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Ferromagnetism of Silicon Doped with Uranium Investigated to Extremes of Magnetic Field (Beyond 100 tesla)[1] CHARLES MIELKE, MPA-NHMFL, Los Alamos National Laboratory, JASON COOLEY, WILLIAM HULTS, MST-6, Los Alamos National Laboratory — The ferromagnetic (FM) phase of Si:U x At. % (where x = 0.25, 0.5, 0.75, 1.0, and 50.0 (i.e. USi)) were studied in high magnetic fields as a function of temperature and U concentration. The effect of doping U into Si is investigated vis a vis the FM transition temperature (127K for x = 50.0) and high magnetic field saturation is discussed. The effect of the FM transition temperature is approached from the point of view of correlation effects in f-electron systems. Attention to the high magnetic field saturation is investigated as it is unusually high in the x = 50.0 intermetallic compound. Ultra-high field data extending to 185 tesla is reported for the system. Issues with homogenization of the dilute samples are presented as well.

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