

Abstract Submitted  
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**Compact Scanning Tunneling Microscope for Spin Polarization Measurements**<sup>1</sup> SEONG HEON KIM, LEUJEN CHEN, ALEX DE LOZANNE, Department of Physics, The University of Texas at Austin — We have built a low temperature scanning tunneling microscope for spin-polarized studies. An important aspect of our design philosophy is to keep everything small, starting with a one-inch STM body that fits in the UHV bore of a small superconducting solenoid that provides up to 8 Tesla parallel to the tip. This, in turn, makes the liquid helium and liquid nitrogen dewars smaller and leads to a compact UHV chamber. The largest flange in the system is 10 inches in outer diameter. The benefits of a smaller system include lower consumption of cryogenes and a reduced footprint. The STM has been tested from 300K to 77K and has achieved atomic resolution. A test at 4.2K will be done soon. We have imaged cobalt clusters deposited in situ using a simple and compact design for an electron-beam evaporator. We have developed new electronics for z-approach and a novel magnetically-coupled manipulator with an actuated grabber for tip and sample exchange.

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