Contribution ID : 168

Open beauty production in pp collisions at 7 TeV with CMS

Content :

We present two independent measurements of the open beauty inclusive production cross section, in proton-proton collisions at a center-of-mass-energy of 7 TeV, based on data recorded by the CMS experiment at the Large Hadron Collider (CERN). The first result is based on a template analysis, using the transverse momentum (pT) distribution of a muon with respect to the closest track jet (the muon pT-rel distribution) to discriminate b events from background; the open beauty production cross section is presented as a function of the muon's transverse momentum and pseudorapidity. The second result is based on an analysis of inclusive b-jet production, using jets reconstructed with the Particle Flow algorithm to improve the low pT performance. The experimental uncertainties from jet energy corrections, jet energy resolutions and luminosity are reduced by taking the ratio to the inclusive jet production cross section. We use a simple secondary-vertex high-purity tagger, a reliable b-tagger for this early measurement, for selecting a jet sample with high b-jet purity. To measure the b fractions in the tagged jet data sample, we made a template fit to the secondary vertex mass. Our estimation of the b-tagging efficiency is taken from Monte Carlo simulation. Both measurements are compared with QCD Monte Carlo calculations. Finally, we will also present a first measurement of the B+ production cross section, versus pT, through the reconstruction of the decay B+ to J/psi K. We will finish the talk with some perspectives towards the use of the open beauty cross section measurements to "calibrate" the Upsilon suppression measurements as a function of collision centrality in the Pb-Pb data to be collected at the LHC.

Collaboration :

CMS Collaboration at LHC

Primary authors : Prof. MAZUMDAR, Kajari (Tata Institute of Fundamental Research)

Co-authors :

Presenter : Prof. MAZUMDAR, Kajari (Tata Institute of Fundamental Research)

Session classification : --not yet classified--

Track classification : --not yet classified--

Type : --not specified--