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# Centrality, rapidity and transverse momentum dependence of $J/\psi$ suppression in Pb-Pb collisions at $\sqrt{s_{NN}} = 2.76$ TeV

ALICE Collaboration

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## Abstract

The inclusive  $J/\psi$  nuclear modification factor (RAA) in Pb-Pb collisions at  $\sqrt{s_{NN}} = 2.76$  TeV has been measured by ALICE as a function of centrality in the  $e^+e^-$  decay channel at mid-rapidity ( $|y| < 0.8$ ) and as a function of centrality, transverse momentum and rapidity in the  $\psi(2S)$  decay channel at forward-rapidity ( $2.5 < y < 4$ ). The  $J/\psi$  yields measured in Pb-Pb are suppressed compared to those in pp collisions scaled by the number of binary collisions. The RAA integrated over a centrality range corresponding to 90% of the inelastic Pb-Pb cross section is

$0.72 \pm 0.06(\text{stat}) \pm 0.10(\text{syst})$  at mid-rapidity and  $0.58 \pm 0.01(\text{stat.}) \pm 0.09(\text{syst.})$  at

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transverse momentum, significantly larger values of RAA are

measured at forward-rapidity compared to measurements at lower energy. These features suggest that a contribution to the  $J/\psi$  yield originates from charm quark (re)combination in the deconfined partonic medium.



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## Keywords

Relativistic heavy ion collisions; Quark gluon plasma; Quarkonium;  $J/\psi$ , suppression; Experimental results

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