

Abstract Submitted  
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**Electron tunneling induced nonequilibrium magnetization noise in single Co nanoparticles**<sup>1</sup> WENCHAO JIANG, FELIPE TIJIWA BIRK<sup>2</sup>, DRAGOMIR DAVIDOVIC, School of Physics, Georgia Institute of Technology — We have studied magnetic hysteresis loops of single Co nanoparticles in Al/Al<sub>2</sub>O<sub>3</sub>/(Co nanoparticles)/Al<sub>2</sub>O<sub>3</sub>/Al tunnel junctions using electron tunneling measurement at mK-temperatures. The magnetic switching field decreases and its distribution broadens versus tunneling current while the current does not heat the environment. The finding indicates that the magnetic switching field can be interpreted as a thermometer of the nonequilibrium magnetization noise. We present a phenomenological model that incorporates magnetic anisotropy fluctuations among discrete levels, to explain the noise properties.

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