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## Prompt $J/\psi$ and $b \rightarrow J/\psi X$ production in pp collisions at $\sqrt{s} = 7$ TeV

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Despite large experimental and theoretical efforts, the production rate and polarization of quarkonia states in hadronic collisions is not yet satisfactorily understood. With its first  $\sim 10$  pb $^{-1}$  of data, LHCb will be able to provide fresh measurements of the prompt and non-prompt  $J/\psi$  production cross sections, at the new center-of-mass energy of 7 TeV and in a unique range of rapidity ( $3 < y < 5$ ) and transverse momentum ( $p_T < 7$  GeV/c). The statistical separation between the prompt component and the contribution from b-hadron decays will be achieved using the distance between the pp collision point and  $J/\psi$  decay vertex. Preliminary measurements will be compared with predictions, and prospects for the extraction of the prompt  $J/\psi$  polarization, and prospects for the measurement of other quarkonia states will be discussed in the light of the first available signals.

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