List of Publications

This thesis is based on the following publications.

Papers Published in Peer Reviewed Journals:

1. **P. Rao**, M. Vyas and N. D. Chavda, *Distribution of higher order spacing ratios in one-plus two-body random matrix ensembles with spin symmetry*, Eur. Phys. J. Special Topics **229**, 2603 (2020).

2. **P. Rao** and N. D. Chavda, *Structure of wavefunction for interacting bosons in mean-field with random k-body interactions*, Phys. Lett. A **399**, 127302 (2021). arXiv:2012.01610.

3. **P. Rao**, H. N. Deota and N. D. Chavda, *Ordered level spacing distribution in embedded random matrix ensembles*, Pramana. J. Phys. **95**, 1 (2021). arXiv:2103.07681.

4. **P. Rao** and N. D. Chavda, *Effect of symmetry on quantum transport across disordered networks connected by many-body interactions*, Materials Today: Proceedings **47**, 520 (2021).

Papers Presented at Conferences:

1. **P. Rao**, H. N. Deota and N. D. Chavda, *Fidelity decay and entropy production in few to many body systems after random interaction quench*, at Conference on Nonlinear Systems and Dynamics (CNSD-2018), 11 - 14 October 2018, Jawaharlal Nehru University (JNU), New Delhi, India.

2. **P. Rao**, M. Vyas and N. D. Chavda, *Distribution of higher order ratio of spacings in interacting particle systems*, at 12th - Conference on Nonlinear Systems and Dynamics (CNSD-2019), 12 - 15 December 2019, Indian Institute of Technology (IIT), Kanpur, India.

3. **P. Rao** and N. D. Chavda, *Effect of symmetry on quantum transport across disordered networks connected by many-body interactions*, at Conference on Recent Advancements in Materials science And Nanotechnology – 2020 (RAMAN-2020), 30 July – 1 August 2020, Nirma University, Ahmedabad, India.

4. **P. Rao** and N. D. Chavda, *Structure of Wavefunction for many-boson systems in mean-field with random k-body interactions*, at Conference on Statistical Physics of Complex Systems, 8 – 10 September 2021, International Centre for Theoretical Physics (ICTP), Trieste, Italy.