HIGGS SELF-COUPLING ANALYSIS WITH H→WW*

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08/19/2016

1

STATUS

- I included Sviatoslav's result to Particle ID
  - Check dE/dx distribution with test beam result with Fujii-san
    - It looks OK
  - Angle correction of dE/dx value←feedback of his study!
  - Fix some bug
  - Very good improvement for PID efficiency
- Remove some bug& strange value
  - Avoid NaN & inf when no TPC hit and/or no clusters

- Now, I'm working for UCN simulation to measure EDM…
  - Optimization of simulation setup
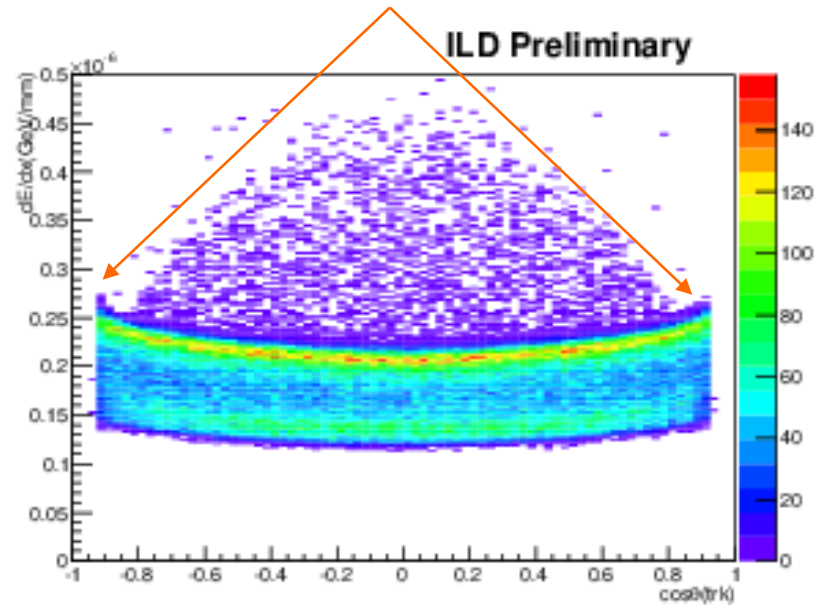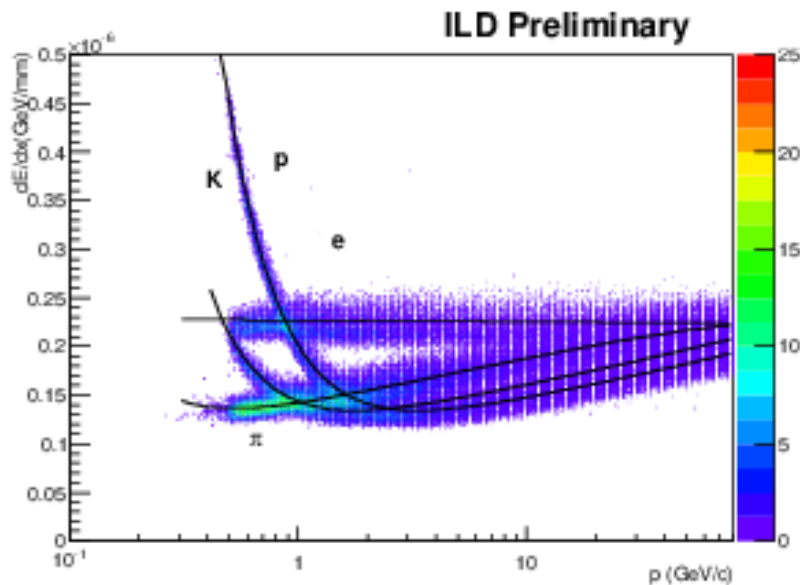
2

