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**Magnetoresistance Measurements in Nanoconstricted Nickel Wires** ZACHARY KEANE, LAM YU, DOUGLAS NATELSON, Rice University — Nanoscale constrictions between two ferromagnetic electrodes have been the subject of much recent interest because of reports of ballistic magnetoresistance (BMR). Substantial controversy exists regarding the size and mechanism of this effect. We report preliminary measurements of the electron transport across Ni wires with nanoscale constrictions and tunnel junctions. Test structures are fabricated using a combination of e-beam lithography and electromigration. Sample geometries are chosen to allow independent control of electrode magnetizations. Measurements are performed from room temperature to cryogenic temperatures, at magnetic fields ranging up to 9 T.

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