Updates

- What cause the difference between my results and Jin's results (merging Wiser background)?

- Previous threshold E is: μ-2σ ($\sim 98\%$), which can be adjusted to μ-1.5σ ($\sim 90.9\%$).

08/8/2017

SIDIS electron trigger

FAEC electron trigger

Radius(cm)	E Threshold (GeV)	Jin's cut (GeV)
90 - 105	5.0	shE-preshE>4.4
105 - 115	4.0	shE-preshE>3.5
115 - 130	3.0	shE-preshE>2.6
130 - 150	2.0	shE-preshE>1.6
150 - 200	1.0	shE>0.9

Radius(cm)	6+1 Cluster Threshold (MeV)
90 - 105	990.09
105 - 115	762.60
115 - 130	557.97
130 - 150	355.25
150 - 200	170.87

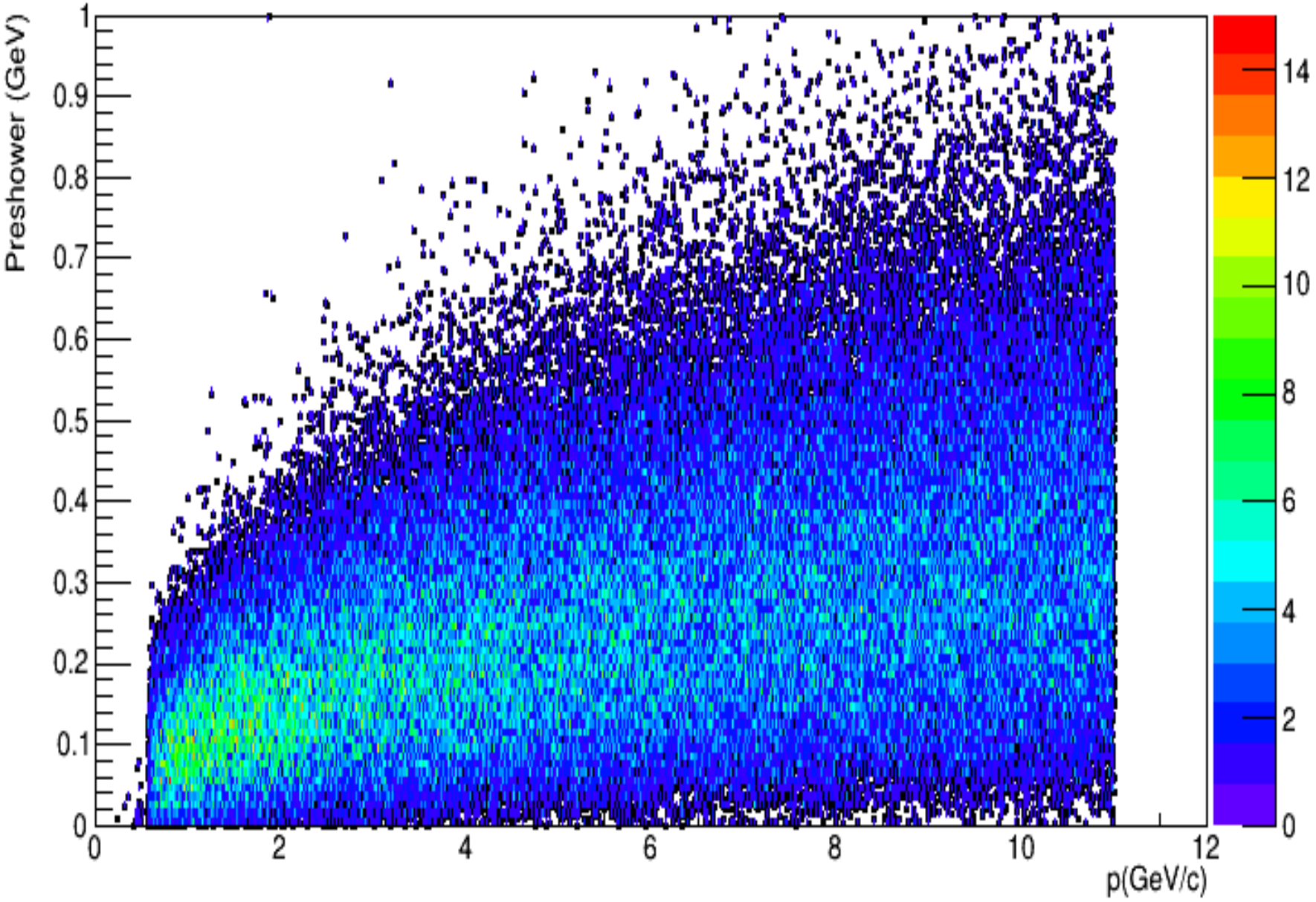
6p1 E_{dep} in ECAL for above flux_p

LAEC electron trigger

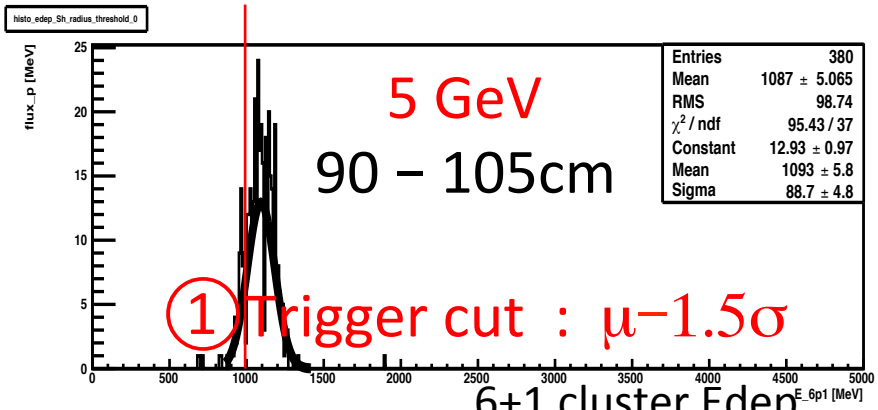
Radius(cm)	P Threshold (GeV)
90 - 105	3.0
105 - 115	3.0
115 - 130	3.0

Radius(cm)	6+1 Cluster Threshold (MeV)
90 - 105	571.50
105 - 115	571.90
115 - 130	531.60

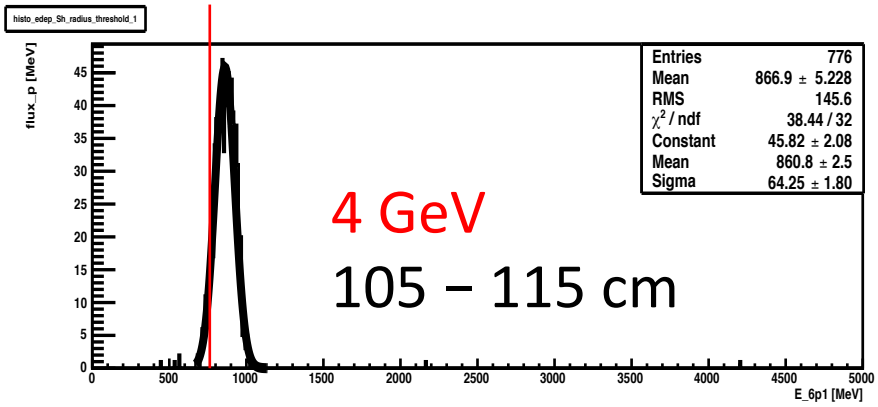
0-11 GeV e- beam, θe [7.5°,14.85°] Energy Calibration SIDIS Configuration

