

Abstract Submitted
for the MAR07 Meeting of
The American Physical Society

Interplay between strain and the chain charge density wave in Sr14Cu24O41 ANDRIVO RUSYDI, P. ABBAMONTE, H. EISAKI, Y. FUJIMAKI, N. MOTOYAMA, S. UCHIDA, Y.-J. KIM, M. RÜBHAUSEN, G.A. SAWATZKY, INSTITUT FÜR ANGEWANDTE PHYSIK, UNIVERSITÄT HAMBURG TEAM¹, NATIONAL SYNCHROTRON LIGHT SOURCE, BROOKHAVEN NAT. LAB. TEAM, NANOELECTRONICS RESEARCH INST. AIST TEAM, DEPARTMENT OF SUPERCONDUCTIVITY, UNIVERSITY OF TOKYO TEAM, PHYSICS DEPARTMENT, UNIVERSITY OF TOKYO TEAM — Using resonant soft x-ray scattering (RSXS) and x-ray absorption (XAS), we have studied interplay between strain and chain charge density wave (CDW) in Sr14Cu24O41 (SCO). We have found a direct evidence of holes modulation in the chain. The hole modulation is pinned in the strain wave of the chain-ladder buckling and amplifies its modulation through the 4kF⁻CDW instability. Further, we use the coherent interference between the Thomson and resonant scattering to show that the holes are localized in the strain minima and the ratio of the the charge and strain amplitude, W , is estimated to be $278/A$. This all explains both the insulating behavior of the chains and the apparent CDW in inelastic neutron scattering.

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Date submitted: 27 Dec 2006

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