

Publications–List of Research Publications in SCI Journals and books from the Academic Departments in last 5 years

1. Rukmani Bai, Sourin Chatterjee, Ujjwal Shekhar, Abhishek Deshpande, **Sirshendu Bhattacharyya**, Chittaranjan, Hens, “Topological phase transition in anti-symmetric Lotka- Volterra doublet chain”, *Accepted in Physical Review E Letter* (2025).
2. **Sirshendu Bhattacharyya**, “Emergence of first-order and second-order phase transitions in a cyclic ecosystem exposed to environmental impact”, *Physica Scripta* 99 (4), 045207 (2024).
3. Karthik Viswanathan, Ashly Wilson, **Sirshendu Bhattacharyya**, Chittaranjan Hens, “Ecological resilience in a circular world: Mutation and extinction in five-species ecosystems”, *Chaos, Solitons & Fractals* 180, 114548 (2024).
4. Protyush Nandi, **Sirshendu Bhattacharyya**, Subinay Dasgupta, “Signature of quantum phase transition manifested in quantum fidelity at finite temperature”, *Physical Review B* 109 (6), 064312 (2024).
5. Sourin Chatterjee, **Rina De**, Chittaranjan Hens, Shyamal K. Dana, Tomasz Kapitaniak, **Sirshendu Bhattacharyya**, “Response of a three species cyclic ecosystem to a short-lived elevation of death rate”, *Scientific Reports* 13, 20740 (2023).
6. Sanchayan Bhowal, Ramkrishna Jyoti Samanta, Arnob Ray, **Sirshendu Bhattacharyya**, Chittaranjan Hens, “Exploring the potential of collective learning to reduce foraging time”, *Chaos, Solitons & Fractals* 168, 113123 (2023).
7. Protyush Nandi, **Sirshendu Bhattacharyya** and Subinay Dasgupta, “Detection of Quantum Phase Boundary at Finite Temperatures in Integrable Spin Models”, *Physical Review Letters* 128, 247201 (2022).
8. Sahil Islam, Argha Mondal, Mauro Mobilia, **Sirshendu Bhattacharyya** and Chittaranjan Hens, “Effect of mobility in the rock-paper-scissor dynamics with high mortality”, *Physical Review E* 105, 014215 (2022).
9. **Sirshendu Bhattacharyya** and Subinay Dasgupta, “Exotic signature of dynamical quantum phase transition in the time evolution of an engineered initial state”, *J. Phys. A: Math. Theor.* 53, 265002 (2020).
10. **Sirshendu Bhattacharyya**, Pritam Sinha, Rina De, and Chittaranjan Hens, “Mortality makes coexistence vulnerable in evolutionary game of rock-paper-scissors”, *Physical Review E* 102, 012220 (2020).
11. Dheeraj Mondal, Manisha Kundu, Biplab Kumar Paul, **Debopriya Bhattacharya**, Sujata Sarkar, Souvik Sau, Dulal Senapati, Tapas Kumar Mandal, Sukhen Das, “*Rare Earth Ion-Doped MnO₂ Nanorods for an Asymmetric Supercapacitor*”, ***ACS Applied Nano Materials*** (Elsevier, **Impact Factor: 5.3**), 7,5, 4913-4926 (2024)
12. D Mondal, **D Bhattacharya**, T Mondal, M Kundu, S Sarkar, TK Mandal, BK Paul, S Das, “*Rare earth ion-infused α -MnO₂ nano-rods for excellent EMI shielding efficiency: Experimental and theoretical insights* “, ***Sustainable Materials and Technologies*** (Elsevier, **Impact Factor: 9.6**), 38, e00772 (2023).
13. I Mondal, Y Saha, P Halder, D Mondal, M Kundu, **D Bhattacharya**, PK Paul, BK Paul, A Ghosh, S Das, “*Synchronization of theoretical and experimental studies on the enriched optical and*

