

TPS-09A Temporally Coherent X-ray Diffraction Beamline

X-ray scattering beamline for probing the static and dynamic structure of matter

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Abstract

The TPS-09A beamline of Taiwan Photon Source (TPS) is designed for the hard x-ray scattering measurement investigating the static and dynamic structure of matter. TPS-09A uses the radiation produced by a 3 meter-long IU22 undulator, and delivers high brilliance monochromatic beams with photon energy from 5 to 25 keV with photon flux upto 10^{13} photons per second. There are several focused subjects of the TPS-09A -- static structure investigation including specular x-ray diffraction (XRD), x-ray reflectivity (XRR), grazing-incidence x-ray diffraction (GIXRD) of thin-film and bulk; time-resolved x-ray diffraction (TR-XRD) like laser-pump x-ray-probe experiments; resonant x-ray scattering with polarization analysis for the phase transition and critical phenomena; temporally coherent x-ray scattering. In this presentation, we will present the beamline design, capability, and future of TPS-09A.

Keywords - Temporally Coherent X-ray Scattering, X-ray Diffraction, X-ray Reflectivity, Pump-probe, Resonant X-ray Diffraction