



Abhishek Anand

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Personal

Date of birth: May 7, 1993

Education

- Ph.D. Fellow
IISER Pune, 2018-present
- 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

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 Project [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
- [TA] PHY1123, *Physics Laboratory I*, Fall 2019
- [TA] PHY202, *World of Physics: Quantum Mechanics*, Spring 2020
- PHYS101, *Mechanics*, Fall 2023, [ongoing]
- PHYS102, *Electrodynamics*, Fall 2023, [ongoing]
- PHYS201, *Statistical and Thermal Physics*, Fall 2023, [ongoing]
- PHYS202, *Waves and Optics*, Fall 2023, [ongoing]

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 15th 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.**
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- **Dr. Ajit C. Balram**
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- **Dr. Jainendra K. Jain**
Professor
The Pennsylvania State University, University Park, PA 16802, USA
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