

Abstract Submitted
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Monte Carlo study of $\Upsilon(1S)$ production in jets in the forward region¹ YIJIN GUO, Mount Holyoke College — The Large Hadron Collider beauty (LHCb) experiment primarily studies the production and decay of beauty and charm hadrons. Different from ATLAS and CMS, which mainly cover the mid-rapidity region, the LHCb detector uniquely covers the forward region ($2 < \eta < 5$) with precise tracking and particle identification capabilities. A recent study of J/ψ production in jets presents the first measurement of transverse momentum fraction, $z(J/\psi) = p_T(J/\psi)/p_T(jet)$, in the forward region. Despite the consistency between theoretical predictions and measurements of $z(J/\psi)$ from b-hadron decays, a disagreement is found for prompt J/ψ production. It inspires parallel studies of the production of prompt upsilons in jets, to compare charmonium in jets to heavier bottomonium particles. Here, an analysis of ground state upsilons ($\Upsilon(1S)$) in jets in the forward region with Monte Carlo events generated at a center-of-mass energy of 8 TeV will be presented. The energy and transverse momentum (p_T) distributions for inclusive $\Upsilon(1S)$ will be shown, and the calculations including $z(\Upsilon)$, longitudinal momentum fraction (z), radial distance (r) and momentum transverse (j_T) to jet axis will be performed for $\Upsilon(1S)$ in jets.

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