. Workshops & Meetings

ISSP workshop "*Future prospects of material science using vacuum UV and soft X-ray from synchrotron light****"***

Date: 2013/5/28(Tue)-2013/5/29(Wed)

Place: Lecture Room (A632), 6th Floor, ISSP, the University of Tokyo

Instrumentations of beamlines and stations have been one of the important issues for researchers using synchrotron radiation. Recently, the technical innovations have been made at the domestic facilities but the developments and the planning have been carried out at the individual sites with their related users. Since such frontier experimental techniques have been significant in science and technology, we organized a workshop at ISSP on May 28 and 29 in 2013 to share the information and to consider the future prospects with the participants.

The outstanding researchers were invited and made their presentations as programmed below. Upgrades of their frontier measurement techniques, such as those with spin, spatial, or time-resolution, and their newly developed *operando* experiments were described in detail with their recent results. A plan of the new synchrotron radiation facility at the Tohoku region and status of the foreign beamlines are also introduced. At the workshop, 81 and 71 researchers, including many young scientists and students, gathered at the first and the second days, respectively. The participants made fruitful discussion and we could strengthen our community network for future science in synchrotron radiation.

Program

2013/5/28(Tue)

13:00- **Observation of Surface and Interface of Magnetic Thin Films by Soft X-ray Depth-resolved XMCD and Control of Magnetic Properties** Kenta Amemiya (KEK)

13:25- **Observation of Spin-polarized surface states by means of high-resolution spin- and angle-resolved photoelectron spectroscopy** Taichi Okuda (Hiroshima University)

13:50- **Nanomagnetism of L10-FeNi studied by synchrotron radiation** Masato Kotsugi (JASRI / SPring-8)

14:15- **Toward the Measurements of the Resonant Magneto-Optical Kerr Effect with Soft X-ray Lasers** Iwao Matsuda (ISSP, the University of Tokyo)

14:40- **Theory of Resonant X-ray Magneto-optical Kerr Effect** Munetaka Taguchi (RIKEN / SPring-8)

15:25- **Evolution of spin dynamics researches using time-resolved PEEM in SPring-8** Takuo Ohkochi (JASRI / SPring-8)

15-55- **Time-resolved photoemission studies at SAGA-LS BL13** Kazutoshi Takahashi(Saga University)

16:20- **On the proposal of Tohoku STIR 3-GeV SR facility** Yoshio Waseda (Tohoku University)

16:50- **ERL Project and present status of the cERL in KEK** Hiroshi Kawada (KEK)

17:20- **Comment** Yohichi Murakami（KEK)

2013/5/29(Wed)

9:00- **Resonant soft x-ray diffraction studies of magnetic structures in transition-metal oxides** Hiroki Wadati (School of Engineering, the University of Tokyo)

9:25- **High resolution RIXS in strongly correlated electron systems** Kenji Ishii (Japan Atomic Energy Agency. /SPring-8)

9:50- **Theory on resonant X-ray diffraction in transition-metal compounds**

Arata Tanaka (Hiroshima University)

10:15- **Theory of L-edge RIXS for transition metal compounds**

Takami Tohyama (Kyoto University)

10:40- **Advanced materials science based on laser-accelerator collaborative work**

Shinya Koshihara (Tokyo Institute of Technology)

11:10- **Observing in-trasit species in surface chemistry using soft x-ray free electron laser**

Hiroto Ogasawara(SLAC)

11:40- **Ambient pressure x-ray photoelectron spectroscopy in catalytic reaction studies: Present status and future prospect** Susumu Yamamoto(ISSP, the University of Tokyo)

13:00- **Future concept of in situ/operando soft X-ray emission spectroscopy**

Yoshihisa Harada(ISSP, the University of Tokyo)

13:25- **Operand Observation of Electrochemical Reaction in Solution by Soft X-Ray Absorption Spectroscopy** Masanari Nagasaka(UVSOR)

