

Abstract Submitted
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Experiments with ^3He in 10% uniaxially compressed aerogel: the superfluid phase diagram NIKOLAY ZHELEV, ROBERT BENNETT, ERIC SMITH, Cornell University, JOHANNES POLLANEN, WILLIAM HALPERIN, Northwestern University, JEEVAK PARPIA, Cornell University — Entraining ^3He in aerogel provides a way to introduce disorder in the otherwise ideal quantum fluid. Motivated by the recent prediction that uniaxially compressed aerogel can stabilize the anisotropic A phase over the isotropic B phase, we use a torsional oscillator technique to measure the superfluid phase diagram of ^3He entrained in 10% axially compressed, 98% porous aerogel. We observe that a broad region of the temperature-pressure phase diagram is occupied by the metastable A phase. The reappearance of the A phase on warming from the B phase, before superfluidity is extinguished at T_c , is in contrast to its absence in uncompressed aerogel. We also find that the anticipated alignment of the angular momentum vector by compression is not observed.

Nikolay Zhelev
Cornell University

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