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High Pressure Probes of Magnetic Quantum Phase Transitions Y. FENG, R. JARAMILLO, C.T. SEAGLE, D.M. SILEVITCH, T.F. ROSENBAUM, D.L. HEINZ, The James Franck Institute, The University of Chicago — Magnetic susceptibility and electrical transport measurements in concert with diamond anvil cell techniques permit access to magnetic quantum critical points impossible to access by other means. We combine a continuously variable high-pressure cell with an optical system for in situ pressure calibration and Raman capability that can be cooled to pumped helium temperatures. With this system, we investigate the P-T phase diagram of the spin-density wave antiferromagnet chromium. We discuss its quantum critical behavior along with the possibility of alternative correlated phases as the magnetic order is suppressed in the zero-temperature limit.

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