

Abstract Submitted
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Collapse of the Hyperfine Magnetic Field at the Ru site in GdRu₂ and HoRu₂¹ D. COFFEY, Buffalo State College, NY 14222, M. DEMARCO, Buffalo State College and SUNY Buffalo, NY 14222, P.-C. HO, California State University, Fresno CA 93740, T. SAYLES, M. B. MAPLE, University of California, San Diego, CA 92093, J. W. LYNN, Q. HUANG, NCNR, Gaithersburg MD 20899 — The Mössbauer Effect(ME) is frequently used to investigate magnetically ordered systems. One usually assumes that the magnetic order induces a hyperfine magnetic field, H_{hyper} , at the ME active site. This is the case in the ruthenates where the temperature dependences of H_{hyper} at ⁹⁹Ru sites track the magnetic order. This is not the case in GdRu₂ and HoRu₂. Specific heat, magnetization, and susceptibility show that there is ferromagnetic order below 93K in GdRu₂. Neutron diffraction data reveal that HoRu₂ orders ferromagnetically at 15.30(4) K with an ordered moment of 7.98(8) μ_B . However there is no evidence of a correspondingly large H_{hyper} in the ⁹⁹Ru ME in either material. *Ab initio* calculations shows that spin polarization occurs only on the rare earth sites with $H_{hyper} < 5T$ on the Ru sites. The results are compared with the corresponding calculations for ferromagnetic SrRuO₃.

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