

# Measurement of neutral mesons in pp and Pb-Pb collisions at $\sqrt{s_{NN}} = 5.02$ TeV with the PHOS detector

Neutral mesons such as  $\pi^0$  and  $\eta$  that decay into two photons are suitable to study parton energy loss in the QGP, since they can be identified, using a fine-segmented electromagnetic calorimeter, in a wide transverse momentum range.

The Photon Spectrometer (PHOS) in ALICE is an electromagnetic calorimeter which is located at 4.6 m from the interaction point.

PHOS consists of 12,544 segments with a  $2.2 \times 2.2 \times 18$  cm<sup>3</sup> PbWO<sub>4</sub> crystal readout by an APD.

This fine granularity, possible due to the small Moliere radius of 2.2 cm, allows us to distinguish two photons decaying with a small opening angle from a parent particle up to  $p_T = 50$  GeV/ $c$  with an invariant mass method.

ALICE recorded about  $20 \mu b^{-1}$  of Pb-Pb collisions at  $\sqrt{s_{NN}} = 5.02$  TeV and  $2.5 nb^{-1}$  of pp collisions at  $\sqrt{s} = 5.02$  TeV with minimum bias triggers in 2015.

Additionally, PHOS Level-0 trigger which is based on high energy hits in  $4 \times 4$  crystals can extend the  $\pi^0$  measurement up to  $p_T = 30$  GeV/ $c$  in pp collisions.

Clear  $\pi^0$  and  $\eta$  meson peaks have been extracted in a wide  $p_T$  range and in each centrality class via di-photon decay channel with the PHOS detector in ALICE.

## Preferred Track

Jets and High  $p_T$  Hadrons

## Collaboration

ALICE

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