LHT status report

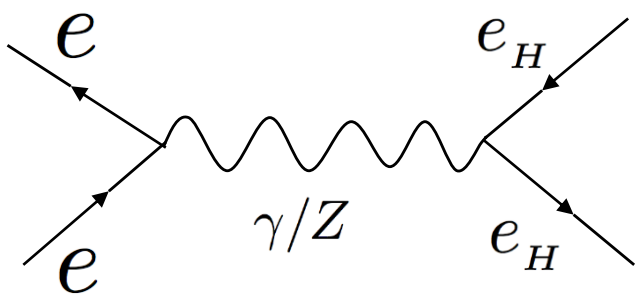
9.24 physics meeting

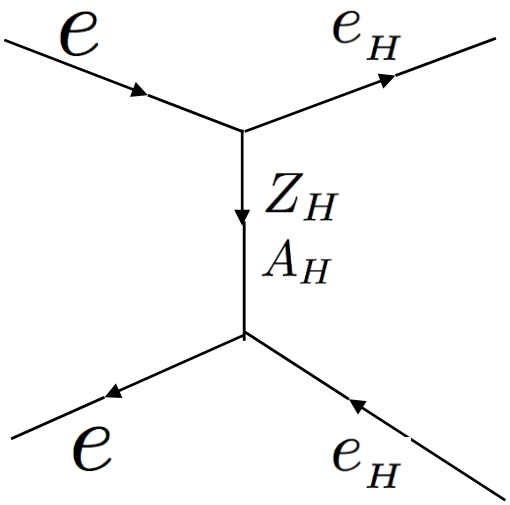
Tohoku Univ. Eriko Kato

$e^+e^- \rightarrow e_H^+ e_H^-$ study

Simulation environment

- Decay modes of $e_H e_H$





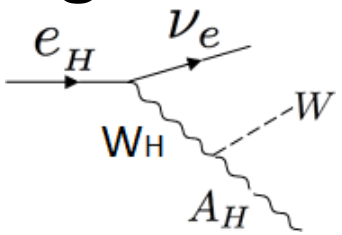
Higgs mass=134GeV

$m_{eH}=\sqrt{2}\kappa f=410\mathrm{GeV}$

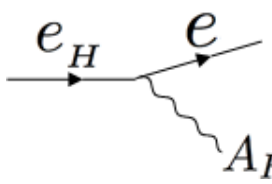
$m_{\nu H}=\kappa f(\sqrt{2}+\sqrt{(1+c)})/2 \fallingdotseq 410\mathrm{GeV}$

Decay modes of $e_H e_H$

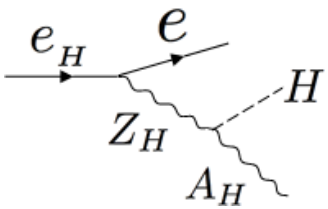
- ee->$e_H e_H$ σ=116 fb
- Branching ratio



