

# Measurement of neutral mesons in pp collisions at $\sqrt{s} = 8$ TeV with ALICE at the LHC

ALICE has measured the invariant cross sections for the production of neutral pion and eta mesons in proton-proton collisions at  $\sqrt{s} = 8$  TeV.

Neutral mesons have been reconstructed by means of three different detection systems; using the central barrel tracking detectors of ALICE in order to reconstruct photon conversions (PCM) and the two available calorimeters in the experiment, namely the Photon Spectrometer (PHOS) and Electromagnetic Calorimeter (EMCal).

The reported measurements have been carried out as well using a 'hybrid' system which reconstructs meson candidates by combining one EMCal photon with one PCM photon.

Thus, this 'hybrid' system serves as an important cross-check for the single measurements and additionally measures an almost independent set of meson candidates.

By using EMCal and PHOS triggers in addition, the fully combined measurements cover transverse momentum ranges from 0.3 GeV/c for neutral pions (0.4 GeV/c for eta mesons) up to 35 GeV/c for both neutral mesons.

Furthermore, the corresponding  $\eta/\pi^0$ -ratio will be shown to test scaling laws for particle production.

All obtained results will be compared with different Monte Carlo generators as well as NLO pQCD predictions.

Based on the obtained results, an inclusive direct photon measurement is being carried out.

The 'hybrid' PCM-EMCal system is used to tag neutral pion candidates, which can then be used to extract the direct photon signal.

This pion-tagging method will be illustrated and first insight into the analysis will be presented.

## Preferred Track

Jets and High pT Hadrons

## Collaboration

ALICE

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**Session Classification:** Poster Session