

# Identification of High-Momentum Top Quarks, Higgs Bosons, and W and Z Bosons Using Boosted Event Shapes

*Tuesday 11 October 2016 16:30 (15 minutes)*

At the Large Hadron Collider, numerous physics processes expected within the standard model and theories beyond it give rise to very high momentum particles decaying to multihadronic final states. Development of algorithms for efficient identification of such “boosted” particles while rejecting the background from multihadron jets from light quarks and gluons can greatly aid in the sensitivity of measurements and new particle searches. Here we present a new method for identifying boosted high-mass particles by reconstruction of jets and event shapes in Lorentz-boosted reference frames. Variables calculated in these frames for multihadronic jets can then be used as input to a large artificial neural network to discriminate their origin.

## Tertiary Keyword (Optional)

Artificial intelligence/Machine learning

## Secondary Keyword (Optional)

Algorithms

## Primary Keyword (Mandatory)

Reconstruction

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**Session Classification:** Posters A / Break

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