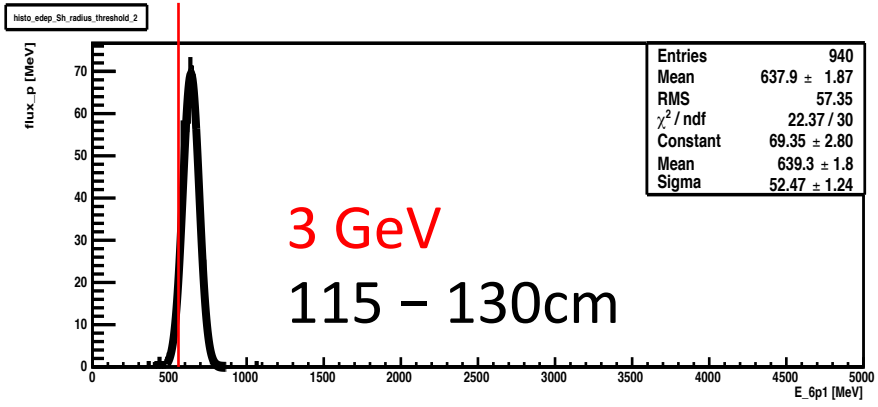


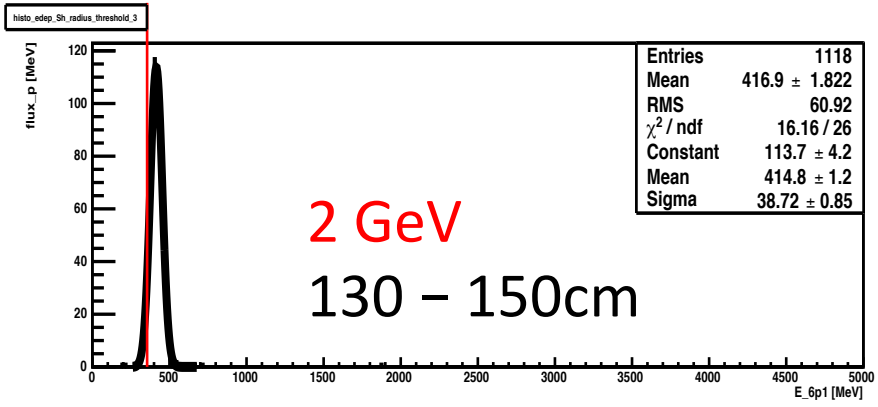
SIDIS 6+1 cluster energy FAEC θe [7.5, 14.85]

