

# HF PWG Weekly Meeting

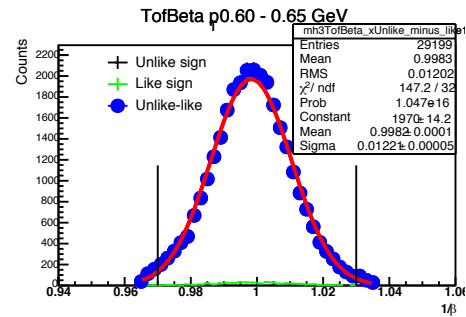
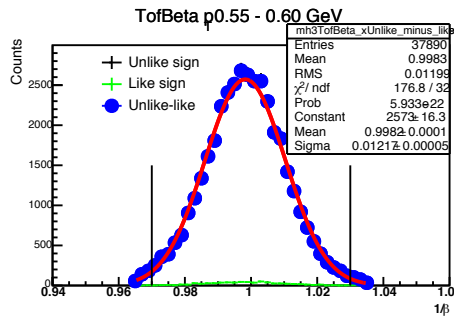
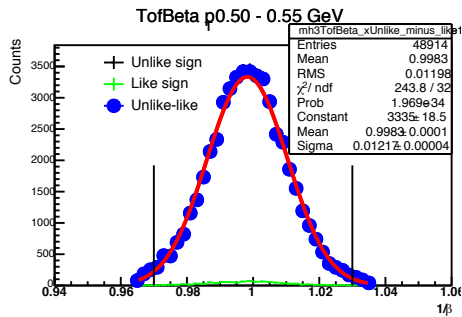
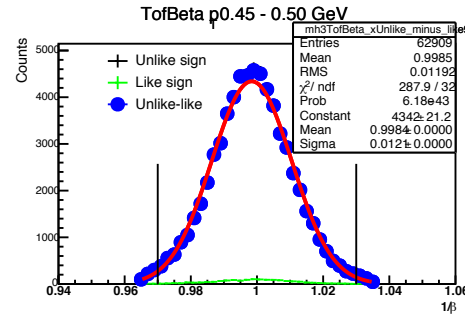
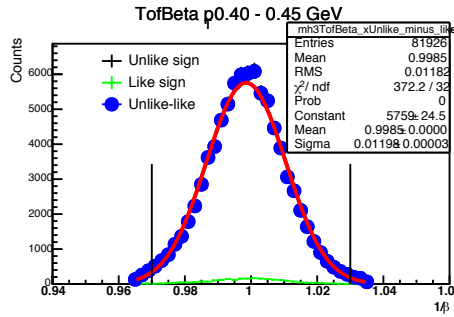
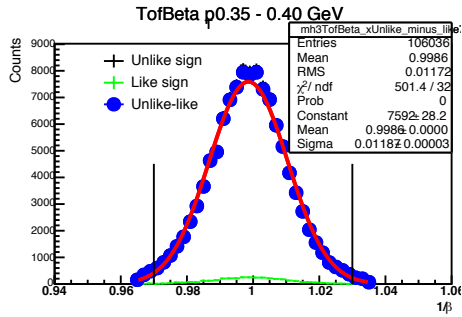
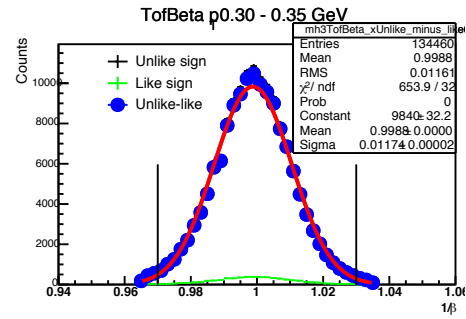
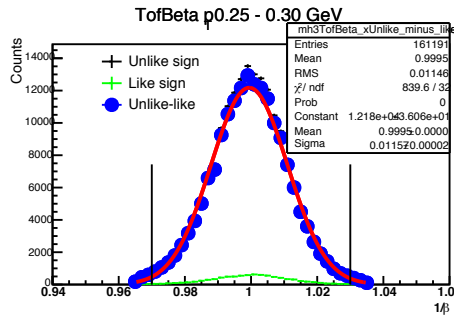
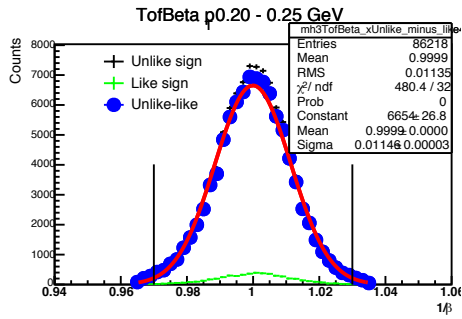
## NPE analysis on P+P Run2012 @200Gev

