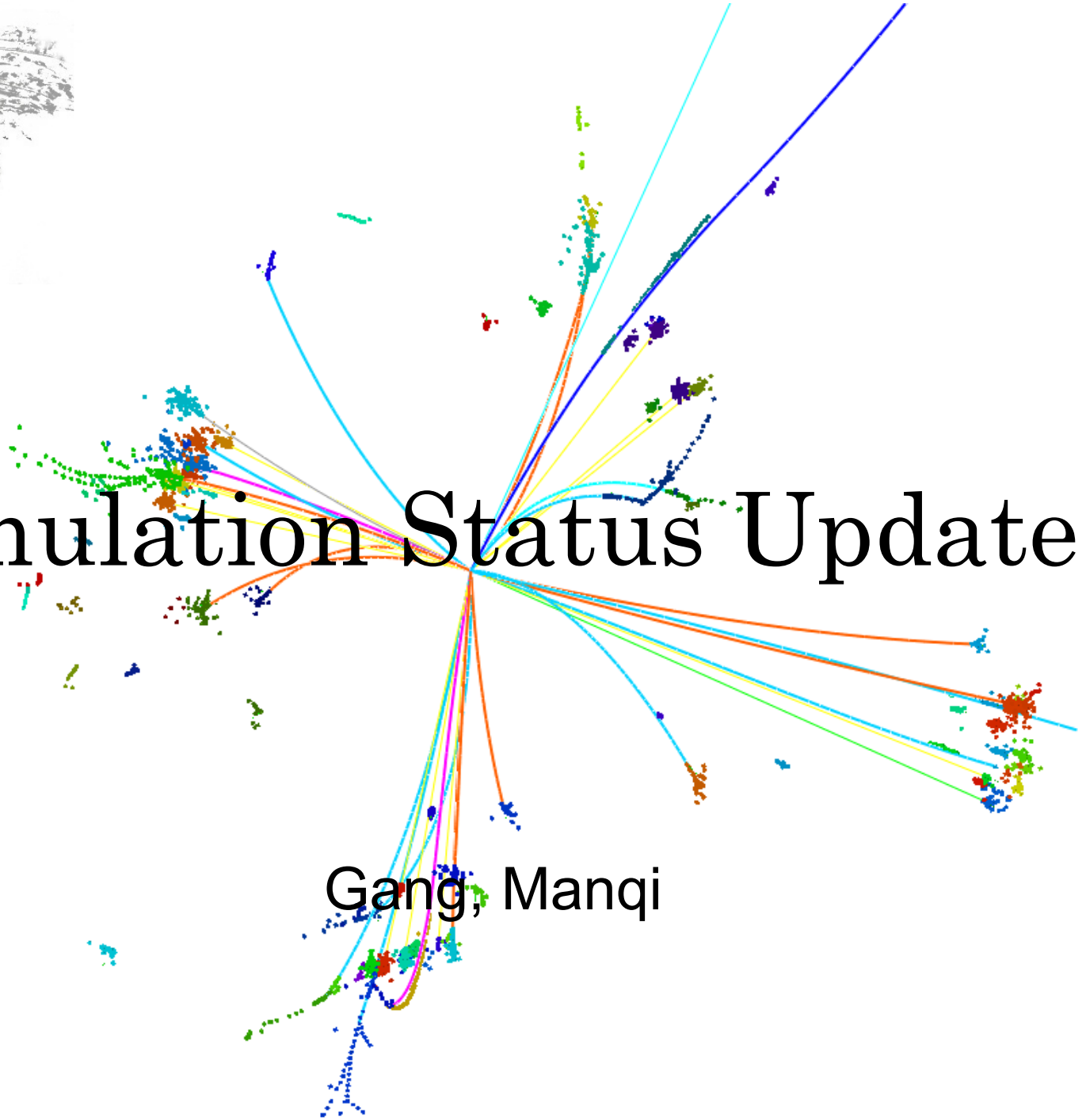
Simulation Status Update...

