

Abstract Submitted  
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**PuCoIn<sub>5</sub>: A New Magnetic Superconductor** ERIC D. BAUER, J.N. MITCHELL, P.H. TOBASH, F. RONNING, J.-X. ZHU, B.L. SCOTT, J.D. THOMPSON, Los Alamos National Laboratory — There is renewed interest in actinide research following the discovery of superconductivity at  $T_c=18.5$  K in PuCoGa<sub>5</sub> and at  $T_c=8.7$  K in PuRhGa<sub>5</sub>. These materials appear to be unconventional superconductors with a moderate effective mass enhancement and are similar to the more well characterized CeMIn<sub>5</sub> (M=Co, Rh, Ir) superconductors. We have discovered a new member of this “115” family of superconductors, PuCoIn<sub>5</sub>. This material superconducts at  $T_c=2.7$  K and exhibits another phase transition at  $T_N=15$  K, likely due to antiferromagnetic order. The Sommerfeld coefficient  $\gamma = 200$  mJ/mol K<sup>2</sup> and the large initial slope of the upper critical field indicate a large enhancement of the effective mass. The physical properties of PuCoIn<sub>5</sub> will be discussed.

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