low Pt ToF Cut/Match efficiency, low pt embedding request

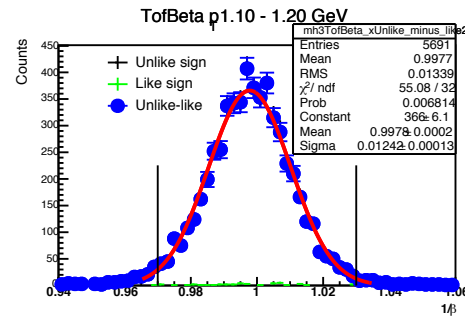
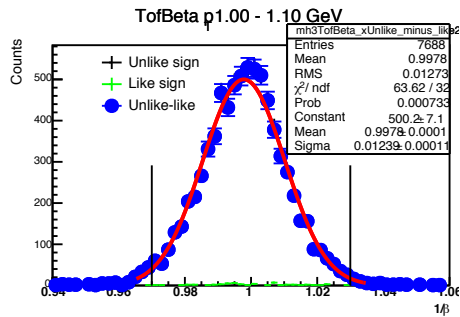
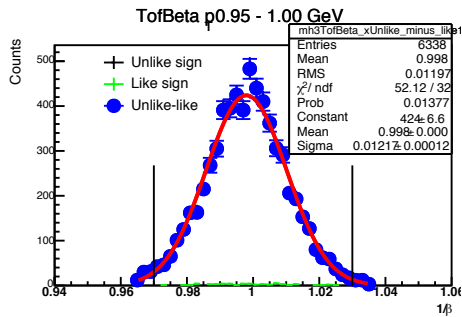
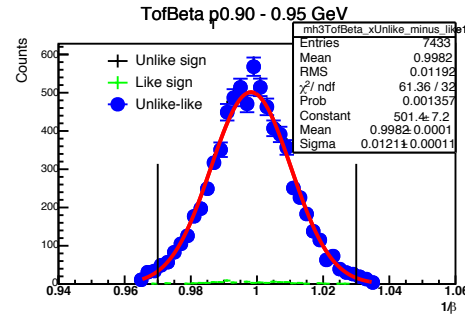
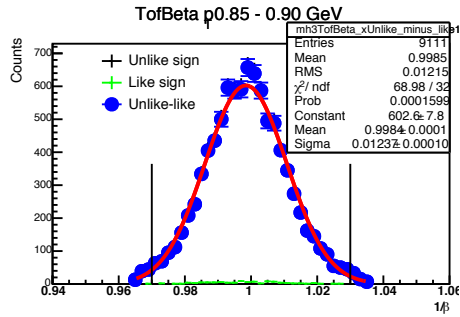
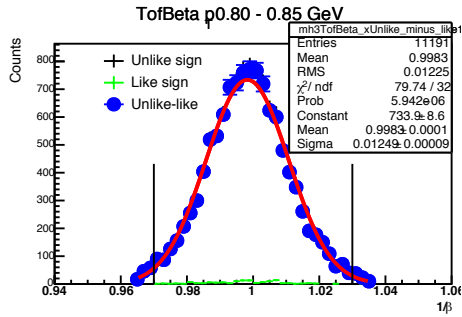
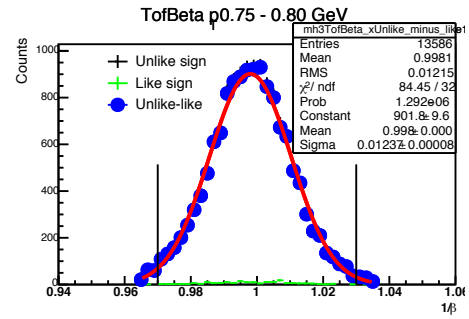
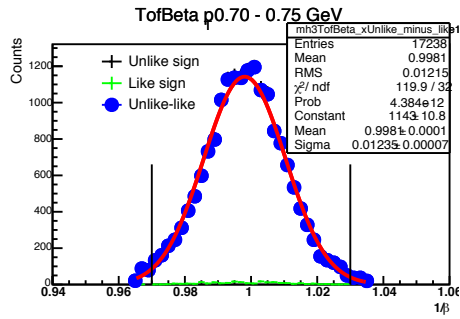
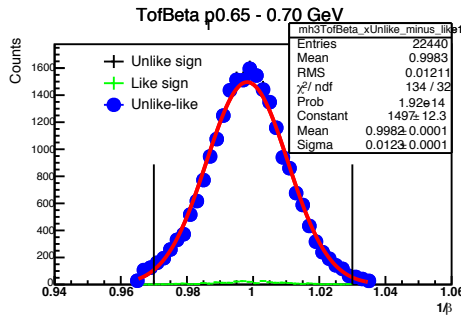
Xiaozhi Mustafa Zhenyu Ye

