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Nuclear modification of the production of Υ mesons with CMS

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Shortly after the beginning of the LHC heavy ion program, the CMS Collaboration reported the observation of stronger suppressions of the excited Υ states compared to the lower $\Upsilon(1S)$ state, first in lead-lead (PbPb) and then in proton-lead (pPb) collisions. Such feature, anticipated in the former as a signature of the presence of a quark-gluon plasma, was however unforeseen in the latter at LHC energies. These findings prompted extensive experimental and theoretical studies of the relative suppression of quarkonia. Ultimately, a comprehensive picture of the quarkonium production in heavy ion collisions is necessary to understand the formation and interaction of bound states in strongly interacting matter, and hence to characterize its properties.

In this contribution we present the latest CMS measurements of Υ mesons in heavy ion collisions. These include the observation of the $\Upsilon(3S)$ meson in PbPb collisions and detailed studies of the suppression of the three lowest Υ states in pPb and PbPb collisions. The results are compared with various models describing the nuclear modification of quarkonium production in (deconfined) media.

session

G. Heavy Ion Physics

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