



Contribution ID: 126

Type: not specified

Light-flavour hadron production in pp and PbPb collisions in the ALICE experiment at the LHC

Nuclear matter under extreme conditions can be investigated in ultra-relativistic heavy-ion collisions. The measurement of transverse momentum (p_T) distributions and yields of identified particles is a fundamental step in understanding collective and thermal properties of the matter produced in such collisions. At intermediate transverse momentum, it allows for testing the “recombination models” where hadrons could be formed by the coalescence of quarks from a deconfined quark-gluon plasma (QGP). At higher transverse momenta, particle spectra allow one to investigate the mechanism of parton energy loss in the hot and dense medium created in the heavy ion collisions. The measurement of spectra in pp not only provides the baseline for the heavy-ion data but also allows for the tuning and optimization of QCD-inspired models.

The latest ALICE results on identified and inclusive light-flavour charged particles in pp collisions at $\sqrt{s} = 0.9, 2.76$ and 7 TeV and Pb-Pb collisions at $\sqrt{s_{NN}} = 2.76$ TeV will be reviewed. p_T spectra, yields and ratios in pp as a function of the collision energy will be shown and compared to previous experiments and Monte Carlo predictions. Recent Pb-Pb results in different centrality intervals will be presented and compared to $\sqrt{s_{NN}} = 200$ GeV Au-Au collisions at RHIC. Comparison with predictions from thermal and hydrodynamic models will be also discussed.

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