Abstract Submitted
for the MAR09 Meeting of
The American Physical Society

Studies of the Ferromagnetic Superconductors URhGe and UCoGe TRAVIS WILLIAMS, ADAM ACZEL, WEIQIANG YU, McMaster University, YASUTOMO UEMURA, JEREMY CARLO, Columbia University, TATSUO GOKO, TRIUMF, JIM GARRETT, Brockhouse Institute for Materials Research, GRAEME LUKE, McMaster University — Superconductivity (SC) cannot cooperatively exist with ferromagnetism (FM) in conventional superconductors, since ferromagnetism would act to destroy Cooper pairs. Thus, in FM superconductors such as URhGe and UCoGe, a more exotic pairing type must exist. I will outline the growth and characterization of URhGe and UCoGe crystals, and our measurements of the FM and SC properties. Our combined results from DC Resistivity, Bulk Magnetometry and Muon Spin Relaxation show FM properties in the samples, including a clear FM transition at 9.5K in the URhGe crystal. We will discuss our results and their implications for the nature of the SC state in these materials.

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Date submitted: 21 Nov 2008 Electronic form version 1.4