

Abstract Submitted
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Strongly correlated electron behavior in $\text{RFe}_2\text{Zn}_{20}$ (R=rare earth elements, Zr, Hf) S. JIA, J. FREDERICK, NI NI, A.S. SEFAT, S.L. BUD'KO, P.C. CANFIELD, Ames Laboratory and Dept. of Physics and Astronomy, Iowa State University — $\text{GdFe}_2\text{Zn}_{20}$ has a remarkably high ferromagnetic ordering temperature ($T_C=86\text{K}$), which can be explained as a result of submerging large local moments into a nearly ferromagnetic Fermi liquid $\text{YFe}_2\text{Zn}_{20}$. Thermodynamic and transport properties of pseudoquaternary compounds $\text{Y}_{1-x}\text{Gd}_x\text{Fe}_2\text{Zn}_{20}$ show ferromagnetic ground state for $x > 0.02$, and reveal the polarization of correlated electrons related to the concentration of Gd. Comparing with $\text{YFe}_2\text{Zn}_{20}$, stronger itinerant electron magnetism was observed in $\text{ScFe}_2\text{Zn}_{20}$, $\text{ZrFe}_2\text{Zn}_{20}$ and $\text{HfFe}_2\text{Zn}_{20}$, whose properties place them even closer to the Stoner limit than $\text{YFe}_2\text{Zn}_{20}$.

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