

**Electron State and Lattice Effects in Cuprate
High Temperature Superconductors**

- The True Story Revealed by Fermi Surface and Unconventional Lattice Effects-

October 27-28, 2005

**Headquarters and Information Technology Collaborative Research Center
National Institute of Advanced Industrial Science and Technology (AIST)
Tsukuba, Japan**

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Supported by Physical Society of Japan

PROGRAM

Thursday, October 27

10:00-10:15 Opening (H. Oyanagi)

**Morning session (Chair: A. Bussmann-Holder, C.S. Ting)
The Emerging true story**

**10:15-10:45 K.A. Müller
From single to bi-polarons with Jahn-Teller character and
metallic cluster stripes in hole doped cuprates (Special
lecture commemorating the 20th anniversary of HTSC)**

**10:45-11:15 H. Kamimura
Theory of copper oxide superconductors**

**11:15-11:45 A. Bishop
Multiscale functionality in transition metal oxides and
related soft matter**

**11:45-12:10 Y. Tomioka
An effect of quenched disorder on the phase diagrams of
perovskite manganites**

**12:10-12:35 D. Mihailovic
Jahn-Teller driven femtosecond structural dynamics in
cuprates and selenides**

12:45-14:15 LUNCH

**Afternoon session I (Chair: A. Lanzara, T. Mizokawa)
Electron states revealed by state-of-the-art ARPES**

**14:15-14:40 T. Mizokawa
Angle-resolved photoemission spectroscopy as a probe of
inhomogeneous electronic states: Fermi surface,
magnetism, and local lattice distortion in cuprates and
ruthenates**

**14:40-15:05 T. Yoshida
Material dependence of the electronic structure in high- T_c
cuprates**

- 15:05-15:30** **A. Lanzara**
Electron-lattice interaction and renormalization effects in cuprates: a view from photoemission spectroscopy
- 15:30-15:45** **K. Ji**
Theoretical study on anomalous isotope effect in ARPES of Bi2212
- 15:45-16:00** **COFFEE BREAK**

Afternoon session II (Chair: T. Tohyama, J. Karpinski)
Electron states: overdoping limit

- 16:00-16:25** **Y. Koike**
Electronic state in the overdoped regime of the high- T_c cuprates studied by μ SR and magnetic susceptibility: possible phase separation
- 16:25-16:50** **T. Masui**
The effect of carrier-overdoping on the Raman spectra in Ca-substituted YBCO single crystals

Afternoon session III (Chair: H. Kamimura, A. Bishop)
Electron states, to our best knowledge

- 16:50-17:15** **M. Oda**
Role of nodal Fermi arc in high- T_c superconductivity
- 17:15-17:40** **C.S. Ting**
Superconductivity with antiferromagnetic order in electron-doped cuprates
- 17:40-18:05** **T. Yanagisawa**
Density wave, superconductivity and spectra in cuprates
- 18:05-18:30** **T. Tohyama**
Electron-hole asymmetry in electronic and charge excitations of high- T_c cuprates
- 18:30-18:55** **K. Yamaji**
Two superconducting parameter domains of the moderate- U Hubbard model for high- T_c superconductors
- 20:00-22:00** **BANQUET**

Friday, October 28

Morning session I (Chair: A. Bianconi, S. Sugai)

Electron-lattice effects, a true story

**9:00-9:25 H. Keller
Unconventional isotope effects in cuprate superconductors**

**9:25-9:50 A. Bussmann-Holder
Polaron formation and spin/charge ordering in high temperature superconducting cuprates**

**9:50-10:15 K.M. Kojima
Magnetic field effect on the optical spectra in high T_c superconductors**

**10:15-10:40 M. Arai
Overview of neutron inelastic scattering experiments on high- T_c superconductors and future prospect with newly constructing high intensity sources**

10:40-11:10 COFFEE BREAK

Morning session II (Chair: I. Bozovic, H. Keller)

Electron-lattice effects, confirming the true story

**11:10-11:35 A. Bianconi
Feshbach shape resonances for high T_c superconductivity**

**11:35-12:00 S. Sugai
Carrier density dependent quasi-particle peak and phonons in $\text{La}_{2-x}\text{Sr}_x\text{CuO}_4$**

**12:00-12:15 C.H. Lee
Sr Concentration dependence of a spin gap in $\text{La}_{2-x}\text{Sr}_x\text{CuO}_4$**

**12:15-12:40 J. Karpinski
Influence of magnetic and non-magnetic substitutions in MgB_2 single crystals on superconducting properties and structure**

12:40-14:10 LUNCH

Afternoon session I (Chair: D. Mihailovic, D. Pavuna)

Inhomogeneity: signatures of complex interactions

- 14:10-14:35 S. Kashiwaya**
Local tunneling spectra of single layer Bi-based cuprates
- 14:35-15:00 T. Kakeshita**
Optical response in high- T_c cuprate through inhomogeneous picture on CuO_2 plane
- 15:00-15:25 T. Sasagawa**
Stripes-induced novel lattice-effects in high- T_c superconductors
- 15:25-15:45 H. Eisaki**
Effect of out-of-plane disorder on T_c in high- T_c copper oxide superconductors
- 15:45-16:00 K. Tokiwa**
Coexistence of superconductivity and antiferromagnetism in a Hg-1245 multilayered superconductor
- 16:00-16:30 COFFEE BREAK**
- Afternoon session III (Chair: H. Oyanagi, Y. Krockenberger)**
Thin film physics: search for the missing ingredient
- 16:30-16:55 I. Bozovic**
Strong electron-phonon coupling in high-temperature superconductors
- 16:55-17:20 D. Pavuna**
Superconductivity and direct ARPES on ultra-thin HTSC films: electronic properties and the role of compressive vs tensile strain
- 17:20-17:45 M. Naito**
Superconductivity in undoped cuprates
- 17:45-18:10 Y. Krockenberger**
Lattice effects and phase diagram in electron doped cuprate superconductors
- 18:10-18:30 CLOSING**
- 20:00-22:00 DINNER**