

Inline Size-Exclusion Chromatography at Bio-SANS

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Small-angle neutron scattering (SANS) experimentation is ideally suited for gathering structural information on biomacromolecules and their complexes in solution. This is especially true when combined with contrast variation techniques to selectively highlight materials of interest. Unfortunately, SANS measurements can be complicated by the presence of aggregates and contaminants that contribute to sample heterogeneity. While offline size exclusion chromatography (SEC) is frequently used to separate interfering species prior to the scattering experiment, it can often fail to fully separate them, which can still limit data quality. The benefits of utilizing a sample environment that combines size-exclusion chromatography and small-angle scattering have been demonstrated at X-ray beamlines worldwide, which has motivated the development of a complementary SEC-SANS sample environment at Oak Ridge National Laboratory's Bio-SANS beamline. The technical details of the SEC-SANS development work will be presented along with information on the current status of the sample environment.