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Compact scanning probe microscope with 3-D positioning capabilities[1] FERNANDO GARCIA, JORGE OLIVARES, FRANCISCO OLVERA, JULIE GERZINA, ALEX DE LOZANNE, University of Texas at Austin
— We developed a new design for scanning probe microscopes (SPM) intended for low temperature operation. The main design philosophy is to make the SPM body compact and rigid, with an outer diameter of one inch. A secondary goal is to make this instrument easier to build, use and repair compared to our previous designs. While all the positioners are based on the stick-slip principle, the motion along the three axes is implemented very differently: motion along Z, or tip-sample approach, is accomplished by two vertical rods running along the length of the body. Motion along X is done by sliding on a single rod, and along Y by sliding the sample stage on top of the tube scanner used for generating images. Initial test results will be presented.

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