Preface

Ryosuke Kadono, Head of CMRC

We are pleased to deliver the Annual Report 2015 of the Condensed Matter Research Center (CMRC). This is a special issue covering reviews of the research projects conducted in the 1st phase ("midterm") of CMRC for six years (2009-2014). It also presents the "manifesto" of newly approved research projects for the next midterm (2015-2020).

The CMRC has been organized to pursue cutting-edge research on condensed matter science through the synergetic use of multiprobes: synchrotron light, neutron, muon, and slow positron beams. The center hosted four science groups (recruited by the former CMRC core members) that cooperatively steer nine bottom-up projects and three contracted projects. In the end of FY2014, CMRC reached a major milestone of witnessing completion of several bottom-up research projects after six years of successful activities that include studies on strongly correlated electronic systems, electronic states of surfaces, interfaces, and those under extreme conditions, dynamics of soft matters and so on. Their achievements will be reviewed in this and forthcoming issues. We would like to take this opportunity to express our sincere gratitude to all of the collaborators involved in these projects and to the support provided by IMSS.

Meanwhile, CMRC has started the 2nd midterm with FY2015, and the organization was renewed to offer research opportunities openly to the entire staff of IMSS. Proposals for topical researches maximizing the merit of multiprobes were called, and five research projects were newly approved:

- Dynamical cross-correlated physics (H. Sagayama)
- Controlling of physical properties in molecular systems (R. Kumai)
- Novel quantum phenomena in superstructures of strongly-correlated oxides (H. Kumigashira)
- Emerging phenomena induced by deformation of local structure in strongly correlated electron system (M. Fujita)
- P-V-T-dε/dt materials structure science (N. Funamori)

Among there, the projects by Kumai and Kumigashira are renovated ones in succession to those in the previous term.

In addition, CMRC continues support for three ongoing contracted research projects directly funded by the MEXT: the Element Strategy Initiative to Form a Core Research Center, and the Photon and Quantum Basic Research Coordinated Development Program. It is also hoped that CMRC would serve as a catalyst for creative interactions among these projects via the use of quantum beams in the years to come.