

# ALICE Measurement of the $J/\psi$ Nuclear Modification Factor $R_{AA}$ at Mid-Rapidity in Pb-Pb Collisions at $\sqrt{s_{NN}} = 5.02$ TeV

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ALICE at the Large Hadron Collider (LHC) provides unique capabilities to study charmonium production at low transverse momenta. In the early and hottest phase of nucleus-nucleus collisions the formation of a Quark-Gluon Plasma (QGP) is expected. Several QGP induced effects, such as the melting of charmonium states due to color screening and/or a (re)combination of uncorrelated charm and anti-charm quarks, can play a role. While a suppression of  $J/\psi$  with respect to pp collisions was indeed observed in heavy-ion collisions at all energies, recent measurements in Pb-Pb collisions at  $\sqrt{s_{NN}} = 2.76$  TeV indicate that (re)combination does seem to play an important role in the low  $p_T$  region at LHC energies.

At central rapidity, corresponding to the range  $|y| < 0.9$ ,  $J/\psi$  are reconstructed via their decay into two electrons down to zero  $p_T$ . We will present new results on the inclusive  $J/\psi$  nuclear modification factor  $R_{AA}$  as a function of centrality and transverse momentum in Pb-Pb collisions at  $\sqrt{s_{NN}} = 5.02$  TeV. Due to the now available higher event statistics these data allow a more differential investigation of the evolution of  $R_{AA}$  than previous measurements. They provide, in combination with results from lower energies and theoretical predictions, important information on the different mechanisms related to the presence of the hot medium produced in heavy-ion collisions.

## Preferred Track

Quarkonia

## Collaboration

ALICE

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