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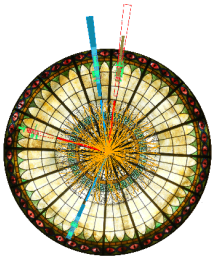

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Exclusive and inclusive photonuclear interactions at the LHC

Wednesday, 29 April 2015 08:30 (25 minutes)

Particle production through photon-induced processes in ultra-peripheral collisions has attracted an increasing interest following the first heavy-ion runs at the CERN Large Haron Collider. The increased collision energy compared with the Relativistic Heavy-Ion Collider (RHIC) at BNL implies that also heavy final states can be produced in abundance. The focus has so far been on exclusive production of vector mesons, i.e. reactions of the type A+B –> A+B+V, where the vector meson is produced in a photonuclear interaction. This has been studied in Pb+Pb and p+Pb as well as p+p interactions.

This presentation will give a summary of the models available for exclusive vector meson production in ultra-peripheral collisions. Most calculations have concentrated on the production cross section as a function of rapidity, dsig/dy, as this is believed to serve as a probe of the nuclear/nucleon gluon distribution when a heavy vector is produced. But a full description of the reaction dynamics requires that also the transverse momentum and invariant mass distributions are reproduced. How these latter quantities can be modelled will be addressed in this presentation. Finally, models for more general photonuclear/photon-nucleon interactions, such as photoproduction of heavy quarks and jets, will be briefly discussed.

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