

Direct photon measurements in pp and Pb-Pb collisions with ALICE

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Direct photon measurement in heavy-ion collisions provides a valuable set of observables to study the hot QCD medium since these photons are produced at different stages of the collision and escape the medium unaffected. In pp collisions, the direct photon yield at high transverse momentum (p_T) are produced in hard scattering (prompt photons), but also in the fragmentation of high p_T partons. Their measurement provides a direct test of pQCD and can constrain the parton distribution functions.

The access to the prompt photon production can be achieved experimentally with isolation techniques.

In heavy-ion collisions, the high p_T component provides information on the initial parton dynamics and nuclear parton densities in nuclei, whereas the low momentum component (below $p_T < 5$ GeV/c) of the direct photon production is dominated by thermal radiation from the hot and dense matter created, carrying information on its space-time evolution, collective flow and temperature.

In this talk, we will present ALICE results of direct photon production in pp reactions at $\sqrt{s}=7$ TeV using isolation techniques.

The measurement of the direct photon flow in Pb-Pb collisions at $\sqrt{s_{NN}}=2.76$ TeV will also be presented. The results will be discussed and compared to theoretical predictions and earlier measurements.

Preferred Track

Electromagnetic Probes

Collaboration

ALICE

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