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Interplay of Aerogel Anisotropy and Superfluid ^{3}He Textures JIA LI, J. POLLANEN, C.A. COLLETT, W.J. GANNON, W.P. HALPERIN, Department of Physics and Astronomy, Northwestern University, Evanston, IL 60208, USA — The effect of aerogel anisotropy on the ^{3}He superfluid order parameter and the relative stability of A and B-phases has been investigated. We have performed pulsed NMR on ^{3}He in high porosity aerogel samples that have different types of anisotropy, characterized with an optical, cross-polarization technique. One aerogel sample has 14.3% growth-induced axial stretching. Its superfluid phase diagram is occupied by the A-phase. Linewidth analysis gives the distribution of the orbital angular momentum, $\vec{l}$. The orientation of $\vec{l}$ is consistent with an easy plane distribution that is perpendicular to the strain axis. A second aerogel sample is axially compressed mechanically by 22.5%. The major part of the zero magnetic field phase diagram is occupied by the B-phase. Additionally, our results show that aerogel anisotropy introduced by compressing and stretching have different orienting effects on the ^{3}He superfluid order parameters. This work was supported by the National Science Foundation, DMR-1103625.

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