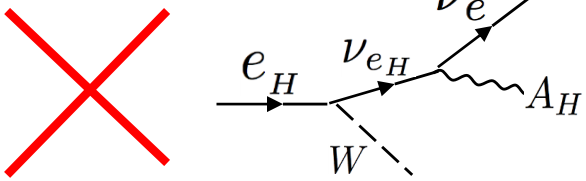
45.1%



33.2%



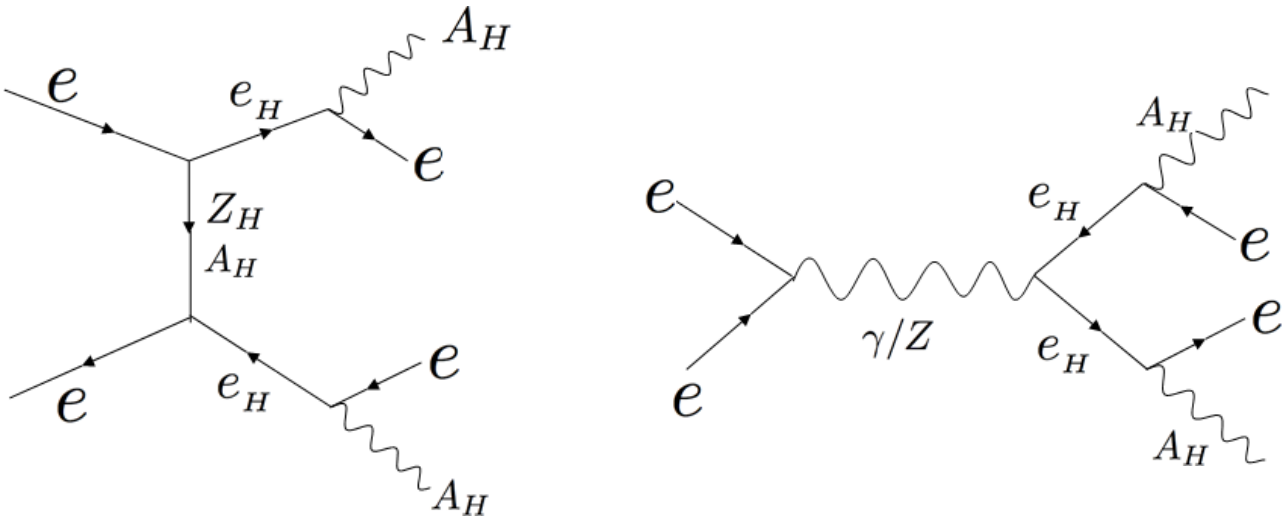
21.7%



m_{eH}=410GeV ≒ m_{vH}

Current status

- Start analyzing e_H->A_He mode

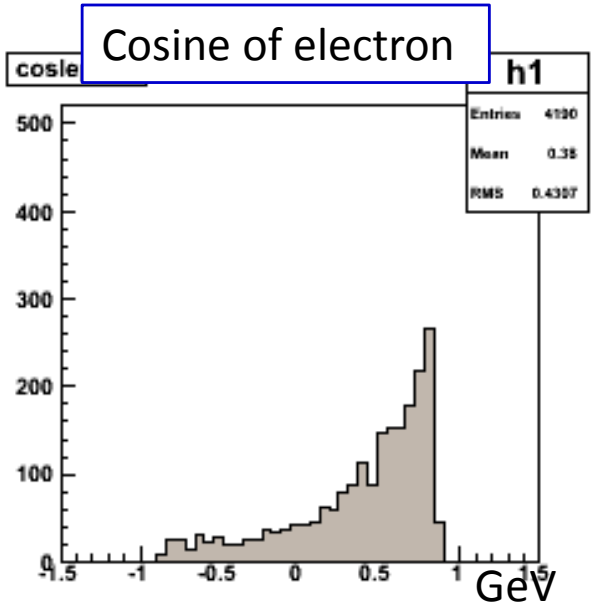


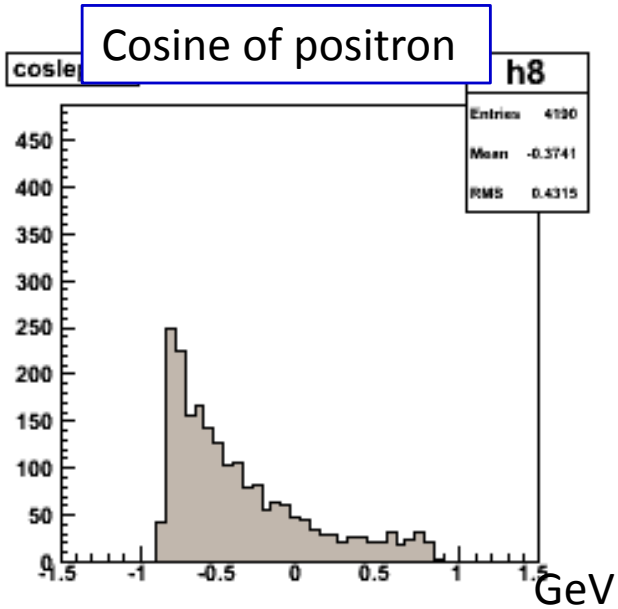
Signal : e^+e^- Cross section = 11.04 fb

We will use electron/positron energy to extract masses of E_H and A_H

Properties of signal

- Angular distribution of electron & positron



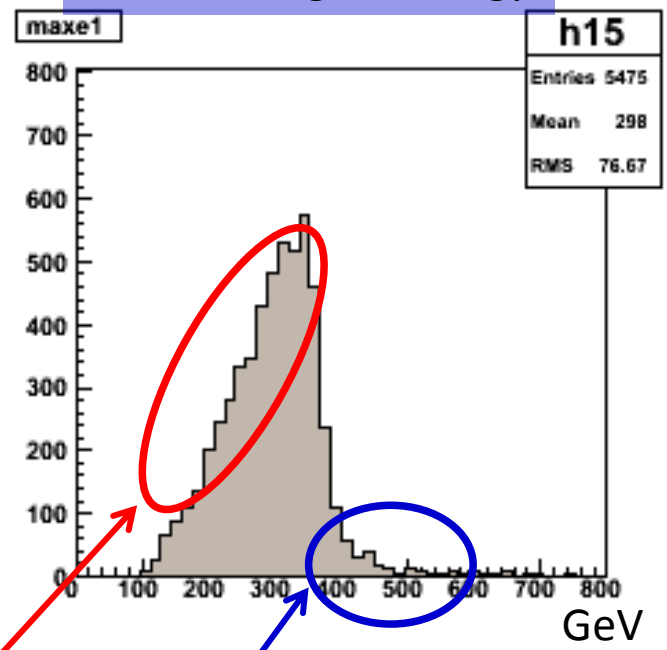


T-Channel dominant

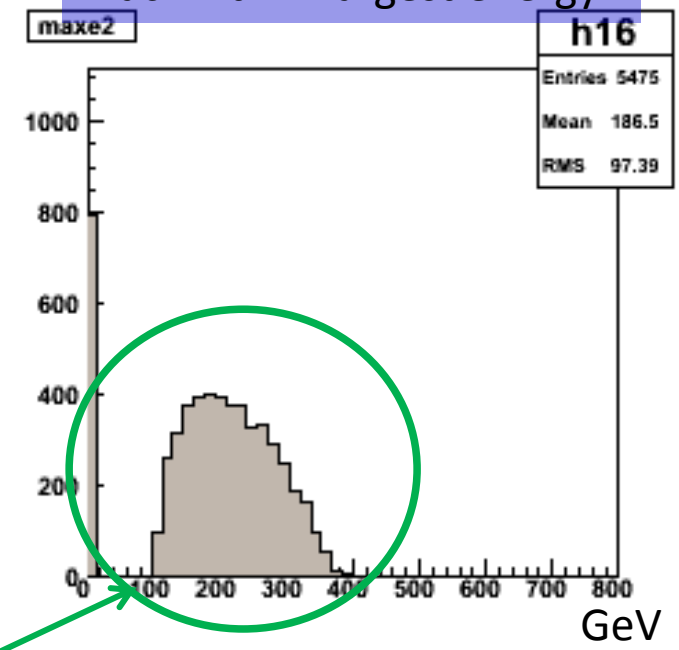
Electron energy

- Checked energy distribution of the track with the largest energy and 2nd largest energy.

Track wt largest energy



Track wt 2nd largest energy



T-channel effect

Distribution should be similar to the left figure
Reasons will be investigated.

generator info : this is due to particles going in to the end cap region