

# Results on quarkonium production and polarization in $pp$ collisions with the CMS detector

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## Collaboration

CMS

## Abstract content

Explaining the production dynamics of conventional quarkonium has been a challenge for nearly 20 years. The state-of-the-art theoretical framework, Non-Relativistic QCD (NRQCD), nowadays explains relatively well the observed production cross-sections, but it also predicts transverse polarization of the  $q\bar{q}$  states at high transverse momentum, which is not observed. This talk presents the CMS quarkonium production results, in  $pp$  collisions, placing emphasis on the most recent measurements, which include the cross-sections and polarizations of all five S-wave states. We will also present new results on P-wave quarkonium production in the bottomonium family.

**Primary author(s) :** DEGANO, Alessandro (University of Turin)

**Presenter(s) :** DEGANO, Alessandro (University of Turin)

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