



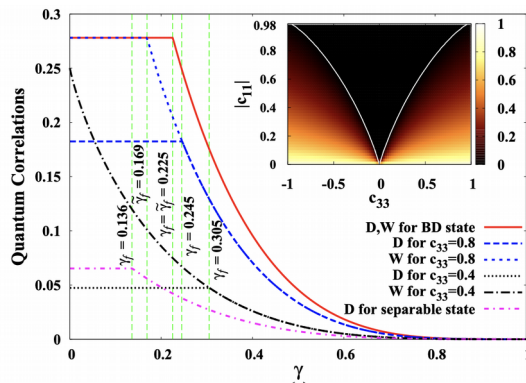
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Research Interests

- Detection, quantification, and characterization of quantum correlations having origins and uses in quantum information theory
- Interface of quantum information theory with quantum many-body physics
- Open quantum systems
- Topological quantum codes and fault-tolerant quantum computation
- Thermodynamics of quantum heat engines
- Recent research interests:
 - ✓ Certification of topological quantum codes using quantum correlations
 - ✓ Effect of correlated noise on quantum correlations
 - ✓ Robustness of quantum correlations against local and global noise
 - ✓ Characterizing small quantum thermal machines using quantum correlations

Brief Summary of Research



Amit is working on several aspects of quantum information theory and its interface with quantum many-body and open quantum systems, including the detection and characterization of quantum correlations, such as entanglement, quantum discord, etc., originating from quantum information theory in quantum many-body systems, effect of noise on these quantum correlations in systems exposed to environmental noise, and development of strategies in order to protect quantum correlations from noise. His recent research interests include certification of topological quantum codes using entanglement,

robustness of entanglement against noise, and investigation of small quantum thermal machines from the perspective of quantum information theory.

Recent Publications

1. Necessarily transient quantum refrigerator, Sreetama Das, Avijit Misra, Amit Kumar Pal, Aditi Sen(De), and Ujjwal Sen, *Europhys. Lett.* **125** 20007 (2019)
2. Emergence of entanglement with temperature and time in factorization-surface states, Titas Chanda, Tamoghna Das, Debasis Sadhukhan, Amit Kumar Pal, Aditi Sen(De), and Ujjwal Sen, *Phys. Rev. A* **97** 012316 (2018)
3. Scale-invariant freezing of entanglement, Titas Chanda, Tamoghna Das, Debasis Sadhukhan, Amit Kumar Pal, Aditi Sen(De), and Ujjwal Sen, *Phys. Rev. A* **97** 062324 (2018)
4. Estimating localizable entanglement from witnesses, David Amaro, Markus Mueller, and Amit Kumar Pal, *New. J. Phys.* **20** 063017 (2018)