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Inelastic cotunneling current and shot noise of an interacting quantum dot with ferromagnetic correlations BING DONG, Shanghai Jiaotong University, China, NORMAN J. M. HORING, Stevens Institute of Technology, V. FESSATIDIS, Fordham University — We explore inelastic cotunneling through a strongly Coulomb-blockaded quantum dot attached to two ferromagnetic leads in the weak coupling limit using a Langevin equation approach.[1] We first develop a Bloch-type equation to describe the cotunneling-induced spin relaxation dynamics, and then derive explicit analytical expressions for the local magnetization, current, and its fluctuations. On this basis, we predict a novel zero-bias anomaly of the differential conductance in the absence of a magnetic field for the anti-parallel configuration, and asymmetric peak splitting in a magnetic field, which are ascribed to rapid spin-reversal due to underlying spin-flip cotunneling.[2]

[1] B. Dong, N. J. M. Horing, and H. L. Cui, Phys. Rev. B **72**, 165326 (2005).
[2] B. Dong, X. L. Lei, and N. J. M. Horing, cond-mat/0509098.

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