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Voltage-Tunable Magnetic Stability in a Ni Nanoparticle[1] PATRICK GARTLAND, Georgia Institute of Technology, WENCHAO JIANG, GlobalFoundries, DRAGOMIR DAVIDOVIC, Georgia Institute of Technology — We study single nickel particles $\approx$ 2nm in diameter using single electron tunneling spectroscopy and find that such particles lie at the threshold of stable ferromagnetic order. We find that the application of a bias voltage can precisely tune the conditions for a stable magnetization orientation, and simulate the experimental configuration using a master equation. Due to the addition of anisotropy from a single electron, a new energy scale emerges which governs the stability of magnetization as a function of voltage bias conditions.

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Patrick Gartland
Georgia Institute of Technology

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