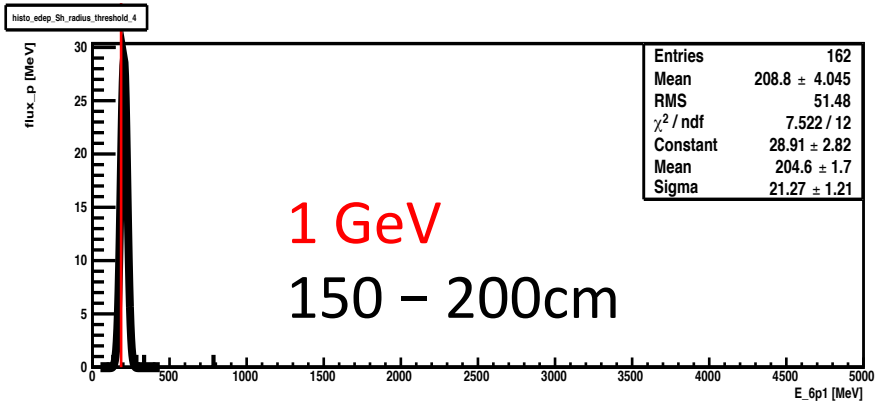


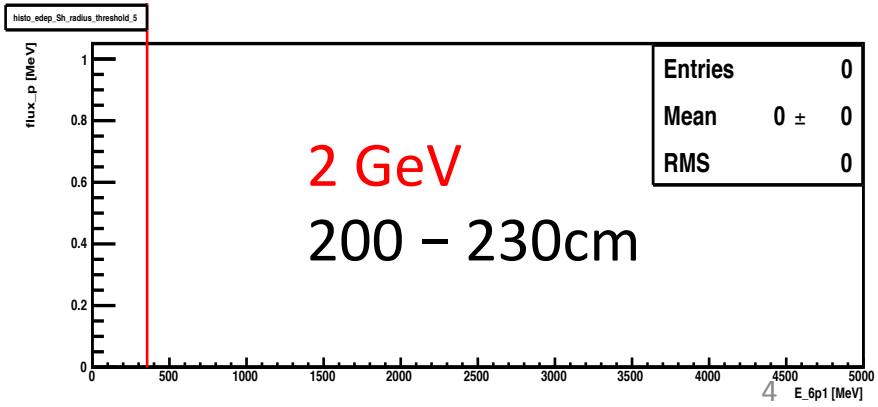
6+1 cluster Edep



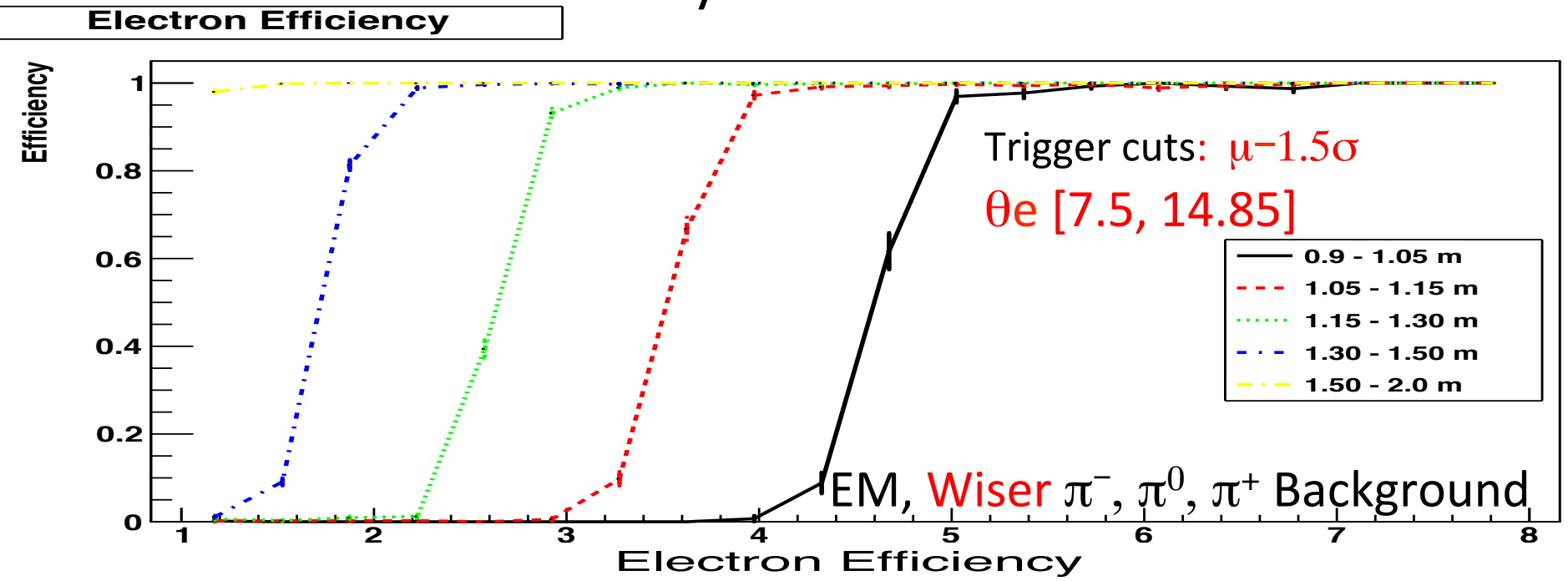


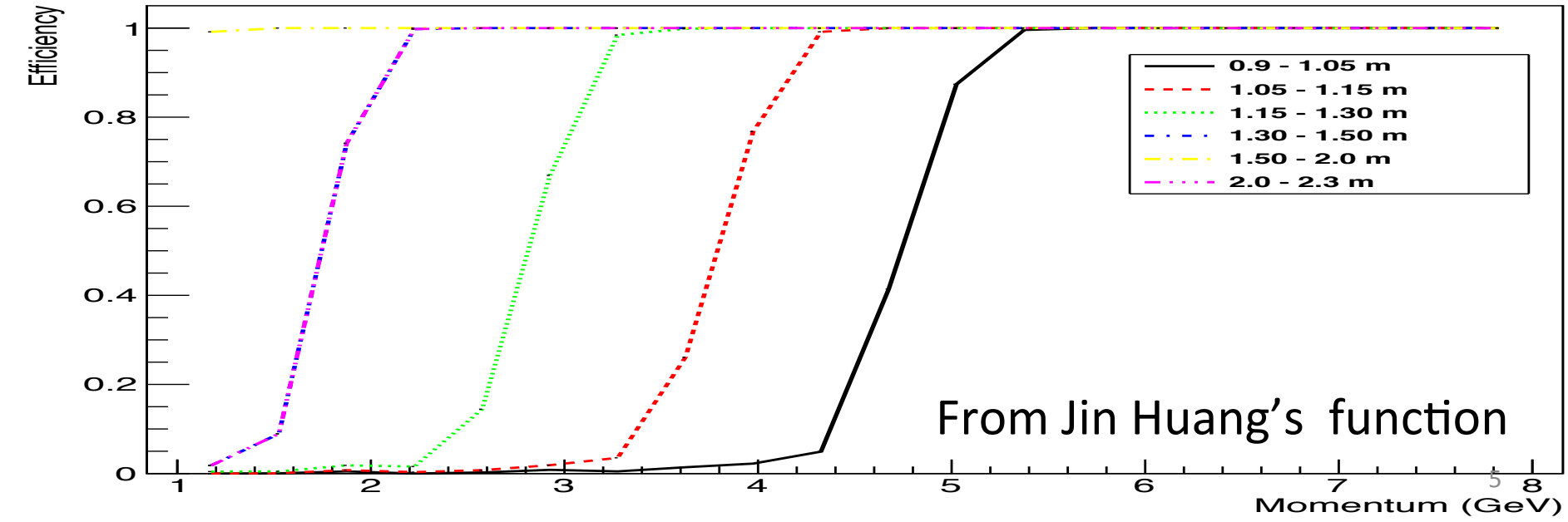




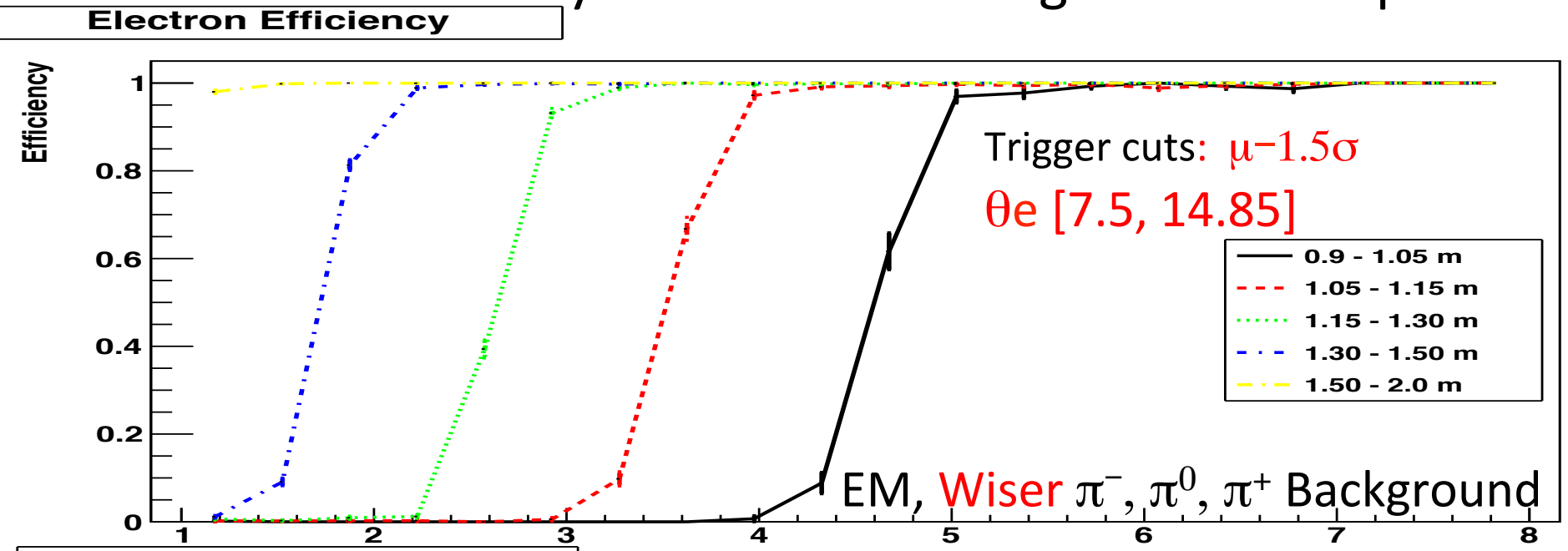


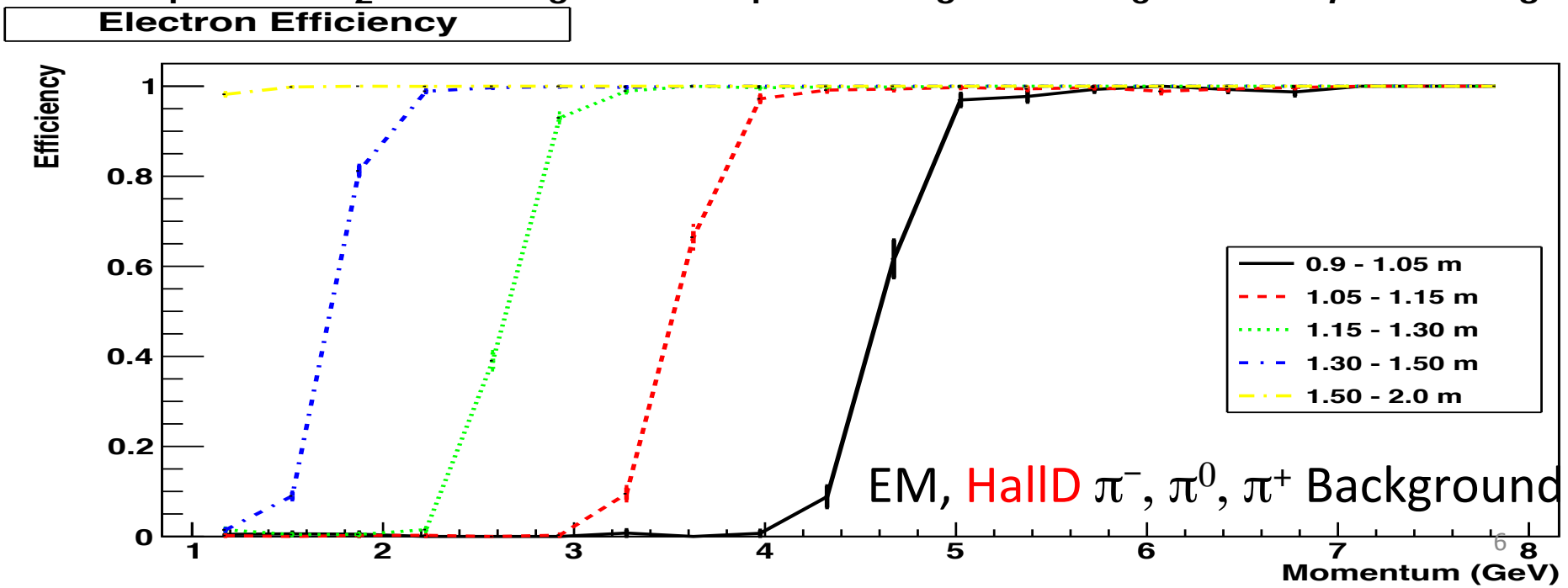
SIDIS Electron Efficiency Curves for FAEC



