

ARIJIT SAHA

Professor (H)
Institute of Physics, Bhubaneswar



Selected Publications:

- “Current switching behavior mediated via hinge modes in higher order topological phase using altermagnets” Minakshi Subhadarshini, Amartya Pal, and [Arijit Saha](#) **Phys. Rev. B** **113**, 195421 (2026).
- “Josephson current signature of Floquet Majorana and topological accidental zero modes in altermagnet heterostructures” Amartya Pal, Debashish Mondal, Tanay Nag, and [Arijit Saha](#) **Phys. Rev. B (Letter)** **112**, L201408 (2025).
- “Topological Majorana zero modes and the superconducting diode effect driven by Fulde-Ferrell-Larkin-Ovchinnikov pairing in a helical Shiba chain” Sayak Bhowmik, and [Arijit Saha](#) **Phys. Rev. B (Letter)** **111**, L161402 (2025).
- “Distinguishing between topological Majorana and trivial zero modes via transport and shot noise study in an altermagnet heterostructure” Debashish Mondal, Amartya Pal, [Arijit Saha](#), and Tanay Nag, **Phys. Rev. B (Letter)** **111**, L121401 (2025).
- “Optimizing one dimensional superconducting diodes: Interplay of Rashba spin-orbit coupling and magnetic fields” Sayak Bhowmik, Dibyendu Samanta, Ashis K. Nandy, [Arijit Saha](#), and Sudeep Kumar Ghosh, **Communication Physics** **8**, 260 (2025).
- “Second-order topological superconductor via noncollinear magnetic texture” Pritam Chatterjee, Arnob Kumar Ghosh, Ashis K. Nandy and [Arijit Saha](#), **Phys. Rev. B (Letter)** **109**, L041409 (2024)
- “Topological Superconductivity by Engineering Noncollinear Magnetism in Magnet/Superconductor Heterostructures: A Realistic Prescription for 2D Kitaev Model” Pritam Chatterjee, Sayan Banik, Sandip Bera, Arnob Kumar Ghosh, Saurabh Pradhan, [Arijit Saha](#), and Ashis K. Nandy **Phys. Rev. B (Letter)** **109**, L121301 (2024).
- “Engineering anomalous Floquet Majorana modes and their time evolution in helical Shiba chain” Debasish Mondal, Arnob Kumar Ghosh, Tanay Nag and [Arijit Saha](#), **Phys. Rev. B (Letter)** **108**, L081403 (2023).
- “Dynamical construction of Quadrupolar and Octupolar topological superconductors” Arnob Kumar Ghosh, Tanay Nag and [Arijit Saha](#), **Phys. Rev. B** **105**, 155406 (2022).
- “Floquet generation of Second Order Topological Superconductor” Arnob Kumar Ghosh, Tanay Nag and [Arijit Saha](#), **Phys. Rev. B** **103**, 045424 (2021).
- “Tailoring Metal Insulator Transitions & Band Topology via Off-resonant Periodic Drive in an Interacting Triangular Lattice”, Sayan Jana, Priyanka Mohan, [Arijit Saha](#) and Anamitra Mukherjee, **Phys. Rev. B** **101**, 115428 (2020).
- “Geometric Quantum Noise of Spin”, Alexander Shnirman, Yuval Gefen, [Arijit Saha](#), Igor S. Burmistrov, Mikhail N. Kiselev, Alexander Altland, **Phys. Rev. Lett.** **114**, 176806 (2015).
- “Transport signature of fractional Fermions in Rashba nanowires”, Diego Rainis, [Arijit Saha](#), Jelena Klinovaja, Luka Trifunovic, Daniel Loss, **Phys. Rev. Lett.** **112**, 196803 (2014).

Group:

Ph.D. Scholars



Kamalesh Bera

Thesis area: Twisted bi-layer/multi-layer systems



Amartya Pal

Thesis area: Transport properties of Superconducting hybrid structure, unconventional superconductivity and Floquet dynamics



Sayak Bhowmik

Thesis area: Superconducting diode effect and topological Superconductivity



Minakshi Subhadarshini

Thesis area: Higher-order topological superconductivity and braiding of Majorana modes



Ohidul Alam

Thesis area: Altermagnets, Skyrmions and Superconducting proximity effect

Postdoctoral Fellows



Koushik R. Das

Research Area: Unconventional magnetism, Topological superconductivity

Working area: Theoretical Condensed Matter Physics.

Areas of Interests:

- Quantum transport in low dimensional electronic systems.
- Dirac/Weyl Materials.
- Topological Insulators, Topological Superconductors and Majorana physics.
- Driven (out of equilibrium) topological systems.
- Proximity induced superconductivity in mesoscopic systems.
- Strongly correlated electronic systems and Luttinger liquid physics.
- Quantum pumping through nanostructures.
- Quantum computation.

Educational Qualification:

- **Ph.D. (August 2009):** Harish Chandra Research Institute, Allahabad, India.
- **MSc. (2003):** Visva-Bharati University, Santiniketan, India.
- **BSc. (2001):** Visva-Bharati University, Santiniketan, India.

Professional Experience:

- **1st July 2025 – Present:** Professor-H, Institute of Physics, Bhubaneswar, India.
- **1st July 2020 – 30th June 2025:** Associate Professor-G, Institute of Physics, Bhubaneswar, India.
- **5th May 2015 – 30th June 2020:** Reader-F, Institute of Physics, Bhubaneswar, India.
- **October 2012 - March 2015:** Postdoctoral Research Associate, University of Basel, Switzerland.
- **September 2009 - August 2012:** Postdoctoral Fellow, Weizmann Institute of Science, Israel.

Recognition/Fellowship:

Elected as a Member of National Academy of Sciences (NASI), India since 2019.