



Contribution ID: 7

Type: **not specified**

Detectors for Superboosted Jet Substructure at Future Circular Colliders

Tuesday 19 July 2016 16:15 (20 minutes)

We study the detector performance with an emphasis on jet substructure variables for extremely boosted objects at very high energy proton colliders using Geant4 simulation. We focus on the calorimeter performance and study hadronically-decaying W bosons with transverse momentum in the multi-TeV range (5-20 TeV). The calorimeter segmentation is benchmarked in order to understand the impact of granularity and resolution on boosted boson discrimination.

Summary

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Session Classification: Plenary