

Preface

We would like to offer the readers the scientific activity report of the Institute for Solid State Physics (ISSP) for the Japanese FY 2018.

ISSP was established in 1957 as a joint-use/research institute attached to the University of Tokyo. In every era, we aim to lead the frontier of “condensed matter physics and materials science” and contribute to science and technology from the view of basic research. We have promoted activities focused on research, education, and joint-use/joint-research.

The first part of the reports Research Highlights /Joint Research Highlights exhibits experimental and theoretical achievements in condensed matter physics and materials science. In 2018, the number of granted joint-research proposals is 1,330 and the total number of participants is 8,869.

The second part includes the reports on progress of facilities in 2018 as follows. (1) In International MegaGauss Science Laboratory, the pulse magnet has achieved 1,200 T as the world strongest as an in-door record by destructive methods. (2) The Supercomputer Center (SCC) has conducted “Project for advancement of software usability in materials science” for enhancing the usability of the ISSP supercomputer system since 2015. In Center of Computational Materials Science, the website "MateriApps" for information on application software in computational science has been constructed to support community members as the major contractor of K- and Post-K Computer Projects. (3) In Neutron Science Laboratory, the technical progress of High Resolution Chopper (HRC) spectrometer has been proceeded under high pressure and low temperature environment in cooperation with KEK. (4) In Laser and Synchrotron Research (LASOR) center, the powerful technique by spin- and angle-resolved photoelectron spectroscopy (SARPES) has clarified the spin-dependent electronic states in topological materials. In Synchrotron Radiation Laboratory, operand spectroscopy is available by using lasers at Harima branch.

In the following parts, eleven reports of international conferences and workshops, subjects of joint research, and list of publications have been presented.

In order to develop the international scientific network as scientific hub based upon the successful experience of JSPS Program for Advancing Strategic International Networks to Accelerate the Circulation of Talented Researchers for “Leading Research Network Topological Phenomena in Novel Quantum Matter” (TopoNet) (2014-2016), new programs including the short time (up to 3 months) international collaboration, international visiting researchers, and graduate students study abroad, as well as foreign visiting professor and international workshop programs, have been conducted since 2017.

All these facts confirm that ISSP continues to develop successfully and dynamically as the global center of excellence of condensed matter physics and materials science. We appreciate continuous support and cooperation of communities for our activities.



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