

Abstract Submitted
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A Measurement of the b and c Production Fractions with Fully Reconstructed D^{*+} Mesons in the ATLAS Detector at $\sqrt{s} = 7$ TeV JESSICA METCALFE, University of New Mexico, ATLAS COLLABORATION — A measurement of the ratio of the number of D^{*+} mesons originating from a b -quark and from a directly produced charm is presented. The charm mesons are fully reconstructed in the mode $D^{*+} \rightarrow D^0\pi^+$ where $D^0 \rightarrow K^-\pi^+$. The analysis is based on data collected from the minimum bias trigger of the ATLAS detector at $\sqrt{s} = 7$ TeV proton-proton collisions produced by the LHC. The distribution of the impact parameter of the D^0 meson with respect to the primary vertex is studied to distinguish charm mesons produced promptly or from those through b -quark decays. The measurement of the fraction of bottom and charm quarks to the decay channel $D^{*+} \rightarrow D^0\pi^+$, $D^0 \rightarrow K^-\pi^+$ applied to the total cross-section measurement of the same decay channel yields the cross-sections for direct charm and bottom production to D^{*+} . I then compare the cross-section values extracted from data to NLO QCD calculations that depend on the parton distributions and fragmentation functions illuminating these Standard Model processes.

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