

Phenomenological interpolation of inclusive J/ψ production to proton-proton collisions at $\sqrt{s}=2.76$ TeV and 5.5 TeV

J/ψ production is one of the key measurements in heavy-ion collisions at the LHC. It is expected to provide means to discriminate between different scenarios, ranging from full suppression by colour screening to enhancement by charm quark pair recombination.

In 2010, the LHC delivered Pb-Pb collisions at the center of mass energy per nucleon pair of 2.76 TeV. The knowledge of the J/ψ cross section in p-p collisions at the same energy is crucial for a correct interpretation of the data.

We perform an interpolation of the inclusive J/ψ cross section to p-p collisions at $\sqrt{s}=2.76$ TeV (and $\sqrt{s}=5.5$ TeV), based on the available experimental data.

First, we describe the energy dependence of the J/ψ cross section at mid-rapidity. Second, we study the rapidity dependence of J/ψ production and provide estimates for the cross section in the forward rapidity regions of interest for the LHC experiments. Third, we develop the tools to extrapolate the transverse momentum distributions.

In our approach, we adopt both phenomenological and pQCD-driven techniques and, where possible, we combine them.

Our study is documented in arXiv:1103.2394 [nucl-ex]; it is meant to be complementary and provide an useful cross-check to the measurements performed during the recent p-p data-taking campaign at $\sqrt{s}=2.76$ TeV at the LHC.

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