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Inclusive production of neutral pion in pp collisions at 0.9 and 7 TeV and perspectives for heavy-ion measurements with the ALICE calorimeters

Content :

The ALICE experiment is equipped by two electromagnetic calorimeters. The Photon Spectrometer (PHOS) is a high-granularity electromagnetic calorimeter with a high energy resolution, designed for precise measurements of neutral mesons and direct photons in a wide kinematic range. The sampling lead-scintillator calorimeter (EMCAL) is a wide-aperture detector dedicated for jet measurements. During the 2010 pp run, the ALICE has recorded data with the integrated luminosity 10 nb^{-1} at the collision energy 900 GeV and 20 nb^{-1} at 7 TeV. Analysis of the calorimeters data allowed to measure inclusive π^0 spectrum at mid-rapidity in the transverse momentum range $p_T < 8 \text{ GeV}/c$ at $\sqrt{s}=900 \text{ GeV}$ and $p_T < 30 \text{ GeV}/c$ at $\sqrt{s}=7 \text{ TeV}$. Preliminary results of the analysis and cross checks with other measurements performed at lower energies are presented. Reference data for the nuclear modification effects of π^0 production in Pb-Pb collisions at $\sqrt{s}=2.76 \text{ A*TeV}$ are derived from the the pp measurements. The first analysis results of the ALICE heavy-ion run are presented. Perspectives for π^0 measurements with heavy ions are discussed.

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