- dielectric properties of size modulated CoCr₂O₄ quantum dots*", **Solid State Sciences** (Elsevier, **Impact Factor: 3.5**), 146, 107342 (2023).
14. B K Paul, D Mondal, **D Bhattacharya**, S Datta, M Kundu, I Mondal, P Halder, S Sarkar, A Ghosh, TK Mandal, S Das, "*Transition metal impregnated nanostructured oxide material for broadband electromagnetic interference shielding: A theoretical and experimental insight*", **Chemical Engineering Journal** (Elsevier, **Impact Factor: 16.74**), 459, 141560 (2023).
 15. D Ghoshal, **D Bhattacharya**, D Mondal, S Das, N Bose, M Basu. "*Flexible, H-bond mediated bromophenol blue/poly (vinyl alcohol) composite for efficient laser filter application*", **Optical and Quantum Electronics** (Springer, **Impact Factor: 2.18**) 54(1),1-8 (2022).
 16. D. Mondal, B. Kumar Paul, **D. Bhattacharya**, D. Ghoshal, S. Biswas, K. Das, and S. Das, "*Copper Doped α -MnO₂ Nano-sphere: A Metamaterial for Enhanced Supercapacitor and Microwave Shielding Applications.*" **Journal of Materials Chemistry C** (RSC, **Impact Factor: 7.059**), (2021).
 17. D. Ghoshal, **D. Bhattacharya**, D. Mondal, S. Das, N. Bose*, M .Basu*, "*Optical properties of Bromothymol Blue/PVA Composite: Development of flexible high performance Laser Filter*", **Journal of Polymer Research** (Springer, **Impact Factor: 2.426**), **28**, 1-9 (2021).
 18. **D. Bhattacharya**, D. Ghoshal, D. Mondal, B. K. Paul, J. Pal, B .Gupta, N. Bose, P. Nandy, M. Basu, S. Das, "*Delafossite type CuCo_{0.5}Ti_{0.5}O₂ composite structure: A futuristic ceramics for supercapacitor and EMI shielding application*", **Ceramics International** (Elsevier, **Impact Factor: 3.83**), **47**, 9907-9922 (2020).
 19. **D. Bhattacharya**, Debopriyo Ghoshal, Dheeraj Mondal, Santanu Das, Biplab Kumar Paul, Mousumi Basu, and Sukhen Das. "*Colossal dielectric and room temperature ferromagnetic response in CCoTO delafossite type nanostructure.*" **Solid State Sciences** (Elsevier, **Impact Factor: 2.434**), **102**,106136 (2020).
 20. Debopriyo Ghoshal, **Debopriya Bhattacharya**, Dheeraj Mondal, Sukhen Das, Navonil Bose, Mousumi Basu, "*Flexible Alizarin Red/PVA Composites with Colossal Dielectric and High-Power Laser Filtering Properties*", **Applied Physics A** (Springer Nature, **Impact Factor: 1.81**), 126, 28 (2020).
 21. Environmental Pollution and Biosafety, The book edited by **Dr. Pulak Chandra Mandal** and Published by Department of Chemistry, Raja Rammohun Roy Mahavidyalaya, 1st published:2023: ISBN:978-93-95202-54-1.

22. Current Advancement in Science towards our Better Future, The Book edited by Dr. Sudipta Pathak and published by Department of Chemistry, Raja Rammohun Roy Mahavidyalaya and Haldia Government College, 1st published: 2024: ISBN: 978-93-341-7437-3.
23. Sarkar, M.M., Pradhan, N., **Subba, R.**, Saha, P. and Roy, S., 2022. Sugar-terminated carbon-nanodots stimulate osmolyte accumulation and ROS detoxification for the alleviation of salinity stress in *Vigna radiata*. *Scientific Reports*, 12(1), p.17567.
24. **Subba, R.**, Dey, S., Mukherjee, S., Roy, S. and Mathur, P., 2023. Elucidating the role of exogenous iron (Fe) in regulation of hydrogen sulphide (H₂S) biosynthesis and its concomitant effect on seedling growth, pigment composition and antioxidative defense in NaCl stressed tomato seedlings. *Acta Physiologiae Plantarum*, 45(12), p.135.
25. Mukherjee, S., **Subba, R.**, AlZuaibr, F.M. and Mathur, P., 2024. Auxin and hydrogen peroxide (H₂O₂) interaction differentially regulate seedling growth, Na⁺/K⁺ ratio and H₂S homeostasis accompanying NaCl stress in etiolated sunflower (*Helianthus annuus* L. cv. Microgreen) seedling roots and cotyledons. *South African Journal of Botany*, 166, pp.663-675.
26. Kundu, C., Rai, B., **Subba, R.** and Mathur, P., 2021. Disease Management in Brassicaceae family through various biocontrol agents: A review.
27. **Subba, R.** and Mathur, P., 2022. Functional attributes of microbial and plant based biofungicides for the defense priming of crop plants. *Theoretical and Experimental Plant Physiology*, 34(3), pp.301-333.
28. Toppo, P., **Subba, R.**, Roy, K., Mukherjee, S. and Mathur, P., 2023. Elucidating the strategies for isolation of endophytic fungi and their functional attributes for the regulation of plant growth and resilience to stress. *Journal of Plant Growth Regulation*, 42(3), pp.1342-1363.
29. Mathur, P., Roy, S., **Subba, R.** and Rai, B., 2022. Understanding the various strategies for the management of fungal pathogens in crop plants in the current scenario. In *Fungal diversity, ecology and control management* (pp. 507-537). Singapore: Springer Nature Singapore.
30. **Subba, R.**, Roy, S. and Mathur, P., 2023. Phytohormones as a novel weapon in management of plant stress against biotic agents. *Global Climate Change and Plant Stress Management*, pp.277-286.
31. Mathur, P., **Subba, R.** and Mukherjee, S., 2023. Carbon Monoxide (CO) and Its Association with Other Gasotransmitters in Root Development, Growth and Signaling. *Gasotransmitters Signaling in Plants under Challenging Environment*, pp.315-328.

