International Conferences and Workshops

MAterial Simulation in Petaflops era (MASP2012)

June 25 - July 13, 2012
O. Sugino

With the development of petaflops supercomputers, such as K-computer, the computational condensed matter physics is undergoing a sea change. The stupendous computer power has enabled to handle very large number of parameters, allowing thereby to apply increasingly complex formalisms. While, the massive parallelization severely limits the applicable algorithms. In this context, top level scientists working in this field were invited from all over the world to discuss deeply (taking three weeks) what can be achieved in the petaflops era. The topics included the high-precision many-body theories, density functional theory (DFT) for dynamical phenomena, algorithms for very large scale DFT calculation, and application to solid-liquid interface. Through the lecture of 2-3 hours and the symposium talks, followed by endless informal discussions, the attendees enjoyed the time to deeply think about the future of the computational condensed matter theories.

This event consisted of the workshop (June 25 - July 1st and July 3 - 11), where one or two lectures were given, and the symposium (July 2, and 12 - 13), where the most recent achievement was presented. It was remarkable that some of experimentalists, invited to the symposium, are expecting the future success of joint computational and experimental research, and such comment was given from the field where the joint research had not been so common.

This workshop was financially supported by Computational Materials Science Initiative (CMSI) and ISSP, and the symposium was additionally supported by the Joint Research budget of ISSP. The management of the workshop was performed by Profs. Naoki Kawashima, Hiroshi Noguchi and Yoshifumi Noguchi (ISSP), Shinji Tsuneyuki and Koichi Yamashita (The University of Tokyo), Drs. Yoshiyuki Miyamoto and Minoru Otani (The National Institute of Advanced Industrial Science and Technology) and Drs. Takahisa Ohno and Yoshitaka Tateyama (The National Institute for Materials Science).

ISSP International Workshop on Coherent Soft X-ray Sciences, and 5th Asian Workshop on Generation and Applications of Coherent XUV and X-ray Radiation (5th AWCXR)

June 27 - 29, 2012

J. Itatani, Y. Kobayashi, and S. Shin

The joint workshop of the 5th Asian Workshop on Generation and Application of Coherent XUV and X-ray Radiation (5th AWCXR) and the ISSP International Workshop on Coherent Soft X-ray Sciences were held from June 27 to 29, 2012 at the Media Hall, Kashiwanoha Library. The AWCXR workshop is originated from Asian Intense Laser Network. This time, it is jointly held with the ISSP International Workshop on Coherent Soft X-ray Sciences, aiming to envisage the future direction of new light sources such as laser-based high harmonics and XFEL's and their applications.

Because of the rapid progress in ultrafast soft-x-ray sciences, many fields are now getting close to each other. This joint workshop has become an opportunity where various fields (*e.g.*, intense lasers, next-generation synchrotrons, strong-field physics and material sciences) will meet in one place to discuss the future of emerging sciences and technologies. Following are the discussed topics:

- Intense ultrafast lasers
- High harmonic generation and attosecond physics
- VUV frequency comb and their applications
- XFEL and their applications
- Strong field physics and molecular sciences
- Material sciences with short-wavelength light sources

There were 2 tutorials, 35 oral presentations, and 20 poster presentations. There were about 120 participants including those from Korea (6), China (12) and Taiwan (1).

International Workshop on 3D Atomic Imaging at Nano-Scale Active Sites in Materials

August 6 - 8, 2012

K. Hayashi, H. Daimon, K. Gohara, T. Takahashi, J. Yoshinobu, Y. Sasaki, K. Ohoyama, and T. Matsushita

"3D atomic imaging" is a quite new keyword as a scope of workshop, symposium or conference, despite of its importance for structural analysis in materials science. Therefore, we planned the ISSP workshop of "3D-AINAS" in order to exchange the ideas about the different analytical techniques aiming at 3D atomic imaging. We invited researchers whose specialities were atomic resolution holography, surface/interface scattering and diffractive imaging, and discussed what is necessary for realizing the ideal 3D atomic imaging. The ISSP workshop was consisted of 16 oral presentations and 23 poster presentations. Two young scientists were awarded in the banquet. Over 70 participants were attended to the workshop, and had a hot discussion during the whole time. At the end of the workshop, we got a consensus that the establishment in the 3D atomic imaging is necessary for revealing roles of the active sites in functional materials. The program is given at https://sites.google.com/site/3daiworkshop/.