Abstract Submitted
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**Anomalous f-electron Hall effect in the heavy-electron alloy $\mathbf{Ce_{1-x}La_xCoIn_5}$**[1] M.F. HUNDLEY, J. LEONARD, A. MALINOWSKI, D.J. MIXSON, E.D. BAUER, J.L. SARRAO, Los Alamos National Laboratory — We report the results of Hall effect measurements made on the heavy-electron alloy $Ce_{1-x}La_xCoIn_5$ in magnetic fields from 1 to 90 kOe and at temperatures from 2 to 300 K. $R_H(T)$ of $CeCoIn_5$ is negative, field-independent, and dominated by skew-scattering above $\sim$ 50 K. $R_H(H \rightarrow 0)$ becomes increasingly negative below 50 K and varies with temperature in a manner that is inconsistent with skew scattering. Field-dependent measurements show that the low-T anomaly is strongly suppressed when the applied field is increased to 90 kOe. Measurements on $LaCoIn_5$ indicate that the same anomalous temperature dependence is present in the Hall coefficient of this non-magnetic analog, albeit with a reduced amplitude and no field dependence. By measuring $R_H(T, H)$ in $Ce_{1-x}La_xCoIn_5$ alloys we can discriminate between the influence of many-body Kondo interactions and conventional band-structure effects on the Hall coefficient in the parent compound. The results are generally consistent with a two-fluid description of Kondo lattice systems proposed by Nakatsuji *et al.*.[2]

[1]work performed under the auspices of the US Department of Energy
[2]S. Nakatsuji *et al.*, Phys. Rev. Lett. **92**, 016401 (2004)

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