13:50- **In-operando spectromicroscopy of graphene device**

Hirokazu Fukidome(Tohoku University)

14:15- **Electronic structures of solids studied by high-resolution ARPES: present status and future perspective** Kenya Shimada(Hiroshima University)

15:00- **Present Status and the prospect of SSRL ARPES**

Shin Hashimoto(SLAC National Accelerator Laboratory)

15:25-**Present Status of AichiSR BL7U**

Takahiro Ito(Aichi Science and Technology Foundation)

15:50- **Improvement project of VUV-SX beam lines at Photon Factory**

Hiroshi Kumigashira(KEK)

16:15- **Present status and prospect of solid-state spectroscopy using VUV photons at UVSOR-Ⅲ**

Shinichi Kimura(UVSOR)

16:40- **Discussion**

"Advances and the prospects for the next stage of SPring-8 BL07LSU"

Date: 2014/2/19(Wed)

Place: Lecture Room (A632), 6th Floor, ISSP, the University of Tokyo

The soft X-ray beamline, SPring-8 BL07LSU, was constructed in 2009 and it has been used for experiments at the four beamline endstations, the three-dimensional (3D) nano-ESCA, the soft X-ray emission spectroscopy (XES), the time-resolved photoemission spectroscopy (TR-PES), and the free-port. In the present fiscal year, the significant results were reported from the beamline users and new three long-term projects were also begun. Moreover, development of a new polarization control in the undulator will start from the coming fiscal year. Thus, we organized a workshop at ISSP on February 19, 2014, to report the results and the plans of the individual researches and to discuss new science.

At the workshop, 83 and 72 researchers, especially many young scientists, are gathered at the first and the second days, respectively. The participants found that many scientifically significant works

were achieved at SPring-8 BL07LSU and the further success was also expected with the upgraded beamline.

Program

10:00- **Present and future of Synchrotron Radiation Research Organization of University of Tokyo** Yoshiyuki Amemiya (Graduate school of frontier sciences, the University of Tokyo)

10:10- **Status of Polarization-controlled undulator beamline SPring-8 BL07LSU** Iwao Matsuda (ISSP, the University of Tokyo)

10:40- **Full Polarization Measurement of SR Emitted from ID07LSU at 400eV** Hiroaki Kimura (JASRI / SPring-8)

11:10- **Novel magnetic ordering in solids revealed by resonant soft X-ray diffraction** Hiroki Wadati (ISSP, the University of Tokyo)

11:50- **lunch**

13:00- **Observation of graphene transistors using operando photoemission electron microscopy** Hirokazu Fukidome (Tohoku University)

13:30- **In situ/operando ultrahigh resolution soft X-ray emission spectroscopy, application to water and battery materials science** Yoshihisa Harada(ISSP, the University of Tokyo)

14:00- **Carrier dynamics on semiconductor surfaces studied by time-resolved photoelectron spectroscopy: Present status and future prospect** Susumu Yamamoto (ISSP, the University of Tokyo)

14:30- **Resonant Inelastic X-ray Scattering for Strongly Correlated Vanadium Oxides** Hidenori Fujiwara (Osaka University)

15:00- **Poster short presentation**

15:30- **Coffee Break**

15:40- **Expectations in Soft-X-ray spectroscopy at Univ. Tokyo** Takamnori Arima (Graduate school of frontier sciences, the University of Tokyo)

16:20- **A comparative study of the surface photovoltage effect and carrier dynamics on anatase and rutile TiO2** Kenichi Ozawa (Tokyo Institute of Technology)

16:50- **Prospect for operando analysis of actual devices by 3DnanoESCA** Naoka Nagamura (Tohoku University)

17:20- **Study of energy loss processes at donor/acceptor interfaces organicsolar cell by using tine-resolved photoemission spectroscopy measurements** Takeaki Sakurai (Tsukuba University)

17:50- **Closing address** Fumio Komori (ISSP, the University of Tokyo)