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Direct photon production and correlations at low p_T in Pb–Pb collisions with ALICE

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Measurements of direct photons can provide valuable information on the properties and evolution of the quark-gluon plasma (QGP); from the initial conditions to the pre-equilibrium, QGP, and the hadronic phase. In the ALICE experiment, photons that convert in the detector material are reconstructed down to low momentum using the excellent tracking capabilities. Furthermore, photons are reconstructed using the calorimeters. Using these methods we can measure the direct-photon production from a transverse momentum of 0.4 GeV/c, where thermal direct photons dominate, up to several GeV/c, where prompt photons take over.

In this talk we will present measurements in selected centrality classes of the direct-photon production in Pb–Pb collisions at $\sqrt{s_{NN}} = 2.76$ and 5.02 TeV, as well as first significant results on direct-photon HBT at low momentum. Finally, the first results on photon reconstruction using LHC Run 3 data will be reported.

Category

Experiment

Collaboration

ALICE

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