COMPARISON OF ENERGY DEPOSIT IN TPC

Simulation: using electron tracks of whole energy range
Data: beamtest data (I don't know the detail···)
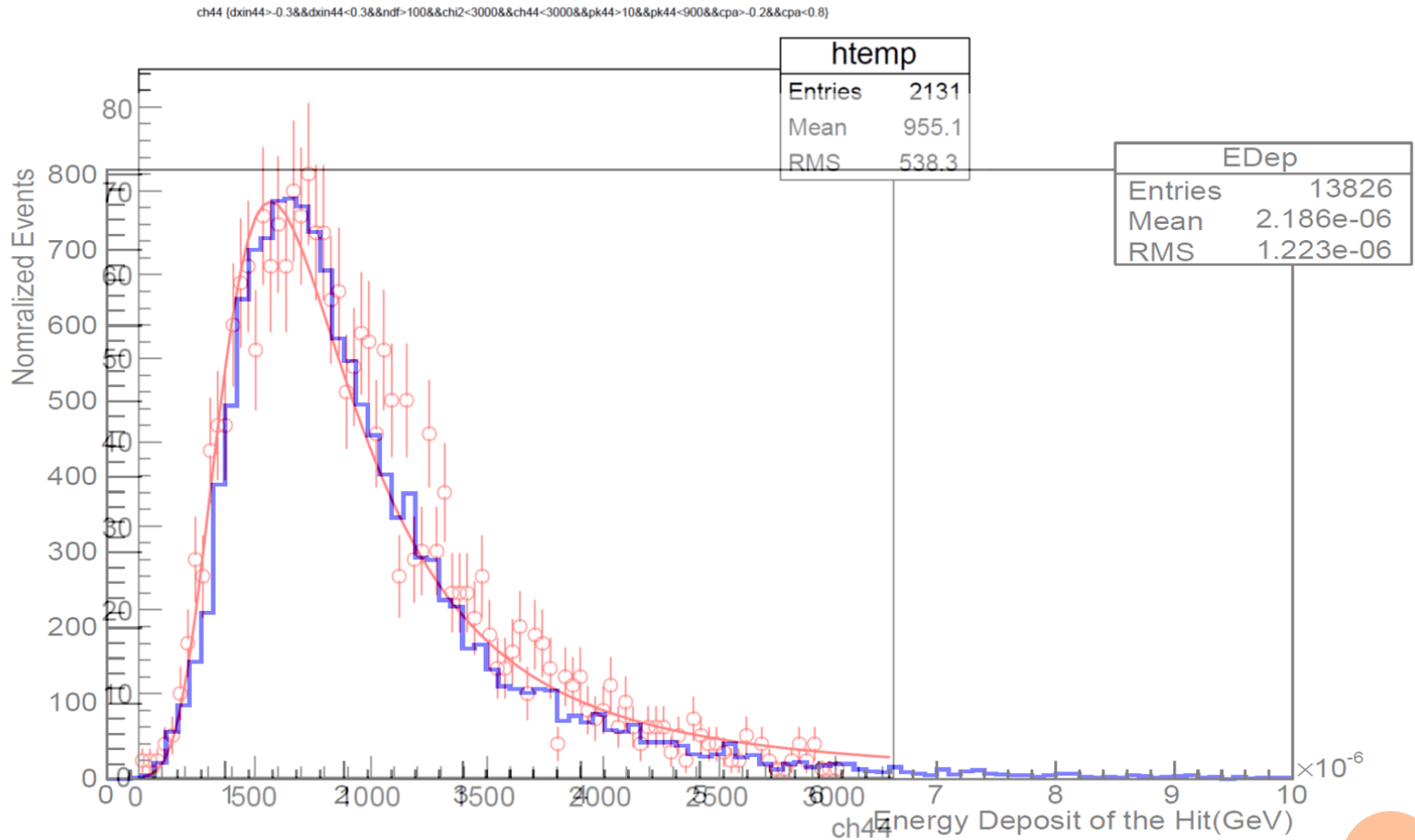
ANGULAR DEPENDENCE OF DE/DX

- There is angular dependence of dE/dx value

- According to Sviatoslav's study, I include angular correction
  - Tried some functions for fitting
  - His parameterization is the best, especially forward region

