

X-ray Scattering at the Advanced Light Source
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The Advanced Light Source (ALS) is a soft X-ray synchrotron located in Berkeley California. The ALS is currently home of 40 different beamlines for materials science, biology, chemistry, physics and many more fields of science. In addition to the regular hard X-ray scattering beamline, we have a recent development in resonant soft x-ray scattering (RSoXS) as well as tender resonant scattering (TReXS). Combining conventional x-ray scattering with soft x-ray absorption spectroscopy, RSoXS is a unique chemical sensitive structure probe that provides a novel route to unambiguously decipher the complex morphologies of mesoscale materials. Tuning x-ray photon energies to match the absorption spectrum of the different chemical components, the scattering contributions from the different components can be selectively enhanced, enabling a glimpse into these complex morphologies with unprecedented details. Applications of RSoXS have been extended to the areas of structured polymer assemblies, organic electronics, functional nano-composites, as well as liquid crystals. To handle and analysis the data we have worked closely with our computational research and supercomputer division. The dream would be for immediate feedback for scientist during experiments. Such Real-time feedback to scientists during beamtimes becomes more and more critical. We will present some of our latest efforts in data analysis for SAXS and GISAXS to address the challenge.