Contribution ID: **95** Type: **Oral**

Complementary Insights into Ultrafast Element- and Lengthscale-specific Dynamics

Wednesday, 8 October 2025 10:00 (25 minutes)

The properties and functionalities of solids, molecules and hybrid compounds used in modern technology is dictated by the interplay between the electronic, lattice and spin degrees of freedoms. Pump-probe techniques are ideal to selectively investigate their time evolution and disentangle complex processes. Their extension to the Extreme Ultraviolet and X-ray regime allows element specificity and the possibility to access meso- and nanoscopic length scales.
In this talk I will introduce two spectroscopy techniques aiming at accessing the mesoscopic range, inaccessible with common optical laser spectroscopies or X-ray and neutron scattering experiments. I'll start by showing how Extreme Ultraviolet (EUV) Transient Grating spectroscopy, pioneered at the FERMI free electron laser, accesses thermo- and magnetoelastic properties of matter. Then, I'll discuss its complementarity with the recently demonstrated extension to the hard X-ray. Finally, I will present EUV diffuse scattering as a complementary technique and address how it could potentially be performed at synchrotrons with ps time resolution.

Primary author: FOGLIA, Laura (Elettra Sincrotrone Trieste S.c.p.A)

Presenter: FOGLIA, Laura (Elettra Sincrotrone Trieste S.c.p.A)

Session Classification: Talks Wed Morning