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**Iridate compound produces extraordinarily high coercive magnetic field** VIVIEN ZAPF, National High Magnetic Field Lab (NHMFL), Los Alamos National Lab (LANL), CRAIG TOPPING, U. Edinburgh, UK, JAE-WOOK KIM, NHMFL, LANL, EUN-DEOK MUN, Ames Lab, PAUL GODDARD, SAMAN GHANNADZADEH, Oxford U., UK, XUAN LUO, POSTECH, Korea, SANG-WOOK CHEONG, Rutgers Center for Emergent Materials & Dept of Physics, Rutgers University, JOHN SINGLETON, NHMFL, LANL — We present a data on an iridate compound that shows an extraordinarily large magnetic hysteresis loop. The coercive magnetic field exceeds 40 Tesla in single-crystal samples. The hysteresis coexists with a linear background, and the total remanent magnetization is about half a Bohr magneton. We will discuss the emergence of these properties from the interplay of spin-orbit coupling, magnetic exchange and possible frustration. The single crystalline material exhibits a magnetic hysteresis loop for one orientation of the magnetic field and a smooth linear increase in the magnetization with field for the other. Measurements were conducted in 65 T short-pulse magnets and the 60 Tesla shaped-pulse magnet at the National High Magnetic Field Lab in Los Alamos. We do not observe any dependence of the magnetic hysteresis on magnetic field sweep rate. Compounds containing Ir4+ have attracted attention recently due to strong spin-orbit coupling that competes with crystal-electric field and exchange interactions. This competition can result in non-Hund's-rule ground states with unusual properties.

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