



# Preface

Institute for Chemical Research (ICR), Kyoto University was launched in 1926 as the first research institute at Kyoto University, to mark its 86th anniversary last year; its true roots date back to 1915, that is, the Specialized Center for Chemical Research founded at the College of Science, Kyoto Imperial University. The philosophy at the time of foundation of the ICR above was to “Excel in the Investigation of Basic Principles of Chemistry and Their Applications,” and the studies on special medicinal substances “Salvarsans,” organometallic chemistry, incendiary reagents, and so on were undertaken at nine research laboratories. Since then, the ICR has continuously produced outstanding research achievements. Now, we have reached the current large-scale organization of five research divisions: Synthetic Chemistry, Materials Chemistry, Biochemistry, Environmental Chemistry, and Multidisciplinary Chemistry and three research centers: Advanced Research Center for Beam Science, International Research Center for Elements Science (IRCELS), and Bioinformatics Center. Currently, about 100 faculty members, 210 graduate students and 50 researchers are engaged in research activities in 32 laboratories in total supervised by full-time professors. Further, we have 5 laboratories supervised by visiting professors and an endowed laboratory.

The research within the ICR encompasses the fields of chemistry, physics, biology, and informatics. The chemical studies core covers fields including physical chemistry, inorganic chemistry, organic chemistry, materials chemistry, and biochemistry. The graduate schools to which our laboratories belong as cooperative ones accepting graduate students cover diverse fields of science, engineering, agriculture, pharmaceutical sciences, medicine, informatics, and human/environmental studies. These laboratories are spearheading leading-edge research, and yielding outstanding results in their own and/or correlated research areas, as examples, a direct electron microscope observation of defects in an organic crystal, a real-time observation of spin-motive force due to a gyrating magnetic vortex, and a discovery of a small molecule promoting cardiac differentiation of human pluripotent stem cells, all achieved in this year. The legacy of our founding philosophy above continues to the present day and describes the essence of our research activities. The ICR has entrusted its members with this vision in mind to

choose and pursue research topics at the forefront of advanced chemistry with bottom-up paradigms. Whether or not the human race maintain sustained growth is a key issue of this century. Moreover, we must recover from the Great East Japan Earthquake last year and reform our country from various perspectives in Japan. Hence, the ICR encourages its members to be actively involved in research projects with bottom-up approach in mind, and to value the development of unique interdisciplinary research projects, in order to contribute to the future of our society from materials-related fields.

Besides, the ICR is currently collaborating with domestic/oversea universities and research organizations (with about 55 official international collaboration agreements) and is functioning as a Joint Usage/Research Center proclaiming the Frontier/Interdisciplinary Research Core for Deeping Investigation and Promoting Cooperation in Chemistry-Oriented Fields supported by MEXT (2010-2016). In addition, the ICR, IRCELS in particular, is making a significant contribution to the MEXT Project of Integrated Research on Chemical Synthesis (2010-2016), in collaboration with the Catalysis Research Center at Hokkaido University, the Research Center for Materials Science at Nagoya University and the Institute for Materials Chemistry and Engineering at Kyushu University. Further, we also fully strive to fostering and securing of young researchers through these activities as well as graduate education mentioned above. For instance, this year we restarted an in-house annual grant system named “ICR Grant for Encouraging Promoting Integrated Research,” as described later by Professor Futaki, a Vice-Director. The strong collaboration basis so far constructed in-house and also with outside ensures the Institute to serve as the core of global research propellers in chemistry-oriented fields. Finally, we would appreciate your continued encouragement and support.

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Director