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Scanning SQUID Microscopy of Sr_2RuO_4 Under Anisotropic Strain CHRISTOPHER A. WATSON, HILARY NOAD, Stanford Institute for Materials and Energy Sciences, SLAC National Accelerator Laboratory, Menlo Park, CA, USA, ALEXANDRA GIBBS, ANDREW P. MACKENZIE, CLIFFORD W. HICKS, Max Planck Institute for Chemical Physics of Solids, Dresden, Germany, KATHRYN A. MOLER, Stanford Institute for Materials and Energy Sciences, SLAC National Accelerator Laboratory, Menlo Park, CA, USA — The proposed $p_x \pm ip_y$ topological superconducting state of Sr_2RuO_4 has motivated a great deal of experimental effort. While some experimental results are consistent with this order parameter, others are not, and the question of the order parameter remains unsettled. Furthermore, it is possible that multiple order parameters are nearly degenerate, such that perturbing the sample may induce a change in order parameter. It was recently demonstrated that T_c is strongly enhanced under anisotropic strain with <100> principle axes; the dependence on strain was essentially quadratic, but with an anomaly at low strains. In this work, we will use a scanning SQUID susceptometer to study the local diamagnetic response of the superconducting state as a function of temperature and applied strain. We will investigate the homogeneity of the superconductivity and the precise dependence of T_c on strain without inhomogeneity-related broadening.

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