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Introducing a New Capability at SSRL: Resonant Soft X-ray Scattering JUN-SIK LEE, HOYOUNG JANG, DONGHUI LU, SSRL/SLAC National Accelerator Laboratory, CHI-CHANG KAO, SLAC National Accelerator Laboratory — Stanford Synchrotron Radiation Lightsource (SSRL) at SLAC recently developed a setup for the resonant soft x-ray scattering (RSXS). In general, the RSXS technique uniquely probes not only structural information, but also chemical specific information. This is because this technique can explore the spatial periodicities of charge, orbital, spin, and lattice with spectroscopic aspect. Moreover, the soft x-ray range is particularly relevant for a study of soft materials as it covers the K-edge of C, N, F, and O, as well as the L-edges of transition metals and M-edges of rare-earth elements. Hence, the RSXS capability has been regarded as a very powerful technique for investigating the intrinsic properties of materials such as quantum- and energy-materials. The RSXS capability at the SSRL composes of in-vacuum 4-circle diffractometer. There are also the fully motorized sample-motion manipulations. Also, the sample can be cooled down to 25 K via the liquid helium. This capability has been installed at BL 13-3, where the photon source is from elliptically polarized undulator (EPU). Covering the photon energies is from 230 eV to 1400 eV. Furthermore, this EPU system offers more degree of freedoms for controlling x-ray polarizations (linear and circular). Using the advance of controlling x-ray polarization, we can also investigate a morphology effect of local domain/grain in materials. The detailed introduction of the RSXS end-station and several results will be touched in this poster presentation.

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