

# 10th International Conference on Hard and Electromagnetic Probes of High-Energy Nuclear Collisions



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## Measurement of the $\omega$ Meson in pp Collisions at the LHC with ALICE

*Tuesday 2 June 2020 07:30 (1h 20m)*

ALICE is a dedicated heavy-ion experiment and focusses on the properties of the Quark-Gluon Plasma (QGP), a state of strongly interacting matter expected to be formed in heavy-ion collisions.

When performing proton-proton collisions, the energy densities reached are in principle not sufficient to form this medium and hence measurements in this system serve as a baseline to understand the influences of the QGP on the particle production.

Furthermore, cross sections of neutral mesons are needed to test QCD-based theory predictions and to constrain Fragmentation Functions as well as Parton Distribution Functions at high momentum.

This poster will cover the measurement of the invariant cross sections of the  $\omega$ -meson at mid-rapidity in pp collisions with a center of mass energy of  $\sqrt{s} = 13$  TeV produced at the LHC Run2 and measured by ALICE. The  $\omega$  is reconstructed via  $\omega \rightarrow \pi^+ \pi^- \pi^0$ , where the  $\pi^0$  decays further in two photons.

In ALICE, the measurement of photons is performed in two different ways:

The first method measures photons via their energy deposits in electromagnetic calorimeters.

The second method is called PCM (Photon Conversion Method) as photons may convert to  $e^+e^-$  pairs when interacting with the detector material. While the  $e^+e^-$  pairs from conversions are identified and measured with help of the Time Projection Chamber (TPC), the charged pions are measured using information of the Inner Tracking System (ITS) in addition.

### Collaboration (if applicable)

ALICE

### Track

Jets and High Momentum Hadrons

### Contribution type

Poster

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