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Charge superstructures in Zn-doped $La_{2-x}Sr_xCuO_4$[1] J. C. LEE, University of Illinois, A. RUSYDI, University of Hamburg, S. SMADICI, S. WANG, P. ABBAMONTE, University of Illinois, M. ENOKI, M. FUJITA, Tohoku University, M. RUEBHAUSEN, University of Hamburg, K. YAMADA, Tohoku University
— We have observed valence band charge order in both twinned and untwinned samples of $La_{1.95}Sr_{0.05}Cu_{0.95}Zn_{0.05}O_4$ with resonant soft x-ray scattering. In the untwinned sample the order was observed to be mainly electronic and centered at the $(0,0.084,2)_o$ position in reciprocal space, indicating diagonal charge order with period $12a_o$, where a_o is the orthorhombic lattice parameter. This order has approximately half the wavelength of the magnetic order previsouly observed with neutron scattering* in this system, suggesting a stripe interpretation. Preliminary measurements on a twinned sample revealed four satellites at $(0,K,2)_o$, where K takes on integer multiples of the value 0.011. Relationships between these effects and the crystal structure of $La_{1.95}Sr_{0.05}Cu_{0.95}Zn_{0.05}O_4$ will be discussed. *M. Matsuda, et. al., Phys. Rev. B **73**, 140503(R) (2006)

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