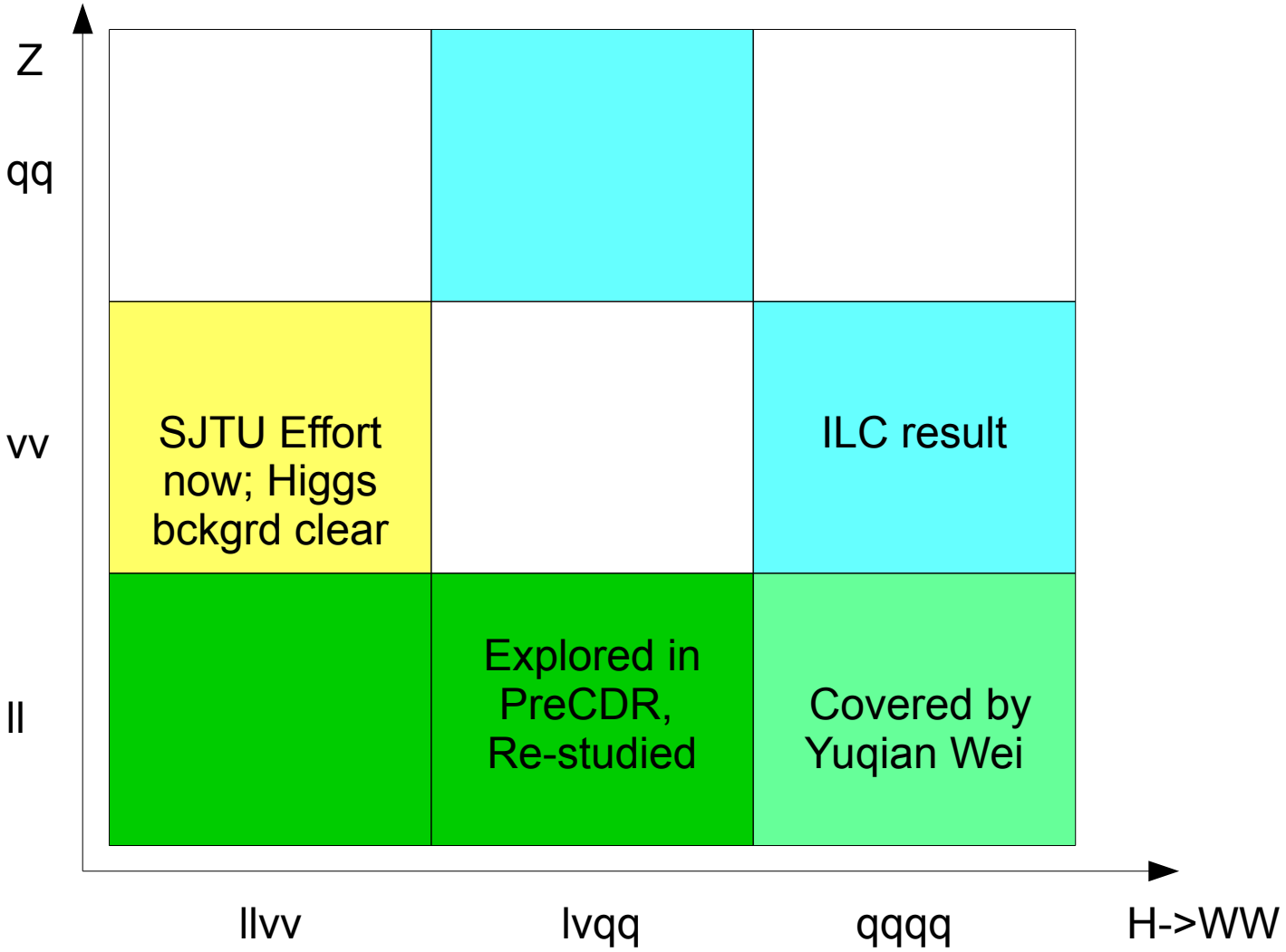


Gang, Manqi

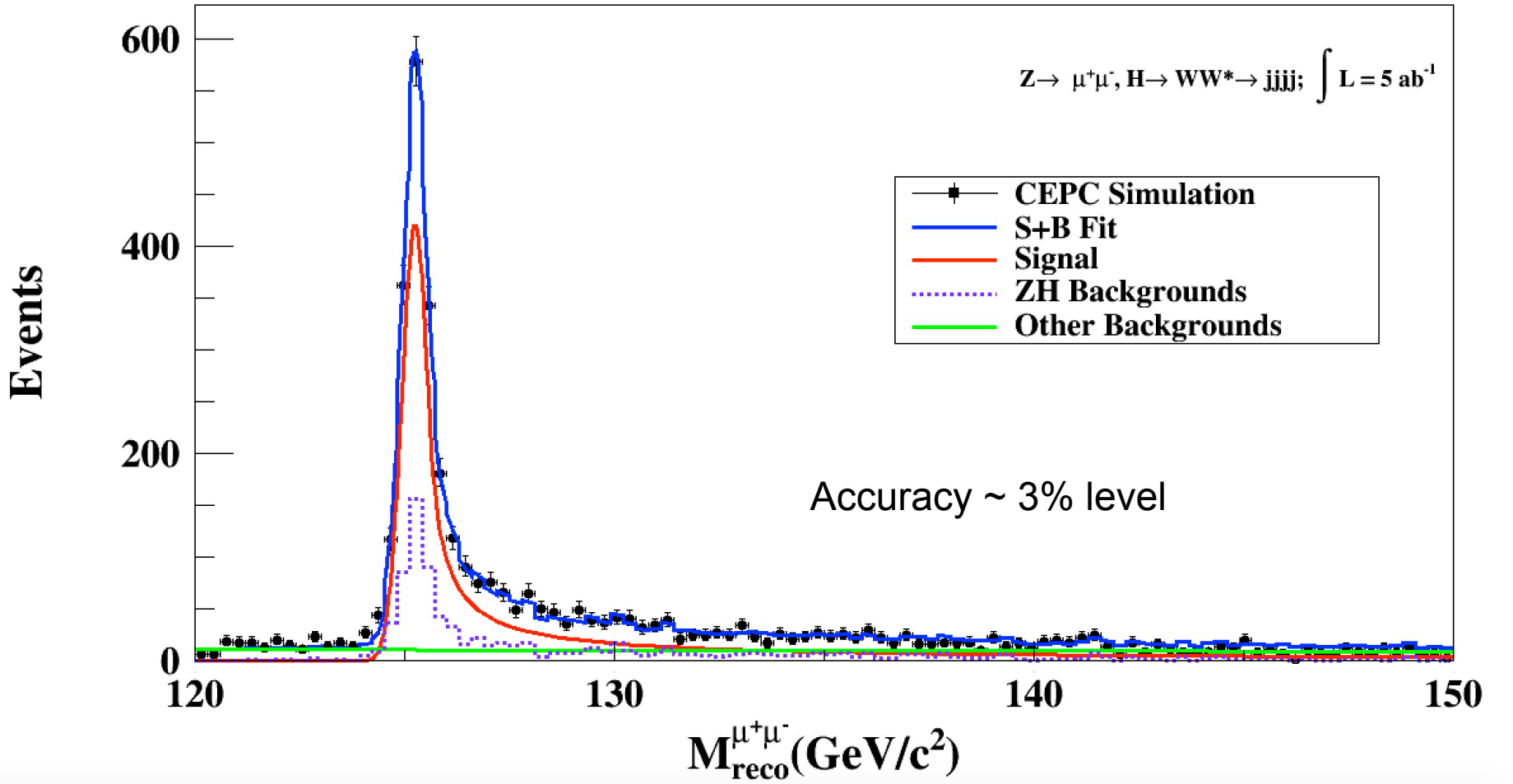
Outline

- Physics analysis
  - H->VV;
  - H->exotic:
    - Jiawei arrives at IHEP
    - PKU: leptonic final states with taus
  - H->bb, cc, gg: new methods proposed, systematic analysis initialized
- Simulation:
  - Full Silicon Tracking initialized
  - To be validated
- Reconstruction at different Calo Geometry:
  - PID Improved
  - PID @ Different ECAL

