

Abstract Submitted
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Resonant soft x-ray scattering from Cu valence modulations in oxygen ordered YBCO DAVID HAWTHORN, University of Waterloo, K.M. SHEN, Cornell University, J. GECK, IFW-Dresden, D.C. PEETS, H. WADATI, RUIXING LIANG, D.A. BONN, W.N. HARDY, G.A. SAWATZKY, University of British Columbia, J. OKAMOTO, D.J. HUANG, H.-J. LIN, NSRRC, Taiwan, JONATHAN DENLINGER, Lawrence Berkeley National Laboratory — Recently resonant elastic soft x-ray scattering (RSXS) has emerged as a powerful new tool to study electronic ordering in materials like cuprates and manganites. The power of this technique is to combine x-ray scattering, which is sensitive to spatial order, with x-ray spectroscopy, which is sensitive to the valence, spin and orbital symmetry of specific atoms. This combination allows one to probe very directly and considerable detail a variety of exotic spin, charge, orbital or structural ordering phenomena. I will discuss the application of this technique to an important test case, oxygen ordering in YBCO. In this system we are able to accurately calculate the energy dependence of the scattering intensity, providing a basis for understanding the spectroscopy of more complex systems.

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