

THE GEORGE
WASHINGTON
UNIVERSITY

WASHINGTON, DC



MARSHALL B. C. SCOTT

[HTTPS://WWW.LINKEDIN.COM/IN/MARSHALL-SCOTT-PH-D-17AB191B9](https://www.linkedin.com/in/marshall-scott-ph-d-17ab191b9)



The logo for Jefferson Lab, consisting of the text 'Jefferson Lab' in a black sans-serif font. A red swoosh underline is positioned under the word 'Jefferson', starting under the 'J' and ending under the 'n'. A small red dot is located at the end of the swoosh.



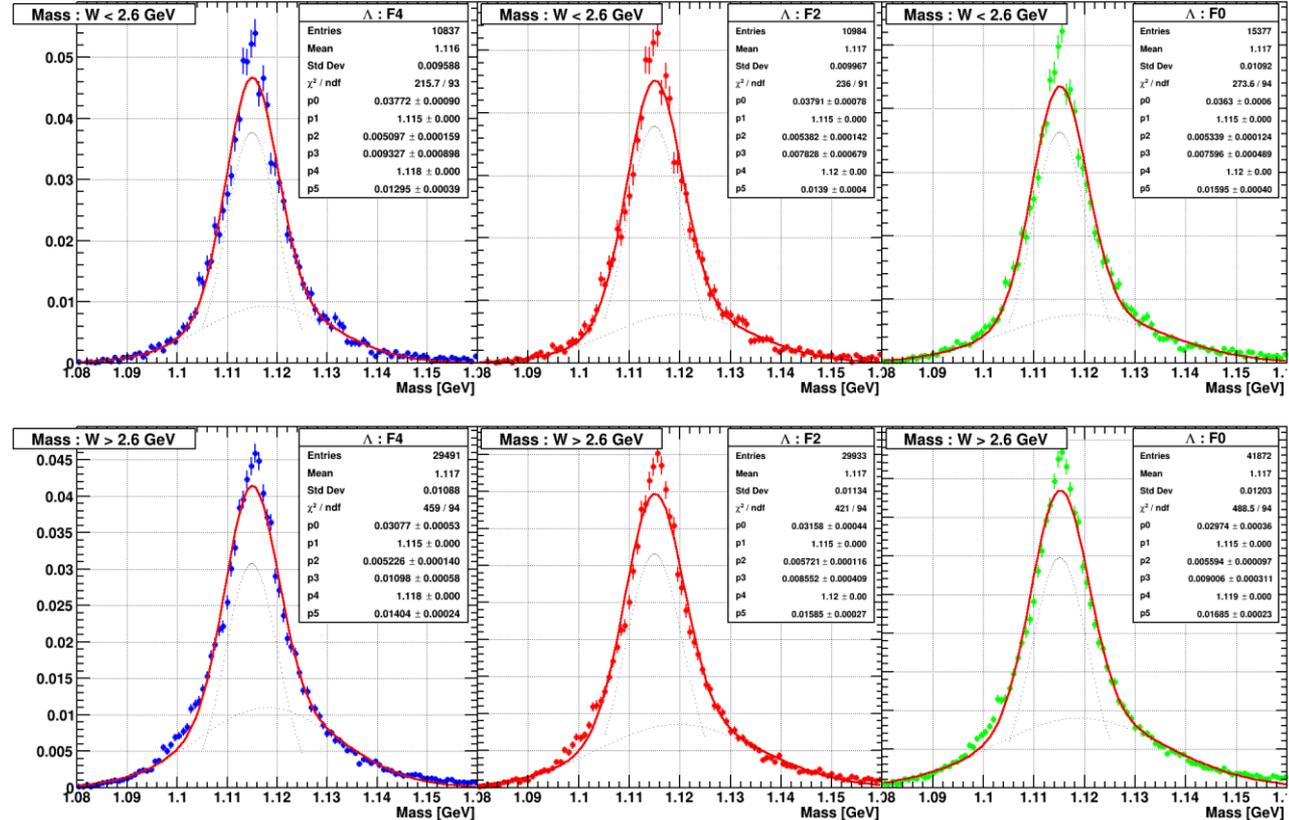
KL4 RXN AND GENERATING STEPS

- KL4 : $K^0_L + p \rightarrow \pi^+ + \Lambda$
 - $\Lambda \rightarrow p + \pi^-$ (63.9%) ; Current priority