10/23/2014

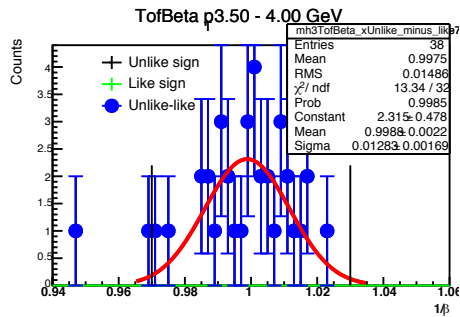
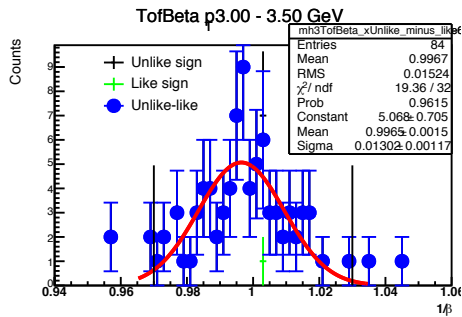
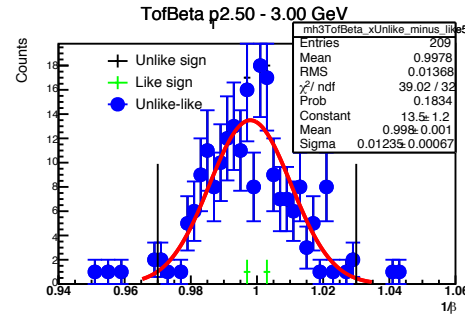
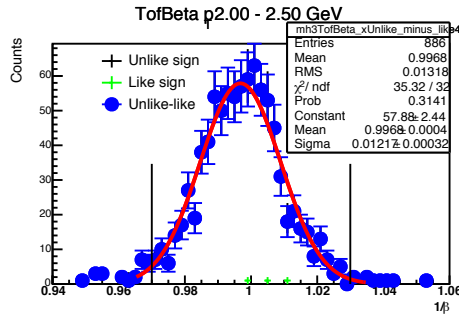
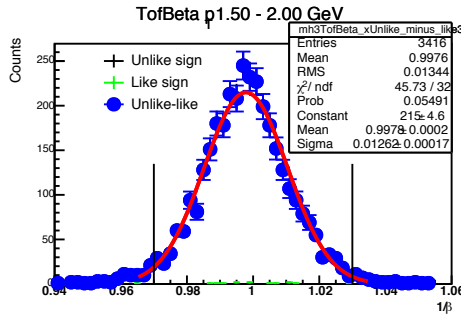
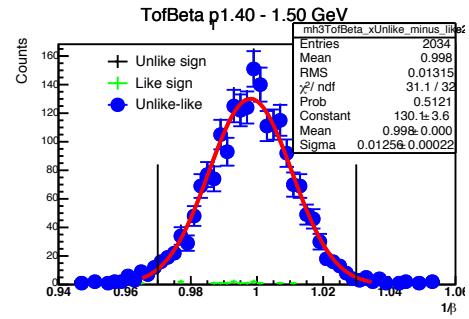
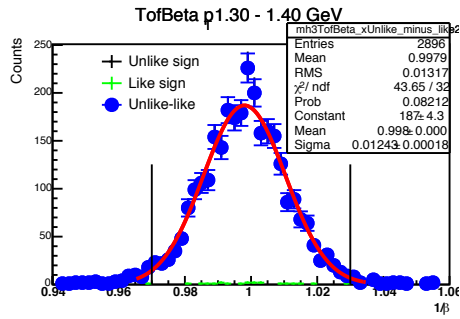
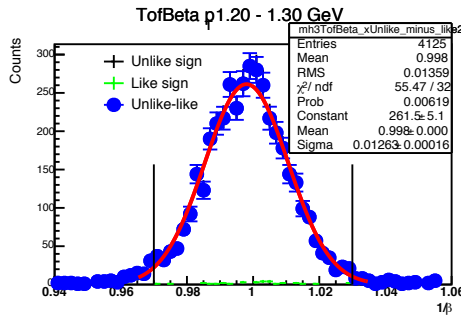
# 1/ToF\_beta Gauss Fit InvMass<0.1GeV |1/beta-1|<0.03



