

# Photoproduction of $\rho^0$ in Ultra-Peripheral Nuclear Collisions at ALICE

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Photoproduction of  $\rho^0$  mesons in ultra-peripheral Pb+Pb collisions has been studied by the ALICE Collaboration at the CERN LHC. The strong photon flux associated with relativistic charged particles leads to a very large cross section for exclusive photoproduction of  $\rho^0$  meson in interactions of the type  $Pb + Pb \rightarrow Pb + Pb + \rho^0$ . For a  $\rho^0$  produced at mid-rapidity at the LHC, the photon-nucleus center of mass energy is roughly a factor of three higher than in any previous experiment. The ALICE detector is a general purpose detector dedicated to study heavy-ion collisions. ALICE has excellent performance in the low  $p_T$  region, and can reconstruct charged particle tracks with  $0.1 \text{ GeV}/c \leq p_T \leq 100 \text{ GeV}/c$ . In this analysis some of the major components of the ALICE central barrel are used: The Inner Tracking System, with six layers of silicon detectors, is used for the first part of the tracking and for finding the collision vertex. Outside of the Inner Tracking System is the Time Projection Chamber, which is the main tracking device in ALICE. Trigger information is provided by the following detectors: The Time-Of-Flight (TOF), located outside the TPC; the VZERO detectors, plastic scintillators located outside of the central barrel, covering roughly two units of pseudorapidity on either side of mid-rapidity; and by the Silicon-Pixel Detector (SPD), a part of the Inner Tracking System. In the 2010 Pb-Pb run there were two different triggers for ultra-peripheral collisions in the ALICE central barrel. For the first part of the run a trigger which required a signal of at least two hits in the TOF was used. Later in the run the trigger also included a signal of at least two hits in the SPD and a veto on the VZERO detectors. The data for both triggers in the 2010 heavy-ion run has been analysed. Preliminary results on  $\rho^0$  production will be presented.

## Presentation Type

Slides

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