Abhishek Anand

JLN Govt. College, Haripur, Manali

Phone: +91-7807412031
Email: abhishekanand.phy@gmail.com

Personal

Date of birth: May 7, 1993

Education

- Ph.D. Fellow
  IISER Pune, 2018-2023
- Master of Science in Physics
  Jawaharlal Nehru University, Delhi, 2015-2017
- Bachelor of Science in Physics (Hons.)
  University of Delhi, 2011-2014

Academic achievements

- AIR-156 in CSIR-JRF [Dec 2016].

Experience

Teaching

1. Assistant Professor, JLNGC Haripur (Manali), 2023-present

Projects

1. **Summer internship [2016]**

   Mentor: *Ram Ramaswamy*, JNU

   The project was meant as an introduction to the application of computational tools in physics. During the project, I studied how to solve/simulate some electrostatic and self-organized systems. In the later half of the project, I studied basic ideas of Kuramoto model.

2. **MSc Dissertation [2017]**

   Mentor: *Brijesh Kumar*, JNU

   I worked on a variant of Kitaev spin liquids. The project consisted of computational and analytical calculations using basic techniques and ideas of many-body theory and topological phases.

Computing skills

Proficient in C, C++, Python and LaTeX
Intermediate knowledge of FORTRAN, PETSc, SLEPc and DiagHam
Familiar with basics of Matlab, Mathematica and linux

Teaching

- [TA] PHY102, *Waves and Matter*, Spring 2019, IISER Pune
- [TA] PHY1123, *Physics Laboratory I*, Fall 2019, IISER Pune
- [TA] PHY202, *World of Physics: Quantum Mechanics*, Spring 2020, IISER Pune
- PHYS101, *Mechanics*, (2023, 2024)
- PHYS102, *Electrodynamics*, (2023, 2024)
- PHYS201, *Statistical and Thermal Physics*, (2023, 2024)
- PHYS202, *Waves and Optics*, (2023, 2024)

Workshops/Conferences/Schools Attended

- *Edge Dynamics in Topological Phases*, ICTS, June 10-14, 2019.
- *Novel Phases of Quantum Matter*, ICTS, Dec 23, 2019 - Jan 2, 2020.
- *Winter School on Strongly Correlated Quantum Matter* (virtual), MPIPKS, Nov 30 - Dec 18, 2020.
- *Basics of High Performance Computing* (virtual), CDAC and IITs (various), Nov 9, 2020 - Feb 12, 2021.
- *Les Houches School in Computational Physics* (virtual), Ecole des Houches, Apr 12, 2021 - Apr 23, 2021.

Selected Activities and Contributed Talks

- Les Houches School in Computational Physics (virtual), 2021. Poster: "*An exactly solvable model for fractional quantum Hall effect*".
- *The* 15^{th} *Asia Pacific Physics Conference* (virtual), 2022. Contributed talk: "*Real space entanglement spectra of parton states*".

Publications and Preprints

- *Real-space entanglement spectra of parton states in fractional quantum Hall systems*
  A Anand, Rushikesh A. Patil, Ajit C. Balram, and G. J. Sreejith
  Phys. Rev. B 106, 085136, (2022)
- *An exactly solvable model for fractional quantum Hall effect*
  A Anand, G J Sreejith, J K Jain
  Phys. Rev. Lett. 126, 136601, (2021)
- *Real-space entanglement spectra of projected fractional quantum Hall states using Monte Carlo methods*
  A Anand, and G J Sreejith
  Phys. Rev. B 107, 085101 (2023)
- *Torus geometry eigenfunctions of an interacting multi-Landau level Hamiltonian*
  A Anand, Songyang Pu and G J Sreejith
  Phys. Rev. B 107, 195126 (2023)

References

- **Dr. Sreejith G. J.**
  Associate Professor
  Indian Institute of Science Education and Research (IISER), Pune - 411008
  Email: sreejith@iiserpune.ac.in

- **Dr. Ajit C. Balram**
  Reader
  The Institute of Mathematical Sciences, Chennai - 600113.
  Email: ajit@imsc.res.in

- **Dr. Jainendra K. Jain**
  Professor
  The Pennsylvania State University, University Park, PA 16802, USA
  Email: jkj2@psu.edu