

Abstract Submitted
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Large Magnetoresistance in Co/Ni/Co Ferromagnetic Single Electron Transistors¹ RUIHENG LIU, HAKAN PETTERSSON, Center for Applied Mathematics and Physics, Halmstad University, Sweden, LUKASZ MICHALAK, CARLO CANALI, Dept of Chemistry and Biomedical Sciences, Kalmar University, Sweden, DMITRY SUYATIN, LARS SAMUELSON, Solid State Physics/the Nanometer Structure Consortium, Lund University, Sweden — We report on magnetotransport investigations of Co/Ni/Co ferromagnetic single electron transistors, fabricated using a high-precision alignment procedure invoked during e-beam writing. As a result of reduced size, the devices exhibit single-electron transistor characteristics at 4.2K. Magnetotransport measurements carried out at 1.8K reveal TMR traces with negative coercive fields, which we interpret in terms of a switching mechanism driven by the shape anisotropy of the central wire-like Ni island. A large TMR of about 18% is observed within a small source-drain bias regime. The TMR decreases rapidly with increasing bias, which we primarily attribute to the excitation of magnons in the central island.

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