



Preface

Founded in 1926 as the first research institute of Kyoto University, the Institute for Chemical Research (ICR) will celebrate its 100th anniversary this year. The ICR founded on the vision of “excelling in the investigation of the basic principles of chemistry and their applications”. With this philosophy in mind, the ICR has consistently engaged in diverse and innovative pioneering research, flexibly and actively adapting to the changing times. Over the past 100 years, significant advances in science and technology have drastically altered people’s living environments, as well as the chemistry we pursue and the chemistry society demands. In line with these changes, the ICR has conducted cutting-edge research, broadening our perspectives and strengthening our collaborations based on our own curiosity and drive for improvement. Today, we can design and synthesize novel chemical compounds at atomic and molecular levels, and analyze their structures and properties using state-of-the-art quantum beams and informatics. Through these efforts, the ICR contributes to the development of society by advancing a wide range of sciences, including chemistry, physics, biology, pharmacy, and information technology. To carry out such broad fields of science, the ICR is currently organized into 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, and Bioinformatics Center. In total, about 450 people are working and studying at the ICR, including 25 professors, 26 associate professors, and 44 assistant professors, 63 research associates, 51 staff members, and 244 graduate students.

Some of the research results in 2025 were outstanding. For example, (1) coherent photoelectrical readout of single spins in silicon carbide was achieved at room temperature.

(2) Hydrogen-bond-directed supramolecular organic semiconductor thin films were realized *via* thermal precursor approach. (3) Stepwise deactivation of gibberellins during rice internode elongation was revealed. And (4) atomic diffusion barriers and inter-element miscibility were found to guide the development of unexplored crystal phases.

The ICR is a member of the Kyoto University Research Coordination Alliance and is collaborating with other research institutions and centers in Kyoto University. The ICR collaborates with other research institutions through MEXT projects, including the Inter-University Collaborative Projects “Integrated Consortium on Chemical Synthesis”, the Large-scale Scientific Research Project “Spintronics Research Network of Japan”, the “Quantum Leap Flagship Program (Q-LEAP)” and the “Frontier of Spin Life Sciences (Spin-L)”. We are also operating an international Joint Usage/Research Center (iJURC) “Global Frontier and Interdisciplinary Research Core for Deepening Investigations and Promoting Collaboration in Chemistry-oriented Fields”. The ICR continues to make efforts to promote both domestic and international collaborative research and the training of young researchers.

Given the rapid changes in the global landscape, it is clear that we have entered a new era. The research activities of our institute will also enter a new era based on our achievements over the past 100 years. We believe strengthening our international presence and training the next generation of young leaders are essential tasks on which we should focus. We hope this annual report updates you on our research progress and globalization efforts. We are committed to further developing both our research and the institute. We sincerely appreciate your continued encouragement and support.

January 2026

SHIMAKAWA Yuichi
Director