Physics analysis: H->WW

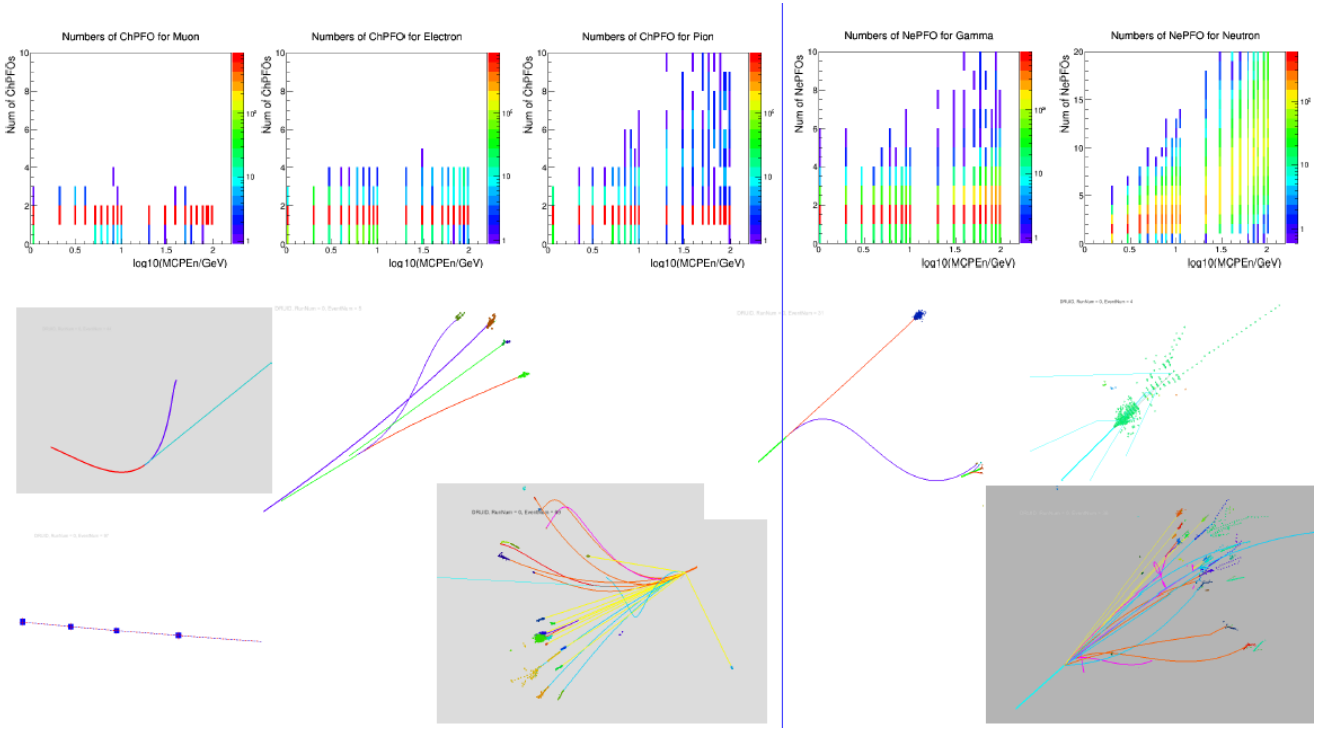


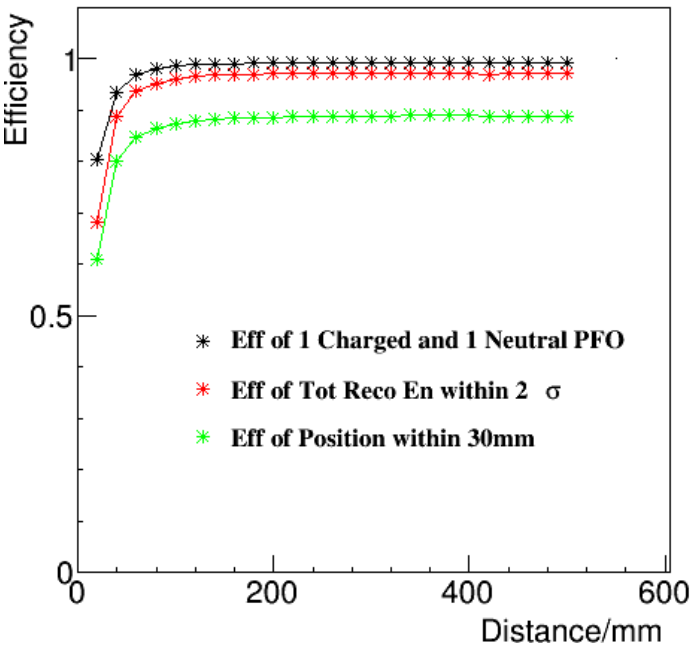
Physics analysis



Reconstruction

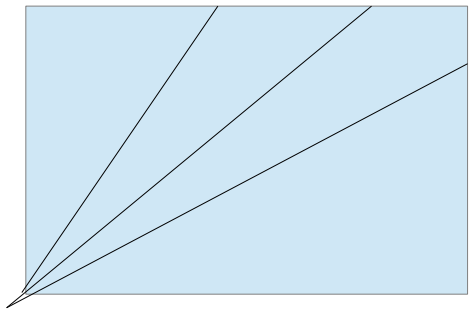
PFA = Single Particle Performance + Separation Performance + high order...





