

Measurement of top quark momentum at the ILC near the threshold of top pair production

1

YUTO EDA
TOHOKU UNIVERSITY

Current Status

2

- I created the event sample

$\sqrt{s} = 347\text{GeV}$

ee \rightarrow tt

physsim \rightarrow stdhep \rightarrow slcio (detector simulation)

500 events

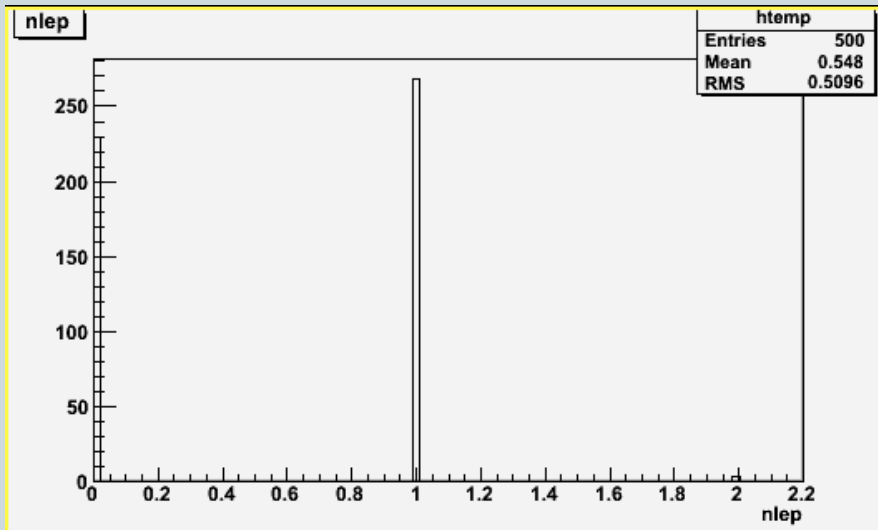
I am trying the 4-jet mode analysis.

Isolated Lepton Tagging

3

Requirements

- $\cos\theta_{\text{cone}} > 0.96$
- $10 > E_{\text{cone}} > 0$
- $E_{\text{track}} > 15$



nlep=0 (almost $tt \rightarrow bqqbqq$) : 229

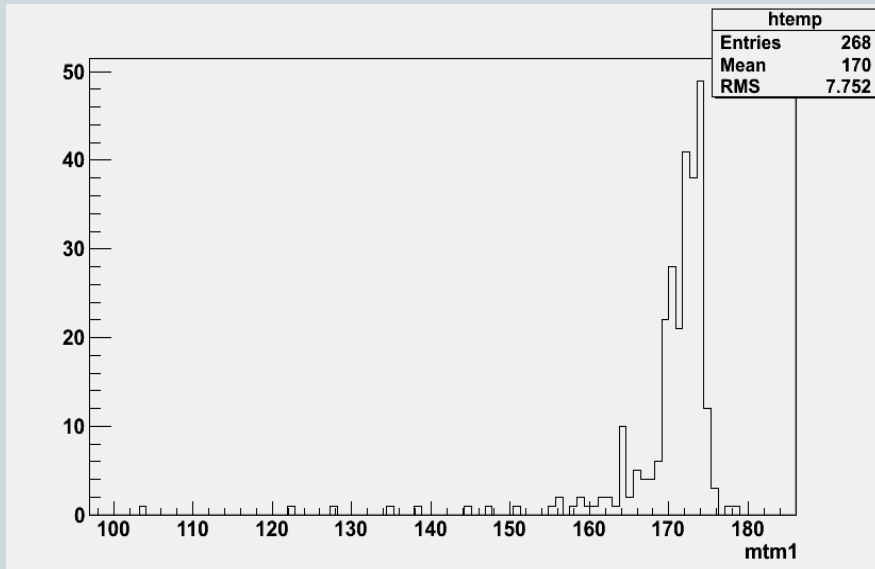
nlep=1 (almost $tt \rightarrow bqqblv$) : 268

