

# Quarkonia and heavy flavor production in CMS

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The Compact Muon Solenoid (CMS) is fully equipped to measure quarkonia in the di-muon decay channel in the high multiplicity environment of nucleus-nucleus collisions. Quarkonia are especially relevant for studying the quark-gluon plasma since they are produced at early times and propagate through the medium, mapping its evolution. CMS has measured the nuclear modification factors of non-prompt J/psi (from b-hadron decays), prompt J/psi and Y(1S) in PbPb collisions at  $\sqrt{s_{NN}} = 2.76$  TeV. For prompt J/psi with relatively high  $p_T$  ( $6.5 < p_T < 30$  GeV/c), a strong, centrality-dependent suppression is observed in PbPb collisions, compared to the yield in pp collisions scaled by the number of inelastic nucleon-nucleon collisions. Such strong suppression at high  $p_T$  has previously not been observed at RHIC. In the same kinematic range, a suppression of non-prompt J/psi, which is sensitive to the in-medium b-quark energy loss, is measured for the first time. Also the low-pt Y(1S) mesons are suppressed in PbPb collisions. Furthermore, a suppression of the excited Y-states has been measured with respect to the Y(1S). During the 2011 data taking period the data sample has been increased by a factor twenty, which allows more detailed measurements of the observed quarkonia suppression patterns and opens the door to new observables. Results from the 2010 data taking period are presented and the status of the 2011 data analysis is reported.

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