

Faculty Profile

SOUVIK SAU

State Aided College Teacher- I
Department of Physics
Bangabasi College
(Affiliated to University of Calcutta)
19, Rajkumar Chakraborty Sarani,
Kolkata-700009, West Bengal, INDIA



Contact and Basic Details

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Languages Known

Bengali (mother tongue), English, Hindi

Educational Qualifications

Examination Passed	Board /University	Subjects studied
Ph.D. (Pursuing)	Jadavpur University	Ph.D. in Science
B.Ed.	WBUTTEPA	Science
M.Sc.	Tezpur University	Physics
B.Sc.	Calcutta University	Physics (Hons), Chemistry, Math, Envs

Programming Language Known

C, FORTRAN, PYTHON

Research Interests

Synthesis and characterisation of Transition Metal oxide, Perovskites, Spinnels, etc.
Dielectric, Bio-sensing, Electrochemical storage, Electrocatalytic evaluation, Photo catalysis,
Waste water remediation, Renewable Energy, Thermoelectric device.

Selected Academic Achievements

1. IIT JAM 2013
2. GATE 2024, 2019
3. WESET 2023
4. CTET 2018
5. WBTET 2022

International Peer-Reviewed Research Publications

1. Biswas, S.; Mondal, I.; Halder, P.; Sau, S.; Kundu, M.; Mondal, D.; Ghosh, A.; Paul, B. K.; Das, S. Enhancement of Dielectric Properties by Modulating Electroactive β -Phase of Copper Doped Nickel Oxide Nanoparticles Incorporated Thin Film. *J. Polym. Res.* 2024, 31 (5), 143. IF-2.8 <https://doi.org/10.1007/s10965-024-03979-5>.
2. P. Halder, I. Mondal, N. Bag, T. Hassan, S. Biswas, S. Sau, A. Chatterjee, D. Mondal, B. Chattopadhyay, S. Das, ZrO₂ nanoparticle embedded reusable and self-standing biopolymeric membrane for efficient piezodynamic eradication of gram-positive and gram-negative coliform bacteria, *Colloids Surfaces A Physicochem. Eng. Asp.* 705 (2025) 135546. <https://doi.org/10.1016/j.colsurfa.2024.135546>.
3. S. Biswas, I. Mondal, P. Halder, S. Sau, M. Kundu, D. Mondal, A. Ghosh, B.K. Paul, S. Das, Enhancement of dielectric properties by modulating electroactive β -phase of copper doped nickel oxide nanoparticles incorporated thin film, *J. Polym. Res.* 31 (2024). <https://doi.org/10.1007/s10965-024-03979-5>.
4. D. Sarkar, N. Das, S. Sau, R. Basu, S. Das, Micro-patterned BaTiO₃@Ecoflex nanocomposite-assisted self-powered and wearable triboelectric nanogenerator with improved charge retention by 2D MoTe₂/PVDF nanofibrous layer, *J. Mater. Chem. C* 12 (2023) 984–1001. <https://doi.org/10.1039/d3tc03822j>.
5. N. Das, D. Sarkar, S. Sau, A. Ali, S. Mandal, S. Das, P.P. Ray, N.A. Hoque, Wenzel model motivated, superwetttable micro-motiffed membrane for droplet-

