Contribution ID: **92** Type: **not specified**

Precision characterization of supercooled liquids

Students learn about methods to investigate the structure and dynamics of systems such as complex liquids and glasses such as small-angle X-ray scattering (SAXS) using coherent X-ray beams, X-ray photon correlation spectroscopy (XPCS) and X-ray cross-correlation analysis (XCCA). In addition, they synthesise colloidal samples in our chemistry lab. Hands-on experiments using laser scattering set-ups on self-synthesised colloidal systems and analysing and interpreting the obtained data allows both to train their programming skills as well as critical discussion of experimental results.

Student 1:
Work on a Raman spectroscopy setup for temperature dependent characterization of liquid samples. The core of the project is to set up a temperature calibration for different capillaries using melting point characterization of different reference liquids.
Optional: The project will be extended to acquiring temperature dependent Raman spectra of different relevant liquid samples from mildly supercooled to ambient conditions, that will in future be also subject to investigations using synchrotron and FELs.

Student 2:
Optical characterization of different liquid jets with 10-50µm initial diameter; Characterization of the Rayleigh breakup length for different flow velocities.
Optional: Characterization of the jets using Raman spectroscopy to study temperature dependent properties of the molecular vibrations.

Group

FS-SMP

Project Category

A3. Soft-matter sciences

Special Qualifications

DESY Site

Hamburg

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