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## Detailed study of bottomonium suppression with the measurement of the $\Upsilon(3S)$ meson in PbPb collisions at 5.02 TeV with CMS

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Because of the different binding energies, bottomonium mesons are particularly useful probes to understand the thermal properties of quark-gluon plasma. Previously, CMS observed the sequential suppression of  $\Upsilon(1S)$ ,  $\Upsilon(2S)$ , and  $\Upsilon(3S)$  in heavy ion (AA) collisions, which was widely accepted as evidence for the QGP formation. However, the  $\Upsilon(3S)$  yield was excessively low, thus allowing us to report only statistical upper limits. In this talk, we present a detailed study of the measurement of excited bottomonium states with improved analysis technique and high-statistics data that enables us to observe the  $\Upsilon(3S)$  meson in AA for the first time. The results are discussed together with the previous measurements in pPb collisions, which finally provides a full scan of all  $\Upsilon(nS)$  states over the whole phase space.

### Present via

Offline

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