

Contribution ID: 8

Type: **Parallel**

# Inclusive production of prompt charged particles in pp collisions at LHCb

*Monday, 17 May 2021 17:45 (20 minutes)*

An analysis of the double-differential cross-section in pseudorapidity and transverse momentum of charged particles in unbiased proton-proton collisions at 13 TeV measured with the LHCb experiment, is presented. This analysis complements previous LHCb measurements at 7 TeV. Noteworthy aspects of our result are the forward pseudorapidity coverage from 2 to 4.8 and the unbiased trigger conditions under which the events were collected. The result has applications for the tuning of hadron interaction generators and in particular provides important input for astroparticle physics. A long-standing issue in the field of cosmic-ray research is the discrepancy in the number of muons produced in high-energy air showers between observations and simulations, referred to as the Muon Puzzle. Precision measurements of the hadron production in unbiased collisions in the forward region are ideal to validate and improve the hadron interaction generators used in air-shower simulations and to solve the Muon Puzzle.

## Collaboration

**Primary authors:** BOELHAUVE, Julian (Technical University of Dortmund); RICCIARDI, Stefania

**Presenter:** BOELHAUVE, Julian (Technical University of Dortmund)

**Session Classification:** Parallel Session B1