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Structural Phase Transitions in $\text{Cd}_2\text{Re}_2\text{O}_7$

Jian He*, Bryan C Chakoumakos, David G. Mandrus, Matthias Guttman, Chick C. Wilson

University of Tennessee, Knoxville, TN 37922
Oak Ridge National Laboratory*, Oak Ridge, TN 37831
CLRC Rutherford Appleton Laboratory, UK

The structural phase transitions below 200 K in the pyrochlore oxide, $\text{Cd}_2\text{Re}_2\text{O}_7$, have been the subject of a number of studies, however, the exact nature of these structural distortions and symmetry changes has not been completely elucidated. Accompanying the structural changes are dramatic changes in the resistivity and magnetic susceptibility, and superconductivity is observed at $T_c = 1.0$ K. We have collected single-crystal neutron diffraction data at the SXD instrument at ISIS using an isotopically enriched crystal. Data sets for several temperatures have been collected. We are testing a variety of lower symmetry structural models to determine the best descriptions of the low temperature structural modifications.

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