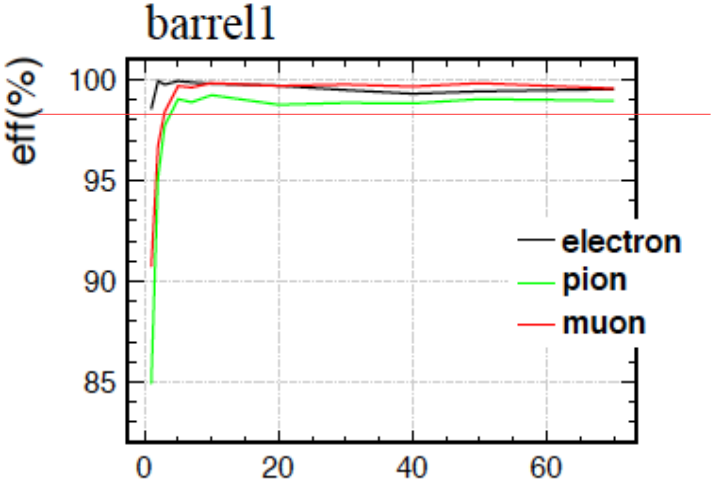
Reconstruction: PID

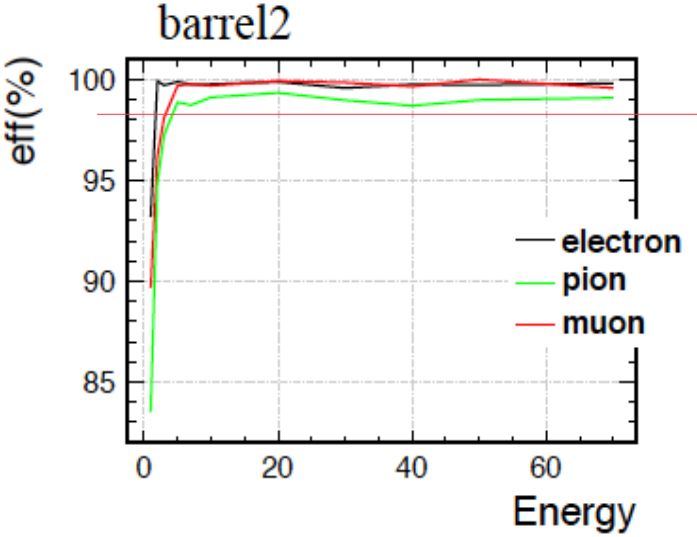
- eff vs submodule: 10000 evts

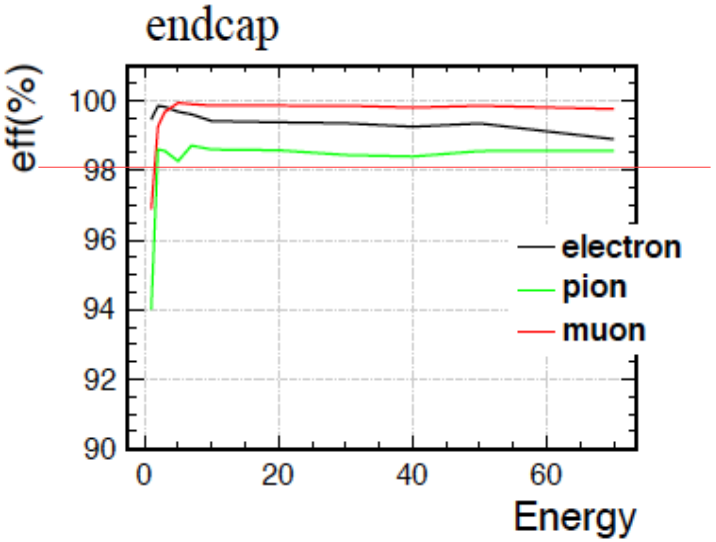


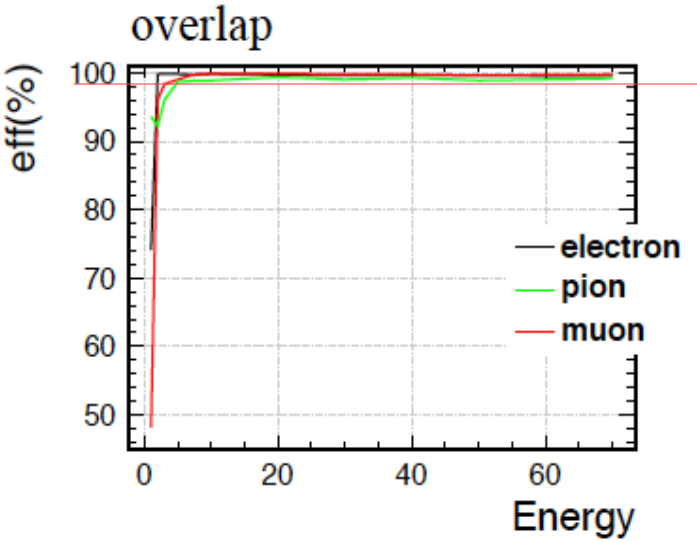
IP

ε^{e}_{e}	P^{e}_{μ}	P^{e}_{π}	P^{e}_{udf}
P^{μ}_{e}	ε^{μ}_{μ}	P^{μ}_{π}	P^{μ}_{udf}
P^{π}_{e}	P^{π}_{μ}	ε^{π}_{π}	P^{π}_{udf}





