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## Measurements of $\pi^0$ and $\eta$ mesons with the photon conversion method in ALICE in pp collisions at $\sqrt{s} = 13.6$ TeV

The production of  $\pi^0$  and  $\eta$  mesons in ultrarelativistic proton-proton (pp) collisions provides insight into the underlying Quantum Chromodynamics (QCD) processes that govern hadronization. Additionally, these measurements serve as an important baseline for the study of direct photons as well as dielectrons, both of which are crucial for understanding the dynamics of heavy-ion collisions and the formation of the quark-gluon plasma (QGP), the primary focus of the ALICE experiment at the LHC. In this context, recent upgrades of the ALICE detector for Run 3 are expected to improve the precision and to extend the scope of these measurements.\

In this study, we employ the Photon Conversion Method (PCM) to reconstruct decay photons from the measured tracks of  $e^+e^-$  pairs resulting from conversions within the detector material. At low momentum, the PCM enhances the precision of neutral-meson studies compared to calorimeter-based measurements.\

In this poster, we present the current status of the measurements of neutral mesons produced in pp collisions at  $\sqrt{s} = 13.6$  TeV, highlighting particle spectra down to very low transverse momenta.

### Category

Experiment

### Collaboration (if applicable)

ALICE

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