

Abstract Submitted
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Frequency-dependent Fano factor of multilevel systems with inelastic decay processes¹ FARZAD QASSEMI, Institute for Quantum Computing and Department of Physics and Astronomy, University of Waterloo, Ontario, Canada, BILL COISH, Department of Physics and Astronomy, McGill University, Montreal, Canada, JOAKIM BERGLI, Department of Physics, University of Oslo, Norway, FRANK K. WILHELM, Institute for Quantum Computing and Department of Physics and Astronomy, University of Waterloo, Ontario, Canada — We study the frequency-dependent noise of electrons passing through a multilevel quantum dot or molecule accounting for “dark” states through which current is prohibited and inelastic transitions between the levels. Our theory results in simple closed-form expressions directly relating the frequency-dependent noise to inelastic decay rates in the limit where the rates are widely separated. To demonstrate the method, we apply it to evaluate the shot noise for electrons passing through single and double quantum dots in the presence of multiple spin decay mechanisms.

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