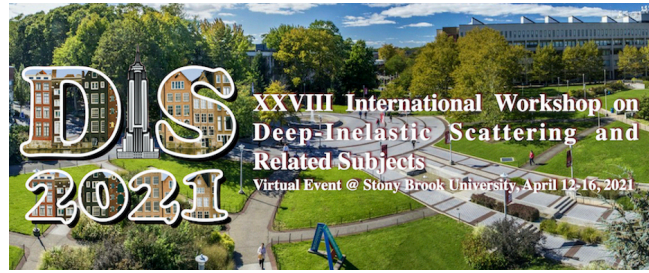


XXVIII International Workshop on Deep-Inelastic Scattering and Related Subjects



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Coherent photoproduction of ρ^0 vector mesons in ultra-peripheral Pb-Pb and Xe-Xe collisions with ALICE

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Lead ions circulating in the LHC provide copious photonuclear interactions. These dominate the interaction rate via ultra-peripheral collisions (UPC), when the impact parameter of the colliding lead ions is larger than the sum of their radii. The study of ρ^0 meson photonuclear production is important, because its cross section in UPC at the LHC is so large that it becomes a proper tool to research the approach to the black-disk limit of QCD.

First measurements of the cross sections for the coherent photoproduction of ρ^0 mesons in Pb-Pb UPC at $\sqrt{s_{NN}}=5.02$ TeV and in Xe-Xe UPC at $\sqrt{s_{NN}}=5.44$ TeV are presented. Both the Pb-Pb and Xe-Xe cross sections are given for different nuclear-breakup classes defined according to the presence of neutrons measured in zero-degree calorimeters. The results are compared with those from lower energies and with model predictions. The measurements were used to determine the A dependence at $W_{\gamma p}=65$ GeV.

Finally, the observation of a coherently produced resonance-like structure with a mass around $1.7 \text{ GeV}/c^2$ and a width of about $140 \text{ MeV}/c^2$ is reported and compared with similar observations from other experiments.

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