IDR Report

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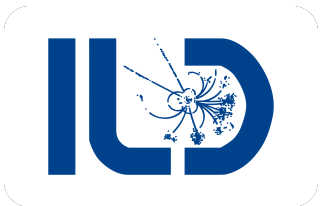

List

Things what we have done so far:

- $b\bar{b}$ and $t\bar{t}$ polar angle distribution.
- Calculation of A_{fb} value.
- Calculation of final and partial efficiency.
- dEdx distribution and kaon identification.
- α and $d0$ value adaptation to the new definition.
- purity calculation (investigation on purity loss)
- tau isolated lepton efficiency loss.

Environment

Setting

- ILCSoft v02-00-02
- Gear file: gear_ILD_l5_v02.xml (Large)
  gear_ILD_s5_v02.xml (Small)
- Used yyxylv and yyxyev events (eliminated isolated tau)
- Polarization of eLpR is used.

Cuts

Basic selection cuts:[1]

- Lepton cut: Iso.Lep. > 5 GeV
- Hadronic mass: $180 < M_{Had} < 420$
- $btag1 > 0.8$ or $btag2 > 0.3$
- Thrust: $thrust < 0.9$
- Top1 mass: $120 < m_{t1} < 270$
- W1 mass: $50 < m_{W1} < 250$

Lorentz Gamma cuts:

- $\gamma_t^{had} + \gamma_t^{lep} > 2.4$
- $\gamma_t^{lep} < 2.0$

b-quark Momentum cuts:

- $|p|_{had} > 15$ GeV

[1] Main distinct algorithm to distinguish top and anti-top.

Polar Angle Distribution (l5)

