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Heavy quarkonia production in Pb+Pb collisions with ALICE at the LHC

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The production of heavy quarkonia (J/ψ , ψ' , χ_{c0} as well as the Upsilon resonances) has long been considered as a promising tool to study the formation of a Quark Gluon Plasma (QGP) in relativistic heavy ion collisions and has therefore been extensively studied experimentally notably at the SPS (CERN), at RHIC (BNL) and now at the LHC. This production was originally predicted to be suppressed in the presence of a QGP with respect to binary-scaled production rates in pp collisions via a Debye-like color screening mechanism, provided that the temperature (or equivalently the energy density) of the QGP is high enough. However, it has been proposed since then that heavy quarkonia production could also be enhanced due to the coalescence of uncorrelated heavy quark pairs from the hot medium. New measurements performed at the LHC at unprecedentedly high energies should help disentangle these two competing mechanisms.

ALICE is the LHC experiment dedicated to the study of heavy ion collisions. It can measure heavy quarkonia production at both mid- ($|y| < 0.9$) and forward- ($2.5 < y < 4$) rapidities, down to zero transverse momentum, in both pp and Pb+Pb collisions.

Results on heavy quarkonia production in Pb+Pb collisions at a center of mass energy per nucleon-nucleon collision $\sqrt{s_{NN}} = 2.76$ TeV measured by the ALICE experiment will be presented. They will be compared to state of the art model calculations as well as to other measurements performed at RHIC and at the LHC.

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