 - $\Lambda \rightarrow n + \pi^0$ (35.8%)
- Generated histograms/root files (Monitoring Histograms, ReactionFilter, mcthrown_tree)
 - `hd_root --nthreads=8 -PPLUGINS=PEVENTRFBUNCH:USE_TAG=KLong -PVERTEX:USEWEIGHTEDAVERAGE=1 -PPLUGINS=monitoring_hists foo_smeared.hddm`
 - `hd_root --nthreads=8 -PPLUGINS=PEVENTRFBUNCH:USE_TAG=KLong -PVERTEX:USEWEIGHTEDAVERAGE=1 -PPLUGINS=ReactionFilter -PReaction1=10_14__8_18 foo_smeared.hddm`
 - `hd_root --nthreads=8 -PPLUGINS=PEVENTRFBUNCH:USE_TAG=KLong -PVERTEX:USEWEIGHTEDAVERAGE=1 -PPLUGINS=mcthrown_tree foo_smeared.hddm`

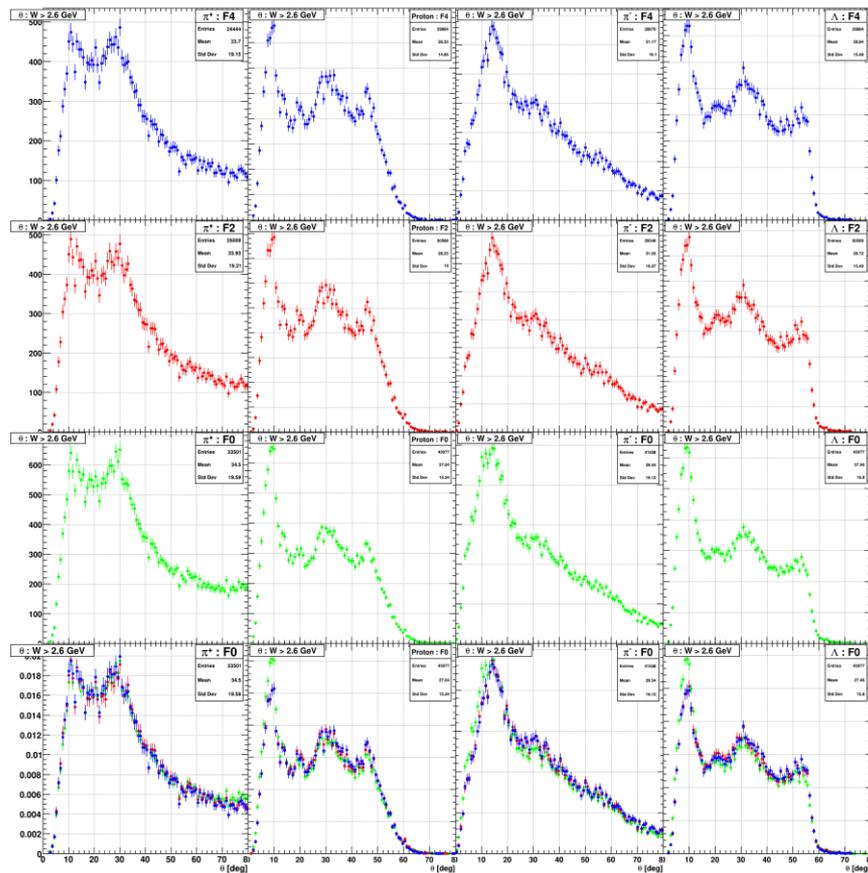
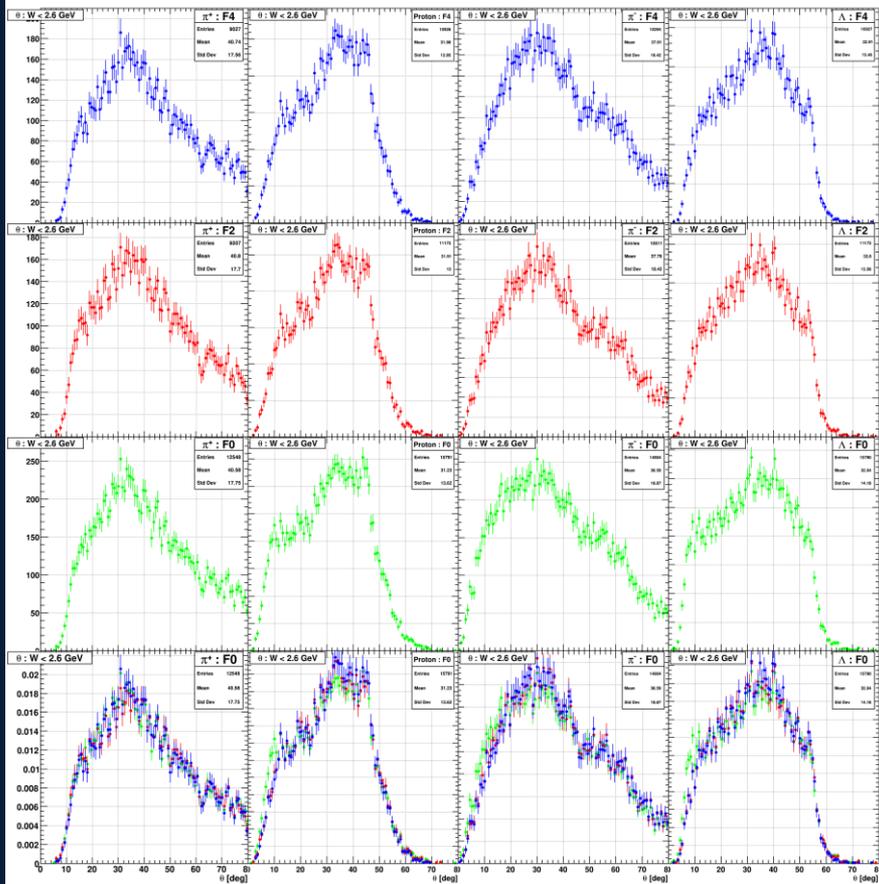


