TUNABLE QUANTUM THERMAL MACHINES

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Abstract

Heat transport in quantum systems and circuits is crucial for advancing quantum technologies. In this work, we investigate quantum heat transport in a driven hybrid magnon-photon system coupled to two thermal baths at different temperatures. We demonstrate how system parameters govern the asymmetry of the steady-state heat current and show that external driving controls the heat current direction and enables tuning of heat rectification across its full physical range. These results provide valuable insights for designing quantum thermal machines based on driven magnon-photon platforms [1].

References

[1] C. O. Edet, K. Słowik, N. Ali, O. Abah, (2025). *Driven Magnon-Photon System as a Tunable Quantum Heat Rectifier.* arXiv:2503.06301.