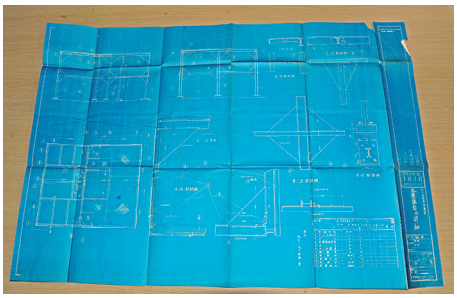
ICR News 2021

Important Historical Material on Chemical Technology Recognized by the National Museum of Nature and Science

■ Prof MURATA, Yasujiro

The National Museum of Nature and Science, under the auspices of the Research Committee on the History of Industrial Technology, conducted a five-year research project from 1997 on the evaluation, preservation, and disclosure of materials on the history of industrial technology, with the cooperation of industry, academia, and government. In addition to creating a database of where and how materials showing the development of Japan's industrial technology remain, the research has examined the systematization of technology, the registration of materials, the networking of information on the history of industrial technology, and the formation of a new academic field on technological innovation. Based on these results, the History of Industrial Technology Research Committee formulated a concept in August 2001 that an information center for "the history of industrial technology to be useful for the future" needs to be established. Based on this concept, the National Museum of Nature and Science established the "Information Center for the History of Industrial Technology" in June 2002, and opened the center in June 2003. On September 14, 2021, the Fischer-Tropsch synthetic catalyst, prototypes, and related materials stored at the Institute of Chemical Research were recognized as the 302nd important historical material on chemical technology.



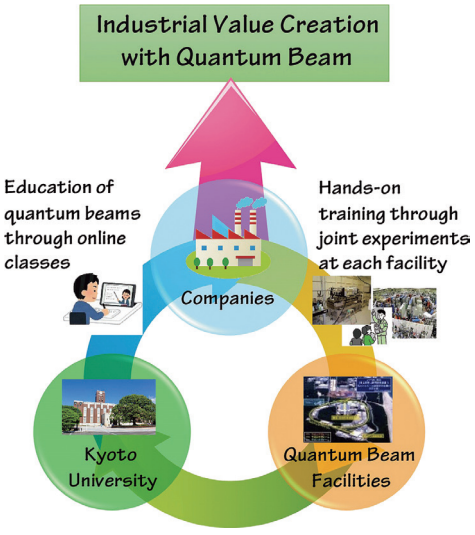
Collaboration between Quantum Beam Analysis Alliance and Kyoto University Begins

■ Prof TAKENAKA, Mikihito

On August 23, the "Quantum Beam Analysis Alliance" (Representative: Mikihito Takenaka; Institute for Chemical Research, Kyoto University) signed an agreement with the Office of Society Academia Collaboration for Innovation of Kyoto University for the use of the Kyoto University Beamline at the SPring-8. This agreement will enable us to achieve strong collaboration between industry, academia, and facilities, and to develop human resources for quantum beam research in the industry using the Kyoto University Beamline at SPring-8.

As part of the FY2021 feasibility period, "Quantum Beam Analysis Alliance" has completed a joint experiment on XAFS and SAXS at Kyoto University Beamline and has conducted activities to acquire the skills of members of participating companies. The alliance has also started to deliver online classes by leading experts in various quantum beam techniques.

In 2022, the alliance aims to establish and operate a course called "Quantum Beam Research Division". With this new course as a starting point, the alliance will further enhance the training of quantum beam researchers through online classes and practical training at the facility and maximize the results of industrial applications through stronger collaboration among industry, academia, and the facility.



Chemistry is Reuniting Humanity and Nature So Tenderly

■ Prof NAKAMURA, Masaharu

Although seventy percent of the land area is forests in Japan, its forestry production accounts for only 0.05 % of the annual GDP. The production from primary industries reaches merely over 1 % even when combining agriculture, forestry, and fishery ones. Today, these primary industries, possessing various social values other than economics, face a challenging situation in Japan.

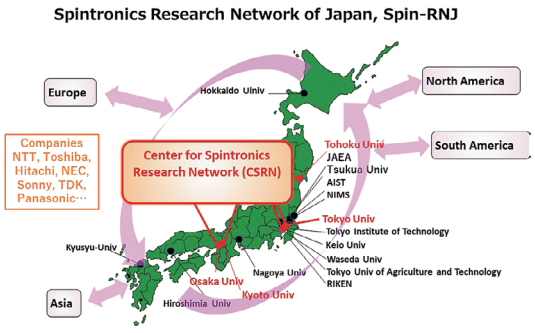
Nakamura Laboratory at International Research Center for Elements Science (IRCELS) in ICR has engaged in woody biomass molecular transformation to promote social innovation through cooperation between the primary and the chemical industries. The researchers initiated the endeavor "Exploration of Organic Synthetic Reactions Aimed at Utilizing Bio-renewable Carbon Resources " started with Prof. Takashi Watanabe of Research Institute for Sustainable Humanosphere under the support of Grant-in-Aid for Exploratory Research, Institute of Sustainable Science, Kyoto University, in 2006.

On October 8("Tree" Day), 2021, Kyoto University and Daicel Corporation have signed a comprehensive cooperation agreement, a comprehensive research collaboration agreement among the five departments of Kyoto university and Daicel's research center. At the same time, " Biomass Product Tree Industry-Academia Collaborative Research Laboratory," the industry-academia collaborative research center, was established on the Uji campus. The purpose of this collaboration is to contribute to the renovation of forests, rivers, oceans, rural areas, and cities in Japan and to realize a carbon-recycling society in good harmony with nature by creating a new industry, which transforms biomass into functional materials and chemicals. The collaborative research laboratory, a new style joint laboratory of the Institute for Chemical Research, Research Institute for Sustainable Humanosphere, Institute of Advanced Energy, and Daicel, connects academic fields, the industrial world, and the local communities.

Nakamura group envisages that the comprehensive industry-academia joint research system will firmly spur "Chemistry Brighten Future (CBF)."

Introduction of Center for Spintronics Research Network, Kyoto University

■ Prof ONO, Teruo



The research community in the field of spintronics in Japan applied for the "Master Plan 2014" of the Science Council of Japan and was selected from a large number of applications (224 in all). In addition, the Ministry of Education, Culture, Sports, Science and Technology (MEXT) reviewed 27 proposals for this Master Plan, and 10 of them, including the proposal in the field of spintronics, were selected for the "Roadmap 2014–Major Projects for Academic Research". In this project, the "Center for Spintronics Research Network (CSRN)" has been established at the hub universities (Tohoku University, the University of Tokyo, Keio University, and Osaka University) to connect major universities, national laboratories, related companies, and other leading research institutions in Japan. On the occasion of reselection for inclusion in "Master Plan 2020" and "Roadmap 2020", the CSRN was also established in the Institute for Chemical Research, Kyoto University to strengthen the international collaboration along with the other four core universities. By linking major universities, national research institutes, related companies, and other leading research institutes in Japan, the CSRN works to enhance Japan's research capabilities and industrial competitiveness, to bring about technological innovation, and to foster the next generation of researchers and engineers.