

THU1F4: Superconductivity and Highly-Correlated Systems - High Tc Superconductivity I

Chaired by A. Goldoni, Sincrotrone Trieste, Trieste, Italy

Time: Thursday 9:40–11:00

Location: Aula 4

Invited talk

THU1F4.1 9:40 Aula 4

Interplay between electron-phonon and Coulomb

— •OLLE GUNNARSSON¹, OLIVER RÖSCH², GIORGIO SANGIOVANNI¹, ERIK KOCH³, CLAUDIO CASTELLANI⁴, and MASSIMO CAPONE⁴ — ¹Max-Planck-Institut für Festkörperforschung, D-70506 Stuttgart, Germany — ²Gesellschaft für Anlagen- und Reaktorsicherheit mbH, D-50667 Köln, Germany — ³Institut für Festkörperforschung, Forschungszentrum Jülich, D-52425 Jülich, Germany — ⁴Dipartimento di Fisica Università di Roma "La Sapienza", I-00185 Roma, Italy

We have studied the influence of strong correlation on electron-phonon interaction. We find that, thanks to antiferromagnetic correlations, electron-phonon effects are strongly suppressed in the phonon but not electron Green's function.

THU1F4.2 10:20 Aula 4

CuO₂ in-plane phonon anomaly in high Tc superconductors: the case of the Oxchlorides —

•MATTEO D'ASTUTO¹, MATTEO CALANDRA¹, PAOLA GIURA¹, IKUYA YAMADA¹, MORITZ HOESCH², MICHAEL KRISCH², MASAKI AZUMA³, MIKIO TAKANO³, ANDREA GAUZZI¹, FRANCESCO MAURI¹, and ABHAY SHUKLA¹ — ¹Institut de Minéralogie et de Physique des Milieux Con-

densés (IMPMC), Univ. Pierre et Marie Curie Paris 6, 140 rue de Lourmel, 75015 Paris, France — ²European Synchrotron Radiation Facility, BP 220, F-38043 Grenoble cedex, France — ³Institute for Chemical Research, Kyoto University, Uji, Kyoto 611-0011, Japan

We will present our new measurements and calculations on the phonon dispersion and lifetime in superconducting Ca_{2-x}CuO₂Cl₂, and discuss the electron-phonon coupling strength in this system and in cuprate.

THU1F4.3 10:40 Aula 4

Electron-phonon Effects in Undoped Cuprates —

•VITTORIO CATAUDELLA¹, GIULIO DE FILIPPIS¹, ANDREI MISHCHENKO², and NAOTO NAGAOSA³ — ¹Coherencia-CNR-INFN and Dip. Scienze Fisiche, Università di Napoli "Federico II", Napoli Italy — ²CREST, Japan Science and Technology Agency (JST), Tsukuba 305-8562, Japan — ³CREST, Dep. of Applied Physics, The University of Tokyo, Tokyo 113, Japan

The effect of hole-phonon coupling on the spectral function and on ground state properties of undoped cuprates is studied. The results provide a clear scenario for understanding specific features of ARPES measurements.