

11th International Conference on Hard and Electromagnetic Probes of High-Energy Nuclear Collisions



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$\pi^+\pi^-$ and K^+K^- photoproduction in ultra-peripheral Pb–Pb collisions with ALICE

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Ultra-peripheral collisions (UPC) of heavy nuclei provide the opportunity to study interactions between high energy photons induced from the electromagnetic field of ultrarelativistic nuclei and the nuclei from the other beam. The photon fluctuates to a quark-antiquark dipole which then elastically scatters off the nucleus, emerging as vector meson and opposite-charge pseudoscalar meson pair.

The excellent particle identification capabilities of ALICE enable the study of photoproduced $\pi^+\pi^-$ pairs and K^+K^- pairs at midrapidity in Pb–Pb collisions at $\sqrt{s_{NN}} = 5.02$ TeV. We will present an analysis of the ρ^0 meson and direct $\pi^+\pi^-$ photoproduction exhibiting the interference, obtained from a fit to the invariant mass spectrum of $\pi^+\pi^-$ pairs. In addition, we will present the prospects of studying the photoproduction of direct K^+K^- pairs in UPCs.

Experiment/Theory

ALICE

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