



Contribution ID: 453

Type: Poster

## ATLAS measurements of coincident photon induced processes in ultra-peripheral Pb+Pb collisions

In ultra-relativistic heavy-ion collisions, the Lorentz-contracted electromagnetic fields of the ions generate intense quasi-real photon fluxes. These lead to photon-induced interactions that have been observed in ultra-peripheral collisions (UPCs), such as vector meson and lepton-pair production. The high photon flux also enables the occurrence of multiple photon-induced processes in a single collision.

This talk presents the first measurement of coincident production of  $\gamma\gamma \rightarrow \mu^+\mu^-$  and a  $\rho$  meson in UPC Pb+Pb collisions at 5.02 TeV and 5.36 TeV with ATLAS. Correlations between the di-muon system's properties, such as its mass, and the coincident  $\rho$  meson production rate, are also presented. These results can provide tighter constraints on photon fluxes and nuclear charge form factors, as well as insights into nuclear gluon PDFs, beyond those from inclusive  $\rho$  meson photoproduction.

### Category

Experiment

### Collaboration (if applicable)

ATLAS Collaboration

**Author:** BALEK, Petr (AGH University of Krakow (PL))

**Presenter:** BALEK, Petr (AGH University of Krakow (PL))

**Session Classification:** Poster session 1

**Track Classification:** Physics of ultraperipheral collisions