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Typ: Talk

Thermal radiation and direct photon production in Pb-Pb and pp collisions with dielectrons in ALICE

Dienstag, 28. März 2023 15:00 (20 Minuten)

Electromagnetic probes such as photons and dielectrons are a unique tool to study the space-time evolution of the hot and dense matter created in ultrarelativistic heavy-ion collisions. At low dielectron invariant mass (m_{ee}), thermal radiation from the hot hadronic phase contributes to the dielectron spectrum via decays of ρ mesons, whose spectral function is sensitive to chiral-symmetry restoration. At larger m_{ee} , thermal radiation from the quark-gluon plasma carries information about the early temperature of the medium. At LHC energies, it is nevertheless dominated by a large background from correlated heavy-flavour hadron decays affected by energy loss and flow in the medium. Complementary to the real photon measurements, dielectron data also allow the extraction of the real direct photon fraction, including thermal photons at low pair transverse momentum $p_{T,ee}$. In pp collisions, such measurement serves as a fundamental test of perturbative QCD calculations, and as a baseline for the studies in heavy-ion collisions. This talk will present the latest ALICE results on dielectron studies in Pb-Pb, and in minimum-bias and high-multiplicity pp collisions, at $\sqrt{s_{NN}} = 5.02$ TeV and 13 TeV, respectively. The measurements are compared to simulations and expectations from theory. Finally, the status of the Run 3 analysis will be reported.

Experiment/Theory

ALICE

Affiliation

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Sitzung Einordnung: Parallel: Electromagnetic & Electroweak Probes

Track Klassifizierung: Electromagnetic and electroweak probes