Tri30 HR SAXS beamline

Byeongdu Lee, Soenke Seifert, Xiaobing Zuo, Randall E. Winans, Lu-xi Li, Stefan Vogt

Principal Investigator: Byeongdu Lee

blee@aps.anl.gov (630-252-0395)

Argonne National Laboratory

9700 S. Cass Ave., Argonne, IL 60490

Abstract

Proposed is a SAXS/WAXS beamline with high q (both q_{min} and Δq) and spatial resolutions, which will be characterized by a 30 m long experimental station, a 30 keV maximum X-ray energy, and up to a 30:1 focusing ratio. The long station will allow employing high X-ray energy without compromising q_{min} resolution. Higher transmittance thanks to higher X-ray energy will open up the technique for broader range of sample types and environments, improve data quality, and reduce the chance of sample damage. This beamline will enable to examine structures with d-spacings up to couple of micrometers and particles as large as 600 nm. It will also be an ideal platform for SAXS tomography and coherent SAXS. Additionally it will provide microfocus SAXS/WAXS mode, which will enable to examine individual domains of polycrystalline materials. This high resolution beamline may help researchers to find new structures out of old materials.