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High Pressure Studies of the Metal-Insulator Transition in Pure NiS2 ARNAB BANERJEE, YEJUN FENG, RAFAEL JARAMILLO, THOMAS F. ROSENBAUM, James Frank Institute, The University of Chicago, APS, ANL, SECTOR 4 AND 6 TEAM, JOE PLUTH/ANL APS SECTOR 13 COLLABORATION — Ni(S,Se)2 is a one of the few Mott-Hubbard systems where a structural phase transition does not preclude quantitative study of the localization of charge at the T = 0 metal-insulator transition. Using diamond anvil cell techniques, we study the corresponding behavior of pure NiS2 at its quantum critical point. We characterize the electronic, magnetic and structural behavior of this model system through a combination of transport and synchrotron scattering techniques, with a particular interest in the effects of disorder at a quantum phase transition.

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