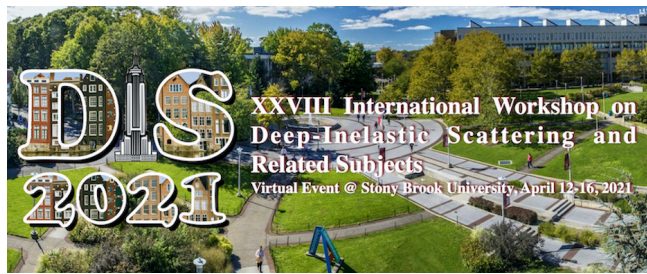


XXVIII International Workshop on Deep-Inelastic Scattering and Related Subjects



Contribution ID: 519

Type: **Contributed Talk**

The sensitivity to BSM in di-tau production at the LHC

Thursday, 15 April 2021 10:36 (15 minutes)

We will discuss the sensitivity of the $\gamma\gamma \rightarrow \tau^+\tau^-$ process in ultraperipheral Pb+Pb collisions on the anomalous magnetic moment of τ lepton (a_τ) at LHC energies. We derive the corresponding cross sections by folding the elementary cross section with the heavy-ion photon fluxes and considering semi-leptonic decays of both τ leptons in the fiducial volume of ATLAS and CMS detectors. We present predictions for total and differential cross sections, and for the ratios to $\gamma\gamma \rightarrow e^+e^-(\mu^+\mu^-)$ process. These ratios allow to cancel theoretical and experimental uncertainties when performing precision measurement of a_τ at the LHC. The expected limits on a_τ with the existing Pb+Pb dataset are found to be better by a factor of two comparing to current best experimental limits and can be further improved by another factor of two at High Luminosity LHC. In addition, our results for tau lepton electric dipole moment, d_τ , can be competitive with the current best limits that were measured by the Belle experiment.

Primary author: KLUSEK-GAWENDA, Mariola (Institute of Nuclear Physics Polish Academy of Sciences, Krakow, Poland)

Co-author: Prof. SZCZUREK, Antoni (Institute of Nuclear Physics PAN)

Presenter: KLUSEK-GAWENDA, Mariola (Institute of Nuclear Physics Polish Academy of Sciences, Krakow, Poland)

Session Classification: Electroweak Physics and Beyond the Standard Model

Track Classification: Electroweak Physics and Beyond the Standard Model