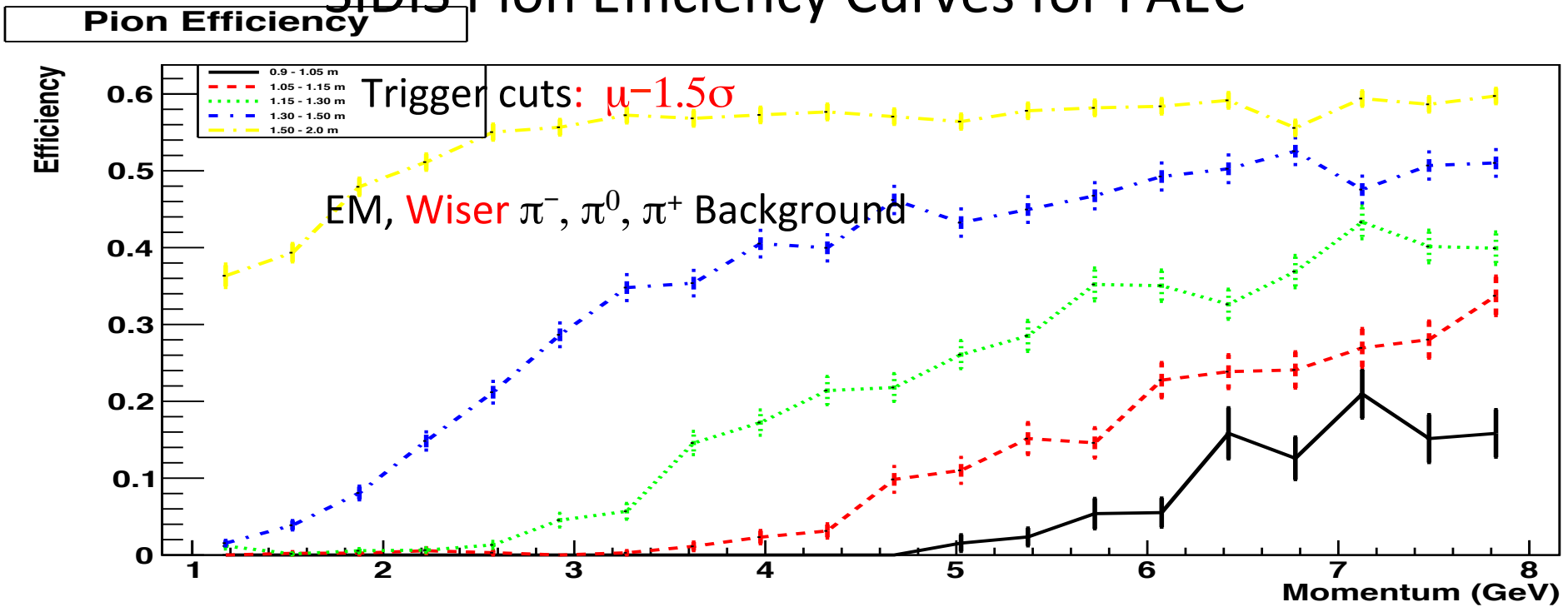


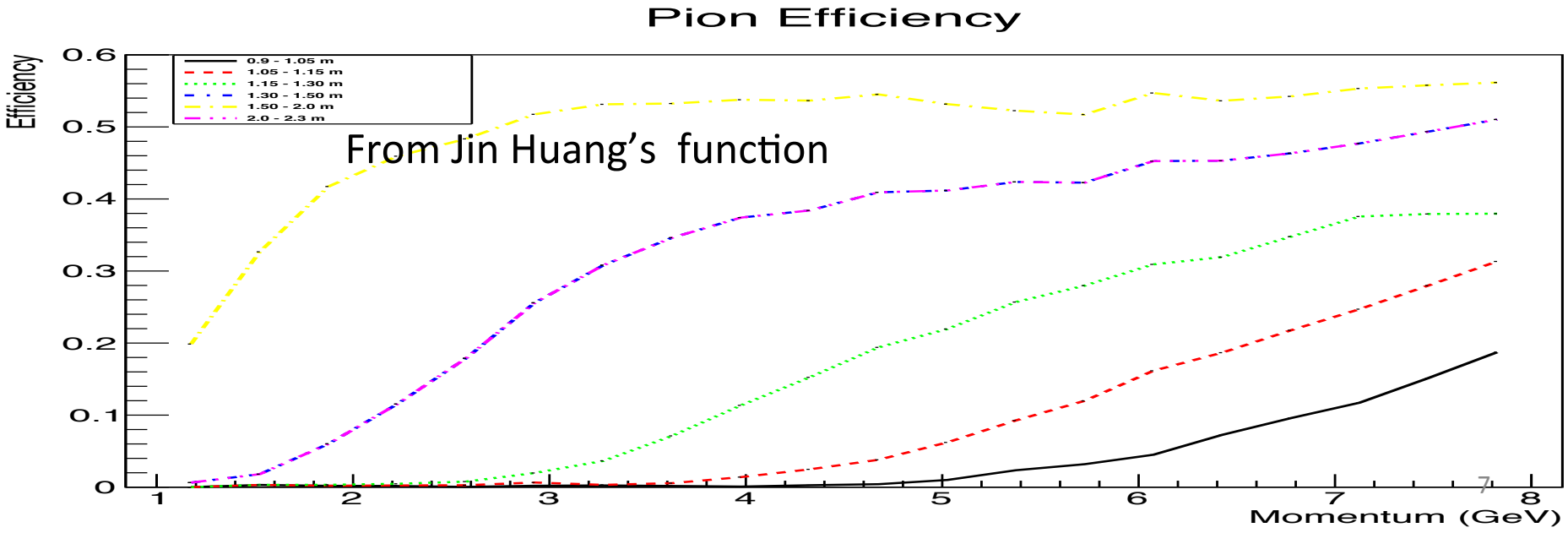
SIDIS FAEC Efficiency Curves with Backgrounds Comparison