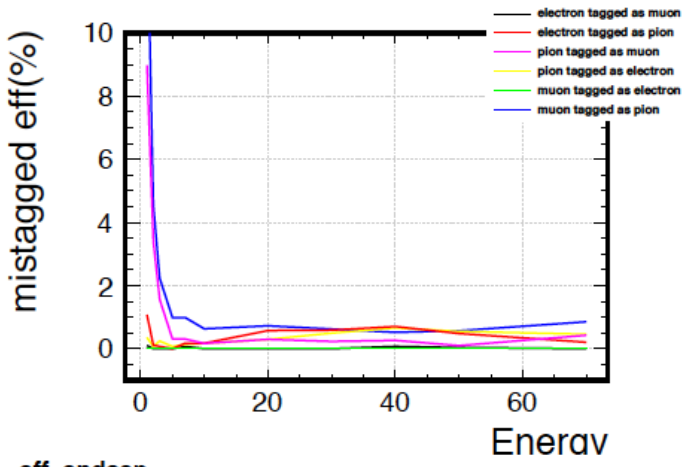




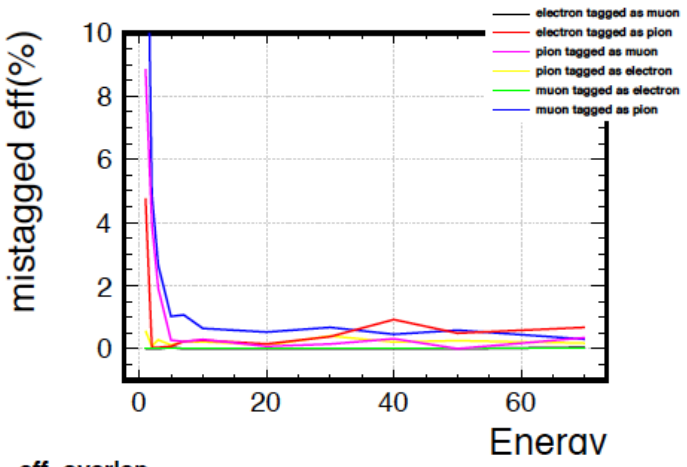
Lepton ID efficiency ~ 99.5% & charge hadron efficiency > 98.5% achieved for charged particles with E > 5 GeV

