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## Coherent photoproduction in Relativistic Heavy-ion Collisions

The coherent photon-nucleus and photon-photon interactions has been studied in detail at RHIC and LHC to probe the gluon distribution in nucleus and to test QED via relativistic heavy-ion collisions. These kind of interactions are traditionally thought to only exist in ultra-peripheral collisions, where there is no hadronic interactions. Recently, a significant excess of  $J/\psi$  yield and dielectron production at very low transverse momentum ( $p_T < 0.3$  GeV/c) was observed by the ALICE and STAR collaborations in peripheral A+A collisions, which points to evidence of coherent photoproduction in violent hadronic interactions. The survival of photoproduced  $J/\psi$  and electron pair in hadronic heavy-ion collisions merits experimental and theoretical investigations, which are currently rare on the market. Furthermore, the additional source from coherent photoproduction could serve as a novel probe to study the properties of quark-gluon plasma. In this presentation, I will report our recent studies on coherent photoproduction in relativistic heavy-ion collisions and discuss the feasibility of exploring the properties of quark-gluon plasma with the coherent photon induced products.

### Topics

Other related physics

**Primary author:** 查, 王妹 (中国科学技术大学近代物理系)

**Presenter:** 查, 王妹 (中国科学技术大学近代物理系)