

# **Simultaneous Small- and Wide-angle X-ray scattering research at the NSRRC for structure and structural kinetics of nano-material and soft matter**

**Yu Sheng Lin, Chun-Jen, Su, Wei-Ru Wu, Yi-Qi Yeh, Kuei-Fen Liao, U-Ser Jeng**

**National Synchrotron Radiation Research Center, Taiwan**

The 23A SWAXS beamline at NSRRC is equipped with a Pilatus 1M-F (133 Hz) and a Mythen-3K (472 Hz) detectors, enabling synchronized small- and wide-angle X-ray scattering (SAXS/WAXS) measurements for studies of nano- to crystalline structures and structural kinetics. Together with area detectors of MAR165 CCD and Flat Panel CMOS-9728DK (3.3 Hz), the detecting system covers a wide-range of X-ray scattering in several different modes of transmission, grazing incidence, and resonance (i.e. anomalous scattering). Illustrated in the presentation will be standard procedures to calibrate the scattering vector and the absolute scattering intensity (scattering cross-section per sample unit volume of units of  $\text{cm}^{-1}$ ) for SAXS and WAXS data, via several standard samples of high density polyethylene, water, silver behenate, and powders of  $\text{LaB}_6$  and silicon. The BL23A SWAXS beamline operation and user environment have been improving continuously for flexible, smart, and user friendly operation.