

Very Preliminary Results Of Heavy Neutral Higgses At A High Energy Muon Collider Experiment

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Outline

- Very preliminary studies on a Muon Collider as an H/A factory
(more details in next presentation)
- First physics study for a Muon Collider experiment using a new code of ILCroot framework.
(more details in next presentation)
- Full simulated and reconstructed 1000 events of Heavy Neutral Higgses using Pythia generated events by Estia E. and Adam M.
 $\mu^+ \mu^- \rightarrow H/A$ ($\sqrt{s} = 1.55 \text{ TeV} + \text{gaussian smearing}$)
- Jet finder reconstruction using only informations from calorimeter system.

Muon Collider
Event Display



Powered by
ILCRoot

Event number 4
Nb Particles 65
Nb Hits 825972
Nb Clusters --

Event

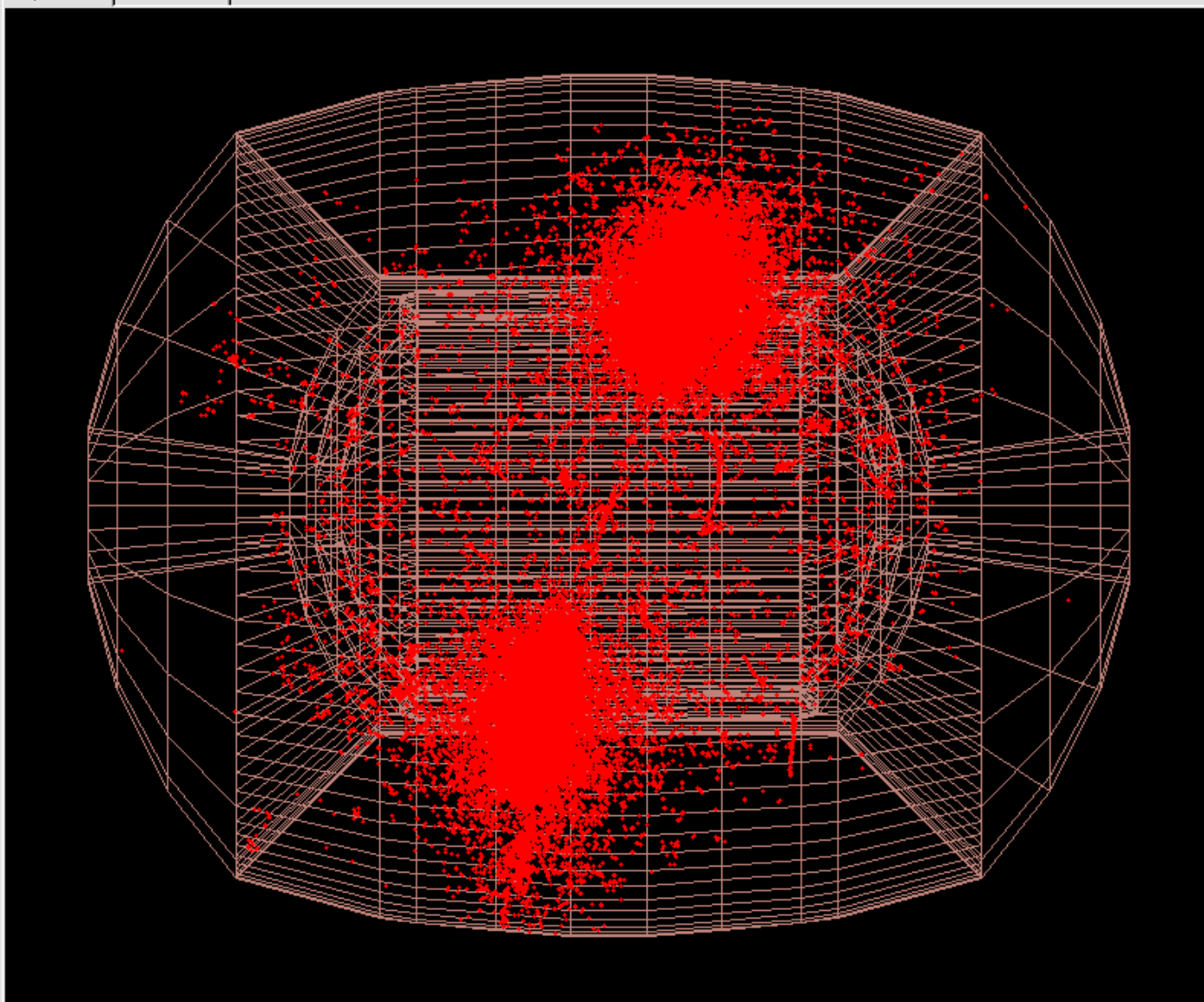


