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Measurement of jet p_T spectra and R_{AA} in pp and Pb-Pb collisions at $\sqrt{s_{NN}} = 2.76$ TeV with the ALICE detector

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Hard-scattered partons provide an ideal probe for the study of the Quark-Gluon Plasma because they are produced prior to the formation of the QCD medium in heavy-ion collisions. Early measurements conducted at RHIC experiments have provided compelling evidence of jet quenching. In more recent years LHC experiments have confirmed these observations at a higher collisional energy, which allows full jet reconstruction over a much wider kinematic range. Jets are reconstructed in ALICE utilizing both the central tracking system for the charged constituents and the Electromagnetic Calorimeter for the neutral constituents. One of the most important challenges of jet reconstruction in heavy-ion collisions is the large fluctuating background energy density coming from the underlying event. A data-driven method has been used to correct for it which, combined with the unfolding of the detector effects, makes it possible to compare with other experimental results and theoretical predictions. Jet spectra will be reported for Pb-Pb and for pp collisions at a center of mass energy of 2.76 ATeV. The pp measurement serves also as the baseline for the determination of the nuclear modification factor, which shows a strong suppression of jet production in central Pb-Pb collisions. Differential measurements relative to the event plane and centrality class, which make use of data triggered by the Electromagnetic Calorimeter, will aid further investigation of details of this suppression, e.g. regarding the path length dependence of parton energy loss.

On behalf of collaboration:

ALICE

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