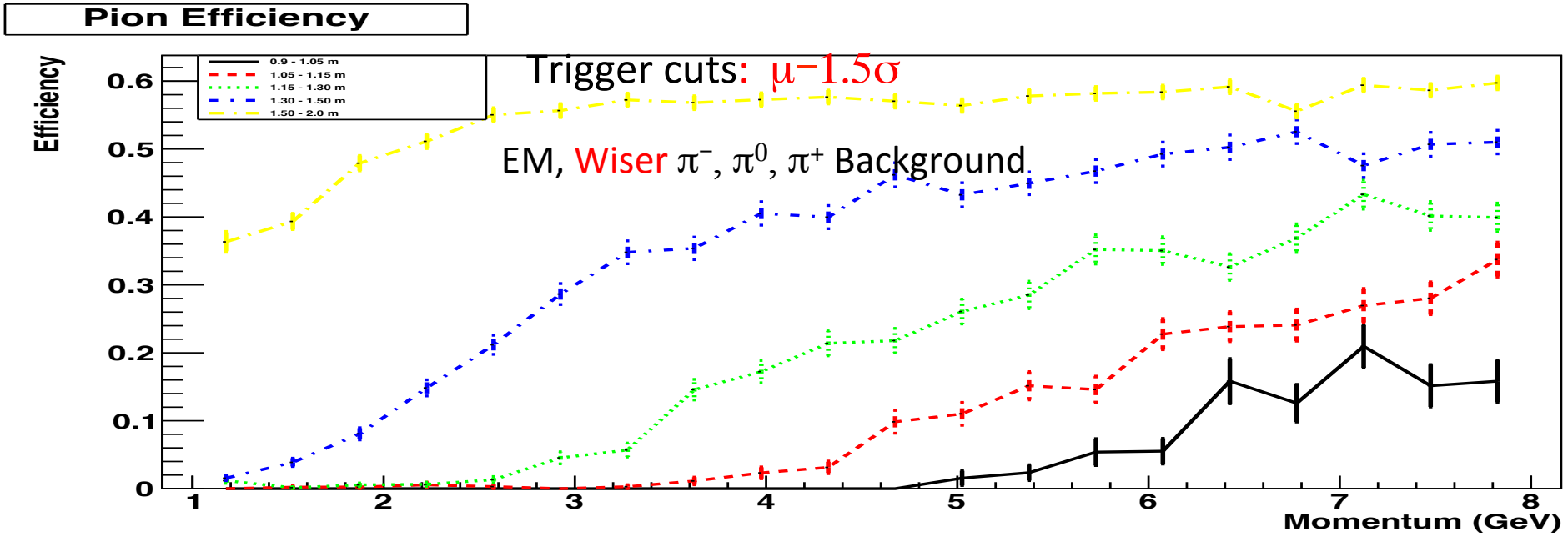


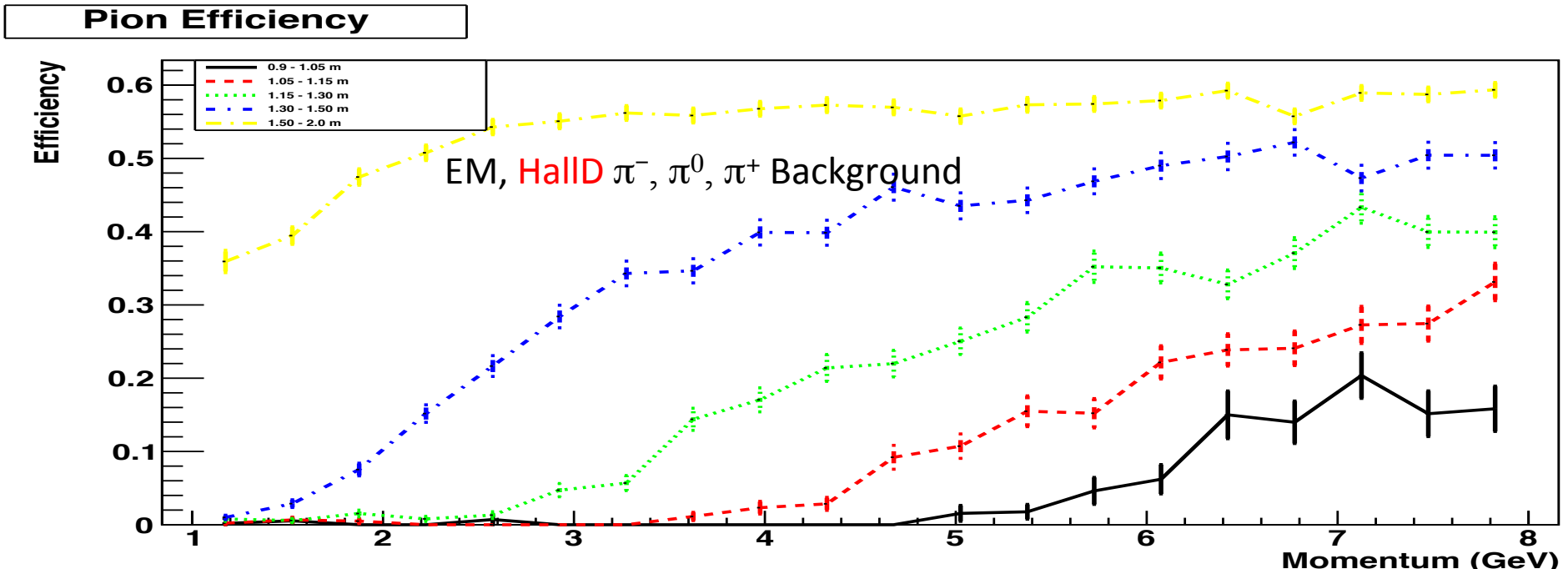
SIDIS Pion Efficiency Curves for FAEC



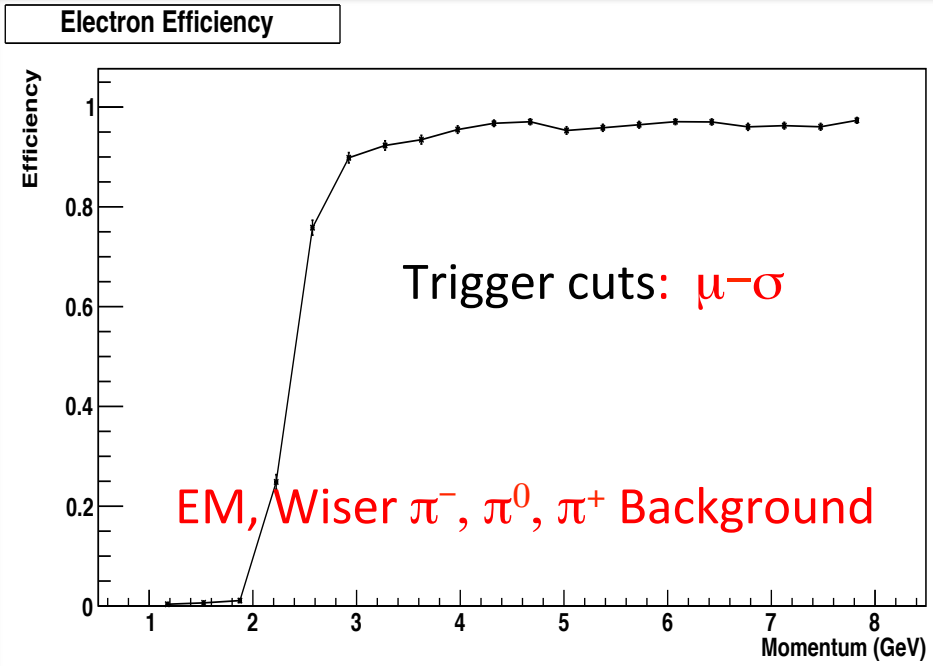


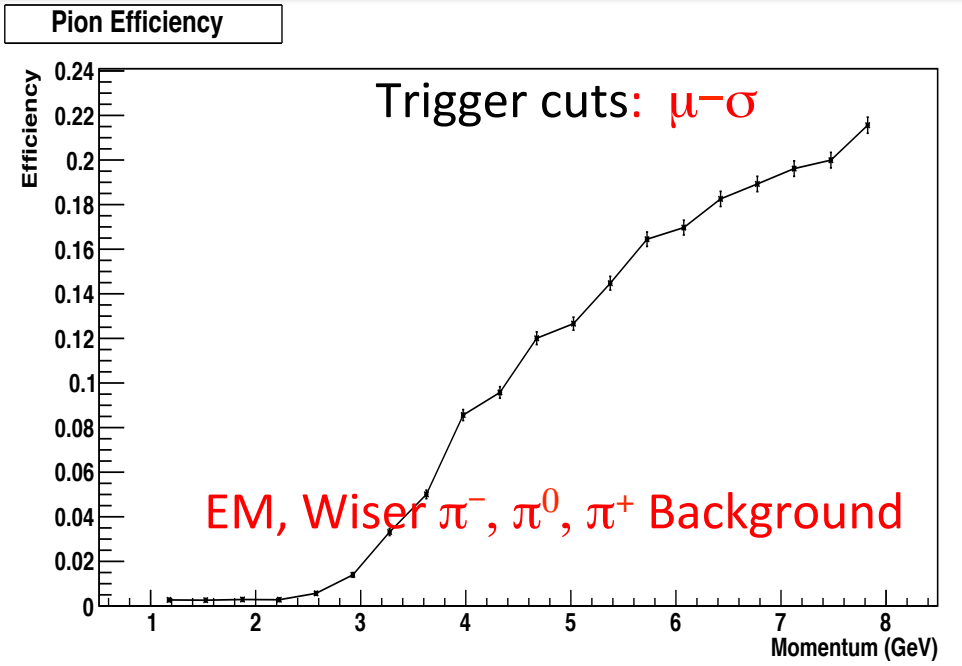
SIDIS FAEC Efficiency Curves with Backgrounds Comparison

