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Magnetic and Physical Properties of RCuGe V. GORUGANTI, WEIPING GOU, JI CHI, K. D. D. RATHNAYAKA, JOSEPH H. ROSS, JR. , Department of Physics, Texas A&M University, Y. ONER, Department of Physics, Istanbul Technical University — We report magnetic, transport and thermodynamic measurements for AlB_2-type CeCuGe, NdCuGe and GdCuGe. In NdCuGe we observe a peak at 3K in specific heat and susceptibility corresponding to an AF transition. The magnon contribution to the specific heat is fitted very well and supports a CEF scheme, for which we found a first excited state 66 K from the ground state. GdCuGe exibits an AF transition at 18 K, with a peak in susceptibility and a kink in resistivity. For CeCuGe, ferromagnetic with T_c=10 K, the specific-heat peak is broadened and shifted to higher temperatures as the applied magnetic field increased. At high temperatures the magnetization obeys a Curie-Weiss law and the estimated magnetic moment agrees with the rare-earth free ion moment. To better understand the magnetism of these materials we also report local probe NMR measurements. Lineshape, and Knight shift measurements, show that coupling machanism is dominated by J coupling, and from relaxation measurements we obtain a measure of the spin dynamics. This work was supported by the Robert A. Welch Foundation (grant A-1526).

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