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## First measurement of $\Upsilon(3S)$ meson in PbPb collision.

*Saturday, 9 July 2022 11:30 (15 minutes)*

The suppression of bottomonium states is closely related to the interaction with the QGP, supposedly created in heavy ion (AA) collisions. The different binding energies of bottomonium states provide a unique pattern of yield modification which is useful to study thermal properties of the QGP. Previous results from CMS have shown the evidence of sequential suppression for  $\Upsilon(1S)$ ,  $\Upsilon(2S)$ , and  $\Upsilon(3S)$ . However, the given statistics were limited to clearly identify the  $\Upsilon(3S)$  meson. In this talk, we present the new measurements of excited bottomonium states with improved analysis technique and high-statistics data, which enables us to observe the  $\Upsilon(3S)$  meson in AA collisions for the first time. The results are compared with various theoretical calculations and provide strong constraints to the dynamical models.

### In-person participation

No

**Primary author:** LEE, Soohwan (Korea University)**Co-author:** MEYER, Arnd**Presenter:** LEE, Soohwan (Korea University)**Session Classification:** Heavy Ions**Track Classification:** Heavy Ions