Measurements of dilepton production from photon fusion processes in ultra- peripheral Pb+Pb collisions with the ATLAS detector

Thursday 18 July 2024 16:45 (17 minutes)

Relativistic heavy-ion beams at the LHC are accompanied by a large flux of nearly-real photons, leading to a variety of photon-induced processes. This talk presents a series of measurements of dilepton production from photon fu- sion performed by the ATLAS Collaboration. Recent measurements of exclu- sive dielectron production in ultra-peripheral collisions (UPCs) are presented. These processes provide strong constraints on the nuclear photon flux and its dependence on the impact parameter and photon energy. Comparisons of the measured cross-sections to QED predictions from the Starlight and SuperChic models are also presented. Tau-pair production measurements can constrain the tau lepton???s anomalous magnetic dipole moment (g-2), and a recent ATLAS measurement using muonic decays of tau leptons in association with electrons and tracks provides one of the most stringent limits available to date.

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