



Contribution ID: 26

Type: **Talk**

Inelastic x-ray scattering

Thursday 19 January 2023 15:55 (20 minutes)

Inelastic x-ray scattering at very high energies provides opportunities at least in two different new fields at European XFEL: Compton scattering spectroscopy for momentum density studies, and scattering-based imaging. I will discuss both: 1) The principles of Compton scattering spectroscopy and how it can be used in both fundamental research of electron momentum densities and in applied research including studies of batteries and other complex systems; 2) Single-shot x-ray imaging based on x-ray optical concepts of focusing crystals and observation of wide-angle dark-field (scattered) photons.

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Session Classification: Techniques and instrumentation

Track Classification: Techniques and instrumentation