

Diffractive hadroproduction of electroweak bosons at the LHC

Hard diffractive processes, such as the diffractive production of massive electroweak bosons, dijets or Higgs, allow to study the interplay of small and large distance dynamics in QCD. We present predictions for the cross sections for such processes at the LHC, using the diffractive parton distribution from the newest analysis of diffractive HERA data with higher twist. We calculate W and Z bosons production in single diffractive dissociation which occur by the existence of one large rapidity gap, represented by the pomeron exchange. We have shown that it is possible to obtain a reasonable overall description of hard diffractive production of massive electroweak bosons by the model based on Regge factorization supplemented by the gap survival factor. The W bosons asymmetry is a particularly interesting observable since it is insensitive to the gap survival factor, which is the main source of uncertainty in diffractive hadroproduction. Thus, this asymmetry present an invaluable tool to study the mechanism of diffraction at the LHC. At the end we show new predictions for Higgs boson production in diffractive processes at the LHC.

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