View

Detectors

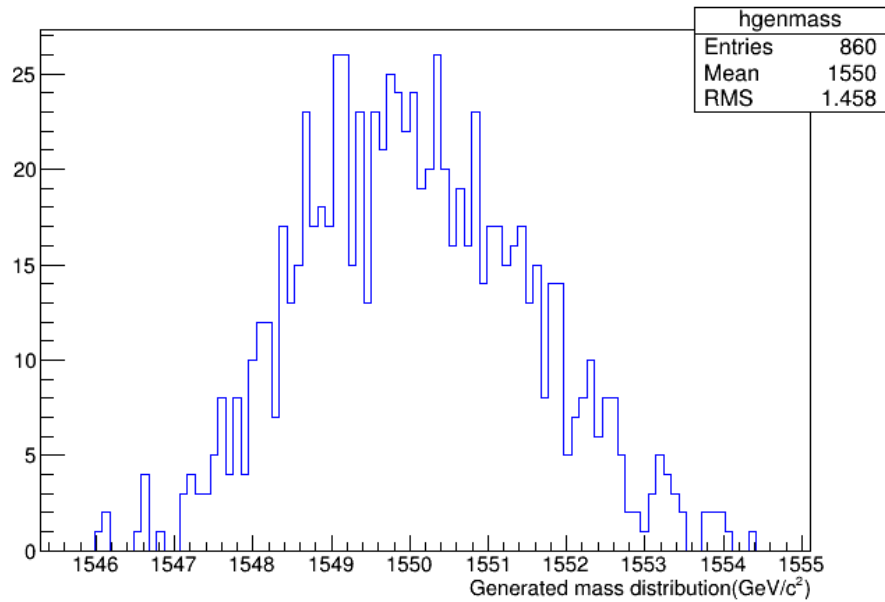
Options

Top view | No detector

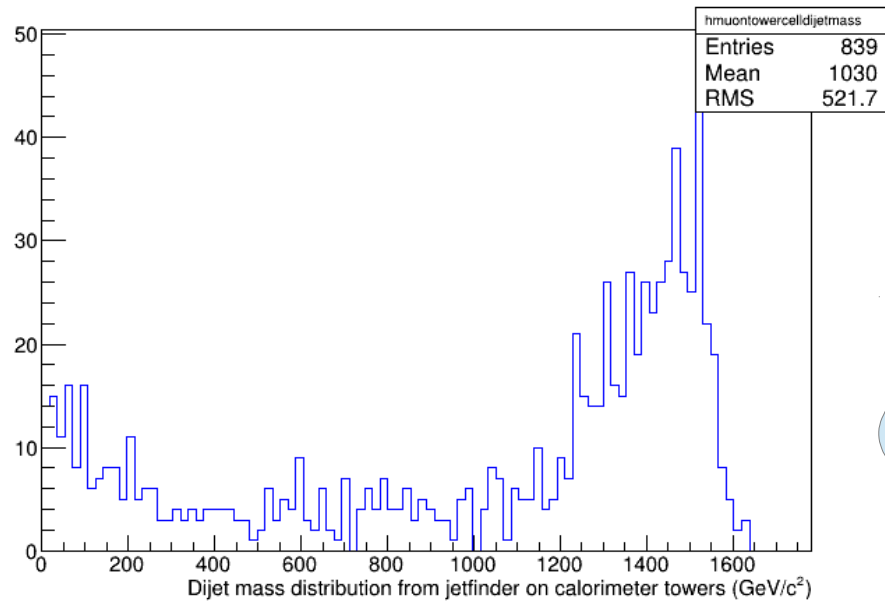
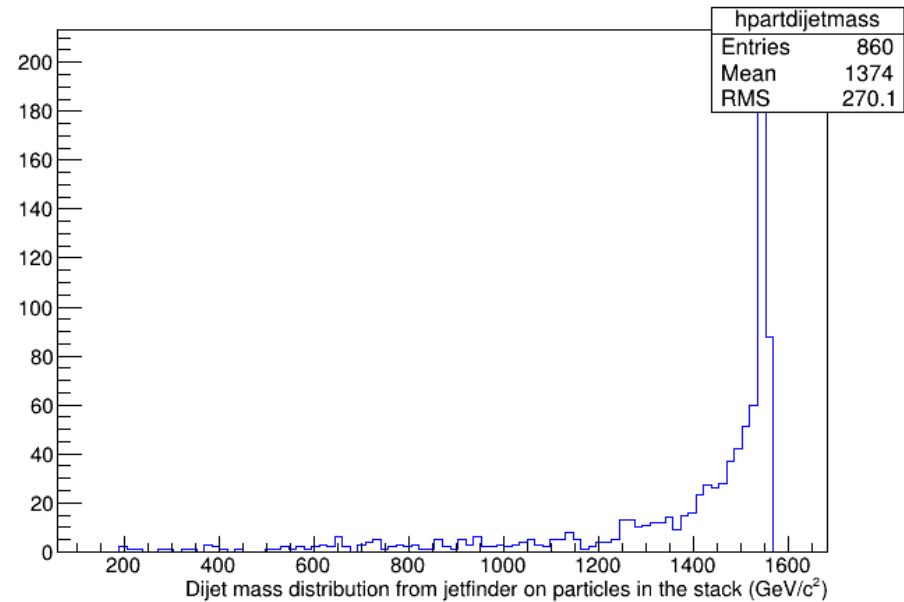


Rapidity

Momentum



Generated H/A Mass



**Reconstructed H/A Mass
Using jet finder algorithm
and informations from the calorimeter system**

Summary

- Full simulated and reconstructed 1000 events of Heavy Neutral Higgses.
- Presented very preliminary analysis of reconstructed invariant dijet mass.
- New ILCroot code for Muon Collider studies already in place and working.
(Thanks Vito!!!)

What's Next

- Simulate and reconstruct a big event sample.
- Reconstruct jets using also information from the tracking system.
- Disentangle the different H0 decay modes.
- Merge the signal with the background applying previous studies to reduce the last.



WORK IN PROGRESS