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Inversion symmetry breaking superconductors: Re_3W and Re_3Mo VALENTINA KUZNETSOVA, University of Tennessee, Knoxville, IVAN SERGIENKO, ORNL, MAXIM LOBANOV, University of Tennessee, Knoxville, JAMES THOMPSON, DAVID MANDRUS, University Of Tennessee, Knoxville; ORNL — Superconductors that break inversion symmetry and have strong spin-orbit coupling are theoretically predicted to have many anomalous properties, including the development of a two-gap structure in the superconducting density of states. One recent example of such a material is CePt_3Si , which has attracted much recent attention. We have begun to examine two other materials that meet these criteria, Re_3Mo and Re_3W , both of which crystallize in the α -Mn structure that breaks inversion symmetry. Here we present X-ray diffraction, magnetization, resistivity, and specific heat data on both Re_3Mo and Re_3W . Characteristic parameters of the superconductivity are extracted, and the data are closely examined for any deviation from ordinary BCS behavior. Oak Ridge National Laboratory is managed by UT-Battelle, LLC, for the U.S. Dept. of Energy under contract DE-AC05-00OR22725.

Valentina Kuznetsova
University of Tennessee, Knoxville

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