W STUDIES : LAMBDA MASS

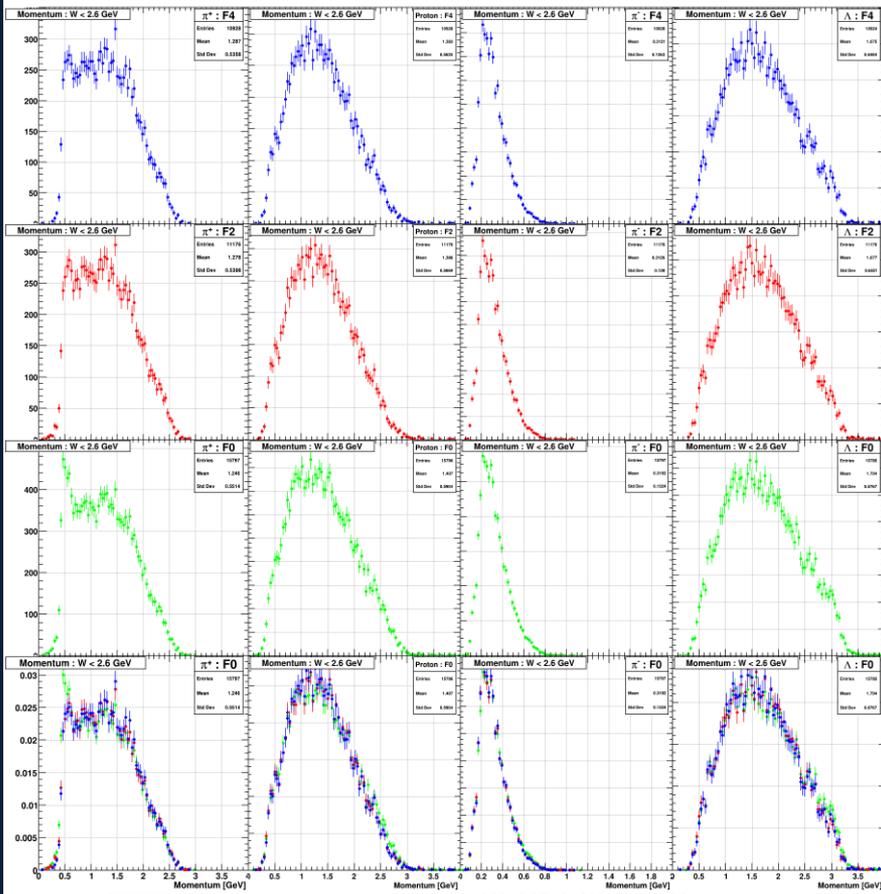
- Split the range in two
 - $W < 2.6$ GeV for ERR
 - $W > 2.6$ GeV
- χ^2/ndf for $W < 2.6$ GeV is about half that of $W > 2.6$ GeV
- Width of the signal and background gaussians are less for $W < 2.6$ GeV.



