

A new class of ultra-peripheral collisions in ALICE: inelastic photonuclear interactions and open charm photoproduction

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The study of ultra-peripheral collisions (UPCs) has so far mostly focussed on exclusive production of a single vector meson or a dilepton pair, while the nuclei have remained in their ground state or have only been slightly excited. There is, however, also the possibility to study a more general class of UPCs involving a photonuclear interaction where the target nucleus is broken up, $\gamma+A \rightarrow X$. These interaction can be divided into resolved processes, where the photon fluctuates to a $q\bar{q}$ pair (typically a vector meson) which interacts hadronically with the target, and direct processes where a bare photon interacts with a parton. The former process resembles proton-nucleus collisions, and it gives the dominant contribution to the the cross section. The latter includes charm production through photon-gluon fusion. Experimentally, these interactions can be identified by requiring rapidity gaps, void of particles, on the side of the photon-emitting nucleus. The latest results from ALICE on inelastic photonuclear interactions will be presented.

Category

Experiment

Collaboration

ALICE

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