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Associated production of J/ψ pairs with the ATLAS detector

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A wide program of studies of heavy flavour production in at LHC is performed with the ATLAS detector, including charm and beauty hadrons, quarkonia production in both sectors, and associated production J/ψ+W, $J/\psi + Z$ and, most recently, $J/\psi + J/\psi$, which is the subject of this presentation.
The study is based on data collected at 8 TeV. The differential cross-section is measured as a function of the transverse momentum of the lower-p_{T} J/ψ meson,
the di-J/ψ p_{T} and mass, the difference in rapidity between the two J/ψ mesons, and the azimuthal angle between the two J/ψ mesons. The fraction of prompt pair events due to double parton scattering is determined by studying kinematic correlations between the two J/ψ mesons. The effective cross-section of double parton scattering is measured to be $\sigma_{\mathrm{eff}} = 6.3 \pm 1.6(\mathrm{stat}) \pm 1.0(\mathrm{syst}) \pm 0.1(\mathrm{BF}) \pm 0.1(\mathrm{lumi})\,\mathrm{mb}$. The total and double parton scattering cross-sections are compared with predictions.

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