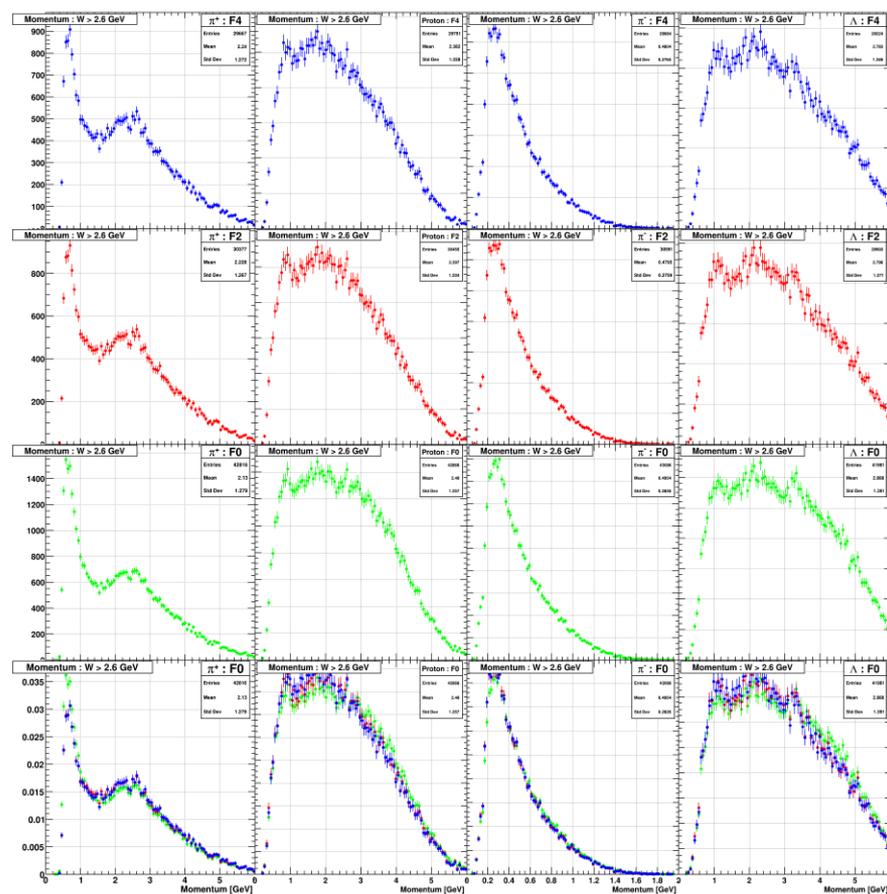
W STUDIES : THETA



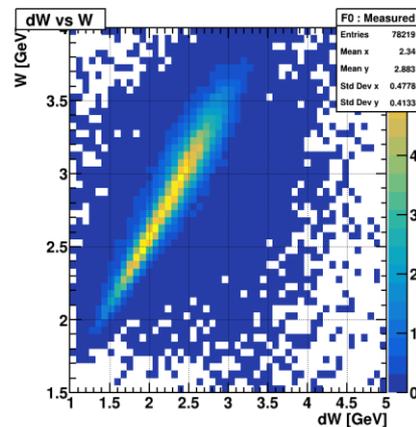
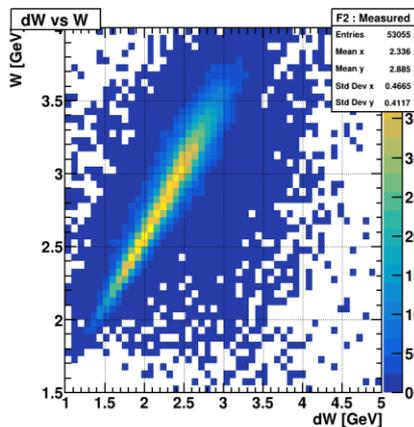
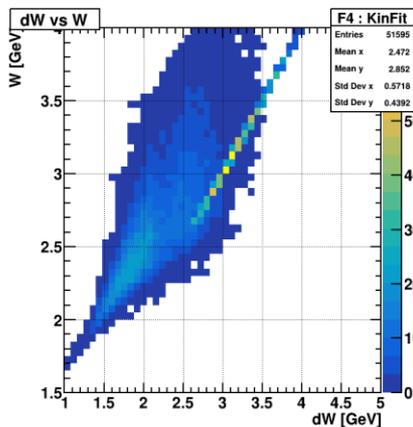
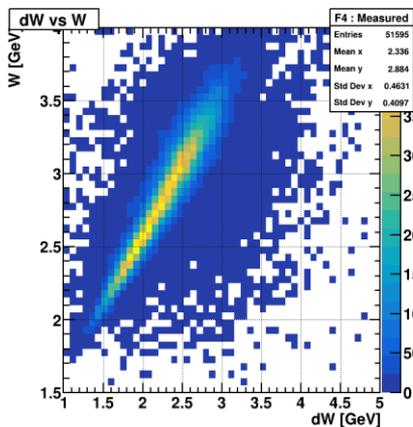