PID: Mis ID rate

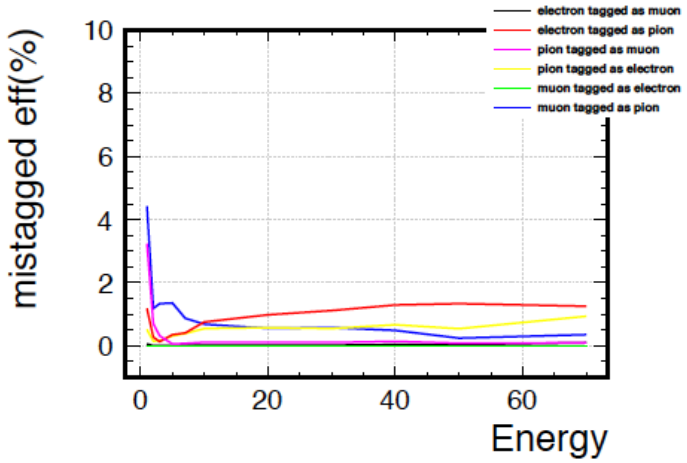
eff_barrel1



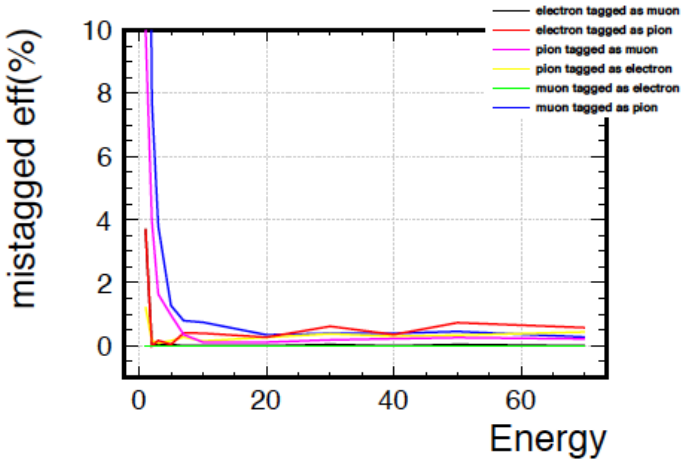
eff_barrel2



eff_endcap

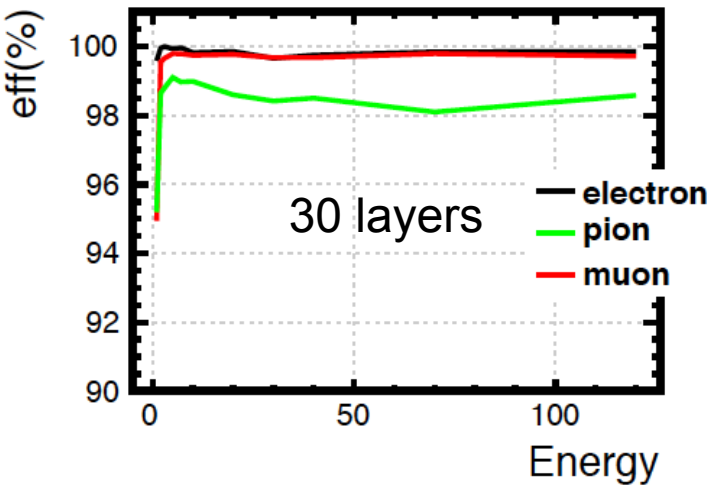


eff_overlap

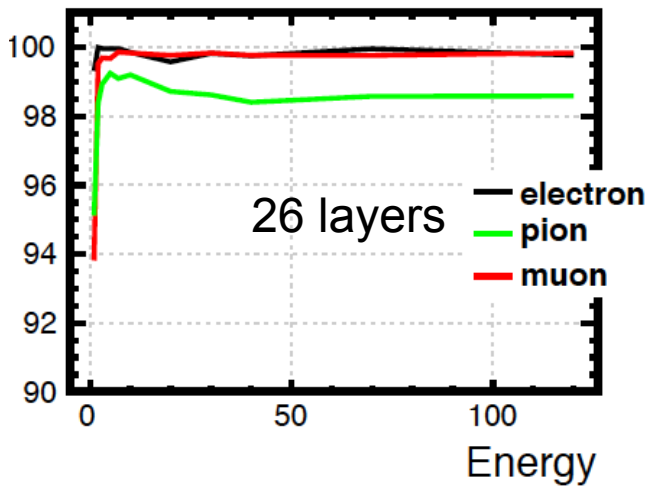


PID at different geometry: ECAL

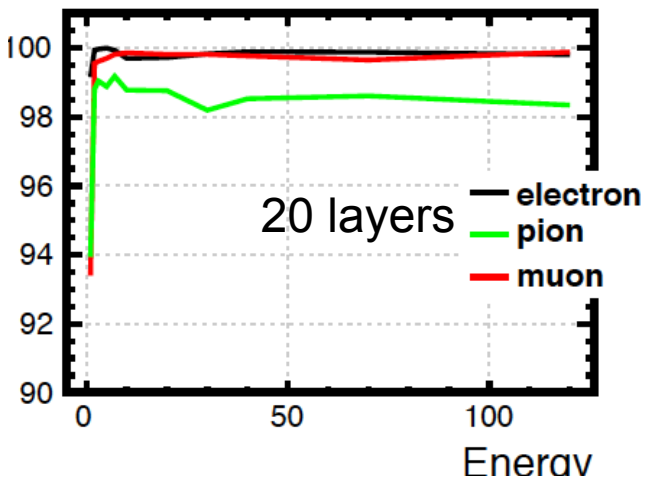
ecal 30 layers



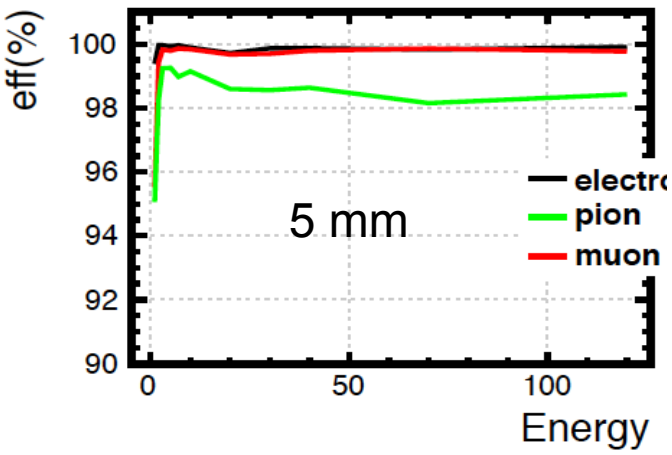
26 layers



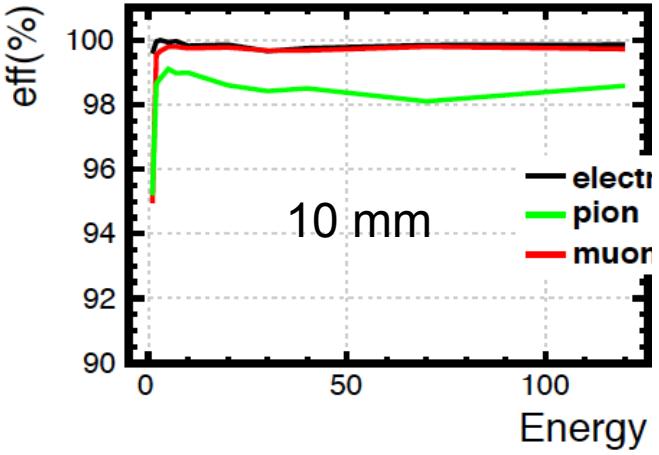
20 layers



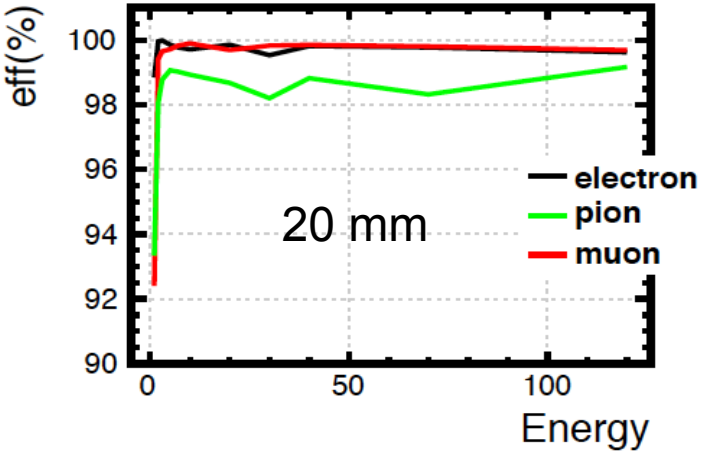
cellsize 5mm



