



Contribution ID: 37

Type: **not specified**

Compton Polarimetry in the hard x-ray regime

Wednesday 28 September 2022 12:00 (15 minutes)

Photon polarization studies provide subtle information on the directionality and isotropy of the photon emission or interaction processes. As a lot of radiative processes provide distinct polarization features, the most rigorous experiments on these processes must also include a polarization analysis. Polarimetry in the hard x-ray regime can be performed by exploiting the polarization sensitivity of Compton scattering. For this purpose, within the Stored Particles Atomic Physics Research Collaboration (SPARC) several X-ray detectors based on large 2D sensitive semiconductor crystals were developed as dedicated Compton polarimeters. In this talk, I want to present the technique of Compton polarimetry using such a SPARC Compton polarimeter and show some results of a recent experiment on the polarization transfer in elastic scattering on an atomic target.

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Session Classification: Morning session