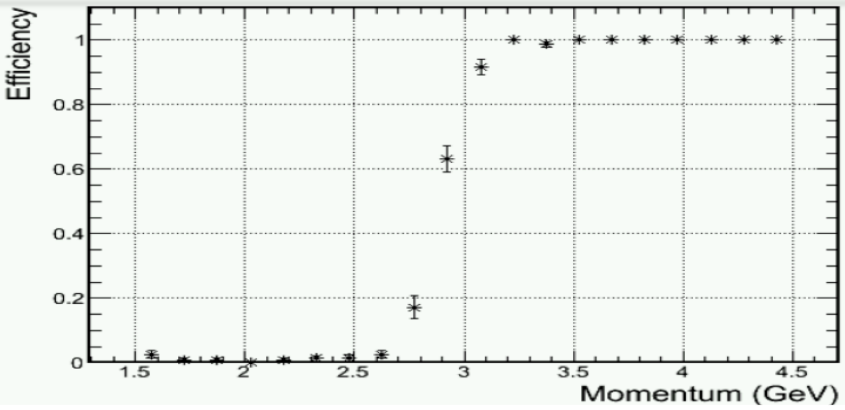




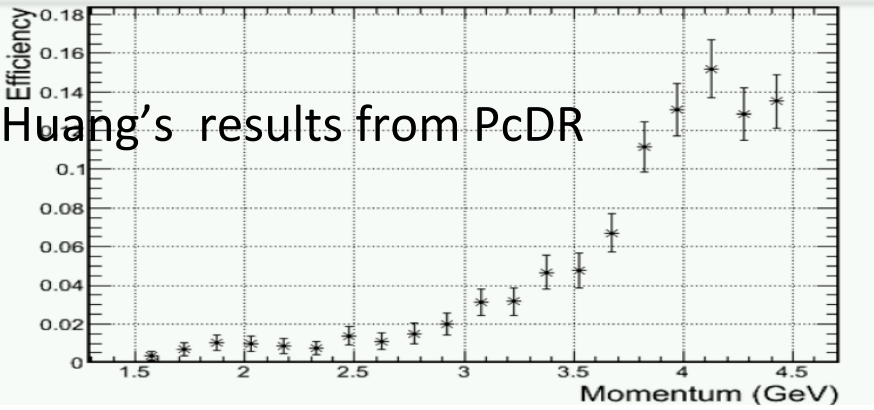
SIDIS Efficiency Curves for LAEC







(a) Electron

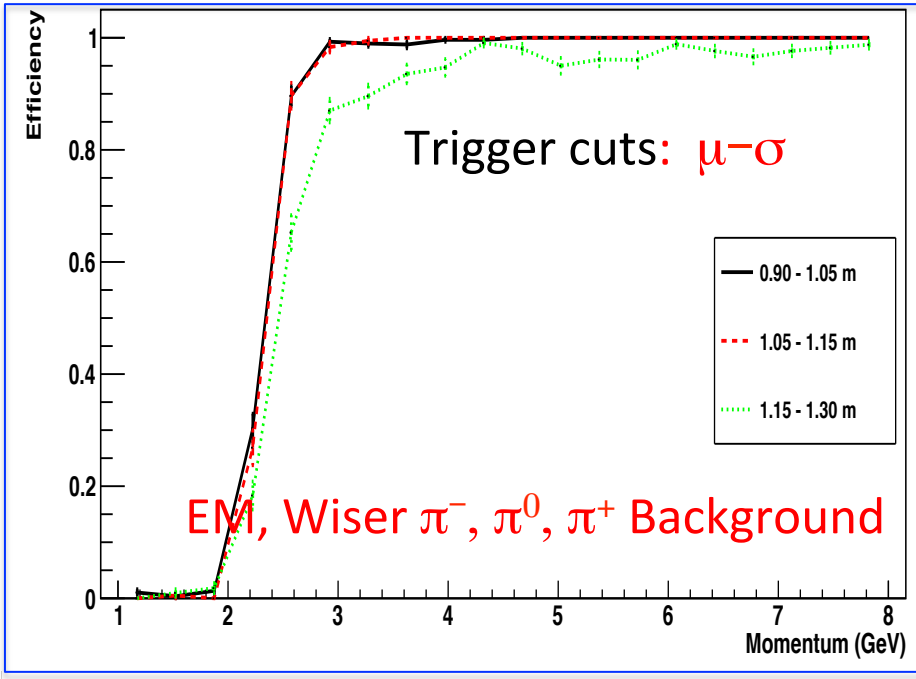


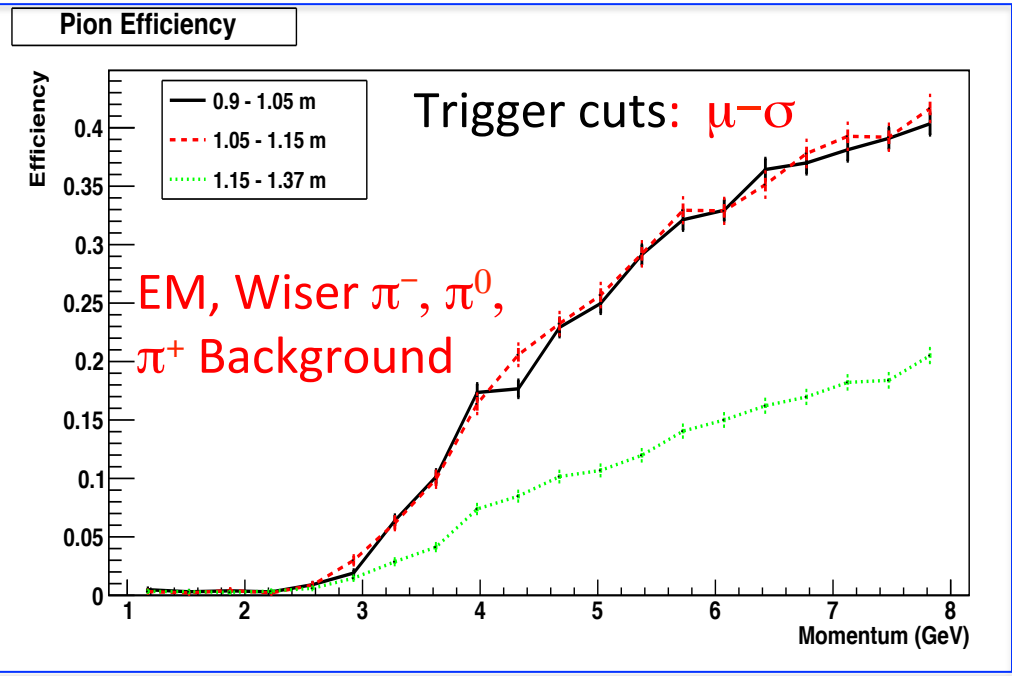
(b) Pion

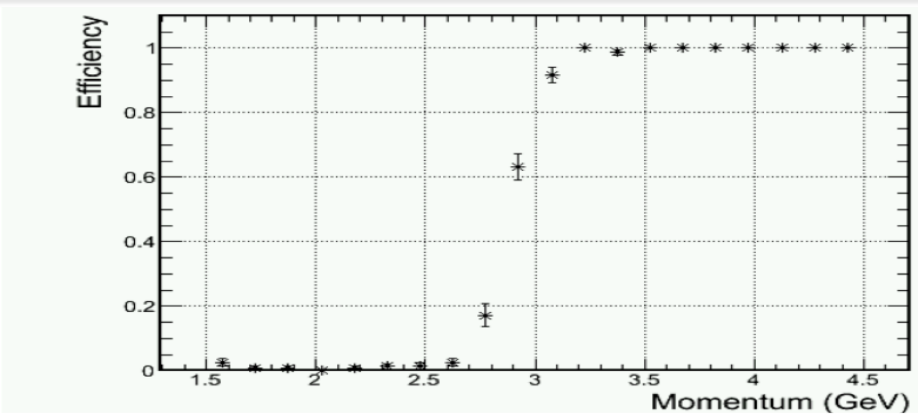
Jin Huang's results from PcDR

Figure 102: Trigger efficiency for electrons (a) and pions (b) for the SIDIS large angle calorimeter. The target trigger threshold is approximately $P_e = 3$ GeV/c. Only the (high-background) inner-radius region is shown here.

