

## Introduction

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The Condensed Matter Research Center (CMRC) was established on April 1, 2009, at the Institute of Materials Structure Science (IMSS). The aim of the CMRC is to pursue cutting-edge research through the comprehensive use of multi-probes supplied by the IMSS, such as synchrotron radiation, neutrons, muons, and slow positrons in collaboration with researchers at universities and other institutes. The CMRC has four research groups: the correlated electron matter group, the surface/interface group, the matter under extreme conditions group, and the soft matter group. Through collaboration among these four groups, the CMRC has been promoting seven bottom-up projects: the hybridized orbital ordering project, the geometrical correlation project, the molecular crystal project, the oxide hetero-structure project, the surface/interface project, the extreme condition project, and the soft matter project. One more project, the hydrogen project, will soon join the CMRC. This year, the IMSS joined in the cooperative effort of the Element Strategy Initiative of the Ministry of Education, Culture, Sports, Science and Technology (MEXT) to form a Core Research Center. In addition to the abovementioned bottom-up projects, the CMRC is working on this MEXT project involving electronic materials and magnetic materials in collaboration with the Tokyo Institute of Technology and the National Institute of Materials Science, respectively. Some topics studied in these CMRC projects for fiscal 2012 are reported in this CMRC annual report.



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