

Abstract Submitted
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Precision luminosity measurement with proton-proton collisions at the CMS experiment in Run 2¹ CHRIS PALMER, Princeton University, CMS COLLABORATION — Precision luminosity calibration is critical to determine fundamental parameters of the standard model and to constrain or to discover beyond-the-standard-model phenomena at LHC. The luminosity determination at the LHC interaction point 5 with the CMS detector, using proton-proton collisions at 13 TeV during Run 2 of the LHC (2015–2018), is reported. The absolute luminosity scale is obtained using beam-separation (“van der Meer”) scans. The dominant sources of systematic uncertainty are discussed. When applying the van der Meer calibration to the entire data-taking period, a substantial contribution to the total uncertainty in the integrated luminosity originates from the measurement of the detector linearity and stability. The reported integrated luminosity in 2015–2016 is among the most precise luminosity measurements at bunched-beam hadron colliders.

¹DOE

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