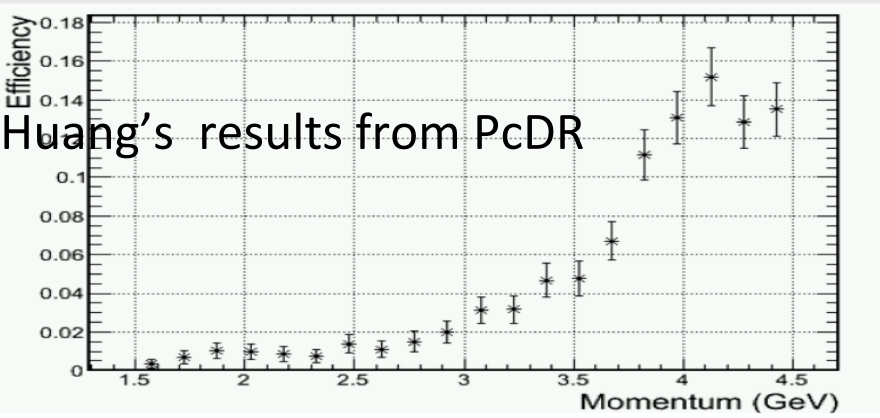
SIDIS pion Efficiency Curves for LAEC







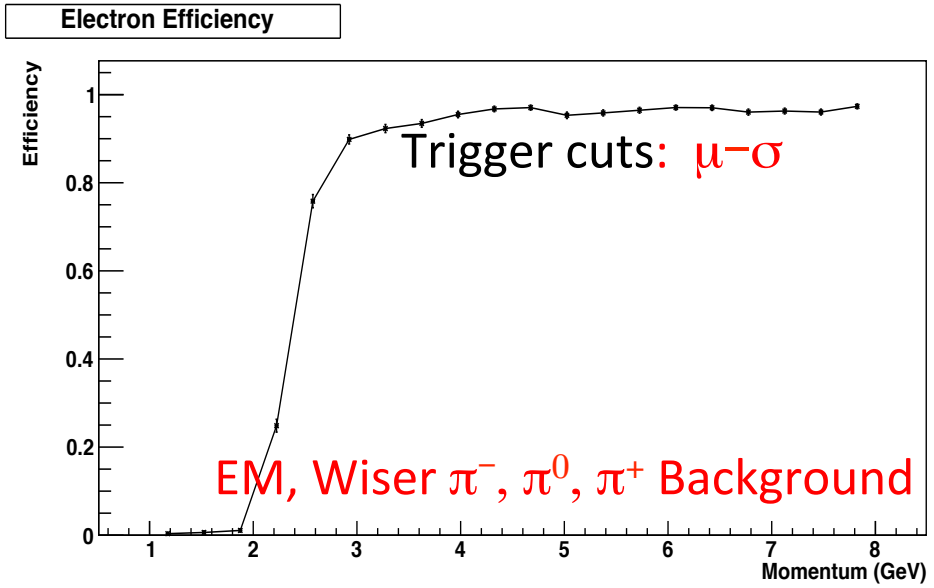
(a) Electron

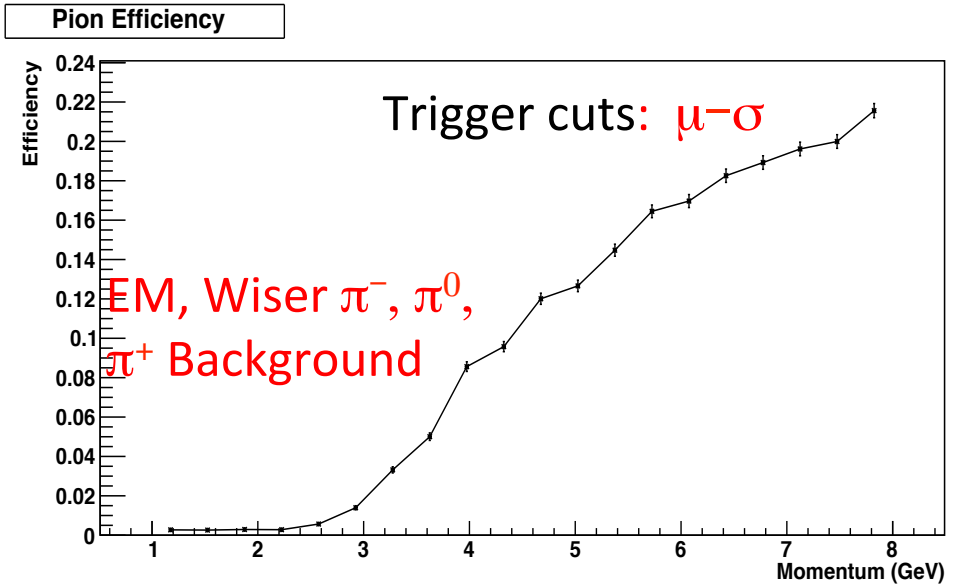


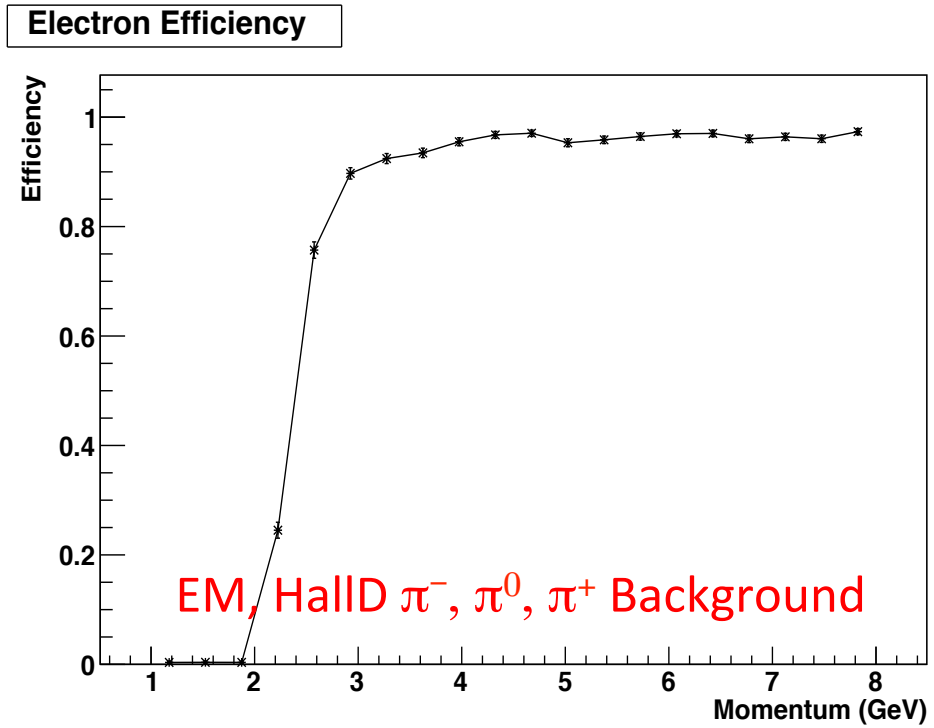
(b) Pion

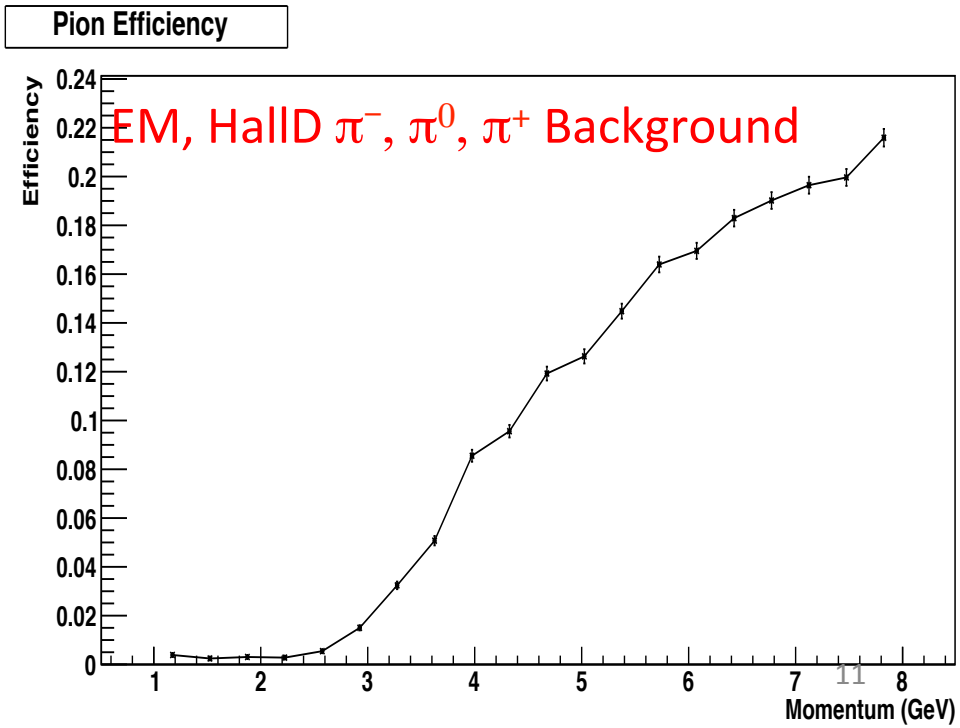
Figure 102: Trigger efficiency for electrons (a) and pions (b) for the SIDIS large angle calorimeter. The target trigger threshold is approximately $P_e = 3$ GeV/c. Only the (high-background) inner-radius region is shown here.

SIDIS LAEC Efficiency Curves with Backgrounds Comparison









Summary

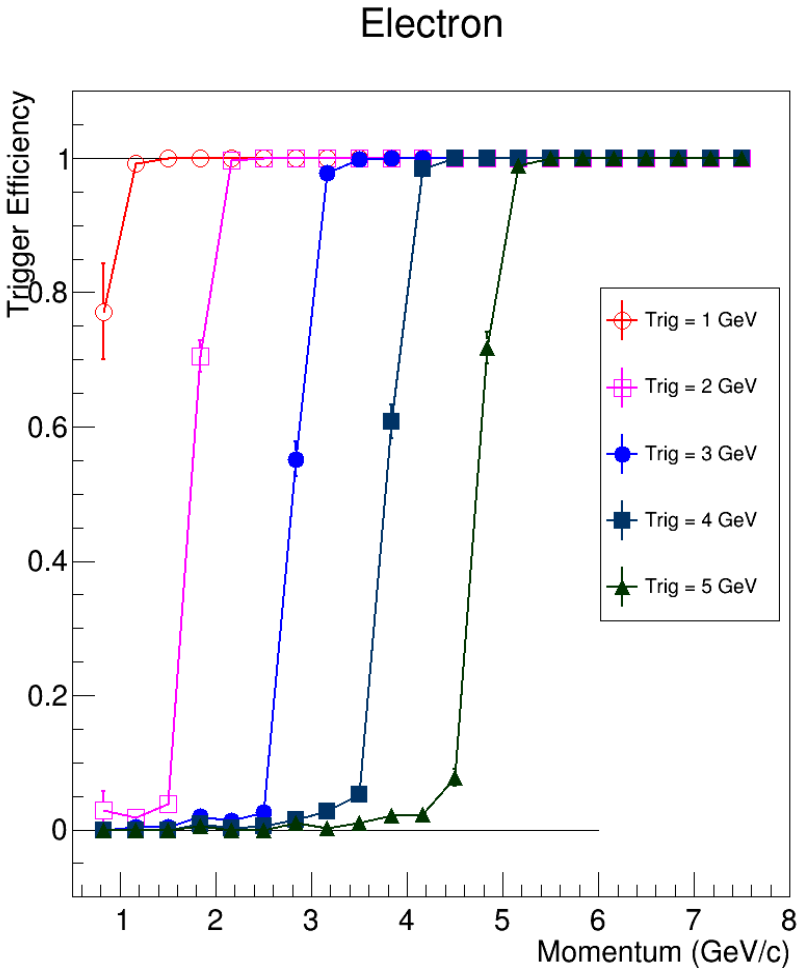
- The hadron backgrounds from Wiser and HallD are both marginal for the trigger efficiency curves.

