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Resonant x-ray scattering study of charge order in the electron-doped cuprate $Nd_{2-x}Ce_xCuO_4$ EDUARDO DA SILVA NETO, RICCARDO COMIN, University of British Columbia, FEIZHOU HE, RONNY SUTARTO, Canadian Light Source, YEPING JIANG, RICHARD GREENE, University of Maryland, GEORGE SAWATZKY, ANDREA DAMASCELLI, University of British Columbia
— In cuprate high-temperature superconductors, an antiferromagnetic Mott insulating state can be destabilized toward unconventional superconductivity by either hole- or electron-doping. In hole-doped (p-type) cuprates a charge ordering (CO) instability competes with superconductivity inside the pseudogap state. In this talk we report resonant x-ray scattering measurements that demonstrate the presence of charge ordering in the n-type cuprate $Nd_{2-x}Ce_xCuO_4$ (NCCO) near optimal doping. We find that the CO in NCCO occurs with similar periodicity, and along the same direction as in p-type cuprates. However, in contrast to the latter, the CO onset in NCCO is higher than the pseudogap temperature, and is in the temperature range where antiferromagnetic fluctuations are first detected. Our discovery opens a parallel path to the study of CO and its relationship to antiferromagnetism and superconductivity. E.H. da Silva Neto, R.C. Comin et al. arXiv 1410.2253 (2014).

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