

**International Workshop on**  
**Atomic Collisions of Slow/Trapped Highly-Charged Ions**

Thursday, Feb. 19, 2004 9:30-18:20

Friday, Feb. 20, 2004 9:30-18:20

Saturday, Feb. 21, 2004 9:30-12:40

Welfare and Conference Building, 2F Meeting Room (L)  
RIKEN(The Institute of Physical and Chemical Research), Wako, Japan

Hosted by Atomic Physics Laboratory, RIKEN

Highly charged ions (HCI's) have played unique and important role in the studies of atomic structure, collision dynamics, surface modification, plasma physics and astrophysics. In the last decades, innovation in the technologies of production and handling of HCI's has enabled wide spectra in their velocity: from zero-velocity by cooling in a trap up to relativistic velocities by large accelerators.

The subject of the present workshop covers present status and future prospects in various fields utilizing HCI's, especially slow or trapped highly-charged ions with well-defined surfaces, gases, plasmas, and clusters.

# Program

(Revised on Feb. 18)

February 19 (Thursday)

9:30-9:50 Welcome

Y. Yamazaki (RIKEN)

9:50-10:40 Interaction of highly charged ions with matter: from hollow atoms to nanostructures

J. Burgdoerfer (Vienna Univ. Tech.)

10:40-11:20 Highly charged ion induced surface modification of carbon

T. Meguro (RIKEN)

Coffee break (11:20-11:40)

11:40-12:30 Tokyo EBIT and its application to nanotechnology

M. Tona and S. Ohtani (Univ. Electrocom.)

12:30-13:00 Potential sputtering from F- and H-terminated Si(100) surface

N. Okabayashi (Univ. Tokyo)

Lunch (13:00-14:20)

14:20-15:00 Simultaneous STM/AFM observation of the HOPG surfaces irradiated with highly charged ions

N. Nakamura (Univ. Electrocom.)

15:00-15:40 Neutralisation of He ions on silver surfaces

V. Esaulov (Univ. Paris-Sud)

15:40-16:20 Application of x-ray emission of highly charged ions in dense plasmas

F. Rosmej (Univ. Provence)

Coffee break (16:20-16:40)

16:40-17:30 Atomic processes in high-energy astrophysical plasmas

K. Masai (Tokyo Metrop. Univ.)

17:30-18:20 Relativistic collisions

J. Eichler (HMI)

February 20 (Friday)

9:30-10:20 Quantum simulation for collisions involving many fermions: nucleus-nucleus collision versus atom-ion collision

K. Yabana (Tsukuba Univ.)

10:20-11:10 Collisions and Spectroscopy at the Heidelberg EBIT: Present Results and Future Perspectives

J. Ullrich (MPI-Heidelberg)

Coffee break (11:10-11:30)

11:30-12:00 The study of double-electron capture processes for  $C^{4+}$  - He collisions in the energy range of 60-110 eV/q

M. Hoshino (Sophia Univ./RIKEN)

12:00-12:30 Collision dynamics of MCI-molecule systems studied by a multi-coincidence technique

T. Kaneyasu (Tokyo Metrop. Univ.)

Lunch (12:30-13:50)

13:50-14:40 Test of bound state QED at the highest electric fields: Atomic structure of high-Z one- and few-electron ions

T. Stoeckler (GSI)

14:40-15:20 The Belfast EBIT: A New Device for the Study of Electron-Ion Interactions

F. Currell (Queen's Univ. Belfast)

15:20-15:50 Development of a positron accumulator for cooling of highly charged ions

N. Oshima (Univ. Tokyo/RIKEN)

Coffee break (15:50-16:20)

16:20-17:10 Precision Mass Measurements with Single Highly-Charged Ions in a Penning

R. Schuch (Stockholm Univ.)

17:10-17:50 Universal slow radioactive beams and their application

M. Wada (RIKEN)

18:00- Workshop Party (Hirosawa Club)

February 21 (Saturday)

9:30-10:10 Guided transmission of highly charged ions through nanocapillaries in insulators

N. Stolterfoht (HMI)

10:10-10:50 Focusing of MeV-He ion beams by means of glass capillary optics

T. Narusawa (Kochi Univ. Tech.)

Coffee break (10:50-11:10)

11:10-11:40 Secondary-ion emission from SiC surface interacted with highly-charged ions

K. Motohashi and S. Tsurubuchi (Tokyo Univ. Agri. Tech.)

11:40-12:30 Development of an LN<sub>2</sub> cooled electrostatic ion storage ring

T. Azuma (Tokyo Metrop. Univ.)

12:30-12:40 Closing remark

T. Kambara (RIKEN)

---

Chair: Y. Yamazaki yasunori@postman.riken.jp

Secretary: C. Kuramochi kura@postman.riken.jp

Atomic Physics Laboratory, RIKEN

2-1 Hirosawa, Wako 351-0198, Japan

TEL +81-48-462-1111 (ext. 3641)

FAX +81-48-462-4644