

Seminar über die Physik der kondensierten Materie (SFB/TRR173 Spin+X und SFB/TR288 Kolloquium, TopDyn-Seminar)

Dec. 1, 2022 at 4:15 p.m.
01-122 Newton Raum

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DESY

New avenues for soft X-ray spectroscopy: Applications of novel methods at synchrotrons and free-electron lasers

Resonant inelastic X-ray scattering (RIXS) especially in the soft X-ray region has seen a tremendous increase in applicability and scientific insight over the recent years. This was largely enabled by progress in instrumentation and theoretical description. Now the time is ripe to apply RIXS to pressing problems and develop the technique further making full use of the capabilities of novel X-ray sources. In my talk, I will address three main themes from my research:

1. Time-resolved RIXS at free-electron lasers applied to relevant dynamic processes in chemistry (on surfaces, in liquids and in solid catalysts)
2. RIXS with micrometer spatial resolution to resolve domain dynamics in complex materials and on devices in-operando
3. Non-linear spectroscopies in the soft X-ray range to enhance information content and signal levels I will show and discuss experimental results from all research themes and point to future development directions.