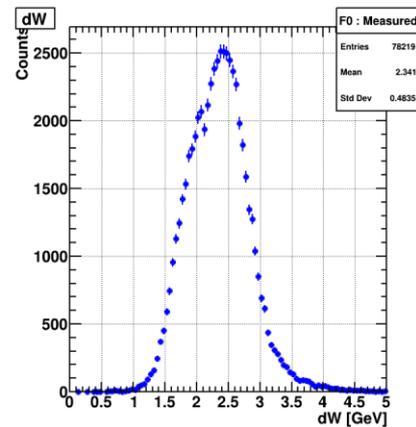
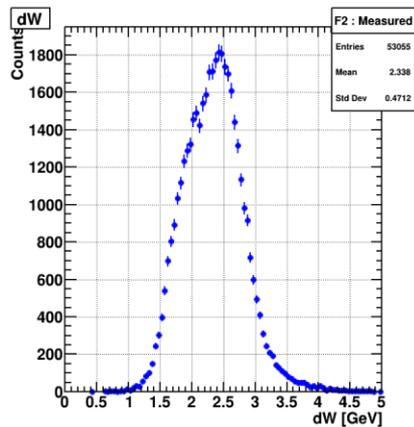
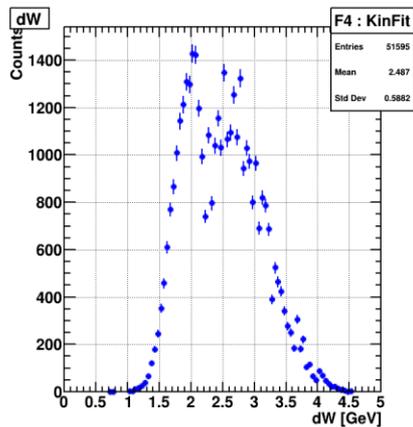
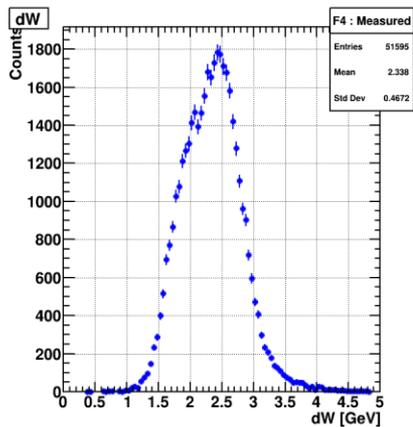
W STUDIES : MOMENTUM



