

Abstract Submitted
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Shot noise in quantum dots in presence of Fano and Dicke effects in Kondo regime¹ PEDRO ORELLANA, NATALIA CORTES, Universidad Tecnica Federico Santa Maria, VICTOR APEL, Universidad Catolica del Norte — The quantum dots allow studying systematically quantum-interference effects as Fano and Dicke effects due to the possibility of continuous tuning the relevant parameters governing the properties of these resonances, in equilibrium and nonequilibrium regimes. The condition for the Fano resonance is the existence of two scattering channels: a discrete level and a broad continuum band. On the other hand, the electronic version of the Dicke effect is analogous to the Dicke effect in optics, which takes place in the spontaneous emission of two closely-lying atoms radiating a photon into the same environment. In quantum dots this effect is due to quantum interference in the passage of an electron through two closely lying resonant states of the quantum dots coupled to common leads. In this work, we present a systematic investigation of the influence of the Dicke effect on shot-noise and Fano factor in a cross-shaped quantum dot array. The relevant quantities are obtained by the non-equilibrium Greens function technique. Our results show that at zero temperature, the electrical current, shot-noise and Fano factor exhibit characteristics of the Dicke effect.

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Pedro Orellana
Universidad Tecnica Federico Santa Maria

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