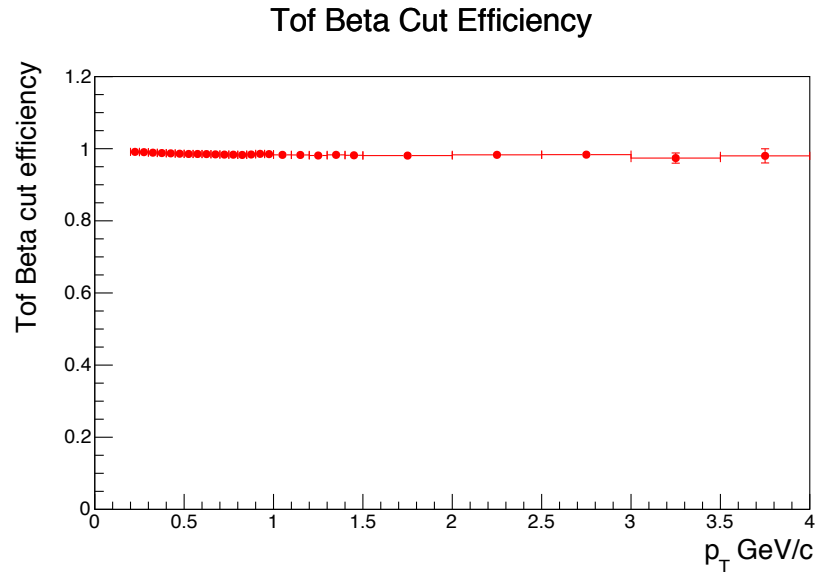
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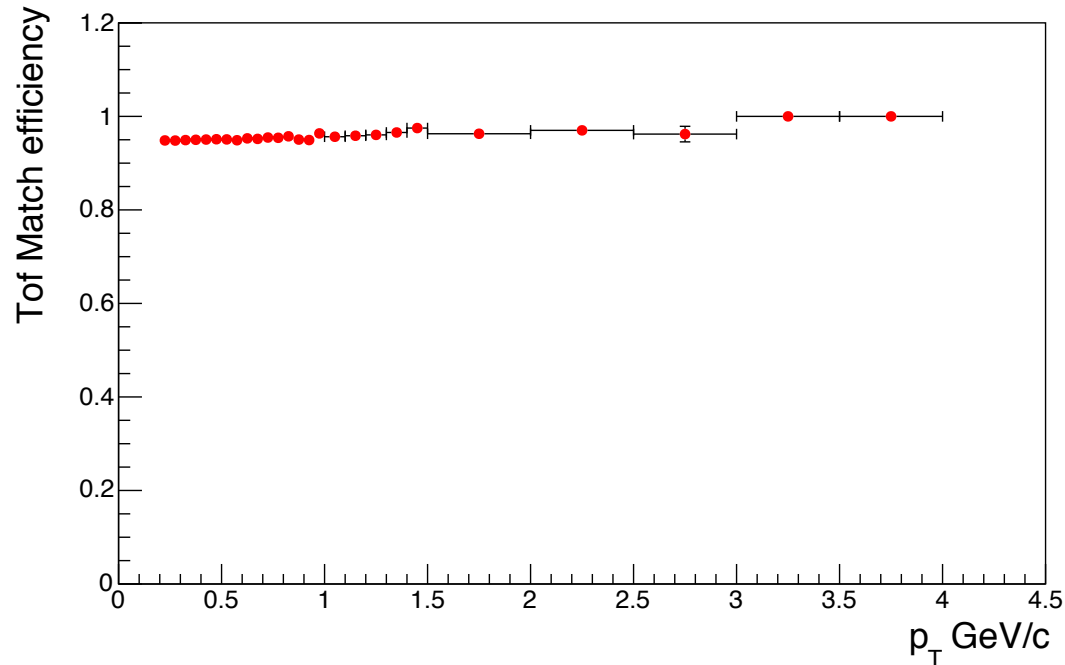


# Tof beta cut efficiency



- $-1 < n_{\sigma e} < 3$  &&  $-1.5 < n_{\sigma e} < 3$  (partner) &&  $InvMass < 0.1 \text{ GeV}$  to select electron sample
- The uncertainty of the Tof beta cut efficiency is the maximum deviation of the Gauss fit mean and sigma

## ToF Match efficiency



- ToF Match cut:  $|ToF\_Ylocal| < 1.8$  &&  $ToF\ beta > 0$  &&  $ToFMatchFlag > 0$
- Apply all the eID cuts (TPC and ToF) cut on primary electron, then applied tight InvMass cut
- The ToF match efficiency calculate based on the photonic electron partner.

Embedding request description for pp200 run12 Trigger id  
 (VPDMB ID370011 embedding request description for low pt )

	<b>Electron/ positron</b>	<b>gamma</b>	<b>pi0</b>	<b>eta</b>	<b>ke3</b>
Number of events	150k	500k	1M	1M	1M
Embedding particle (per event)	5	100 gamma	5 pi0	5 eta	5k+ 5k-
Specific decay	e+e-	Gamma->e+e-	Pi0->Y+ee 100%	Eta->γ+ee 100%	k->ke3 100%
Data	370011	370011	370011	370011	370011
Magnetic Field	RFF	RFF	RFF	RFF	RFF
Production	SL12d	SL12d	SL12d	SL12d	SL12d
Geometry	y2012	y2012	y2012	y2012	y2012
Vertex Z	-40,40	-40,40	--40,40	-40,40	-40,40
phi	0,6.29	0,6.29	0,6.29	0,6.29	0,6.29
Pt	0,8	0,20	0,20	0,20	0,20
rapidity	-1,1	-1,1	-1.5,1.5	-1.5,1.5	-1.5,1.5

