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# Angular correlations between $J/\psi$ mesons and charged hadrons in proton-proton collisions at $\sqrt{s} = 13$ TeV with ALICE

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Due to the different energy scales involved in the production of charmonium states in proton-proton collisions, they provide important testing grounds for the theory of Quantum Chromo-Dynamics (QCD). The initial charm-quark pairs are produced in large- $Q^2$  processes that allow for a perturbative treatment while the hadronization into a bound system is non-perturbative.

Different effective theories for the description of charmonium production exist, like the Color Singlet Model, the Color Evaporation Model or the non-relativistic QCD approach. However, none of them describes the production cross-sections and the polarization simultaneously. The correlations of  $J/\psi$  mesons and hadrons can provide constraints on the color-singlet or color-octet nature of the pre-resonant charmonium state by measuring the amount of hadronic activity in the vicinity of the  $J/\psi$ .

In this poster, preliminary ALICE results on the angular correlations between inclusive  $J/\psi$  mesons and charged hadrons at mid-rapidity in pp collisions at  $\sqrt{s} = 13$  TeV will be shown. The high multiplicity triggered data taken by ALICE in Run-2 allows for measurements in high multiplicity events, in addition to the analysis of minimum-bias data. Projections for the LHC Run-3 and Run-4 will also be reported. Our measurements will be compared to model calculations.

## Content type

Experiment

## Collaboration

ALICE

## Centralised submission by Collaboration

Presenter name already specified

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