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AC-Susceptibility and SANS Studies of the Vortex States in $\mathbf{V}_{-21at.\%}\mathbf{Ti}$[1] I.K. DIMITROV, N.D. DANIILIDIS, V. MITROVIC, C. ELBAUM, Brown University, J.W. LYNN, NIST, Y. SHAPIRA, Tufts University, X.S. LING, Brown University — The vortex matter phase diagram of a binary alloy ($V_{-21at.\%}Ti$) has been mapped out using mutual-inductance ac susceptometry, and explored using small angle neutron scattering (SANS). In this sample, a peak effect (PE) appears at high fields, but disappears at low fields. The phase diagram shows a trend remarkably similar to that of a single-crystal *Nb*, despite the vast differences in their respective values of κ and H_{c2}. SANS measurements of the vortex states in this sample shows the survival of quasi-long range order, suggesting the existence of a Bragg glass phase in this system. The SANS experiments were performed at the NIST Center For High Resolution Neutron Scattering (CHRNS).

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