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Measurement of the Inclusive Υ production cross section in pp collisions at $\sqrt{s} = 7$ TeV YU ZHENG, Purdue University, CMS COLLABORATION — The Υ production cross section in proton-proton collisions at $\sqrt{s} = 7$ TeV is measured using a data sample collected with the CMS detector at the LHC, corresponding to an integrated luminosity of 3.1 ± 0.3 pb^{-1}. Integrated over the rapidity range $|y| < 2$, we find the product of the $\Upsilon(1S)$ production cross section and branching fraction to dimuons to be $\sigma(pp \to \Upsilon(1S)X)B(\Upsilon(1S) \to \mu^+\mu^-) = 7.37 \pm 0.13^{+0.61}_{-0.42} \pm 0.81$ nb, where the first uncertainty is statistical, the second is systematic, and the third is associated with the estimation of the integrated luminosity of the data sample. This cross section is obtained assuming unpolarized $\Upsilon(1S)$ production. If the $\Upsilon(1S)$ production polarization is fully transverse or fully longitudinal the cross section changes by about 20%. We also report the measurement of the $\Upsilon(1S)$, $\Upsilon(2S)$, and $\Upsilon(3S)$ differential cross sections as a function of transverse momentum and rapidity.

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