

Abstract Submitted  
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**Rare earth substitution in AFe<sub>2</sub>As<sub>2</sub> single crystals<sup>1</sup>** SHANTA SAHA, NICHOLAS BUTCH, TYLER DRYE, JEFF MCGILL, JOHNPIERRE PAGLIONE, Center for Nano Physics and Advanced Materials, Department of Physics, University of Maryland, College Park, MD, PETER ZAVALIJ, Department of Chemistry and Biochemistry, University of Maryland, College Park, MD, JEFFREY LYNN, NIST Center for Neutron Research, Gaithersburg, MD — Synthesis and characterization of aliovalent light rare earth substitutions for alkaline earth atoms are studied in single crystals of FeAs-based compounds with the ThCr<sub>2</sub>Si<sub>2</sub> structure. Electrical resistivity, magnetic susceptibility and structural parameters determined via x-ray and neutron scattering techniques are investigated as a function of chemical pressure and charge doping induced by substitution. Measured physical properties are compared to the effects of external applied pressure on CaFe<sub>2</sub>As<sub>2</sub>, known to induce a collapse of the tetragonal unit cell.

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