

Table of Contents

Measurement of (bb^-) with inclusive final states.....	1
Abstract.....	1
Figures.....	1

Measurement of (bb^-) with inclusive final states

The conference note is available here (LHCb-CONF-2013-002) [↗](#)

More detailed information: ANA note 2012-022 [↗](#)

Abstract

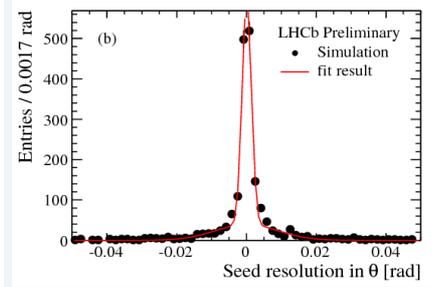
A measurement of the cross section for the production of bb^- pairs based on b inclusive final states is presented using LHCb data collected from pp collisions at $\sqrt{s}=7$ TeV in 2010, corresponding to an integrated luminosity of 18 pb^{-1} . The inclusive bb^- sample is selected on the basis of decay vertices displaced from the primary interaction. The measurement has been performed in a region of pseudorapidity $2.5 < \eta < 4.0$ and transverse momentum $p_T > 5$ GeV of the b hadron candidate. The selected sample is a mixture of bb^- and cc^- events with a negligible contamination of light quarks, a measurement of the cross section for the production of cc^- can therefore be performed simultaneously. The results are $\sigma_{bb^-} = 7.7 \pm 0.12$ (stat) ± 0.84 (syst) μb and $\sigma_{cc^-} = 104.6 \pm 2.7$ (stat) ± 11.4 (syst) μb , inside the kinematic range defined above.

Figures

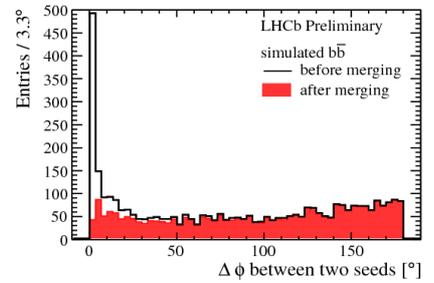
(Note, eps versions are available under attachments).

Caption	Figure
$\Delta\phi$ between the b \bar{b} quark pairs: distributions are shown at the very first Pythia production step (continuous red line) and at the last step before hadronization (dotted black line). The distribution for the b hadron pairs is shown in the yellow filled histogram	
Difference in azimuthal angles of the two b hadrons for Pythia at the LO approximation (black line) and Powheg at the NLO approximation (blue filled histogram) in the b \bar{b} -inclusive events	
Resolution in ϕ for the seed measured as described in the text for events with one b hadron and one reconstructed seed.	

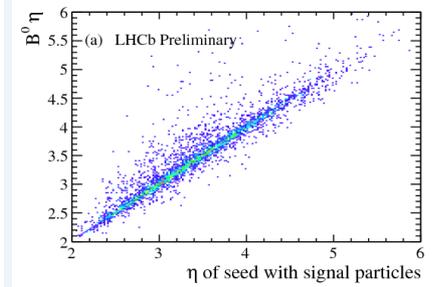
Resolution in θ for the seed measured as described in the text for events with one b hadron and one reconstructed seed.



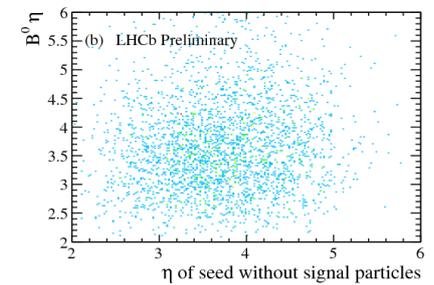
Distribution of $\Delta\phi$ of a seed pair before (black line) and after (red histogram) the merging procedure.



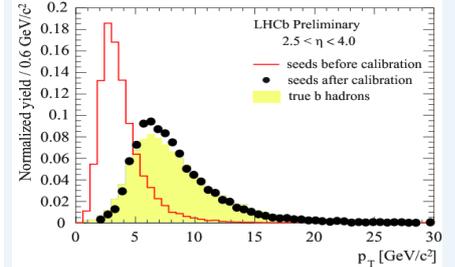
Correlations in η between the $B^0 \rightarrow D^- +$ decay, and the seed reconstructed with the particles originating from the signal B^0



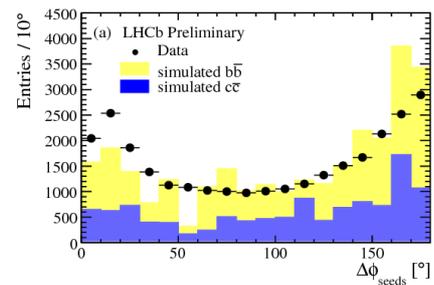
Correlations in η between the $B^0 \rightarrow D^- +$ decay and the seed reconstructed without the particles originating from the signal B^0



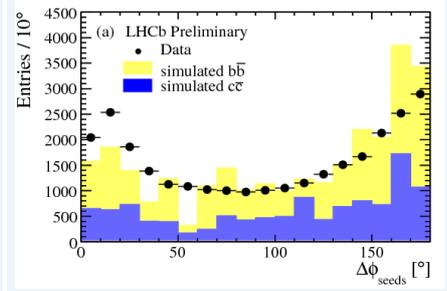
Comparison of the transverse momentum of the seed before and after calibration (red histogram and black points respectively), and with true b hadrons (yellow filled histogram), in the fiducial region of the measurement. Distributions are normalized to unity



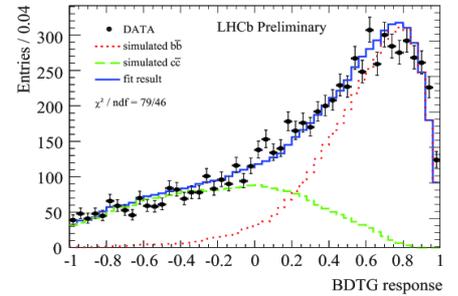
Distributions of $\Delta\phi$ of the seeds. Data (black dots), b b (yellow light histogram), c c (blue dark histogram). Expected contributions of b b and c c are subsequently added



Distributions of p_T of the seeds. Data (black dots), $b\bar{b}$ (yellow light histogram), $c\bar{c}$ (blue dark histogram). Expected contributions of $b\bar{b}$ and $c\bar{c}$ are subsequently added



Response of the BDTG (defined in the text) for data (black dots) fitted with shapes evaluated from simulated $b\bar{b}$ (red dotted line) and $c\bar{c}$ (green dashed line) events. The fit result is indicated by the solid blue line.



This topic: LHCb > Bsigma

Topic revision: r4 - 2014-03-10 - KatharinaMueller



Copyright &© 2008-2020 by the contributing authors. All material on this collaboration platform is the property of the contributing authors.

or Ideas, requests, problems regarding TWiki? use Discourse or Send feedback