Synthesis and Doping of LaFeAsO, BaFe2As2, and FeTe Compounds\textsuperscript{1}

ATHENA SEFAT\textsuperscript{2}, Oak Ridge National Laboratory

This talk is an overview of the various synthesis techniques used in making the high-temperature Fe-superconductors based on LaFeAsO, BaFe2As2, and FeTe, and the chemical-doping dependent phase diagrams established for these three families. Some of the basic physical properties will be discussed, along with the calculated electronic structures and neutron scattering results on the parents and their doped phases.

\textsuperscript{1}Research is supported by the US DOE, Office of BES (Division of Materials Sciences and Engineering) and in part by Eugene P. Wigner Fellowship Program.

\textsuperscript{2}CEMG members (M. A. McGuire, B. C. Sales, D. Mandrus) are greatly acknowledged.