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Supporting material for: Study of forward Z+jet production in pp collisions at $\sqrt{s}=7$

Figures

(pdf and eps versions are available under attachments).

Caption	Figure
<p>Figure 10: Cross-section for Z+jet production, differential in the leading jet p_T^{jet}, for $p_T^{\text{jet}} > 10$ GeV. The bands show the LHCb measurement (with the inner band showing the statistical uncertainty and the outer band showing the total uncertainty). The points correspond to different theoretical predictions with the error bars indicating their uncertainties as described in the main text. Predictions are displaced horizontally for presentation. These results are not corrected for FSR from the final state muons from the Z boson decay. This plot is the same as Fig. 4, but is shown with a linear scale for the vertical axis.</p>	
<p>Figure 11: Cross-section for Z+jet production, differential in the Z boson transverse momentum, for (left) $p_T^{\text{jet}} > 20$ GeV and (right) $p_T^{\text{jet}} > 10$ GeV. The bands show the LHCb measurement (with the inner band showing the statistical uncertainty and the outer band showing the total uncertainty). Superimposed are predictions as described in Fig. 4. The plots are the same as Fig. 7, but are shown with a linear scale for the vertical axis.</p>	

Figure 12: Resolution of the jet transverse momentum in LHCb simulated data.

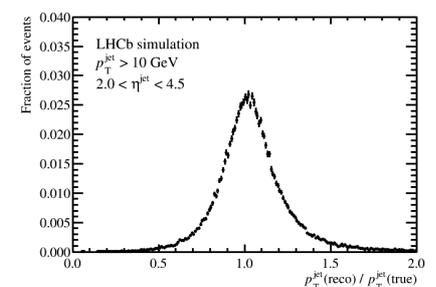


Figure 13: Resolution of the jet direction in LHCb simulated data.

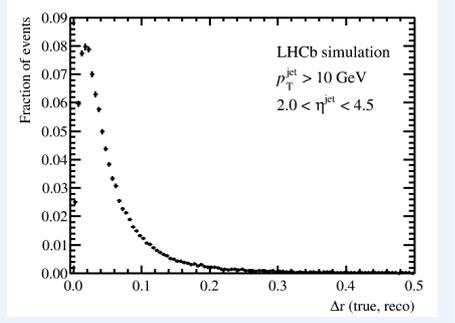


Figure 14: Reconstructed jet transverse momentum distribution in data and the LHCb simulation. No corrections for detection efficiencies or resolution effects have been made, and the histograms are normalised to have unit integral.

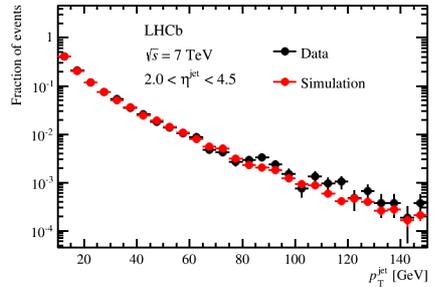


Figure 15: Reconstructed jet pseudorapidity distribution in data and the LHCb simulation. No corrections for detection efficiencies or resolution effects have been made, and the histograms are normalised to have unit integral.

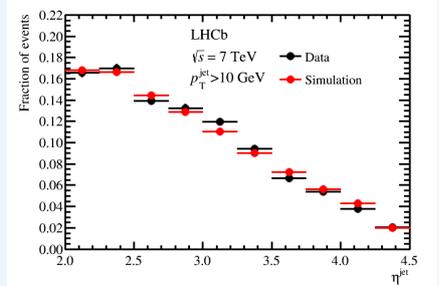


Figure 16: Probability that an event with a given true p_T^{jet} of the leading jet (horizontal axis) reconstructed in a particular bin of the measured jet p_T^{jet} (vertical axis). Columns therefore sum to one. This probability is shown by the colour scheme.

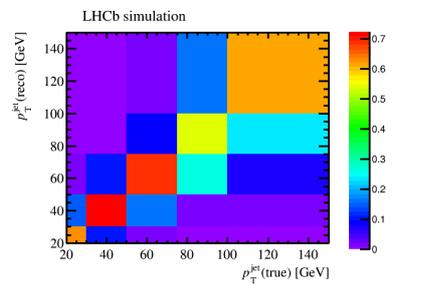


Figure 17: (Top) Invariant mass distributions of dimuon candidates for inclusive Z (black) and inclusive Z+jet (red) events, where both distributions are normalised to have unit integral. (Bottom) Ratio of the number of Z+jet events to the number of inclusive Z events as a function of the invariant mass of the dimuon pair. The distribution is fit with a straight line, which is consistent with having zero gradient.

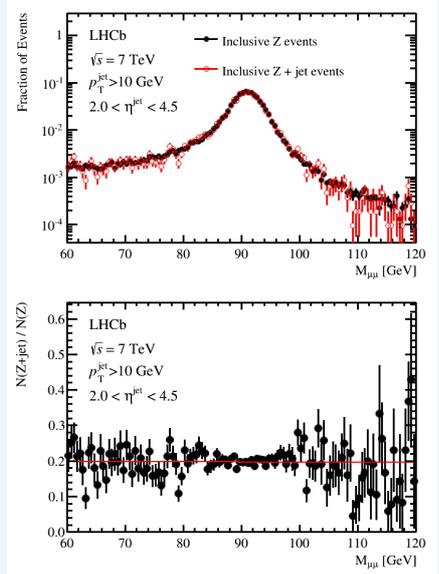


Figure 18: Number of SPD hits, n_{SPD} , for the two different trigger routes considered in this analysis.

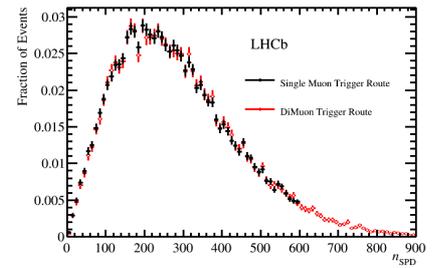


Figure 19: Muon identification efficiency measured using the tag-and-probe method on simulation and the true efficiency determined directly from simulation. These were determined on statistically independent samples.

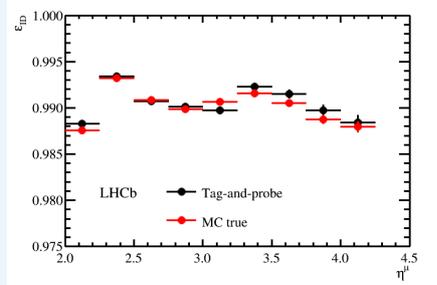
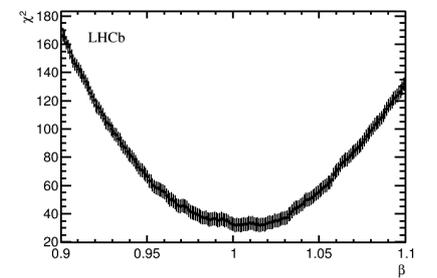


Figure 20: Detector response to jets is varied by a factor β in simulation, and the consistency with data is measured using a χ^2 comparison of the distribution shown in Fig. 2. The best value of β is consistent with unity, corresponding to the nominal detector response in the LHCb simulation.



-- KatharinaMueller - 09 Jan 2014

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