

Measurements of B-quark production at 7 TeV with the CMS experiment

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Measurements performed by the CMS experiment of the cross section for inclusive b-quark production in proton-proton collisions at $\sqrt{s} = 7$ TeV are presented. The measurements are based on different methods, such as inclusive jet measurements with secondary vertex tagging or selecting a sample of events containing jets and at least one muon, where the transverse momentum of the muon with respect to the closest jet axis or its impact parameter discriminate b events from the background. Measurements of the total and differential cross sections versus transverse momentum and rapidity for B⁺, B⁰, B_s mesons are also presented. Finally, a measurement of the angular correlations between beauty and anti-beauty hadrons is presented, probing for the first time the small angular separation region. The B hadrons are identified by the presence of secondary vertices from their decays and their kinematics reconstructed combining the decay vertex with the primary interaction vertex. The results are compared with predictions based on perturbative QCD calculations at leading and next-to-leading order.

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