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Measurements of single diffraction using forward proton tagging at ATLAS

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Inclusive single diffractive dissociation ($pp \rightarrow pX$) is studied using data collected by the ATLAS experiment at the LHC. The intact proton is reconstructed and measured in the ALFA forward spectrometer, while charged particles from the dissociative system (X) are reconstructed and measured using the ATLAS inner tracking detector and calorimeters. Differential cross sections are presented as a function of the proton fractional momentum loss, the four-momentum transfer squared, and the size of a rapidity gap measured from the edge of the ATLAS calorimeters. The results are interpreted in the framework of Regge phenomenology.

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