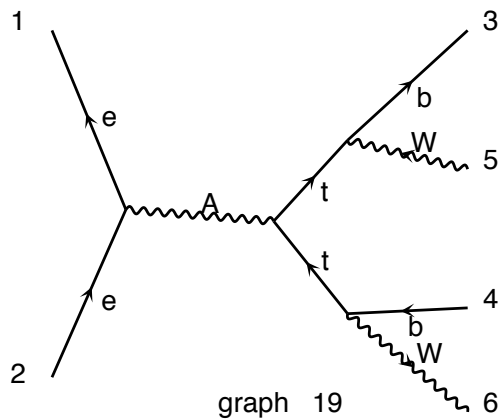# top yukawa coupling measurement

T. Tanabe
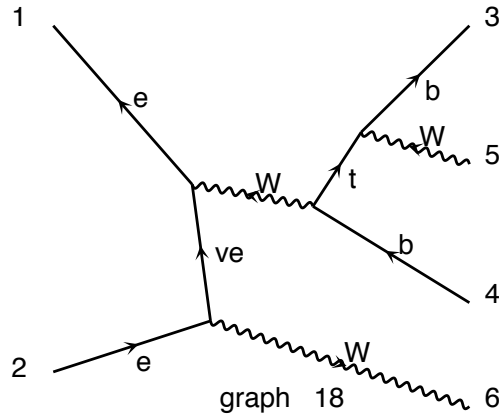
Jan. 21, 2011

tbW background
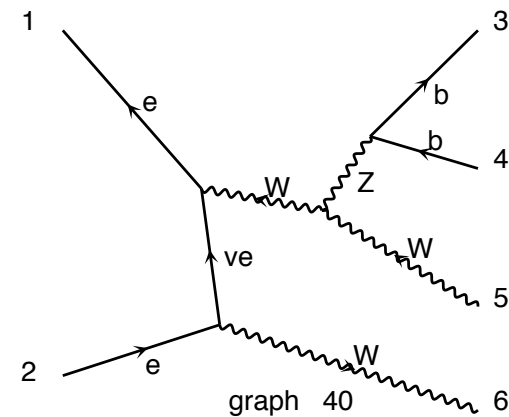
- we have decided to expand the tt background to include tbW process to incorporate the non-resonant contribution
  - e+e- > tt -> bWbW
  - e+e- > W*W -> tbW -> bWbW
  - e+e- > WWZ -> WWbb (<- NOT included)
    - at least one top is required to be on-shell

tt

W*W

WWZ

tbW samples

- TBWStudy – event generator was written by K. Fujii
- event generation was done by R. Yonamine
  - $(P\_e-, P\_e+) = (-1.0, 0.0)$: 4419286 events
  - $(P\_e-, P\_e+) = (+1.0, 0.0)$: 4575641 events

I count 4998277 events… this will be checked

cut optimization

IWLC cut values

6-Jet + lepton	8-Jet
# of isolated lepton = 1	# of isolated lepton = 0
$Y_{5 \to 4} = 0.005$	$Y_{8 \to 7} = 0.00082$
thrust > 0.85	thrust > 0.8
b-tagging (at least 4 b-jet)	b-tagging (at least 4 b-jet)
140 GeV < top mass < 205 GeV	136 GeV < top mass < 205 GeV
90 GeV < higgs mass < 150 GeV	85 GeV < higgs mass < 150 GeV

changed to thrust > 0.75

these cuts will be reoptimized.

thrust