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## **Study of the longitudinal development of extensive air showers with the Muon Tracking Detector in KASCADE-Grande.**

*Thursday, 1 July 2010 09:00 (15 minutes)*

The Muon Tracking Detector (MTD) in KASCADE-Grande experiment measures with high accuracy muon directions in EAS ( $E_{\text{mu}} > 800 \text{ MeV}$ ). In addition, shower directions are determined by the surface detectors with high precision. These two conditions allow to study shower longitudinal development by means of quantities like muon production heights and muon pseudorapidities and lateral distributions of muon densities. Results of such investigations will be shown between  $10^{15} \text{ eV}$  and  $10^{17} \text{ eV}$ , for data and simulations based on CORSIKA with QGSJetII+Fluka2002.4 model combination and the new EPOS version 1.99. The muon pseudorapidity distributions will be studied in the predefined distance range to the shower core and compared to the simulations as well. The pseudorapidity distributions for muons which stem from above 15 km muon production height and which stem very likely from the first interactions are studied in more detail also in the context of geometric scaling in the near LHC energy range.

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