

Abstract Submitted
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Two-axis piezo rotator for orienting samples in magnetic fields at millikelvin temperatures ELI FOX, ANDREW BESTWICK, AARON SHARPE, DAVID GOLDHABER-GORDON, Stanford University, TOBIAS LINDENBERG, THOMAS PICKERT, FLORIAN OTTO, attocube — The ability to apply large magnetic fields in any arbitrarily-chosen direction with angular precision at the millikelvin temperature scale enables a range of condensed matter experiments. Here we report on the integration of a custom attocube 2-axis rotary stepper positioner, with the ability to rotate a sample over the full 3D sphere with milli-degree precision, into a cryogen-free, top-loading dilution refrigerator with a single-axis 14 T magnet. We discuss technical details of the rotator unit, refrigerator probe wiring and construction, and proof-of-principle measurements demonstrating precise closed loop control of magnetic field orientation.

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