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X-ray absorption spectroscopy on the phase transition of $\text{Cd}_2\text{Re}_2\text{O}_7$ SHIH-WEN HUANG, Department of Electrophysics, National Chiao Tung University, J. M. CHEN, National Synchrotron Radiation Research Center, H. T. JENG, Institute of Physics, Academia Sinica, J-Y LIN, Institute of Physics, National Chiao Tung University, J. M. LEE, National Synchrotron Radiation Research Center, H. D. YANG, Department of Physics, National Sun Yat Sen University, KENG LIANG, National Synchrotron Radiation Research Center, H. BERGER, Department of Physics, EPF Lausanne, CH-1015 Lausabbe — Pyrochlore $\text{Cd}_2\text{Re}_2\text{O}_7$ has received considerable attention and investigated extensively because of its manifold phase transitions accompanied by profound physical properties. In this study, the relations among the electronic structure, phase transition, and some physical properties of $\text{Cd}_2\text{Re}_2\text{O}_7$ single crystals have been investigated. We conducted the X-ray diffraction as well as Re $L_{2,3}$ -edge extended X-ray absorption fine structure (EXAFS) at different temperatures to investigate the local structure of $\text{Cd}_2\text{Re}_2\text{O}_7$ and temperature-dependent O K -edge X-ray absorption near edge structure (XANES) to probe its electronic structure during the phase transition. We also performed the band structure calculations to understand the DOS near the Fermi level of $\text{Cd}_2\text{Re}_2\text{O}_7$ at different temperatures.

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