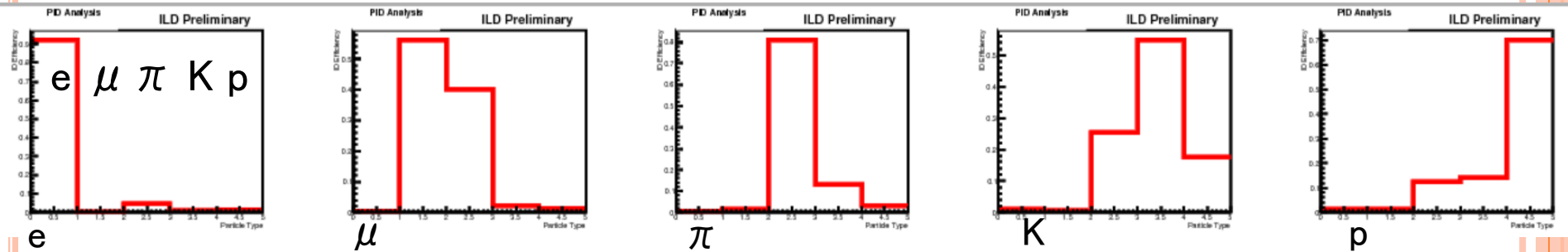 - Include this to Particle ID and check the results

