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An outlook of the study of the measurement of cross sections using the van der Meer technique

The performance of a particle collider is characterised by the luminosity, that is, the number of collisions produced over time per cross-section. Therefore, the luminosity is a necessity in the determination of the cross section for a reaction process. Also, it is dependent on the number of particles in each colliding beam as well as on the size of the overlap of both beams at the collision point. Therefore, the colliding beams must be optimized for effective crossing. At the LHC, luminosity optimization and calibration is done using a sample of events by choosing a reference process. The cross-section of the reference process is measured using the van der Meer technique. In this method the rate of the reference process is measured as a function of the separation of the colliding beams and this information in combination with the beam intensities is used to obtain the luminosity and hence the absolute value of the cross section of the reference process. In this talk we will give an outlook of the Van der Meer scans performed at the LHC during proton-proton collisions at a centre-of-mass energy of 13 TeV.

I intend to submit my contribution for the proceedings

No

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