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Monte Carlo study of diffraction in proton-proton collisions at 13TeV with the very forward detector

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Diffractive and non-diffractive collisions are totally different hadronic interaction processes, the diffractive processes are hardly predicted theoretically. This leads to the significant differences in the treatments of diffraction in the hadronic interaction model. Due to the very forward detector has unique sensitivity to the diffractive processes, it can be a powerful detector for the detection of diffractive dissociation by combining with the central detector. Central detector can give the information to help the forward detector to identify diffractive and non-diffractive events, especially, for the low mass diffractions which are not measured precisely. Several Monte Carlo simulation samples in p-p collisions at 13TeV are analyzed. the central information is able to classify the forward productions into diffraction and non-diffraction, in particular, most of the survived events from the selection of diffraction are belong to the low mass diffractions at log10 (ξx) < -5.5. Therefore, the combined method can uniquely access to the low mass diffraction, experimentally.

Presentation type

poster

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