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Long-lived Fermionic Fock-space coherence in quantum dots EDUARDO VAZ, JORDAN KYRIAKIDIS, Dalhousie University — The Fock-space coherence between quantum states with different particle numbers naturally arising in an open quantum system, qualitatively differs from the more common Hilbert-space coherence between states with the same particle number. For a quantum dot with multiple channels available for transport, we have found specific energy and coupling regimes where a long-lived resonance in the fermionic Fock-space coherence of the system is realized, even where no resonances are found either in the population probabilities or Hilbert-space coherence of the system. We discuss how this resonance in the Fock-space coherence remains robust even in the presence of both boson-mediated relaxation and transport through the quantum dot, as well as its physical origin.

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