

Synchrotron Radiation Laboratory of the Institute for Solid State Physics, the University of Tokyo

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The Synchrotron Radiation Laboratory (SRL) was established in 1975 as a research group dedicating to study solid state physics using synchrotron radiation. In 1989, the SRL started to hold the Tsukuba branch, a branch laboratory at the Photon Factory (PF), High Energy Accelerator Research Organization (KEK). SRL maintains an undulator called Revolver, two beamlines and three experimental stations; BL-18A for angle-resolved photoemission spectroscopy and two beamlines, BL-19A and BL-19B for spin-resolved photoelectron spectroscopy and soft X-ray emission spectroscopy experiments using undulator radiation, respectively. They are fully opened to outside users for experiments using high brilliant synchrotron radiation from Revolver. The operation time of these beamlines are about 5000 hours and the number of users is more than 200 a year.

SRL consists of the accelerator physics group and the solid state spectroscopy group. The members of the accelerator group have been carrying out research works on the accelerator physics and developing various new accelerator related technology in collaboration with other SR facilities. The spectroscopy group has been not only serving users at the Tsukuba branch with technical supports and advices, but also carrying out their own research works on advanced solid state spectroscopy.

Since 1980s, SRL has been promoting the "Super-SOR" project for constructing a new synchrotron radiation facility with a third generation synchrotron light source dedicated to sciences in vacuum ultraviolet and soft X-ray regions. However, during last year, the president office of the university found out that the promotion of the project is very difficult for financial reasons. The budget for the new facility project is too big to be supported by a single university in Japan even after the reformation of the national universities.

Presently, SRL has inclined to construct beamlines using undulator radiation in other SR facilities instead of constructing a facility with a light source. At new beamlines, SRL will to promote advanced materials sciences using high brilliance and small emittance of SR which have been considered in the Super-SOR project. They are those such as microscopy and time-resolved experiments which will only be possible using third generation light source and will promise us a considerable progress in the studies of nano-particles and real time observation of magnetic domains and of chemical reaction at catalytic surfaces, etc. The accelerator group has started to collaborate with JAEA and KEK to develop a new accelerator system, an energy recovering linac (ERL), and to construct an ERL prototype in the KEK site in near future, which will be used as one of the best light sources in VSX region.