4

AFTER CORRECTION

- Very good improvement of dE/dx distribution
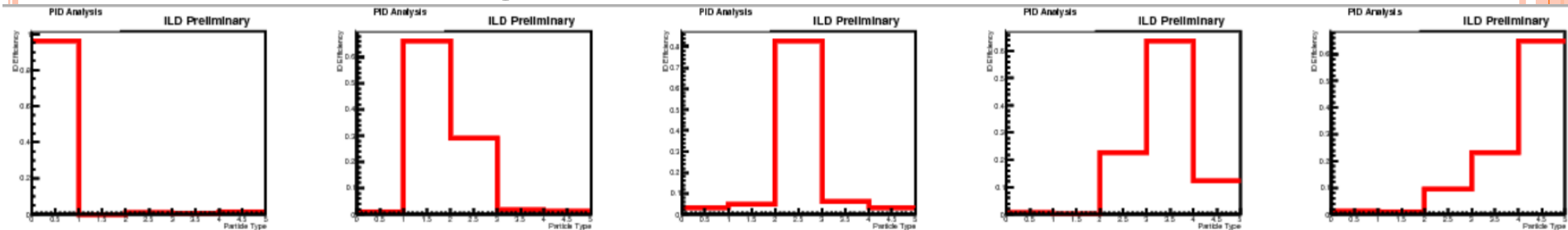 - Forward region very nice!
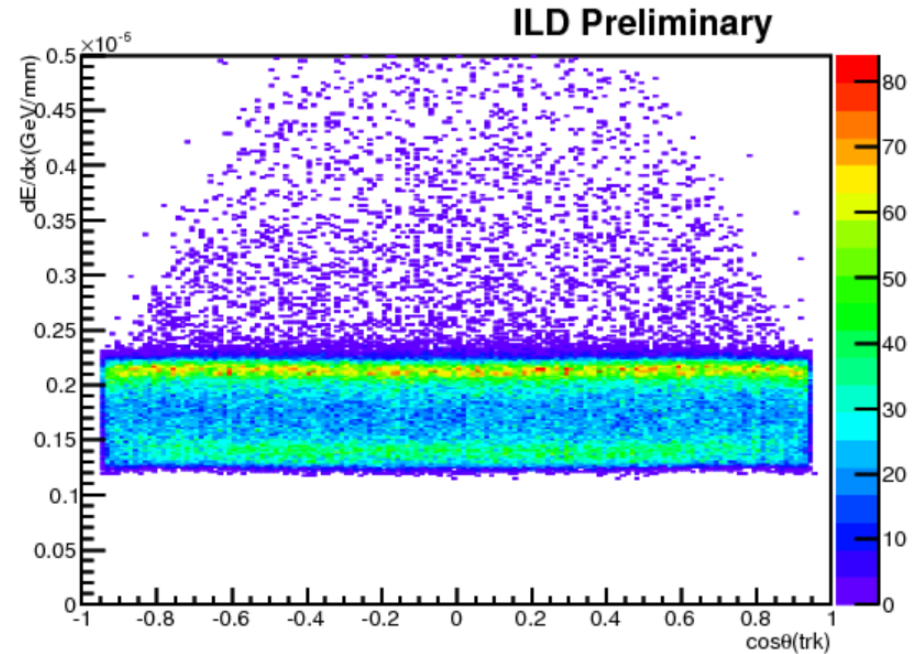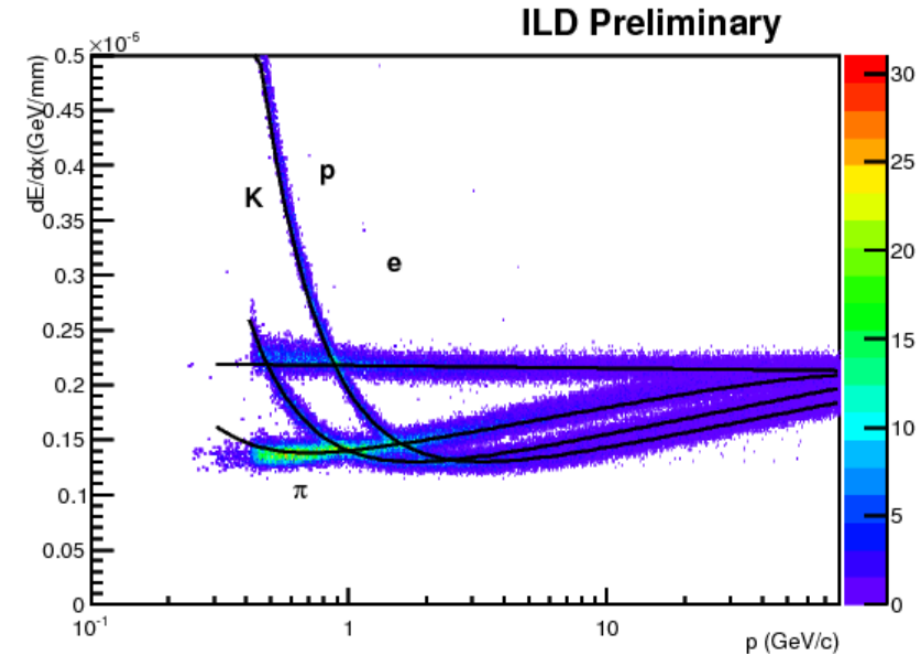
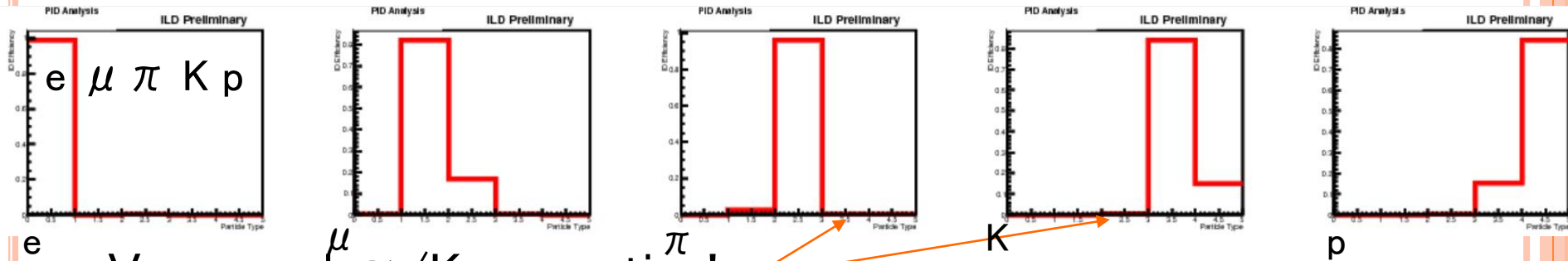# PID EFFICIENCY

○ Check overall PID efficiency

  • @ECFA

e   μ   π   K   p

e   μ   π   K   p

  • After dE/dx angle correction

○ Improve very much!

MORE

- Apply it to a high track multiplicity sample

- In Sviatoslav study, he uses >2GeV/c tracks

- Impose same cut for comparison

e μ π K p

e μ π K   p

- Very good π/K separation!

- Looks almost same as his result