Spintronics Research Network of Japan (Spin-RNJ) and Centers for Spintronics Research Network (CSRN) Launched

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Fig. 1: Kick-off Symposium for the Spintronics Research Network of Japan (Spin-RNJ) and the Center for Spintronics Research Network (CSRN) at Takeda Hall in the Hongo/Asano Campus of the University of Tokyo on May 19, 2016. http://www.cryst.t.u-tokyo.ac.jp/SpintronicsCenter/

The spintronics research community in Japan submitted a proposal "Spintronics Research Infrastructure and Network" to the "Master Plan 2014, High-priority Large-scale Research Plans" of the Science Council of Japan (SCJ), and it was accepted in March 2014. In total, 224 proposals were submitted to the SCJ, and 27 were accepted. The 27 proposals were examined by the Ministry of Education, Culture, Sports, Science and Technology (MEXT) of the Japanese Government, and 10 of them, including our proposal on spintronics, were accepted to the "Large-scale Scientific Research Projects – Roadmap 2014" in August 2014. This illustrates that researchers and laboratories in Japan have made remarkable contributions to the development of spintronics, and that spintronics is vitally important for the progress of science, engineering, and related industries. During this project, we established a Center for Spintronics Research Network (CSRN) in each of four base universities: The University of Tokyo, Tohoku University, Osaka University, and Keio University. These have allowed us to form a nationwide network connecting various research institutions in Japan. Through this network, we aim to promote collaborations among research groups and institutions, strengthen competitive power in research and industry for the development of technological innovations, and cultivate the next generation of young researchers and engineers. In April 2016, the Spintronics Research Network of Japan (Spin-RNJ) was officially launched, and the CSRN was established in these four base universities.

Fig. 2: Leaders of the Centers for Spintronics Research Network (CSRN) at the four base universities: (From left) Professors Masafumi Shirai of Tohoku University, Hiroshi Katayama-Yoshida of Osaka University, Masaaki Tanaka of the University of Tokyo, Hideo Ohno of Tohoku University, and Kohei M. Itoh of Keio University.

The four base universities have the following general responsibilities: The University of Tokyo focuses on spintronics materials and devices; Tohoku University focuses on spintronics devices and integration; Osaka University focuses on design of spintronics materials and devices; and Keio University focuses on quantum spintronics.

The project has four specific objectives: 1) create a world-leading network connecting research laboratories and institutions; 2) promote collaborations to develop high-quality research, leading to technological innovations; 3) create new and interdisciplinary research fields incorporating physics, applied physics, electronics, magnetics, materials, chemistry, and information sciences, and thereby improve the competitiveness of current industries and create new industries; and 4) educate and elevate the next generation of young researchers and engineers, who will be international leaders in their fields.

A kick-off symposium for the Spin-RNJ and CSRN was held at the University of Tokyo on May 19, 2016 (see Fig. 1 and http://www.cryst.t.u-tokyo.ac.jp/Spintronics-Center/), and kick-off symposia for the CSRN at Tohoku University and Osaka University were held on May 25, 2016, and June 10, 2016, respectively (Fig. 2). We co-organized the 9th International Conference on Physics and Applications of Spin-Related Phenomena in Solids (PASPS-9), Kobe, August 8 - 11, 2016 (http://www.pasps9.org). We are grateful to the many people who attended these symposiums and conference and discussed an interesting range of issues.

Masaaki Tanaka is the director of the Center for Spintronics Research Network (CSRN), and a professor at the Department of Electrical Engineering & Information Systems, Graduate School of Engineering, the University of Tokyo. He received B.E., M.E., and Ph.D. degrees in electronic engineering from the University of Tokyo, Japan, in 1984, 1986, and 1989, respectively. His research field is electronic materials and device applications, in particular, spintronics materials, spin-related phenomena, and devices including magnetic semiconductors, ferromagnet/semiconductor heterostructures and nanostructures, magnetic tunnel junctions, spin transistors and other devices. He has authored and coauthored over 250 scientific publications, and presented over 120 invited talks at international conferences and meetings.