

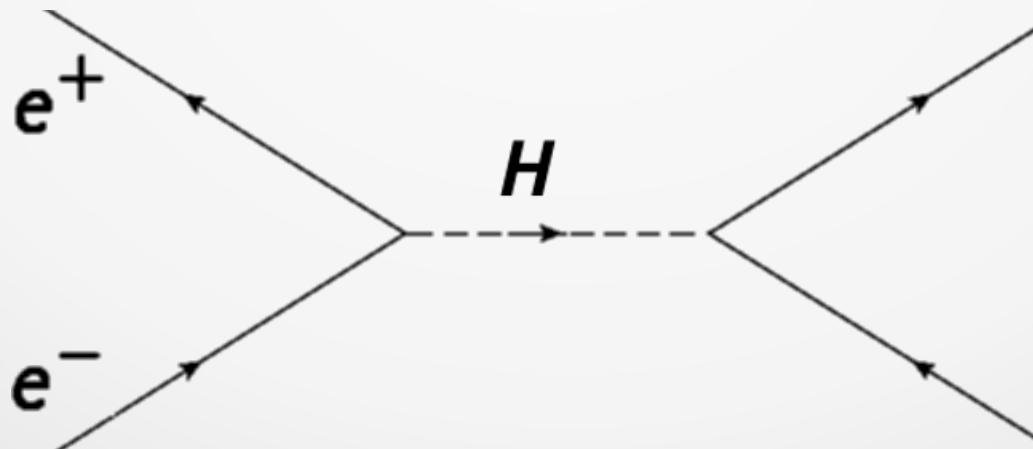


Resonant Higgs Production at FCC-ee

By George Wojcik

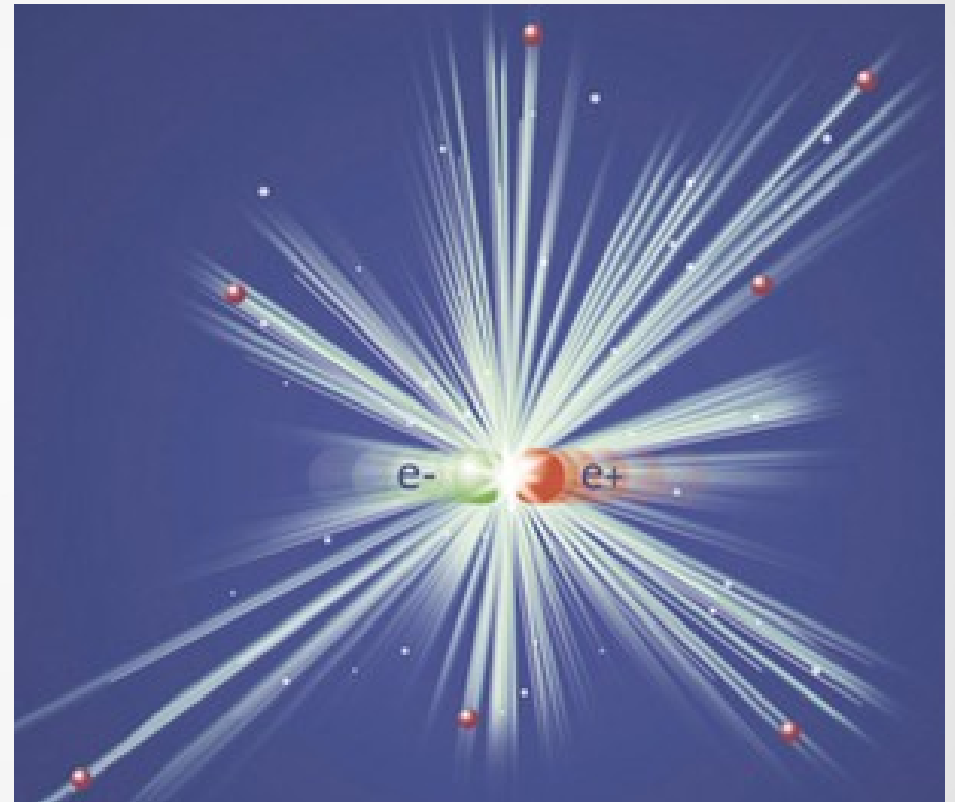
What are we doing?

- FCC-ee, or TLEP: A high-luminosity electron-positron collider
- What happens when we tune the beam energy to the Higgs Mass?
 - Higgs Factory!
 - Previously only considered for muon colliders: $\sigma(\mu\mu \rightarrow H) \sim 70$ pb.
 - BUT with high luminosity, though, the tiny ee cross-section can be used!
 $\sigma(ee \rightarrow H) \sim 1.64$ fb.



Why Do We Care?

- Did we find the SM Higgs?
Or something more sinister?
- Decay width
- Yukawa coupling – WE CAN SEE THE MECHANISM BY WHICH ELECTRONS GET MASS!!!



What Am I Doing?

- Will any of this work???
- Running Monte Carlo (Pythia8) simulations, doing analysis on results to figure out what our statistics are here.
- Considering different decay pathways – we're looking at $H \rightarrow WW$, but what decay pathways of W to use? (right now, considering $WW \rightarrow \nu \nu$ and starting to look at $WW \rightarrow \nu \nu jj$)
- Concern: Will I find a significant Higgs signal? Maybe not, but I can rule out anomalous behavior at least.

Favorite Excursion: Gruyere!

