

NewSUBARU

The 1.5 GeV synchrotron radiation ring named NewSUBARU is the main facility of the Laboratory of Advanced Science and Technology for Industry (LASTI) at the University of Hyogo. NewSUBARU is at the site of SPring-8 and can provide light beams from IR to soft X-rays. We have achieved storing 500 mA at 1GeV and 200 mA at 1.5 GeV. At present, NewSUBARU has six bending section beamlines (BL-2, BL-3, BL-5, BL6, BL-10, and BL-11), two short undulator beamlines (BL-7a and BL-7b), a long undulator beamline (BL-9) and an optical-klystron beamline (BL-1), as shown in Fig. 1.

NewSUBARU research activities for this year include the basic characteristic research of the NewSUBARU electron storage ring, neutron spectrum measurement generated by a gamma-ray photonuclear reaction, the completion of material analysis BL-5 beamline construction for industrial use, studies of microfluid devices and diffraction gratings for the X-ray Talbot interferometer using the LIGA (Lithographie, Galvanoformung and Abformung) process, and the development of new technologies for EUV (Extreme Ultraviolet) lithography. The entire useful energy range of the BL-5 is in the region from 50 to 4000 eV and X-ray absorption spectrum of every atom from Li to Sn can be measured using this beamline. BL-5 is managed and maintained by the Synchrotron Analysis LLC (Limited Liability Company), which is composed of industrial companies. A 2.5-dimensional structure grating with a high aspect ratio was required for the X-ray Talbot interferometer, which was used to observe a rabbit liver tissue with cancer, and micro fluid device for DNA sequence have been demonstrated using the LIGA process. The microscope, wavefront metrology system and new resist with a small LER (line edge roughness) and a high sensitivity to EUV lithography have been developed.

Most of our research activities are being conducted in collaboration with industries, government research institutes and other universities. We will continue to respond to the research, education and community's demand by offering new science and technologies.

Shinji Matsui

Director of LASTI, University of Hyogo

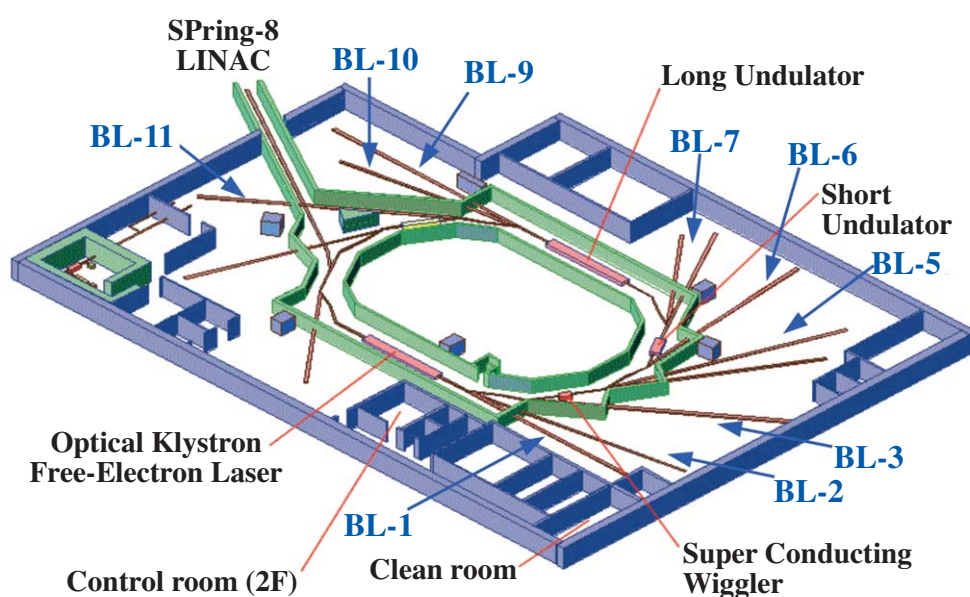


Fig. 1. Beamline arrangement in NewSUBARU.