

Measurement of the Multiplicity Dependence of J/ψ $\rightarrow e+e-$ Production in $\sqrt{s} = 7$ TeV pp Collisions with ALICE at the LHC

ALICE is the dedicated heavy-ion physics experiment at the Large Hadron Collider (LHC). It is designed to provide excellent capabilities to study the Quark-Gluon Plasma (QGP), the deconfined state of strongly-interacting matter, in the highest energy density regime opened up by the LHC. Quarkonia, bound states of heavy (charm or bottom) quarks such as the J/ψ , are crucial probes of the QGP. Before drawing conclusions on QGP-induced phenomena all non-QGP effects influencing quarkonia yields have to be understood.

ALICE has measured the charged particle multiplicity distribution at $\sqrt{s} = 7$ TeV pp collisions [1]. A good fraction of events feature multiplicities that are of the same order as in central heavy-ion collisions at SPS energies. Thus, final-state effects present in heavy-ion collisions, such as a possible interaction with comovers [2], might be unveiled at LHC energies studying the multiplicity dependence of J/ψ production in pp collisions.

We will present first results of the multiplicity dependence of J/ψ production in $\sqrt{s} = 7$ TeV pp collisions. The analysis is based on the reconstruction of the channel $J/\psi \rightarrow e+e-$ using the central barrel detectors of ALICE.

References

[1] K. Aamodt et al., "Charged-particle multiplicity measurement in proton-proton collisions at $\sqrt{s} = 7$ TeV with ALICE at LHC", EPJ C 68 (2010) 345.

[2] A. Capella et al., " J/ψ suppression at $\sqrt{s} = 200$ GeV in the comovers interaction model", EPJ C 42 (2005) 419.

Primary author: KRAMER, Frederick (IKF, Goethe-Universität Frankfurt)

Presenter: KRAMER, Frederick (IKF, Goethe-Universität Frankfurt)

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