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**Strongly correlated electron behavior in RFe$_2$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 — GdFe$_2$Zn$_{20}$ has a remarkably high ferromagnetic ordering temperature ($T_C=86$K), which can be explained as a result of submerging large local moments into a nearly ferromagnetic Fermi liquid YFe$_2$Zn$_{20}$. Thermodynamic and transport properties of pseudoquaternary compounds Y$_{1-x}$Gd$_x$Fe$_2$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 YFe$_2$Zn$_{20}$, stronger itinerant electron magnetism was observed in ScFe$_2$Zn$_{20}$, ZrFe$_2$Zn$_{20}$ and HfFe$_2$Zn$_{20}$, whose properties place them even closer to the Stoner limit than YFe$_2$Zn$_{20}$.

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