Contribution ID: **36** Type: **Oral**

Femtosecond time-resolved polarimetry at the free-electron laser FERMI

Wednesday, April 17, 2024 5:45 PM (15 minutes)

The analysis of the polarization status of electromagnetic waves is fundamental for a large number of fields of research and technological applications. Intense magnetic fields modify the polarization of the emitted thermal radiation in white dwarf stars. Atomic displacements in solids -phonons- can be detected by Raman scattering with the use of light polarization analysis. Magnetic layers, due to the magneto-optical Kerr effect (MOKE), modify the polarization of transmitted and reflected photons. Extending these techniques both to the x-ray regime and to the femtosecond time-scale might impact our knowledge and technology.
We present here a polarimeter designed for femtosecond MOKE experiments in the EUV range. The polarimeter, combined with the high degree of polarization control and the femtosecond time-resolution of the free-electron laser FERMI, can capture the evolution of the magnetization of single atomic species. We show the design of the device and several experiments performed in the latest years.

Primary author: CARETTA, Antonio (elettra-sincrotrone trieste)

Co-author: MALVESTUTO, Marco

Presenter: CARETTA, Antonio (elettra-sincrotrone trieste)