SRIJATA LAHIRI

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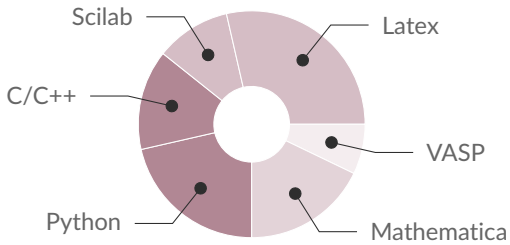
RESEARCH INTERESTS

Topological insulators (TIs) are materials which behave like a conventional insulator in the bulk but exhibit conducting surface states. Furthermore, the conducting states being highly robust, they cannot be destroyed by a weak perturbation applied to the system. Experimentally several materials like Mercury Telluride show topological behaviour. From a theoretical perpective, it is of major interest to study how the robust topological phases of matter behave under the effect of a drive or symmetry breaking disorders. Furthermore, another aspect of research in topological insulators is the study of bulk invariants that characterize the boundary features - the bulk boundary correspondence. My work deals with the numerical simulation of tight binding Hamiltonian of topological systems to study their phases under several external probes. More specifically, my work deals with higher order topological insulators, which are a further advancement in the field of conventional topological insulators, showing topological features in lower dimensions compared to TIs.

EXPERIENCE

- Saha Institute of Nuclear Physics
  Summer Project Intern
  June 2019-July 2019
- Jawaharlal Nehru University
  M.Sc. Project
  Jan 2020-May 2020

PROGRAMMING SKILLS



NOTABLE CONFERENCE/WORKSHOP

- Basics of High Performance Computing jointly conducted by JNU and C-DAC (April 2021).
- PRL CCMP 2023 (Poster presentation)

NATIONAL LEVEL EXAM

- Cleared GATE 2021 with a score of 676 and a rank of 161
- Cleared UoHEE 2021 for PhD.
- Cleared GATE 2020 with a score of 377 and a rank of 2372
- Cleared JNUEE 2018 for MSc.
- Cleared JAM 2018 with a rank of 299.

PMRF DETAILS

- Lateral Entry Channel 2022
- Cycle 9
- ID: 1902181

RESEARCH DETAILS

- Supervisor: Prof. Saurabh Basu
- Institute ID: 216121031

TEACHING ASSISTANCE

NPTEL-Advanced Quantum Mechanics with Applications *July 2022 - Sept. 2022*

PH110-Physics Laboratory *Oct 2022 - Feb. 2023, March 2023 - Ongoing*

NPTEL-A brief course on Superconductivity *Jan. 2023 - March 2023*

Cotton University-Simulation experiments based on Mathematical Physics problems *Feb. 2023 - Ongoing*

PREPRINTS

- Higher order topology in Creutz ladder
  - arxiv ID: 2209.10903
  - Under review at the *Journal of Physics: Condensed Matter*
- Higher order topology in band deformed Haldane model
  - arxiv ID: 2304.10635

EDUCATION

B.Sc. in Physics

University of Calcutta
Marks obtained: 70.75%

2015-2018

M.Sc. in Physics

Jawaharlal Nehru University
CGPA: 7.69/9

2018-2020

PhD. in Physics

IIT, Guwahati
Coursework CGPA: 9.69/10

2021-Ongoing