Analysis Pipeline for In-Situ SAXS/WAXS Experiments

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The Complex Materials Scattering (CMS) beamline of NSLS II has developed a variety of in situ capabilities to meet the increasing demands of broad research fields in materials community. These efforts, along with users' own equipment, allows to in situ characterize the structural evolution in material processing, such as spin-coating or blade-coating, or in controlled environments, such as temperature, mechanical force or electric field. The fast data acquisition on 2D detectors results a large quantity of data and metadata, which makes constraints of understanding of the processing and slows down the usage of valued beam time. Here, I will present the development of the analysis pipeline to perform data reduction and visualization. The pipeline integrates the data and metadata in order to assist experimenters to make quick decision for the next processing. I will also describe the recent progress on how to integrate these efforts into autonomous decision-making.