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Precision luminosity determination in CMS

Friday 19 July 2024 17:03 (18 minutes)

Precision luminosity evaluation is an essential ingredient to cross section measurements at the LHC, needed to determine fundamental parameters of the standard model and to constrain or discover beyond-the-standard-model phenomena. The latest results of the CMS experiment are reported. The absolute luminosity scale is obtained with beam-separation "van der Meer"scans, and the systematic biases are studied in detail using innovative methods. Contributions to the uncertainty in the integrated luminosity due to instrumental effects, including the linearity and stability of the detectors are also discussed. Constraining the luminosity integration uncertainty via the observed rate of Z ⟶ μ+μ- events is also explored.

Alternate track

I read the instructions above

Yes

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

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