

Curriculum Vitae

1. Name: Sauri Bhattacharyya

2. Education: B. Sc. (Hons. in Physics), Jadavpur University, India, 2011
M. Sc. (Physics), HRI, Allahabad (HBNI), India, 2014
Ph. D., HRI, Allahabad, India, 2014-2021 (Guide: Prof. P. Majumdar)

3. Academic distinctions: Jadavpur University Gold Medal, 2011
JEST 2011 qualifier (rank – 5)
NET December, 2013 qualifier (rank – 7)

4. Research experience:

Ph. D. thesis: *Finite temperature dynamics in strongly correlated systems*
(<http://www.hbni.ac.in/phdthesis/phys/PHYS08201105005.pdf>)

Post-doctoral fellow with Prof. Assa Auerbach at Technion, Israel, 2021 – present

Publications – 5; Preprints - 3

Topics covered: Phonon dynamics in polaronic systems, Magnon spectrum in Mott insulators,
Hall effect in correlated systems, Quantum criticality

Numerical methods used: Langevin dynamics, Classical and Quantum Monte Carlo
Programming/software: C++, Python, Julia, Mathematica

5. Schools/Workshops attended:

- Bangalore School of Statistical Physics – V, at RRI, Bangalore (2014)
 - School on Topological Quantum Matter, at HRI, Allahabad (2015)
 - Indian Statistical Physics Community Meeting, at ICTS, Bangalore (2017)
 - School and Workshop on Strongly Correlated Electron Systems, at ICTP, Trieste (2018)
 - Correlated Days, at Ein Gedi, Israel (2022)
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6. Current research interests:

Equilibrium and non-equilibrium dynamics in spin systems
Dynamics of strongly driven superconductors
Thermalization in closed and open quantum systems

7. Recommendation:

- Prof. Assa Auerbach, Technion, Israel (assa@physics.technion.ac.il)
 - Prof. Pinaki Majumdar, HRI, India (pinaki@hri.res.in)
 - Prof. Anna Keselman, Technion, Israel (akeselman@physics.technion.ac.il)
 - Prof. Daniel Podolsky, Technion, Israel (podolsky@physics.technion.ac.il)
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List of Publications

- (1) *Langevin approach to lattice dynamics in a charge-ordered polaronic system*,
S. Bhattacharyya, S. S. Bakshi, S. Kadge and P. Majumdar
Phys. Rev. B 99 (2019) 165150
- (2) *Strongly anharmonic collective modes in a coupled electron-phonon-spin problem*,
S. Bhattacharyya, S. S. Bakshi, S. Pradhan and P. Majumdar
Phys. Rev. B 101 (2020) 125130
- (3) *Dynamics of magnetic collective modes in the square- and triangular-lattice Mott insulators at finite temperature*,
S. Bhattacharyya and P. Majumdar
Phys. Rev. B 104 (2021) 235124
- (4) *Hall map and breakdown of Fermi liquid theory in the vicinity of a Mott insulator*,
I. Khait, S. Bhattacharyya, A. Samanta and A. Auerbach
npj Quantum Materials 8 (2023) 75
- (5) *Metallic transport of hard core bosons*,
S. Bhattacharyya, A. De, S. Gazit and A. Auerbach
Phys. Rev. B 109 (2024) 035117

Preprints

- (6) *Thermal dynamics of lattice modes near a polaronic crossover: from the dilute polaron limit to a charge ordered state*,
S. Bhattacharyya, S. Pradhan and P. Majumdar
arXiv 1711.08749
- (7) *Modeling dynamical phonon fluctuations across the magnetically driven polaron crossover in the manganites*,
S. Bhattacharyya, S. Pradhan and P. Majumdar
arXiv 1806.06577
- (8) *Quantum Transport Theory of Strongly Correlated Matter*,
A. Auerbach and S. Bhattacharyya
arXiv 2406.02677