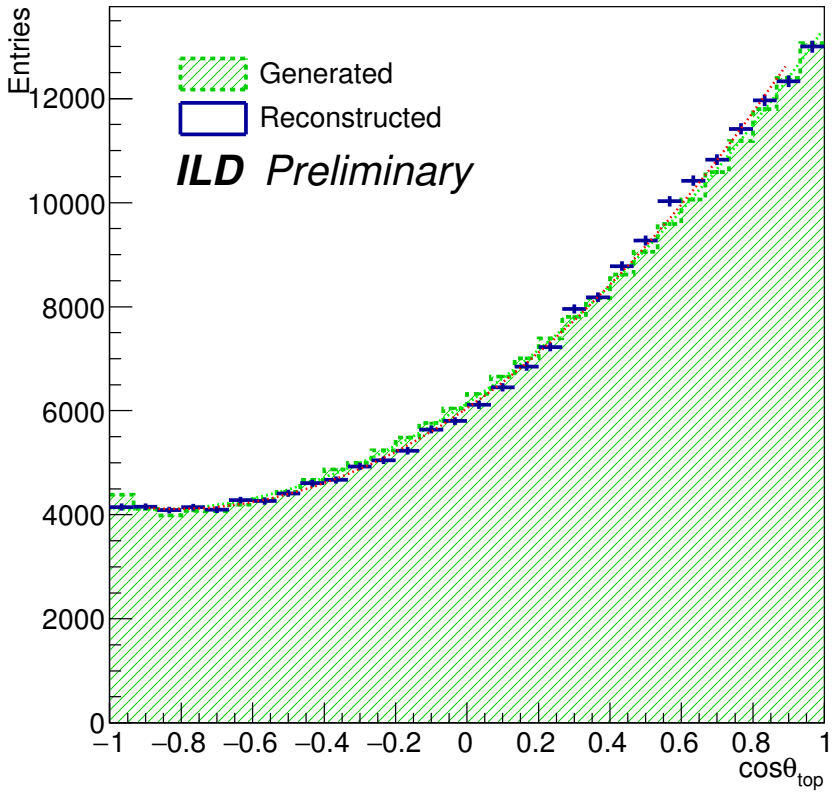

Figure: top polar angle

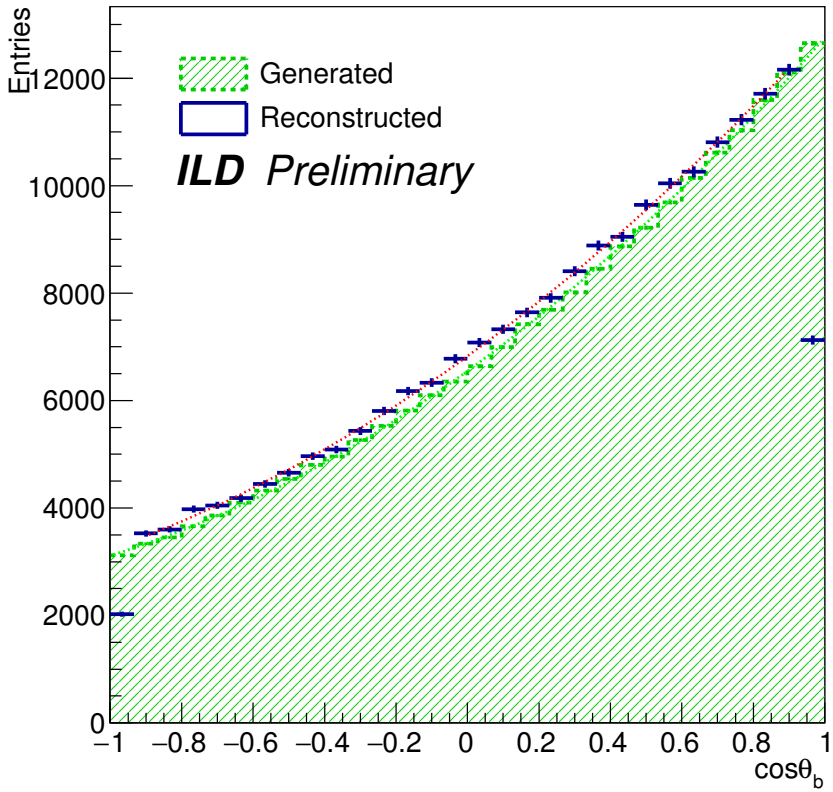

Figure: b polar angle

Afb gen	0.328288	N: 1351248
Afb reco	0.338966	N: 210334
Final efficiency	31.1318%	

Basic Selection Efficiencies

Large Detector

nEvents	697476	(100.%)
after lepton cuts	645418	(92.5362%)
after btag cuts (0.8 & 0.3)	569699	(81.6801%)
after thrust cut	569699	(81.6801%)
after hadronic mass cut	549885	(78.8393%)
after reco T & W mass cut	516152	(74.0028%)

dEdx Distribution

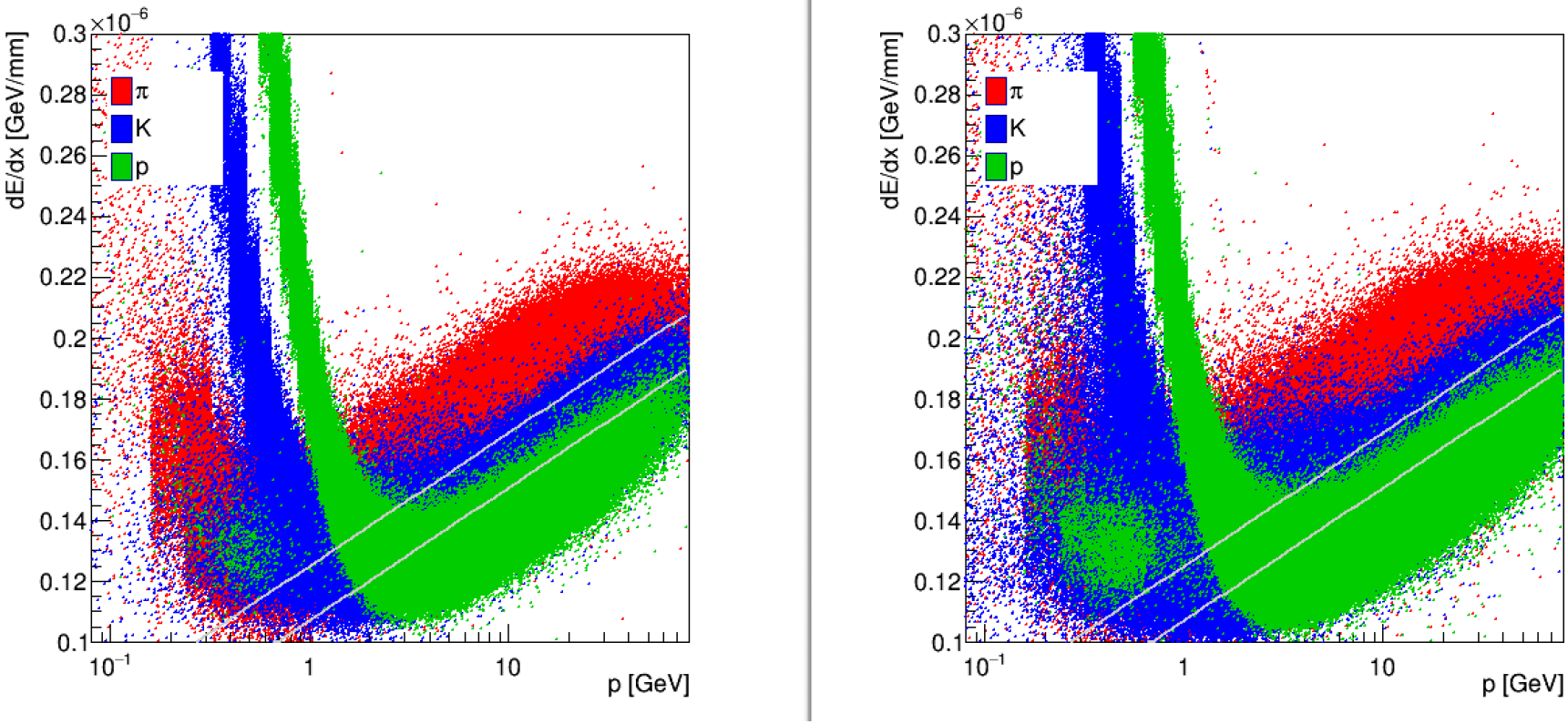

Figure: Comparison of dEdx distibution: right is the one with electron and muon sample, with N=1351248. left is the one with electron only sample, with N=427304