

Delphes Studies on Angles of Acceptance

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- 1 I studied the distribution of the polar angle θ of Higgs particles produced by $\mu^+\mu^-$ collisions
- 2 Not as much work was done as I would have hoped this week, since I was at Fermilab and Argonne on Thursday and Friday

I focused on Higgs production via Z boson fusion this week. I simulated and analyzed the process $\mu^+\mu^- \rightarrow \mu^+\mu^- H$ at $\sqrt{s} = 3\text{TeV}$ and $\sqrt{s} = 30\text{TeV}$. In both situations, the polar angle θ of the Higgs' momentum from the beam axis was skewed towards 0, which isn't consistent with data previously collected from outgoing jets.

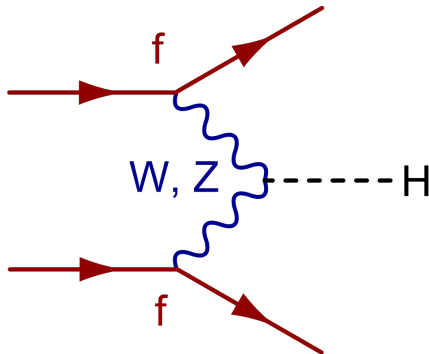


Figure: Feynman diagram of vector boson fusion

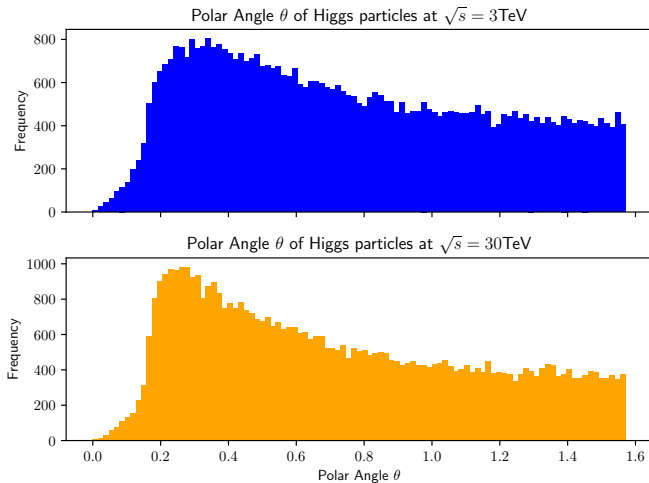


Figure: Process: $\mu^+\mu^- \rightarrow \mu^+\mu^-H$ at $\sqrt{s} = 3\text{TeV}, 30\text{TeV}, N_{\text{events}} = 50,000$

This week, I will focus on including and analyzing $H \rightarrow b\tilde{b}$ decay in my analysis to find where discrepancies arise in previous data. I will also simulate more Higgs production events, such as $\mu^+\mu^- \rightarrow \nu_\mu\tilde{\nu}_\mu H$.