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Thermodynamic and anisotropic properties of single crystalline RCo_2Ge_2 (R = Y, La-Nd, Sm-Tm)[1] TAI KONG, MALINDA BUFFON, XIAO LIN, ALEX THALER, Iowa State University, Ames Laboratory, CHARLES CUNNINGHAM, Ames Laboratory, SERGEY BUD'KO, PAUL CANFIELD, Iowa State University, Ames Laboratory — Single crystals of RCo_2Ge_2 (R = Y, La-Nd, Sm-Tm) were grown using a self-flux method and were characterized from 1.8-300 K by heat capacity, magnetization and in-plane resistivity measurements. Anisotropic metamagnetism was studied at 1.8 K up to 9 T. Due to a strong crystal electric field (CEF) effect, the magnetic ordering temperatures of the heavy rare earth members do not follow the de Gennes scaling, but rather a CEF modified trend. The RCo_2Ge_2 series offers an opportunity to study different types of magnetic anisotropy ranging from Heisenberg-like $GdCo_2Ge_2$ to Ising-like $TbCo_2Ge_2$. Correlation between the local moments and conduction electrons as well as the influence of interplay between CEF effect and long-range indirect exchange interaction (RKKY type) will also be discussed.

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