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A Novel Compton Telescope for Polarimetry in the MeV Range

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For photon energies from several tens of keV up to a few MeV, Compton polarimetry is an indispensable tool to gain insight into subtle details of fundamental radiative processes in atomic physics. Within the SPARC collaboration [1] several segmented semiconductor detectors have been developed that are well suited for application as efficient Compton polarimeters. For photon emission processes in the hard x-ray regime these kind of detectors enable revealing photon polarization effects in great detail [2]. In our presentation, a novel Compton telescope detector that will enable us to extend to photon energies up to the MeV range will be presented. In particular, we will discuss new experimental possibilities in the higher energy range.
[1] Th. Stöhlker et al. *Nucl. Instrum. Methods Phys. Res. B* **365** (2015) 680.
[2] K.H. Blumenhagen et al. *New J. Phys.* **18** (2016) 119601.

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