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Direct photon yield in pp and in Pb-Pb collisions measured with the ALICE experiment

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Direct photons are produced at every stage of the nucleus-nucleus collision and therefore they are sensitive to the different phases of the medium evolution. The low- p_T component of the direct photon spectrum is dominated by thermal production in the quark-gluon plasma and during the hadron-gas phase and carries information about the temperature of the emitting medium; for p_T greater than 5 GeV/c, direct photons are mainly produced in hard partonic scattering processes in the early stage of the collision and are not affected by the strongly interacting medium, allowing us to access information on the initial dynamics.

Measurements of direct photon spectra in pp collisions serve both to refine perturbative Quantum Chromodynamics, in particular our knowledge of the parton distribution functions, and as reference for heavy-ion studies.

In this talk, an overview of the most recent ALICE results on direct photon production from pp and Pb-Pb collisions at $\sqrt{s_{NN}} = 2.76$ TeV will be shown in comparison with predictions from hydrodynamic models. The current status of analysis on direct photon production in pp collisions at $\sqrt{s} = 7$ TeV, using isolation techniques for high- p_T candidates, will also be shown and discussed.

Summary

Presentation type

Oral

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