Contribution ID: **435** Type: **Parallel session talk**

# Luminosity determination at LHCb during Run 3

*Friday 19 July 2024 17:21 (18 minutes)*

The LHCb detector optimised its performance in Run 1 and 2 by stabilising the instantaneous luminosity during a fill, by tuning the distance between the two colliding beams according using a hardware-based trigger. In Run 3, the LHCb experiment has being upgraded to cope with the 5-fold increase of luminosity and it has a fully software-based trigger. A brand new luminometer, PLUME, has been installed and successfully commissioned. Additionally, new online proxies from almost all sub-detectors are used to provide real-time measurements of luminosity, both integrated and per bunch-crossing. In addition, new offline counters are stored via a dedicated stream running at 30 kHz rate to allow for a precise offline calibration of the luminosity. In this talk an overview of the new luminosity measurements at LHCb is presented. The first results obtained using data collected during 2023 will also be shown, including the ghost charge fraction measurement using the beam-gas imaging technique.

## Alternate track

1. Computing, AI and Data Handling

## I read the instructions above

Yes

**Authors:** FRANZOSO, Edoardo (Universita e INFN, Ferrara (IT)); VOS, Keri (Nikhef National institute for subatomic physics (NL))

**Presenter:** FRANZOSO, Edoardo (Universita e INFN, Ferrara (IT))

**Session Classification:** Operation, Performance and Upgrade (incl. HL-LHC) of Present Detectors

**Track Classification:** 12. Operation, Performance and Upgrade (incl. HL-LHC) of Present Detectors