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Diffractive Production of Missing Mass in Cosmic Ray Air Showers above 10 PeV

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Besides for the LHC, also for modelling of the development of the Cosmic Ray (CR) Air Showers, diffractive processes need to be studied. Dark Matter (DM) is assumed to be produced in hadronic interaction. In the transverse shower plane on ground the incoming muons from Air Showers add to zero 3-momentum. A large area Muon Detector, located within the KASCADE-Grande Air Shower experiment, has been built with the aim to identify muons and their directions in Air Showers from 1-15 PeV. Muon pseudorapidity distributions for the first interaction of the Cosmic Ray particles above 10000 m are studied and compared to Monte Carlo simulations. Un-balanced 3-momentum of muons in the shower plane on ground is observed for Air Showers above 10 PeV.

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