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Resonant regimes in the Fock-space coherence of non-equilibrium quantum dots EDUARDO VAZ, JORDAN KYRIAKIDIS, Dalhousie University — We investigate theoretically the real-time evolution of the coherence between discrete quantum states differing in particle number in the sequential transport regime. We find that such a Fock-space coherence can be established when at least one transport channel is available within a quantum-confined structure, and that the evolution of this coherence is decoupled from that of the occupation probabilities of the states, even in the presence of boson-mediated relaxation. Through a systematic analysis, we find quantum interference patterns producing highly resonant regimes where the Fock-space decoherence times are extended significantly, while no resonant regimes are found in the Hilbert-space coherence between states with equal particle numbers. We conclude that the dominant parameters yielding the resonances are the coupling anisotropy to different transport channels as well as the symmetry of the confining barriers.

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