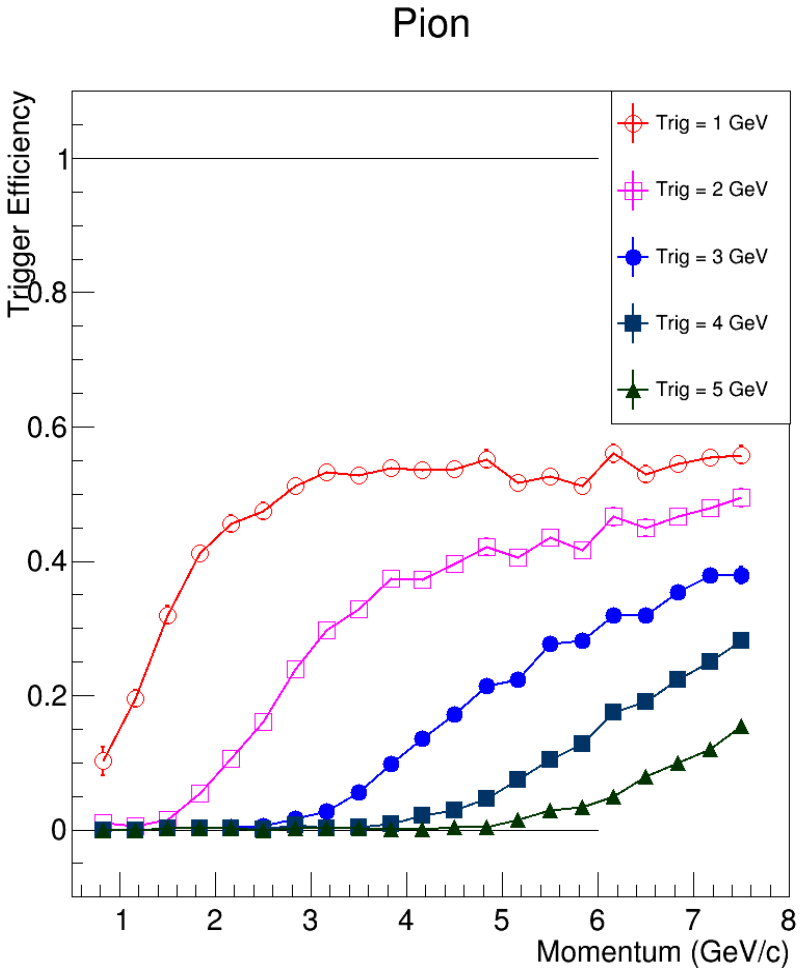
- By reading Jin's code and adjusting the corresponding threshold energies, current result (from GEMC) is consistent with previous Jin's simulation result.

Any comments and suggestions ?

Back up

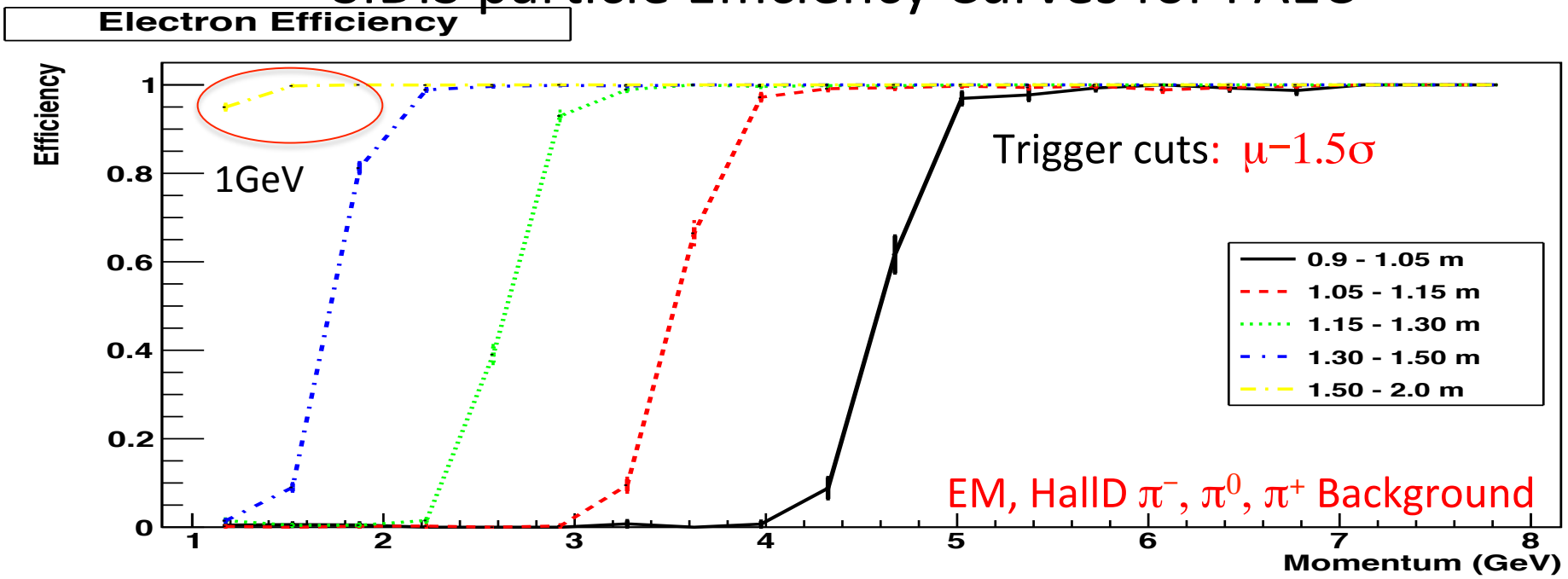
SIDIS Electron and Pion Efficiency Curves FAEC from Jin

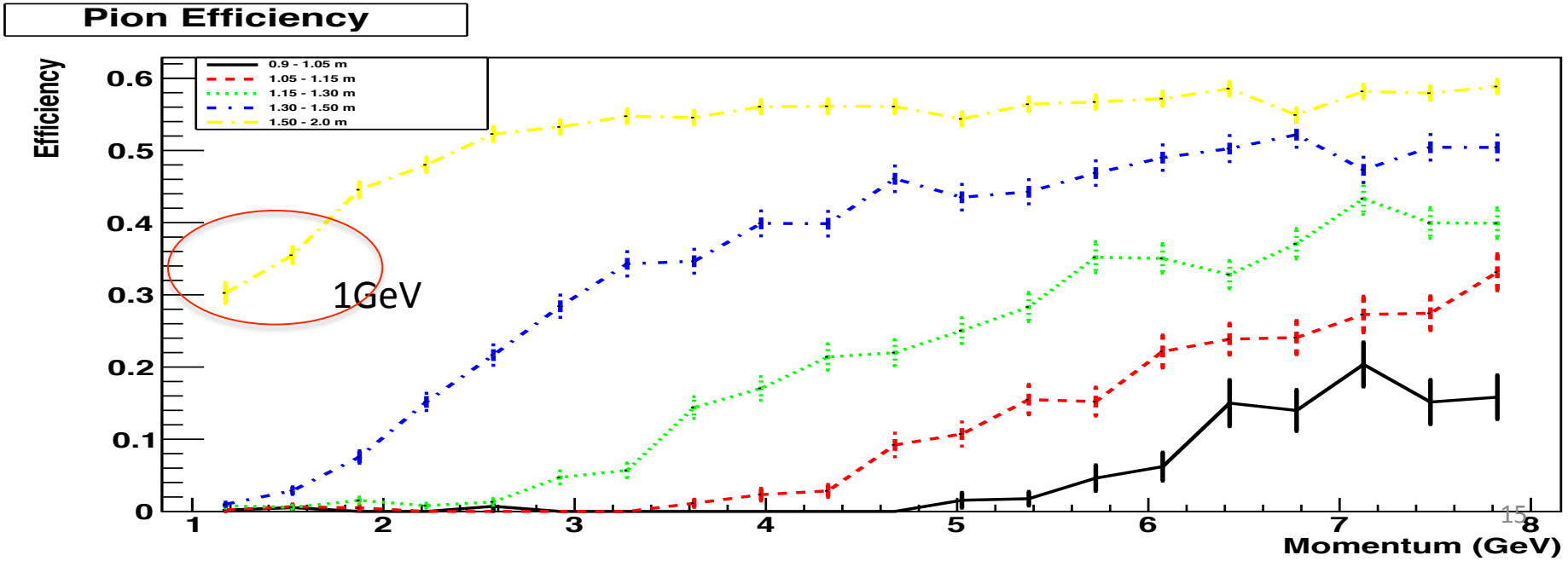




145-210 cm	1 GeV	Shower_E>0.9GeV
125-145 cm	2 GeV	Shower_E-Preshower_E >1.6 GeV
110-125 cm	3 GeV	Shower_E-Preshower_E>2.6 GeV
90-110 cm	4 GeV	Shower_E-Preshower_E>3.5 GeV

SIDIS particle Efficiency Curves for FAEC





SIDIS Acceptance