

Abstract Submitted
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Phase-dependent coherence and transport effects in a double-dot Aharonov-Bohm interferometer¹ SAVANNAH GARMON, SALIL BEDKIHAL, DVIRA SEGAL, University of Toronto — We study coherence dynamics between two sites comprising a double-dot interferometer attached to non-equilibrium leads. We demonstrate via numerical simulation that a magnetic flux passing through the interferometer results in phase-dependent decoherence in the case of degenerate dots. The precise details of these effects relies on an interplay between Markovian and non-Markovian dynamics. We employ various methods to further investigate these effects analytically, including the derivation of a quantum Langevin equation and a direct calculation of the relevant correlation functions. In addition, we investigate multi-particle scattering states in the same system.

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