

Neutral pion measurements in Pb+Pb collisions at $\sqrt{s_{NN}} = 2.76$ TeV with ALICE at the LHC

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The theory of strong interactions, quantum chromodynamics (QCD), predicts a phase transition at high temperature. A new era in the study of QCD matter opened with the first collisions of Pb ions in November 2010 at the Large Hadron Collider (LHC) at CERN.

Study of partonic energy loss is planned with high-pT neutral pion in a wide momentum range using the PHOTon Spectrometer (PHOS) at the ALICE experiment. The PHOS is a high-resolution electromagnetic spectrometer covering a limited acceptance domain at central rapidity.

Particular interest is in the path length dependence of the energy loss, which can be studied by measuring azimuthal direction of the emitted neutral pion with respect to the reaction plane. Interesting results on this subject were reported in the study at RHIC, and better understanding of the energy loss mechanism in the strongly interacting QCD matter will be attained in the study at LHC by making measurement in a much wider momentum range.

In this presentation, I will report current status of the analysis of neutral pion yield with respect to centrality and reaction plane in Pb+Pb collisions at $\sqrt{s_{NN}} = 2.76$ TeV.

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