

Preface

The Synchrotron Radiation Laboratory (SRL) consists of solid state spectroscopy and accelerator groups. The SRL has been taking part in the Synchrotron Radiation Research Organization (SRRO) of the University of Tokyo since 2005 and operating a new beamline (BL07LSU) at the SPring-8 and experimental apparatuses in soft X-ray region. The beamline has a 27m-long polarization-controlled undulator and a monochromator covering the photon energy range from 250 eV to 2 keV, which was fully opened to users since 2009. The members of solid state spectroscopy group of SRL play an essential role to promote advanced materials sciences utilizing high brilliance SR from the new undulator. In FY 2010, they have succeeded to measure time-resolved photoelectron spectroscopy of the surface photo-voltage in Si surface with the time-resolution of 30 ps by utilizing the time-structure of synchrotron radiation and an ultra-fast laser. In FYs 2011 and 2012, energy resolution of soft X-ray emission spectroscopy becomes 10,000 and the spatial resolution of the scanning photoelectron microscope (3D nano-ESCA) is better than 100 nm. The first aims of BL07LSU have been achieved already. The SRL-ISSP and SRRO contribute the cutting-edge basic sciences and the applied sciences using synchrotron radiation.

The members of the accelerator group SRL have been working in collaboration with High Energy Accelerator Research Organization (KEK) to develop an energy recovering linac (ERL), a prototype of which is in construction at KEK as a new light source in VUV region.

The staff members of SRL also maintain three beamlines (BL18A, BL19A and 19B) in the Photon Factory (PF). After improving the quality of the monochromator at BL19A in 2009, the spin- and angle-resolved photoelectron spectroscopy at this beamline attracted much attention of many users.

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