



XXIV QUARK MATTER DARMSTADT 2014

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J/ψ production in p-Pb collisions with ALICE at the LHC

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The study of charmonium production, bound states of c and \bar{c} quarks, is an intense research activity, both experimentally and theoretically. The peculiar properties of some of the charmonium states, like their small size (< 1 fm) and strong binding energy (several hundred MeV), make them ideal probes of the strongly interacting matter, the so-called Quark-Gluon Plasma (QGP), produced in high-energy heavy-ion collisions.

ALICE is dedicated to the study of QGP properties in heavy-ion collisions at the LHC. A suppression of the J/ψ has been found in Pb-Pb collisions at $\sqrt{s_{NN}} = 2.76$ TeV, with respect to the J/ψ measured in pp collisions at the same center-of-mass energy. At the beginning of 2013, p-Pb collisions at $\sqrt{s_{NN}} = 5.02$ TeV have been studied at the LHC, in order to measure the effects related to cold nuclear matter, which, for charmonia, include gluon shadowing (or gluon saturation), energy loss and nuclear absorption. The study of these effects in p-Pb collisions is important in order to be able to disentangle hot and cold nuclear matter effects in Pb-Pb collisions.

The obtained results on the J/ψ production and nuclear modification factor as a function of rapidity or transverse momentum in p-Pb collisions, will be presented and compared to theoretical models. The rapidity ranges considered will include forward and backward rapidity (dimuon decay channel) and mid rapidity (dielectron decay channel). Likewise, a discussion on the forward-to-backward ratios will be held. First results on the dependence of the J/ψ yields and its mean transverse momentum on the charged particle multiplicity will be also presented and discussed.

On behalf of collaboration:

ALICE

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