

Next Generation Synchrotron Radiation Workshop

Friday October 18, 2019.

Petersen's room (Suzzallo and Allen Library)

1:00pm-5:00pm

A new next generation synchrotron radiation facility will be constructed in the campus of Tohoku University, Sendai, Japan. The site preparation work has already begun in March this year, and operation is scheduled in 2023. This is a world highest brilliance light source by an electron accelerator system combined with a linac and a 3GeV storage ring, and covers the spectral range from VUV to hard-x-rays.



With this facility being launched in 3 years, the UW-TU:AOS* (University on Washington-Tohoku University: Academic Open Space) takes an initiative to organize a workshop with its aims for: (1) introducing this new synchrotron facility to our colleagues, (2) seeking your suggestions/ideas of new uses of this facility, and (3) exploring new cooperative endeavors in SR research through UW-TU:AOS. For this, we are inviting world top scientists to give most updated information about the SR research. At the same time, we are setting up a session for you to present a three-minutes pitch-talk (with 2~3 PPT slides) of your research ideas during the workshop.

* <https://www.washington.edu/news/2017/04/14/uw-tohoku-university-establish-academic-open-space-partnership-for-innovations-in-aerospace-clean-energy-disaster-preparedness/>

Workshop Programs

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| 1:00 | Welcome | Prof. Fumio Ohuchi (Materials Science and Engineering) |
| 1:05 | Opening remarks | Prof. Greg Miller (Interim Dean, College of Engineering)
Prof. Jihui Yang (Chair, Materials Science and Engineering) |
| 1:10 | Present Status of Next Generation 3GeV Synchrotron Project in Japan | Prof. Tadahiro Hayasaka (Executive Vice President for Research, Tohoku University) |
| 1:30 | Current and Future Challenges in the SLIT-J Project at Sendai, Japan | Prof. Masaki Takata (Tohoku University/ President of Photon Science Innovation Center) |
| 2:00 | Synchrotron Soft X-ray research: Techniques and Applications | Prof. Tadashi Abukawa (Institute of Multidisciplinary Research, Tohoku University) |

- 2:20 Angle-Resolved Photoemission at ALS: status and future plans
Dr. Eli Rotenberg (Advance Light Source (ALS), Lawrence Berkeley Lab)
- 2:40 Break
- 2:50 Pitch-Talk Presentations from University of Washington
- 1 Guozhong Cao (Professor of Materials Sci & Eng)
From Li to Zn ion batteries: electroactive cathode materials
 - 2 Jihui Yang (Professor of Materials Sci & Eng)
Probing Chemical Reaction Mechanisms in Batteries using soft X-ray Absorption Spectroscopy
 - 3 Stu Adler (Professor of Chemical Engineering)
Imaging fuel cell reactions using frequency-resolved X-ray absorption (fr-XAS)
 - 4 Munira Khalil (Professor of Chemistry)
Soft X-ray Spectroscopy for Chemical Applications in Solution
 - 5 Peter Pauzauskie (Associate Professor of Materials Sci & Eng)
Detection of nanodiamond surface reconstructions via carbon K-edge scanning-transmission x-ray absorption microscopy
 - 6 Xiaosong Li (Professor of Chemistry)
Advances in computational X-ray spectroscopy
 - 7 Joushua Kas (Research Associate Professor of Physics)
Workflow tools for calculation and interpretation of X-ray spectroscopy: Bringing state of the art computational techniques to the masses
 - 8 Xiaodong Xu (Professor of Physics and Materials Sci & Eng)
Emerging Opportunities in 2D Materials
 - 9 David Cobden (Professor of Physics) : Speaker Paul Nguyen
Submicron angle-resolved photoemission spectroscopy on operating electronic devices
 - 10 Kannan Krishnann (Professor of Materials Sci & Eng)
Magnetic correlations and thermodynamics in artificial arrays of nanomagnets
 - 11 Ting Cao (Assistant Professor of Materials Sci & Eng)
Theory and First-Principle Calculations of Excitonic Photoemission Spectrum
 - 12 Luna Huang (Lecturer of Materials Sci & Eng)
Next Generation Data Centralization and AI Cloud Service for Synchrotron
 - 13 Navid Zobeiry (Assistant Professor of Materials Sci & Eng)
Deep Learning for Process Control of Advanced Composites using synchrotron-based in-situ CT Imaging
 - 14 Anthony Dichiaro (Assistant Professor of Forestry)
Advanced cellulose-based materials for multifunctional sensing and environmental applications
 - 15 Devin MacKenzie (Associate Professor of Materials Science and Engineering)
TBA

- 3:40 Exploration of new cooperative endeavors in SR research through UW-TU:AOS
Prof. Tomo Okabe (Department of Aerospace Engineering, Tohoku University)
- 3:50 SPring-8 Approach for Nano-Innovation in Magnetism
Dr. Tetsuya Nakamura (Spring-8, JASRI)
- 4:10 Deep ultraviolet Photoemission Electron Microscopy (PEEM) and its extension to
synchrotron-based PEEM
Dr. Taisuke Ohta (Sandia National Laboratories, Center for Integrated Nanotechnologies)
- 4:30 Upshifts in operando soft X-ray spectroscopies
Prof. Iwao Matsuda (Institute of Solid State Physics, University of Tokyo)
- 4:50 Phase Contrast x-ray Imaging in Bio-mechanical Aspects; Mosquito Bloody Ingestion
Prof. Kenji Kikuchi (Department of Biomedical Engineering, Tohoku University)
- 5:10 Closing Remark
Prof. Fumio Ohuchi