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# Heavy flavor and Quarkonia in heavy-ion collisions with CMS

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Quarkonia are especially important for diagnosing and characterising the quark-gluon plasma since they are produced at early times and propagate through the medium. The Compact Muon Solenoid (CMS) detector at the LHC is ideal to measure muon pairs from quarkonia in the high-multiplicity environment of nucleus-nucleus collisions. Taking this advantage, CMS has measured the nuclear modification factors of prompt  $J/\psi$ , non-prompt  $J/\psi$  from b-hadron decays and  $Y(1S)$  in PbPb collisions at  $\sqrt{s_{NN}} = 2.76$  TeV. From the 2010 data sample (7.28 inverse microbarns) large suppressions of all quarkonia states relative to pp were observed in central collisions. A larger suppression of  $Y(2S+3S)$  relative to  $Y(1S)$  were also observed in minimum bias events. During the 2011 heavy-ion run CMS has collected about a factor twenty more events compared with the 2010 run, which amounts 150 inverse microbarns. With high statistics CMS could analyze  $\psi(2S)$  and  $Y(2S)$  and  $Y(3S)$  separately. These new results on the quarkonium production in heavy ions will be also presented in this presentation.

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