# Low pt NPE Summary and Outlook

- Inclusive electron yield and photonic electron yield (done)
- Inclusive electron purity (done)
- $n\sigma_{dEdx}$  cut efficiency (done)
- ToF Cut efficiency (done)
- ToF Match efficiency (done)

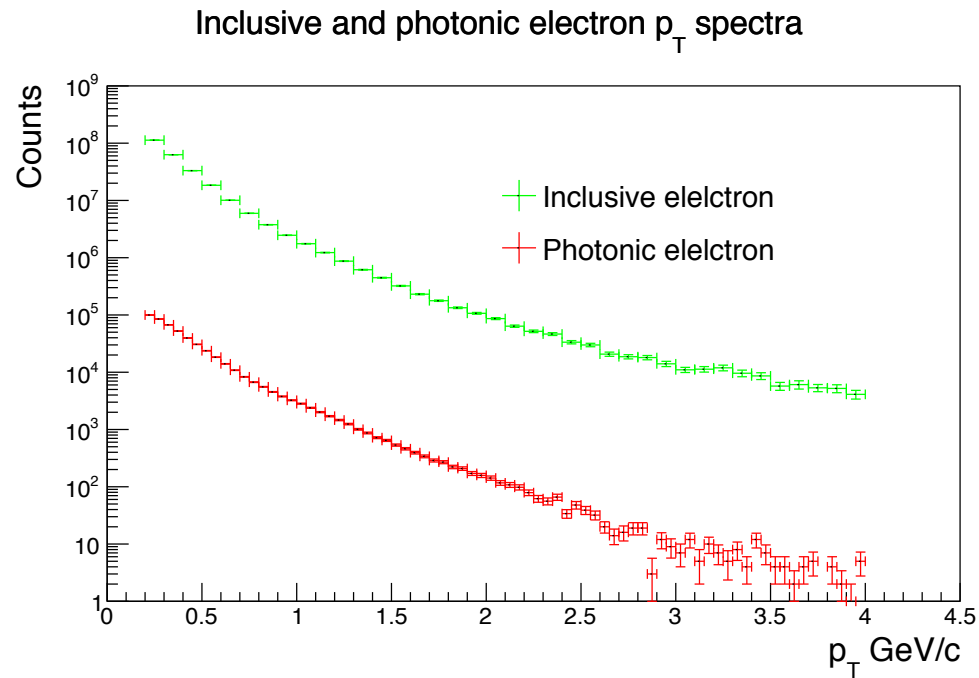
To do:

