

Abstract Submitted
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Non-Markovian Dynamics of Charge Carriers in Quantum Dots at High Bias EDUARDO VAZ, JORDAN KYRIAKIDIS, Dalhousie University
— We have investigated the dynamics of bound particles in multi-level current-carrying quantum dots. We look specifically in the regime of resonant tunneling transport, where several channels are available for transport. Through the non-Markovian Born-Redfield formalism, we investigate the real-time evolution of the confined particles including transport-induced decoherence and relaxation. In the case of a coherent superposition between states with different particle number, we find that coherence may be preserved even in the presence of tunneling into and out of the dot. Real-time results are presented for various asymmetries of tunnel barriers and tunneling rates into different orbitals.

Eduardo Vaz
Dalhousie University

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