nlep=2 (almost $tt \rightarrow blvblv$) : 3

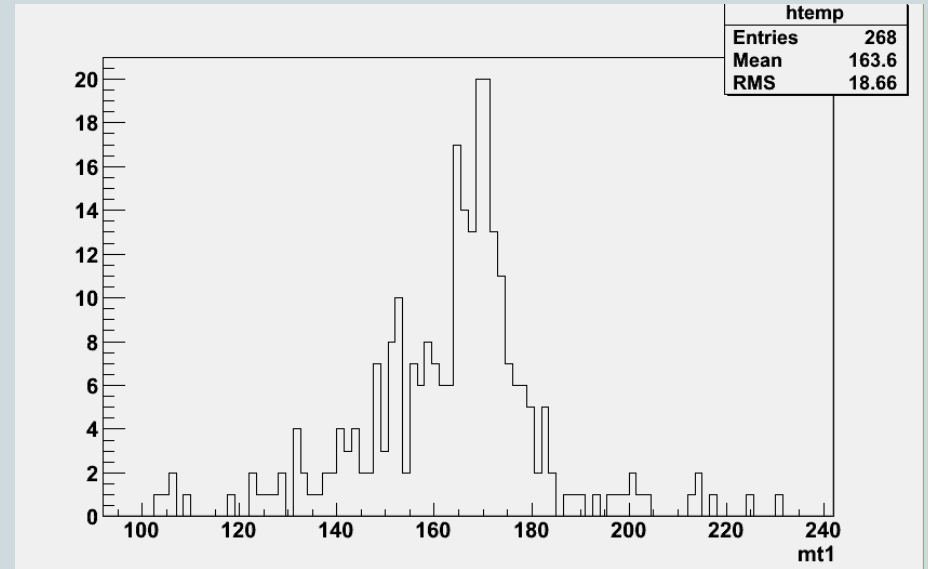
I use the nlep=1 events, because these are almost 4j events.

Top Quark Mass Distribution

4



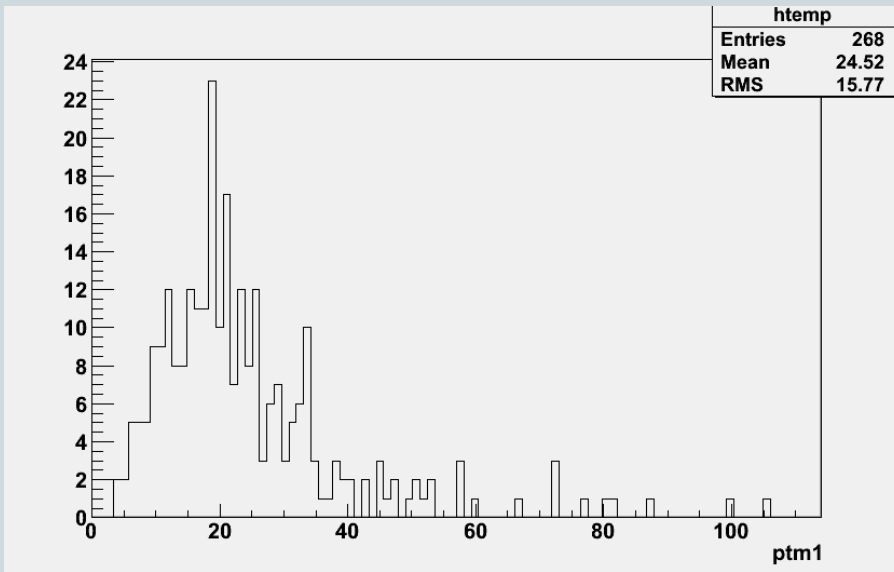
MC truth



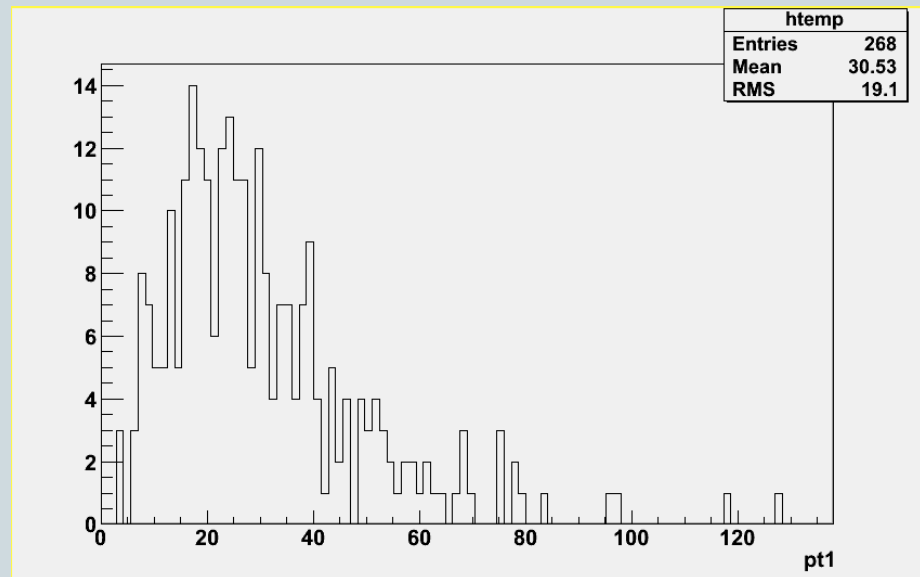
Reco

Top Quark Momentum Distribution

5



MC truth



Reco

Plan

6

- I will select the 4j (tt \rightarrow bqqblv) events.
- To compare with Ozawa-san's result, I will make 140,000 4j events.
- Template fit

I will change the parameter (\sqrt{s} , V_{tb} , α_s , m_{top} ...), to make various momentum distributions.