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Measurement of high p_T neutral pions at $\sqrt{s_{NN}}=2.76$ and 7 TeV with ALICE-EMCal at the LHC

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The measurements of neutral meson spectra in pp collisions at LHC energies present important data for perturbative QCD calculations such as gluon fragmentation function, and provide reference to study scaling properties of hadron production at LHC energies, such as the nuclear modification factor R_{AA} . The existing ALICE data of the π^0 production in central Pb-Pb collisions at $\sqrt{s_{NN}}=2.76$ TeV already showed a clear pattern of strong suppression in a hot QCD medium with respect to pp collisions, at low- to intermediate- p_T range.

In this presentation, we will show the new π^0 measurement at mid-rapidity region in pp collisions at $\sqrt{s_{NN}}=2.76$ and 7 TeV. Much higher p_T range, up to 50 GeV/c, is reached via merged cluster splitting method at the ALICE electromagnetic calorimeters called EMCal. Unlike the traditional invariant mass method of two separate clusters, this merged cluster method focuses on high energy π^0 s, whose decay photon pairs fall into a single large and elongated cluster in EMCal. In order to identify such clusters, several selection criteria are applied including the shower shape of the cluster, the energy balance between the two sub-clusters, and the invariant mass of the two sub-clusters. We will present the current status of this analysis technique in this poster.

On behalf of collaboration:

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