

Hard/Tender Resonant X-ray Scattering Technique for Advanced Materials

M. Segad, A. Hexemer and P. Zwart

Advanced Light Source, Lawrence Berkeley National Laboratory,
1 Cyclotron Rd, Berkeley, CA 94720, USA
MSegadMeehdi@lbl.gov

The last few years have seen a new twist in the traditional manufacturing and emerging technologies yielding a broad range of next-generation materials. A deeper understanding of how processing influences the structural properties can be achieved using a new Tender Resonant X-ray Scattering (TReXS) technique to probe the complexity of these materials. To enable this and unlock new possibilities for studying a variety of polymeric and biological membranes, new experimental station, the hard/tender resonant X-ray scattering, is under development at the Advanced Light Source (ALS). In this presentation, I will describe the tender resonant X-ray scattering technique that has been developed. I will also show some of the recent experimental results demonstrating that TReXS is a powerful technique for cutting-edge science, specifically for polymeric and energy-storage materials. In addition, to address the challenge of data treatment, the development of our recent software will be presented.