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Interplay of Aerogel Anisotropy and Textures in Superfluid ^{3}He
JIA LI, JOHANNES POLLANEN, CHARLES COLLETT, WILLIAM J. GANNON, WILLIAM P. HALPERIN, Department of Physics and Astronomy, Northwestern University — We have performed pulsed NMR on ^{3}He-B in 98.1% porosity aerogel with different anisotropy. The aerogel anisotropy was characterized with an optical, cross-polarization technique [1]. In the isotropic aerogel sample at P = 26 bar and $T < 1.2mK$, we find a single peak with a positive frequency shift relative to the Lamor frequency indicating an n-texture that is predominately perpendicular to the field. Upon warming, we find a crossover at $T \approx 1.2mK$ from $n \perp \mathbf{H}$ to a texture where n is predominately parallel to the field. Near the crossover the NMR intensity is distributed among two components indicating an inhomogeneous texture. We have also studied an anisotropic aerogel which was compressed along its cylinder axis by 22.5%. At the same pressure, we find a homogeneous texture for all T and a similar textural crossover from $n \perp \mathbf{H}$ to $n \parallel \mathbf{H}$, but for this sample the textural crossover happens near $T_{caerogel}$. We have introduced a model to account for the interplay of aerogel anisotropy and n-textures. Currently we are studying the tip angle dependence of NMR frequency shifts in these aerogels. This work was supported by the National Science Foundation, DMR-0703656.
[1] J. Pollanen et al. *J. of Non-Crystalline Solids* **354**, 4668 (2008).

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