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Simulations of detector response for multi-TeV physics at a 100 TeV pp collider

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We discuss performance requirements for future detectors in the context of reconstruction of multi-TeV objects (single particles and jets) at a 100 TeV collider. A software framework based on a Geant4 simulation together with a realistic reconstruction of tracks and calorimeter clusters is presented. Using this framework, we discuss response and momentum resolution of the tracker and the calorimeter for single particles and hadronic jets in the energy range from 1 GeV to 30 TeV. In addition, lateral cell segmentation was studied by reconstructing substructure variables for jets at 10 and 20 TeV in transverse momentum.

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