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Order parameter texture transition in superfluid $^3\text{He-B}$ in strained aerogel¹ A.M. ZIMMERMAN, Northwestern University, J.I.A. LI, Columbia University, W.P. HALPERIN, Northwestern University — The introduction of anisotropic impurity scattering into superfluid ^3He using high porosity silica aerogel has proven to be a fruitful method of engineering both the phase and the order parameter texture of the superfluid ² ³. We have observed an abrupt transition between two orthogonal order parameter textures at a temperature $T_x \approx 1.9$ mK, in $^3\text{He-B}$ confined in aerogel samples with anisotropy induced by mechanical compression along an axis $\vec{\varepsilon}$. At this transition the order parameter, characterized by the quantization axis of the orbital angular momentum \hat{l} , changes from a configuration with $\hat{l} \parallel \vec{\varepsilon}$ below T_x to $\hat{l} \perp \vec{\varepsilon}$ above T_x . This transition is independent of the orientation of $\vec{\varepsilon}$ relative to the external magnetic field, as well as the magnitude of the applied field. This indicates that the textural transition is due to strain alone, with the anisotropic scattering from the aerogel favoring different orientations of \hat{l} above and below T_x .

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²J.I.A. Li *et al*, Phys. Rev. Lett., **114**, 105302, (2015).

³J. Pollanen *et al*, Phys. Rev. Lett., **107**, 235504, (2011).

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