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Hard X-ray Structural Studies of $HgBa_2CuO_{4+\delta}$ GUILLAUME CHABOT-COUTURE, Applied Physics Department, Stanford University, JASON N. HANCOCK, Stanford Synchroton Radiation Laboratory, Stanford University, LI LU, Applied Physics Department, Stanford University, ZAHIRUL ISLAM, Advanced Photon Source, Argonne National Lab, MARTIN GREVEN, Stanford University — Recent high-energy x-ray diffuse scattering work on the compounds YBCO and BSCCO shows that these high-T_c superconductors are typically intrinsically inhomogeneous [1-3]. These inhomogeneities are short-range-ordered lattice modulations driven by oxygen dopants, and they appear to have an important role in the electronic, transport, and spectroscopic properties of these systems. $HgBa_2CuO_{4+\delta}$ (Hg1201) has a simple structure and the highest T_c (at optimal doping) among all single-layer compounds. It is thus a perfect candidate system to address the issue of charge modulations. Here we present evidence for short-range incommensurate displacement modulations and discus our results in the context of similar findings in other compounds.

1. Z. Islam et al. PRL 93, 157008 (2004)

2. J. Strempfer et al. PRL 93, 157007 (2004)

3. J. P. Castellan et al. http://arXiv.org/abs/cond-mat/0507505

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