

International workshop on x-ray scattering and electronic structures

Date: 5-7 June 2006

Venue: SPring-8, Hyogo, Japan

Organized by Japan Atomic Energy Agency (JAEA)

Supported by Japan Society for the Promotion of Science (JSPS)

Japan Synchrotron Research Institute (JASRI)

Organizing committee

Chair: J. Mizuki (JAEA)

Scientific Coordinator: J. Igarashi (Ibaraki University)

K. Makoshi (University of Hyogo)

Y. Sakurai (JASRI)

Scope of the workshop

X-ray scattering has recently become a powerful tool in modern solid state physics to investigate orbital, magnetic and charge orders and associated electronic excitations in strongly correlated electron systems. The purpose of the workshop is to discuss the up-to-date topics through a strong interaction between theorists and experimentalists brought together. Topics will be around the elastic resonant x-ray scattering on actinoid compounds and transition-metal compounds including noncentrosymmetrical crystals, the Compton scattering, and the inelastic x-ray scattering on cuprates and transition-metal compounds.

Invited Speakers

P. Abbamonte

M. Altarelli (Dessy, Humburg, Germany)

R. Caciuffo (Institute for Transuranium Elements, Karlsruhe, Germany)

M. Cooper (Univ. of Warwick, UK)

J. Hill (BNL, USA)

P. Kruger (Univ. Bourgogne, France)

G. Lander (ILL, Grenoble)

C. R. Natoli (Frascati, Italy)

L. Paolasini (ESRF, Grenoble)

G. Sawatzky (UBC, Canada)

G. van der Laan (Daresbury Lab., Warrington, UK)

T. Arima (Hohoku Univ., Sendai)
A. Q. R. Baron (RIKEN/JASRI)
A. Kotani (Riken/SPring8)
T. Jo (Hiroshima Univ., Higashi-Hiroshima)
K. Ishii (JAEA)
Y. Cai (NSRRC)
S. Suga (Osaka Univ.)
T. Tohyama (Tohoku Univ., Sendai)
Y. Murakami (Tohoku Univ., Sendai)
S. Shin (RIKEN/ISSP, Tokyo)
K. Nasu (KEK, Tsukuba)
M. Takahashi (Gunma Univ., Kiryu)
Y. Koizumi (Tsukuba Univ., Tsukuba)

Program

June 5 (Monday)

Chair: J. Igarashi

9:10 Opening address (J. Mizuki)

9:10-9:50: G. Lander

“Resonant scattering from non-magnetic ions”

9:50-10:30: R. Caciuffo

“Multipole order in actinide dioxides”

10:30-10:45 Coffee break

Chair: T. Toyama

10:45-11:25: L. Paolasini

“Resonant X-ray Scattering Under Extreme Conditions”

11:25-11:55: M. Takahashi

“Origin of transition metal K-edge x-ray spectra in transition metal compounds”

11:55-13:30 Lunch

Chair: T. Jo

13:30-14:10: Y. Murakami

“Dilute effect of orbital ordering in copper fluorides”

14:10-14:50: G. Sawatzky

“Some ideas about inelastic x ray scattering in condensed matter research”

14:50-15:30: M. Altarelli

“Resonant soft x-ray scattering in strongly correlated systems:
present and future”

15:30-15:45: Coffee break

Chair: C. R. Natoli

15:45-16:25: P. Abbamonte

“Charge character of the static stripe phase in $\text{La}_{2-x}\text{Ba}_x\text{CuO}_4$ ”

16:25-17:05: G. van der Laan

“Soft x-ray resonant magnetic scattering”

June 6 (Tuesday)

Chair: J. Hill

9:00-9:40: T. Arima

“X-ray nonreciprocal directional dichroism and x-ray magnetoelectric
scattering”

9:40-10:20: N. Ikeda

“Ferroelectricity from the Charge Ordering in RFe_2O_4 ”

10:20-10:35 Coffee break

Chair: M. Takahashi

10:35-11:15: C. R. Natoli

“Detection of electromagnetic multipoles by resonant x-ray spectroscopies:
some examples”

11:15-11:55: T. Jo

“Orbital polarization in transition-metal oxides and x-ray absorption
dichroism”

11:50-13:20 Lunch

Chair: G. Swatzky

13:20-14:00: S. Shin

“Soft x-ray emission study on electronic structures of transition
metal compounds”

14:00-14:40: **A. Kotani**

“Charge transfer and d-d excitations in RIXS of transition-metal compounds”

14:40-15:20: **K. Nasu**

“Path integral theory for photoemission spectra”

15:20-15:35 **Coffee break**

Chair: Y. Murakami

15:35-16:15: **M. Cooper**

“Momentum-space spin density distribution in *4f* ferromagnets”

16:15-16:45: **Y. Sakurai**

“Recent Progress of Fermi Surface Mapping by Compton scattering”

16:45-17:15: **Y. Koizumi**

“The origin of the Fermi arc in cuprates.”

17:30-19:30 : **Banquet at Cafeteria**

June 7 (Wednesday)

Chair: J. Mizuki

9:00-9:40: **J. Hill**

“Electronic Excitations in Transition Metal Oxides; From Femtoseconds to Minutes”

9:40-10:20: **S. Suga**

“Resonant Inelastic X-ray Scattering of corner-sharing Sr_2CuO_3 , edge sharing CuGeO_3 and ladder $\text{Sr}_{14}\text{Cu}_{24}\text{O}_{41}$ at the Cu 1s edge”

10:20-10:35 **Coffee break**

Chair: A. Kotani

10:35-11:15: **K. Ishii**

“Carrier doping effect on charge excitations in cuprates.”

11:15-11:55: **J. Igarashi**

“Analysis of RIXS spectra in transition-metal compounds”

11:55-13:30 **Lunch**

Chair: S. Suga

13:30-14:10: **T. Tohyama**

“Theory of resonant inelastic x-ray scattering in cuprates”

14:10-14:35: P. Kruger

“Recent advances in multi-channel multiple scattering theory for the calculation of electron spectroscopies”

14:35-14:50 Coffee break

Chair: Y. Sakurai

14:50-15:30: A.Q.R. Baron

“Electron-phonon coupling in high T_c superconductors via inelastic X-ray scattering.”

15:30-16:10: Y.Cai

“Low-Energy Charge Excitations by Inelastic X-ray Scattering: From Collective Excitations in Simple Materials to *d-d* Excitations in Mott Insulators.”

16:10-16:20 Closing address

G. Lander