



Contribution ID: 456

Type: **Poster**

New Constraints on the Existence of Massive Monopoles in Ultra-Peripheral Heavy Ion Collisions with ATLAS

In ultraperipheral Pb+Pb collisions, intense electromagnetic fields enable the generation of magnetic monopole pairs via the Schwinger mechanism. Due to their high ionization and unique trajectories in a solenoidal magnetic field, monopoles are expected to leave a large number of clusters in the innermost ATLAS pixel detector without associated reconstructed charged-particle tracks or calorimeter activity. This talk presents a search for monopole-pair production in ultraperipheral Pb+Pb collisions in the monopole mass range of 20–150 GeV, based on 5.36 TeV data recorded in 2023. The results are compared with a recently developed semiclassical model that includes non-perturbative cross section calculations – as well as with a recent search limits obtained by the MoEDAL Collaboration using complementary techniques.

Category

Experiment

Collaboration (if applicable)

ATLAS Collaboration

Author: SHEMYAKIN, Dmitry (Weizmann Institute of Science (IL))

Presenter: SHEMYAKIN, Dmitry (Weizmann Institute of Science (IL))

Session Classification: Poster session 1

Track Classification: Physics of ultraperipheral collisions