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From Debye screening to regeneration and jet quenching: charmonium production in pp and PbPb collisions with the CMS detector

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The understanding of charmonium production in PbPb collisions requires the inclusion of many phenomena such as dissociation in the QGP, partonic energy loss, statistical recombination, on top of cold nuclear matter effects (modifications of nPDFs, initial-state energy loss, nuclear break-up). In this talk, final results on prompt J/ψ and $\psi(2S)$ production, based on the pp and PbPb data collected at 5.02 TeV by CMS in 2015, are reported. The prompt J/ψ results in PbPb collisions, including the cross section and the nuclear modification factor R_{AA} , are presented single- and double-differentially over a wide kinematic and centrality range ($3 < p_T < 50$ GeV/c, $|y| < 2.4$, and fine event-centrality intervals). The results are compared to those obtained at 2.76 TeV over a similar kinematic range. Final prompt $\psi(2S)$ R_{AA} results at 5.02 TeV are also presented, showing a stronger suppression of the excited state as compared to the ground state in all measured bins. Finally, exploratory studies of jets containing J/ψ mesons are shown.

Content type

Experiment

Collaboration

CMS

Centralised submission by Collaboration

Presenter name already specified

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