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Charmonium production in pp collisions with ALICE

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Due to their large mass, heavy quark pairs are considered to be produced in the first instants of the collision in hard scatterings of partons which can be described perturbatively. However, the bound states of these pairs

are produced via soft non-perturbative processes. The interplay between the perturbative and non-perturbative processes involved in quarkonium production makes this field a very important testing ground for QCD.

At the LHC, the special setup of the ALICE experiment allows the study of charmonium production in pp collisions down to zero transverse momentum in a large rapidity range, $|y| < 0.9$ and $2.5 < y < 4.0$.

We will present results on charmonium production from pp collisions recorded by ALICE at $\sqrt{s} = \sqrt{2.76}$ and 7 TeV.

These will include, among others, the first LHC measurements on J/ψ polarization and the dependence of J/ψ production on the event charged particle multiplicity.

The data will be discussed using calculations from different theoretical models.

We will also show results on the J/ψ production in Pb-Pb collisions at $\sqrt{s_{NN}} = \sqrt{2.76}$ TeV in comparison with the pp collisions.

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