BL43IR

BL43IR is the first infrared beamline at SPring-8, the second in Japan next to UVSOR BL6A&B, and also the first between three large third-generation synchrotron radiation (SR) facilities: ESRF, APS and SPring-8. Infrared beamlines at the small SR facilities are frequently found around the world, for example, at NSLS, ALS, BESSY, Maxlab, SRS and UVSOR. Compared to these, BL43IR at SPring-8 has the advantage of a highly brilliant infrared light emitted from a bending magnet with a large bending radius of 39.3 m.

The flux (power) of the infrared SR at BL43IR is comparable to that of a conventional thermal radiation (TR) source such as a globar and is less intense than that of other major infrared SR beamlines. This is because we have rather low storage current (100 mA) at SPring-8 and a narrow angular acceptance (H:36.5 mrad, V:12.5 mrad) at the infrared extracting mirror at the storage ring.

The brilliance (power per unit area and angles), however, is much higher than that of TR and some SRs. This is because the infrared SR at BL43IR has highly collimated beam of light. The conventional TR must be reduced its throughput with an aperture when irradiating on a small sample with the area of interest, for example, 10 micrometer, which degrades the signal-to-noise ratio of the spectra. The infrared SR at BL43IR is, on the other hand, capable to be focused on 10 micrometer area without any apertures. High brilliance of the light works brilliant for the microscopes.

On the practice at the beamline, we are planning to conduct the followings.

1. Explanation of what optics aligned from the ring to the microscope.
2. Explanation of the optics inside the microscope.
3. Sample preparation.
4. Measurement, followed by data analysis.