cellsize 10mm

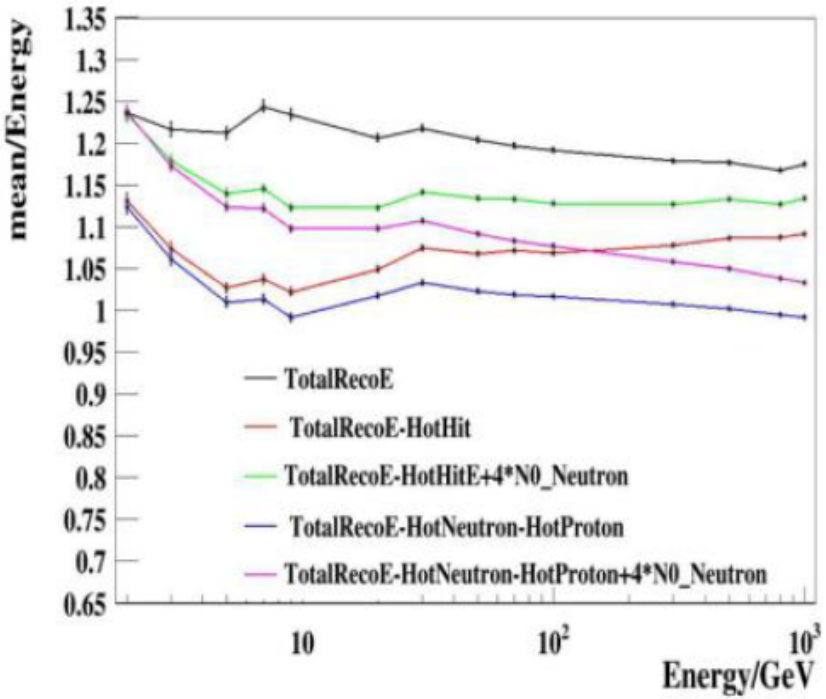


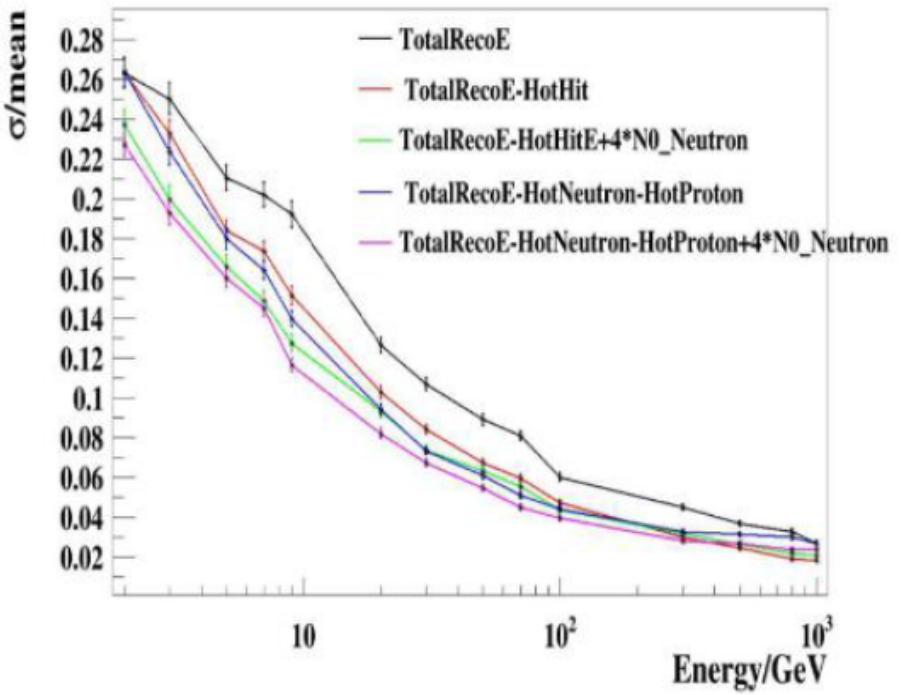
cellsize 20mm



No Significant affect after re-train the TMVA

Hit level optimization

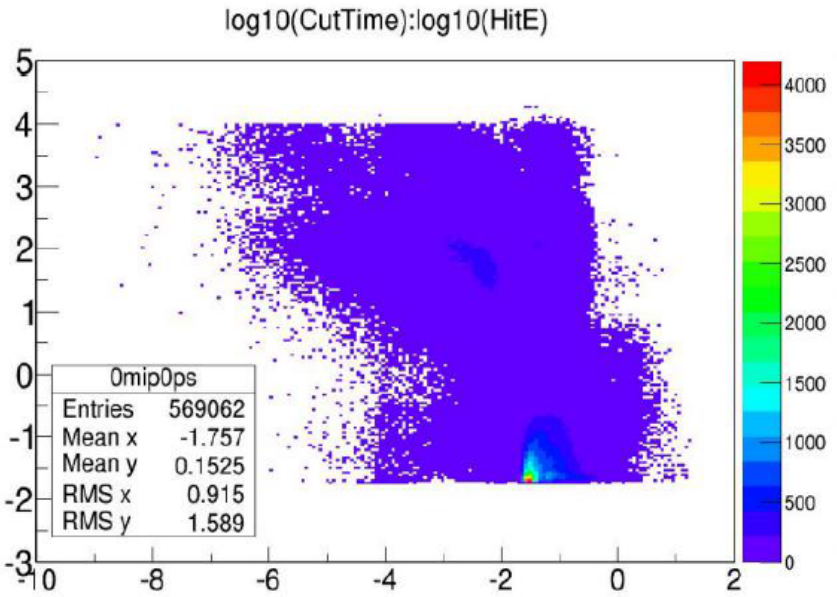


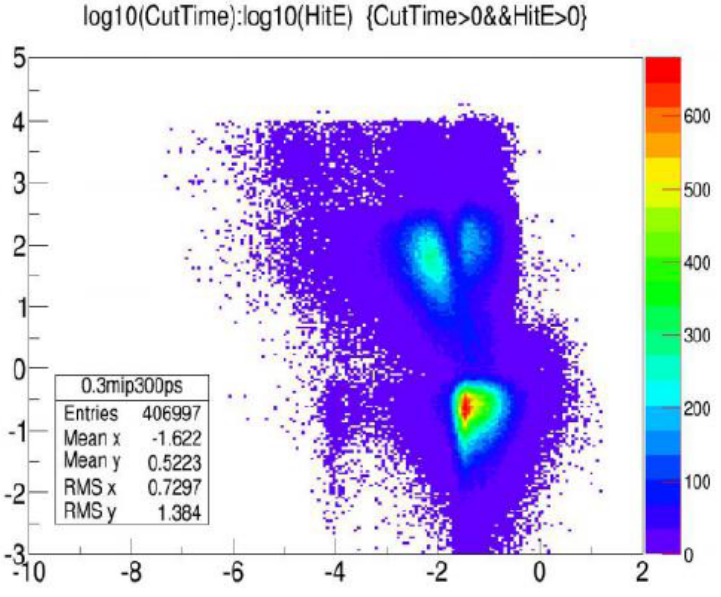


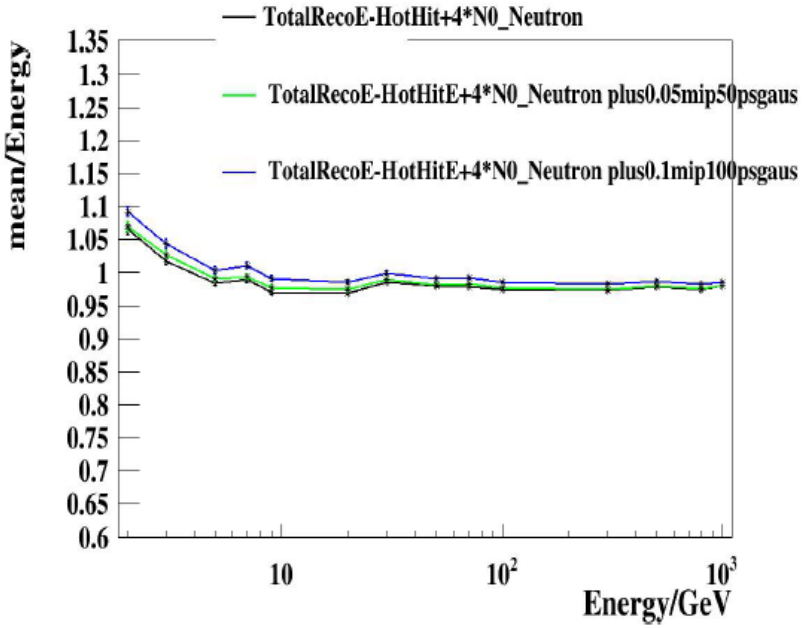
N0_Netron选择条件log10（HitE/330)<-4.2,HiT>1,Neighbor==0
HotHitE:HitE>0.45,Neighbor<2
HotProton:HitE>0.45,PID=2212
HotNeutron:HitE>0.45,PID=2122||PID>10000

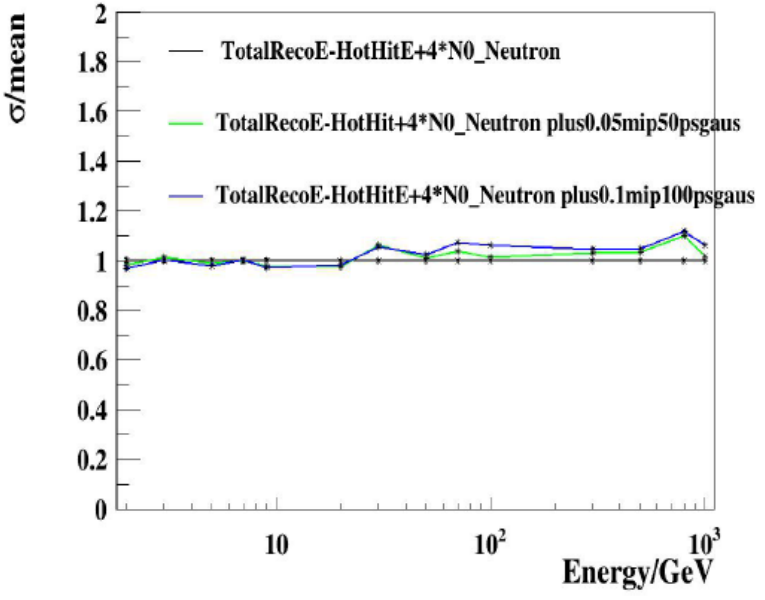
Hadronic energy estimation: Pi @ Si-W ECAL upto 200 layers...

Hit level optimization









Summary

- Physics analysis
  - To the junior
  - To notes
- Simulation: Full Silicon Tracking initialized Sample to be produced
  - To be validated at both simulation & reconstruction level
- Calo optimization
  - Todo: PID @ Different HCAL
  - PFA Parameter tuning (Clustering efficiency & tunning)
  - Hadron energy estimation: to be applied on ILD/CEPC_v1 like geometry & Integrated...