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Quantum Coherence and Time Dependent Conductance Fluctuations in Dilute Magnetic Semiconductors SUNGBAE LEE, AARON TRIONFI, Dept. of Physics and Astronomy, Rice University, TIMO SCHALLENBERG, HIRO MUNEKATA, Imaging Science and Engineering Lab., Tokyo Institute of Technology, DOUG NATELSON, Dept. of Physics and Astronomy, Rice University — Low temperature electrical properties of ferromagnetic nanowires are influenced by the interplay between disorder, quantum coherence, and magnetic correlations. Quantum coherence corrections to the conductance are of particular interest, and can be difficult to characterize experimentally. Time dependent universal conductance fluctuation (TD-UCF) at low temperatures provides a means of assessing these effects. Samples were fabricated by standard electron beam lithography and ion etching technique using $In_{1-x}Mn_xAs$ quantum well samples grown by off-equilibrium molecular beam epitaxy. Initial measurements of temperature and field-dependent TD-UCF in these devices are presented and compared with permalloy nanowire data.

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