Higgs self-coupling analysis with H→WW*

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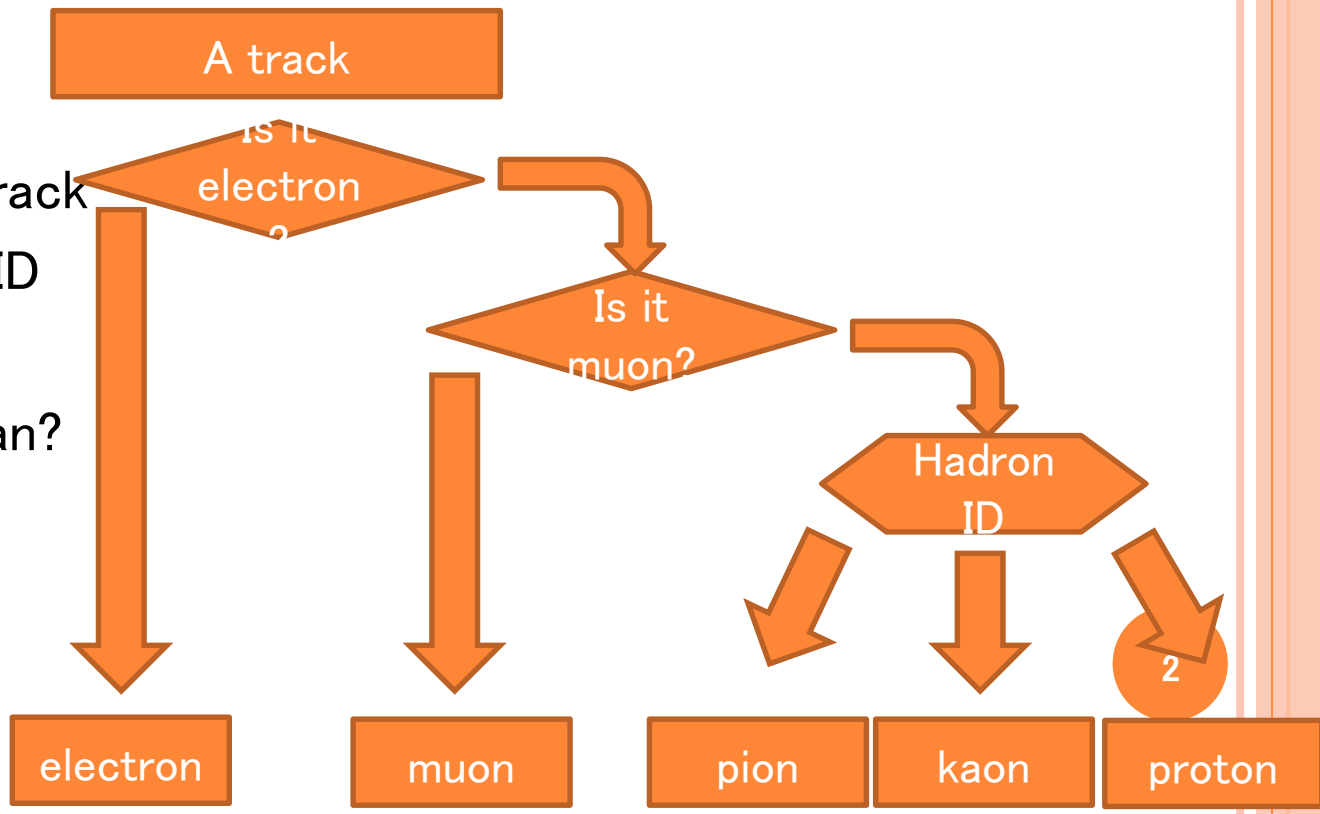
Status

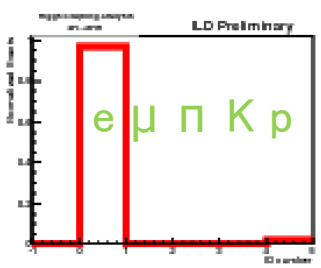
- Start to construct Particle ID strategy
  - Thinking what is a good strategy
  - Checking(playing, not study!) some minor changes and see how the ID efficiency is changed
- Preliminary strategy
  - Electrons and muons can be identified easily → check first
  - Is it good?
- Options:
  - introduce “unID” track to avoid risk of misID

  →risk definition
  - Likelihood? Bayesian?
  - Other?