- Request embedding for low pt
- Calculate the low pt NPE Cross section

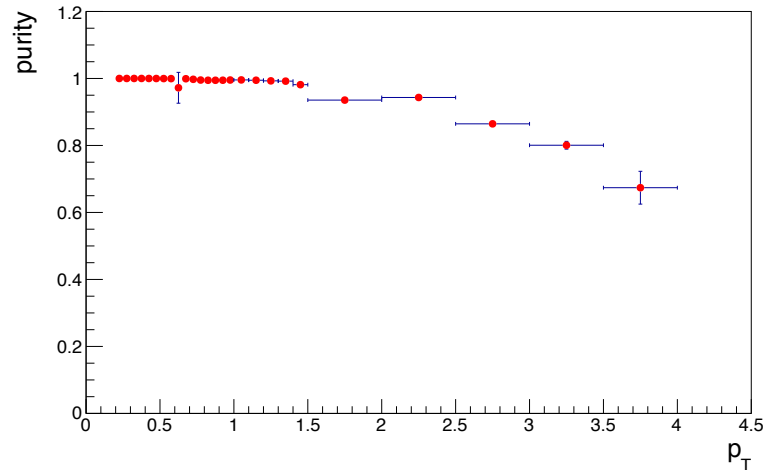
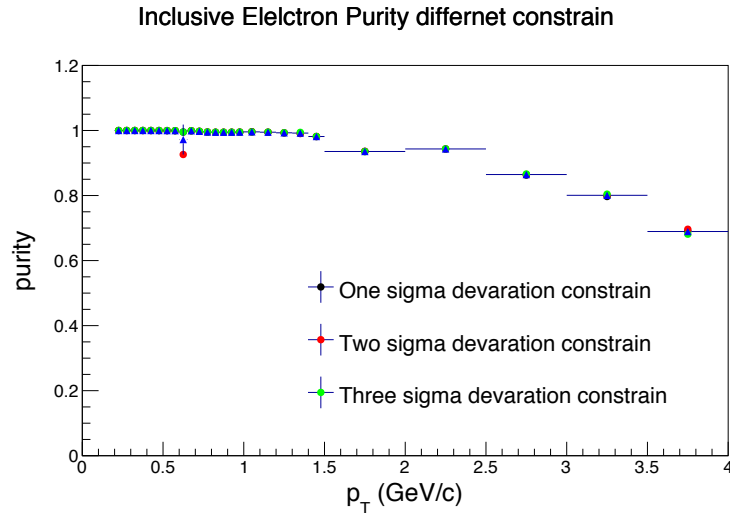


# Back Up

# Inclusive and photonic raw pt spectra



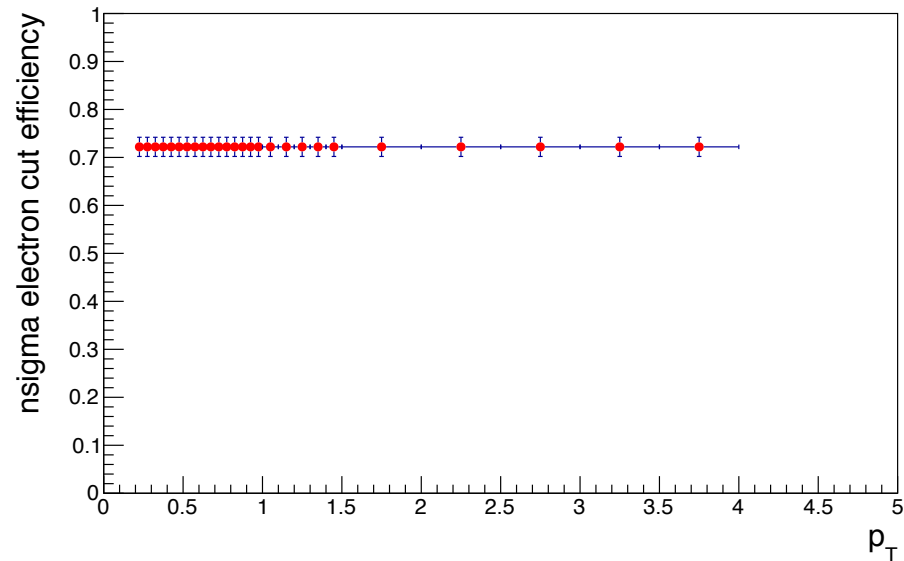
# Inclusive electron purity



- The hadron mean and sigma from the data, ( Very tight tof cut ) ,then constrain mean  $\pm 1, \sigma \pm 0.5$
- Purity statistics uncertainty: shift the data one sigma bin Error point up and down 1000 times and Get the RMS.
- Purity systematics uncertainty: constrain the electron mean and sigma with one,two and three standard deviation, and calculate the maximum deviation from the mean value

# Nsigma electron cut efficiency ( $-1 < n\sigma_e < 3$ )

nSigma Cut efficiency sys.



- The Nsigma electron cut efficiency statistics uncertainty from the max devaration of the mean and sigma
- The Nsigma electron cut efficiency systematic uncertainty from the difference before and after shift pol0 Fit of electron mean and sigma