



The Institute for Molecular Science (IMS) is one of the world's core research facilities for molecular science and is also a center for inter-university joint research in Japan. It sets an extremely wide range of research goals, from understanding the behavior of individual molecules to that of collective molecular processes on the scale of life forms and in space. Currently, the IMS is engaged in five (four plus one) areas of research: Theoretical and computational molecular science, Photo-molecular science, Materials molecular science, and Life and coordination-complex molecular science. Research Center of Integrative Molecular Systems (CIMoS), the fifth research division of IMS, has started from April, 2013 to develop the highly functional molecular systems having the function of such as molecular rhythms, sensing and response, and even self-repair. In addition to these research divisions, IMS has six Research facilities and centers; UVSOR Facility, Laser Research Center for Molecular Science, Instrument Center facilitated with various molecular detectors, for example, 920MHz and 800MHz NMR, and Equipment Development Center. IMS also operates the Research Center for Computational Science and Okazaki Institute for Integrative Bioscience (OIIB), jointly with National Institute for Physiological Sciences and National Institute for Basic Biology in the same campus.

This Annual Review 2015 is a summary of research activities performed in IMS during September 2014–August 2015. The individual research groups at IMS are making steady progress in basic research on molecular structures, reactions and functions demonstrating “novel molecular capabilities,” as reported in this Review. In addition to these individual activities, IMS conducts the four special programs in the institute basis; (i) a computational chemistry program of TCCI (Theoretical and Computational Chemistry Initiative) as a part of CMSI (Computational Materials Science Initiative) in HPCI (High Performance Computational Infrastructure), (ii) Nano science project, called Nanotechnology Platform from July 2012. (iii) COE of molecular and materials simulations as a joint program of NINS, and (iv) Photon Frontier Network Consortium for Photon Science and Technology in collaboration with Japan Atomic Energy Research Institute, Osaka University and Kyoto University. With two IMS own international programs for Asia, namely, IMS-IIPA (Institute for Molecular Science International Internship Program in Asia) and Asian Core, IMS has invited active young scientists from various East Asian countries to carry out collaborative researches. IMS-IIPA Program is the post-JENESYS starting from 2011, and aims to provide the opportunity of internship for young researchers (*e.g.*, master's and doctoral students and postdoctoral researchers) from Asian countries to stay in IMS laboratories related to the basic research for environmental and energy problems. Asian Core program also has now become IMS's own project, continuing to strengthen the tie among the four key institutes of Chemical Physics in Asia, namely, KAIST in Korea, IAMS in Taiwan, ICCAS in China and IMS in Japan.

Many new young faculty members (all assistant professors) have joined to IMS in the period of September 2014–August 2015, while two senior members of IMS, Professor Ohshima and Professor Murahashi, left for Tokyo Institute of Technology. We deeply thank to these two professors for their important contributions to IMS and wish their success in their new environment.

By taking this opportunity, I like to express my sincere thanks to you all. This institute has been most benefited with your constant support. My term in IMS as Director-General will end in March of 2016. These 6 years in IMS are a most stimulus period in my scientific life, being with many young promising and well established senior scientists. We have started new projects, such as CIMoS research center, mentioned above, and the young independent fellow program (the specially appointed associate professorship). IMS continues to employ a new scientific perspective; we will establish a new center (“precision multiscale measurement and analysis center”) to develop the precision measurement and analysis methods and explore the spatiotemporal (time and spatial) development of multiscale molecular systems. We do expect your support and advice for creating this new era of molecular science.

September, 2015

A stylized, handwritten signature in black ink, consisting of several loops and a long horizontal stroke.

OHMINE, Iwao
Director-General, Institute for Molecular Science