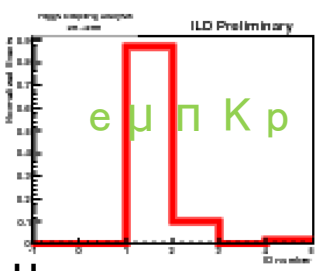


ID EFFICIENCY OF EACH PARTICLE TYPE

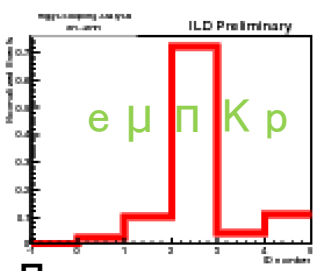
- Matched with MC truth
- According to the strategy on previous page
  - But in hadron ID, electron ID and muon ID are performed again…
- Simple likelihood is used



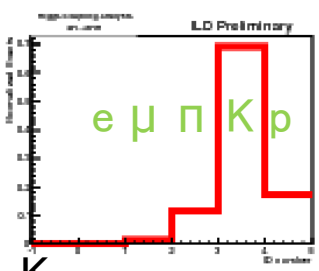
e



μ



π



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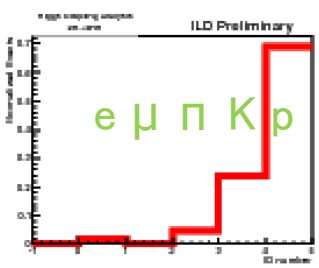


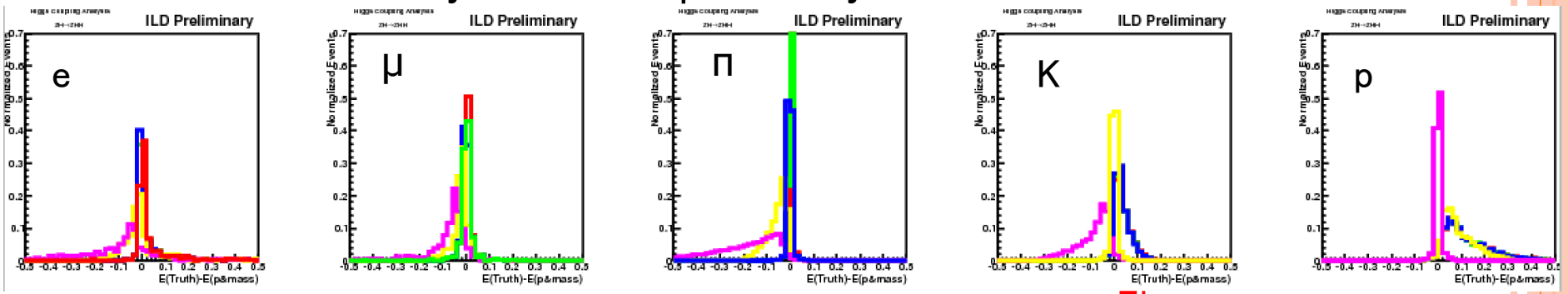
p

Energy difference from truth

- E(truth)−E(p&mass)
  - Masses are introduced from PDG
- From the energy correction view point:
  - Electron: smeared due to radiation→ should be identified independently
  - Proton misID affects energy measurement largely
  - Muon& pion: misID doesn't affect energy measurement as expected

  →from other view points(e.g. b−tagging), to distinguish these two will be important

  →should identify muon independently



- Need to check momentum dependence
  - Small momentum track affects mass effect largely

Electron
Muon
Pion
Kaon
Proton