- driven, real-time acid rain sensor via sequential contact electrification strategy, *Mater. Today Energy* 48 (2025) 101812. <https://doi.org/10.1016/j.mtener.2025.101812>.
6. S. Sau, I. Mondal, B.K. Paul, M. Kundu, S. Biswas, P. Halder, S. Roy, D. Mondal, S. Das, Modulating optical and electrical properties of chemically synthesized ZnMn₂O₄ nanoparticles through crystallinity: Integrating theoretical and experimental insights, *Ceram. Int.* 50 (2024) 52524–52538. <https://doi.org/10.1016/j.ceramint.2024.10.104>
 7. Halder, P.; Mondal, I.; Mukherjee, A.; Biswas, S.; Sau, S.; Mitra, S.; Paul, B. K.; Mondal, D.; Chattopadhyay, B.; Das, S. Te⁴⁺ and Er³⁺ Doped ZrO₂ Nanoparticles with Enhanced Photocatalytic, Antibacterial Activity and Dielectric Properties: A next Generation of Multifunctional Material. *J. Environ. Manage.* 2024, 359 (January), 120985. IF-8.7 <https://doi.org/10.1016/j.jenvman.2024.120985>.
 8. Halder, P.; Mondal, I.; Bag, N.; Pal, A.; Biswas, S.; Sau, S.; Paul, B. K.; Mondal, D.; Chattopadhyay, B.; Das, S. Sonochemically Synthesized Black Phosphorus Nanoparticles: A Promising Candidate for Piezocatalytic Antibacterial Activity with Enhanced Dielectric Properties. *Dalt. Trans.* 2024, 53 (15), 6690–6708. IF-4.0 <https://doi.org/10.1039/D4DT00166D>.
 9. Mondal, I.; Halder, P.; Chatterjee, A.; Bag, N.; Sau, S.; Biswas, S.; Mondal, D.; Paul, B. K.; Paul, P. K.; Das, S. Crystal Growth Mediated Physicochemical Properties Enhancement of CoMnO₃ Perovskite Nanomaterials and Its Efficient Degradation of Organic Dyes and Pathogenic Bacteria under Mechanical Stimuli. *J. Environ. Chem. Eng.* 2024, 12 (2), 112385. IF-7.7 <https://doi.org/10.1016/j.jece.2024.112385>.
 10. Sau, S.; Kundu, M.; Biswas, S.; Mondal, I.; Paul, B. K.; Halder, P.; Ghosh, N.; Mondal, D.; Das, S. Tailoring ZnMnO₃ Nanostructures: A Promising Strategy for High Energy Density Asymmetric Supercapacitors. *J. Energy Storage* 2024, 85 (November 2023), 111069. IF-9.4 <https://doi.org/10.1016/j.est.2024.111069>.
 11. Mondal, D.; Kundu, M.; Paul, B. K.; Bhattacharya, D.; Sarkar, S.; Sau, S.; Senapati, D.; Mandal, T. K.; Das, S. Rare Earth Ion-Doped α -MnO₂ Nanorods for an Asymmetric Supercapacitor. *ACS Appl. Nano Mater.* 2024, 7 (5), 4913–4926. IF-5.9 <https://doi.org/10.1021/acsanm.3c05666>.
 12. Mondal, I.; Halder, P.; Kundu, M.; Paul, B. K.; Biswas, S.; Pal, A.; Sau, S.; Mondal, D.; Paul, P. K.; Das, S. Energy-Efficient Sintering-Free Chemically Synthesized Carbon Nanofibers for High-Performance Supercapacitors. *Mater. Today Chem.*

2024, 35 (January), 101905. IF-7.3
<https://doi.org/10.1016/j.mtchem.2024.101905>.

13. A simple Thermopower measurement model and related uncertainties, Journal of physics, Conference series, A Jana, S Mahakal, S Sau, Diptasikha Das and K Malik
<http://dx.doi.org/10.1088/1742-6596/2349/1/012002>
14. Biswas S.; Saha Y.; Mondal I.; Mondal D.; Kundu M.; Halder P.; Sau S.; Ghosh A.; Paul B K.; Das S.; Synergistic approach for enhancement of optical and electrical dielectric properties of size-tunable Cu doped NiO semiconductor quantum nanoflakes. Current Applied Physics, 2023, 56, 66-78. IF-2.4
<https://doi.org/10.1016/j.cap.2023.10.002>

Published Book Chapter

1. Advances in Modern and Applied Science. (Scientific Research Publishing, 2022) ISBN: 978-1-64997-437-2, <http://www.scirp.org>

International Conferences attended

- (i) International conference on “Emerging trends in advanced materials (ETAM 2025)”, CSIR-Central Glass and Ceramic Research Institute, Jadavpur, Kolkata-32.
- (ii) International conference on “Facets of Basic Science and Applications (FBSA)”, Bijoy Krishna Girls’ College, Howrah

National Conferences attended

- (i) Frontiers of Material Science and Photonics: Issues and Developments (NCFMSP-2024), Sidho-Kanho-Birsha University, Ranchi road, Purulia-723104
- (ii) A one day seminar in “Communication of centenary birth anniversary of Shyamal Sengupta”, Jadavpur University, kolkata
- (iii) National Coference on Frontier of Modern Physics (NCFMP 2021), Adamas University, Kolkata

- (iv) Stories of Nuclear Fusion and the ITER, 2021, Bangabasi College, Kolkata-9.
- (v) Six Day workshop on NONLINEAR DYNAMICS, Bangabsi College, Kolkata-9
- (vi) A one day workshop on CBCS-physics syllabus, Bangabasi College, Kolkata-9
- (vii) A pre-master workshop in Theoretical physics, Bangabasi College, Kolkata-9
- (viii) C. K. Majumdar memorial workshop on Experimental Physics, Bangabasi College, Kolkata-9
- (ix) C. K. Majumdar memorial summer workshop in Physics, 2012 , S. N. Bose national centre for basic science, Kolkata
- (x) Quantum Mechanics: Inception, Evolution and Future, 2011, Narasinha Dutta College, Howrah