32. Sarkar, M.M., **Subba, R.**, Roy, S. and Mathur, P., 2023. Understanding the Role of Nitric Oxide and Its Interactive Effects with Phytohormones in Mitigation of Salinity Stress. In *Gasotransmitters Signaling in Plants under Challenging Environment* (pp. 121-145). Cham: Springer International Publishing.
33. **Bhattacharya R** and Keshri JP., 2021. Cyanobacterial pigments in Bioeconomy and Phycocolorization: A review. *Indian Hydrobiology*, 20(2), p. 171-182.
34. **Bhattacharya R.**, Mal J and Keshri JP. 2020. *Flintiella sanguinaria* F.D. Ott (Porphyridiales, Rhodophyta). New to India. *Nelumbo*, 63(2), p. 11-13.
35. **Bhattacharya R.**, Bhattacharya R., Majeed M., Bhandari S., Aziz R., Sinha D., Mondal A and Niyogi S. 2023. Environmental Rehabilitation of Industrial Waste Dumping Site. In *Biohydrometallurgical Processes. Edition-1*(pp-44-71). CRC Press (Taylor and Francis Group).
36. **Sunit Kumar Chakraborty**, “Isolation and purification of Glutaminase enzyme from normal rat liver and effect of enzyme therapy in normal and tumor bearing host” Revisiting strategies for sustainable development: an eConSus Book Series Vol.2 ISBN: 978-93-94727-41-0 (October 2022).
37. **Sunit Kumar Chakraborty**, “Modulation of Signal Transduction in *Leishmania donovani*-infected macrophages by a phorbol ester” *Indian Journal of Applied & Pure Biology*, Vol. 38, No. 02, May 2023, ISSN: 0970-2091.
38. **Bhattacharyya, A.**, Banerjee, G. and Chattopadhyay, P., 2024. Probable Role of Type IV Pili of *Aeromonas hydrophila* in Human Pathogenicity. *Pathogens*, 13(5), p.365.
39. **Bhattacharyya, A.**, Banerjee, G. and Chattopadhyay, P., 2025. Investigating the Distribution of Intimin and Invasin in *Aeromonas hydrophila* and Their Role in Host Tissue Attachment. *Bacteria*, 4(1), p.7.
40. **AFM Shamsuzzaman**, “A comparative study of various imputation methods for single cell RNA sequencing data”, *International Journal of Scientific Development and Research (IJSDR)*; Volume 6 Issue 8, pp.146-157, August-2021.
41. **AFM Shamsuzzaman**, “Review of Clustering and Classification methods for Single-cell RNA- sequencing data”, *International Journal of Trend in Scientific Research and Development (IJTSRD)*; Volume 6 Issue 4, pp. 2349-2355 | May-June 2022.
42. M. Singha and **S. Roy**, Compactness with ideals, *Mathematica Slovaca*, 73(1):195-

204,2023 (<https://doi.org/10.1515/ms-2023-0018>). (Indexed in Science Citation Index Expanded (Web of Science), Scopus)

43. M. Singha and **S. Roy**, Influence of ideals in compactifications, *Mathematica Slovaca*, 74(3): 737-746, 2024 (<https://doi.org/10.1515/ms-2024-0056>). (Indexed in Science Citation Index Expanded (Web of Science), Scopus)
44. M. Singha and **S. Roy**, I^K -limit points, I^K -cluster points and I^K -Fréchet compactness, *Matematički Vesnik*, Available online 30.06.2025 (<https://doi.org/10.57016/MV-MTZE3327>). (Indexed in Emerging Sources Citation Index (Web of Science), Scopus)
45. **S. Roy** and M. Singha, I^K -sequential and I^K -Fréchet-Urysohn spaces, *Problemy Analiza–Issues of Analysis*, 14(32)(2): 103-119, 2025 (<https://doi.org/10.15393/j3.art.2025.17170>). (Indexed in Emerging Sources Citation Index (Web of Science), Scopus)