

Instrumentation for x-ray fluorescence (XRF) analysis experiment at BL20XU

Akihisa Takeuchi

1. Introduction and explain about BL20XU
 - A) Optics hutch
 - Light source,
 - Double-crystal monochromator with liquid-nitrogen cooling system
 - B) Experimental hutch
2. Basic introduction for synchrotron radiation XRF measurement
3. XRF analysis setup, beamline operation
 - A) Monochromator alignment check
 - Fixed-exit, energy calibrations
 - i. Changing x-ray energy
 - ii. Adjusting monochromator
 - iii. Measure the beam position
 - iv. Flux density measurement
 - B) High-precision stages
 - i. Check of translation stage movement
 - C) Detectors
 - i. Solid-state detector (SSD)
 - ii. Silicon drift detector
4. XRF measurement (sample: plants, ceramic, rocks, electronic device, printed matter etc..)
 - A) Spectrum measurement
 - i. Check x-ray energy
 - ii. Check scattering angle
 - B) Element mapping with scanning microscope