

Joint APS/CNM WK#8: Dynamics in Soft Matter with Emphasis on Complex Fluids

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Soft matter is a class of materials that includes complex fluids such as polymers, liquid crystals, and colloidal suspensions. The presence of hierarchical structures from micrometer to nanometer scales instills these materials with highly unusual structural and dynamical properties. As part of the APS-Upgrade, a world leading x-ray photon correlation spectroscopy (XPCS) beamline dedicated to probing correlations between structure and dynamical fluctuations is being built to leverage the coherence properties of the new source.

The technical capabilities will include but not limited to probing equilibrium and non-equilibrium dynamics in thermally activated systems as well as under applied shear. The phase space covered will range from 1 nm – 1000 nm and microseconds to hundreds of seconds. To fully leverage the new capabilities, it is imperative that we need to expand the general user community for XPCS. The proposed workshop will bring together a mixed set of speakers comprising of researchers with established track record in application of XPCS to this area of research, experts in theory and simulation and domain experts to utilize the new capabilities for collectively advancing the understanding of dynamic phenomena in complex fluids.

The goal of the workshop is to build a library of novel XPCS experiments that could be carried out by the domain experts at the conception of the new beamline.