  
**DR URI** <http://dr.iiserpune.ac.in:8080/xmlui/handle/123456789/8337>  
**Date of Publication** 2023-11

**Author(s)** TRIVEDI, AKASH; Gupta, Sparsh; AGARWALLA, BIJAY KUMAR; Dhar, Abhishek; Kulkarni, Manas; Kundu, Anupam; Sabhapandit, Sanjib

**Title** Filling an empty lattice by local injection of quantum particles

**Citation** Physical Review A, 108(05), 052204.

**Publisher** American Physical Society

**URI** <https://doi.org/10.1103/PhysRevA.108.052204>

**DR URI** <http://dr.iiserpune.ac.in:8080/xmlui/handle/123456789/8339>

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