

4 International Collaboration

4-1 Overview

The Photon Factory is collaborating internationally in various ways. Two stations, BL-20B and BL-18B, are operated by Australian and Indian organizations, respectively. The Australian National beamline BL-20B was constructed by the Australian Nuclear Science and Technology Organization (ANSTO) and has been operated since 1992. The Indian beamline BL-18B was leased to the Department of Science and Technology (DST) of the Government of India, and started operation in 2009. The Photon Factory is also collaborating with international synchrotron radiation communities through meetings, workshops, and schools.

4-2 Australian Beamline

The Australian beamline BL-20B was originally constructed by ANSTO in 1992, and Australian Synchrotron (AS) took over operation of the beamline at the PF from 2008. In FY2011, 22 experiments were carried out at BL-20B. Most of them used the XAFS technique, especially fluorescent XAFS experiments on environmental and biological systems. Twenty-eight papers based on BL-20B experiments were published in 2011.

4-3 Indian Beamline

The DST, Government of India and KEK agreed to set up an Indian beamline at the Photon Factory in 2008 with the Saha Institute of Nuclear Physics (SINP) as a key institute of India. Beamline 18B is leased to DST, and SINP set up two diffractometers and related detection systems. Although the opening of the beamline to public Indian users was delayed owing to the earthquake, 13 experiments were carried out at BL-18B, and 3 papers on the results were published in 2011.



Figure 1
Dr. Srikumar Banerjee, Chairman of the Atomic Energy Commission, visited the Indian Beamline on January 23, 2012.

4-4 Support for Korean Synchrotron Users during the Shutdown of PLS

Pohang Light Source (PLS) users utilized the Photon Factory during the construction and commissioning phase of Pohang Light Source II (PLS II) (December 2010 – July 2012). Based on the MOU, the Photon Factory provided beam time to PLS users and Pohang Accelerator Laboratory (PAL) sent beamline scientists to support the experiments of PLS users at the Photon Factory. About 32 proposals were approved by PF-PAC in FY2011. Despite the shutdown owing to the earthquake, the beamline was used for 125.3 hours in FY2011.

4-5 Cooperation to SESAME Project

Synchrotron-light for Experimental Science and Applications in the Middle East (SESAME) is a synchrotron radiation facility under construction in Amman, Jordan as a collaborative project among countries in the Middle East under the auspices of UNESCO. SESAME is expected to be operational in 2015, and KEK is continuously supporting the construction and potential user community at SESAME in various ways. As one of the activities, the SESAME-JSPS School of Synchrotron Radiation Science was held, which is intended to serve as a platform for transferring knowledge to young scientists, engineers and students in SESAME countries. The school was originally planned to be held from March 17 to 21, 2011, in Amman, Jordan. However, due to the earthquake on March 11 in Japan, the school was postponed until November 2011. The workshop consisted of lectures and practice sessions in materials science, structural biology, electronic structure, XAFS and X-ray fluorescence analysis, in line with the needs of the SESAME Phase-I beamlines.



Figure 2
Participants of the SESAME-JSPS School.

4-6. XDL2011 Workshops

Workshops on science at the hard X-ray diffraction limit (XDL2011) were held at Cornell University in June 2011. A series of six workshops was co-sponsored by the Photon Factory, CHESS, DESY, and SSRL, and devoted to science with diffraction-limited, high repetition rate, hard X-ray sources, e.g., Energy Recovery Linac and Ultimate Storage Ring sources. In total, 488 participants gathered with high expectations and interest. The titles of the six workshops were as follows.

- WS1: Diffraction Microscopy, Holography and Ptychography using Coherent Beams
- WS2: Biomolecular Structure from Nanocrystals and Diffuse Scattering
- WS3: Ultra-fast Science with "Tickle and Probe"
- WS4: High-pressure Science at the Edge of Feasibility
- WS5: Materials Science with Coherent Nanobeams at the Edge of Feasibility
- WS6: Frontier Science with X-ray Correlation Spectroscopies using Continuous Sources