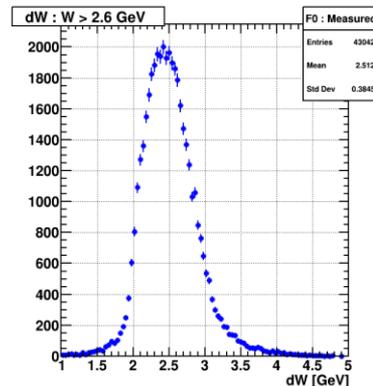
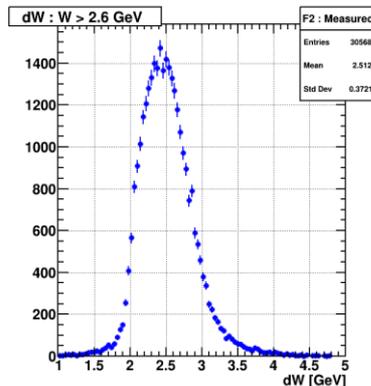
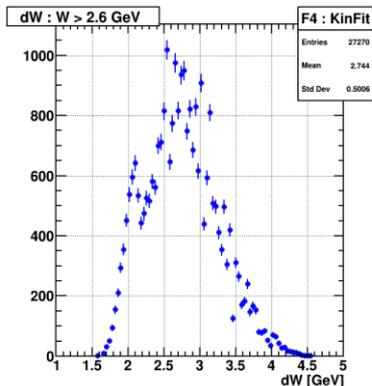
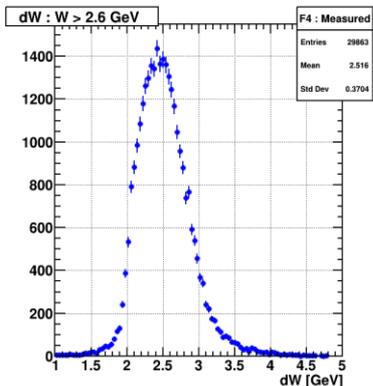
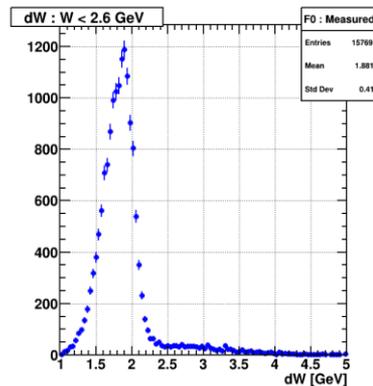
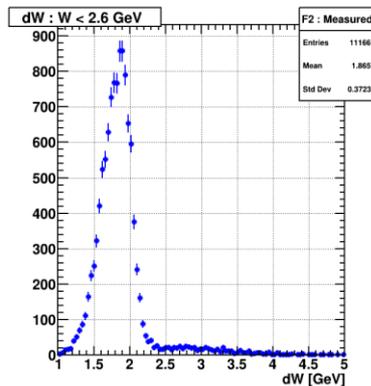
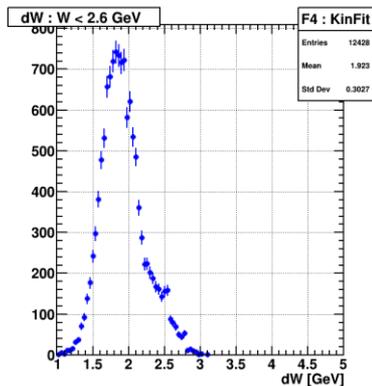
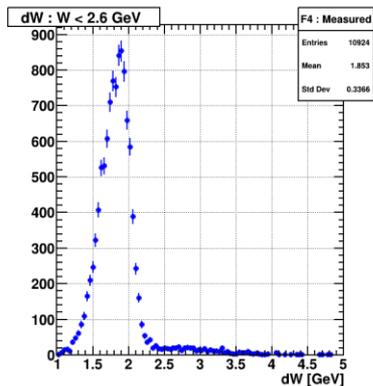
5



W STUDIES : dW

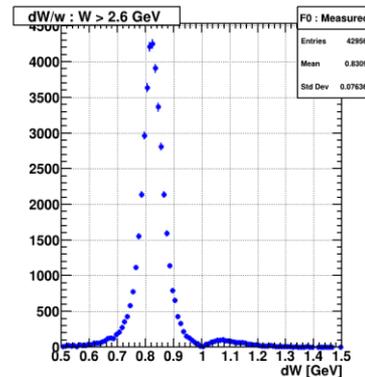
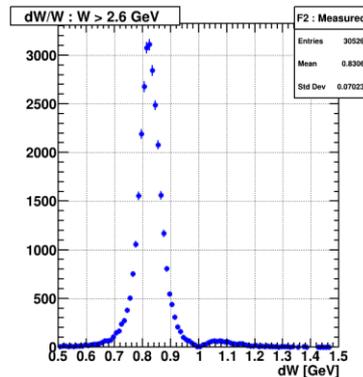
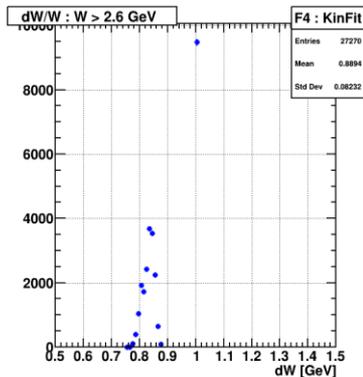
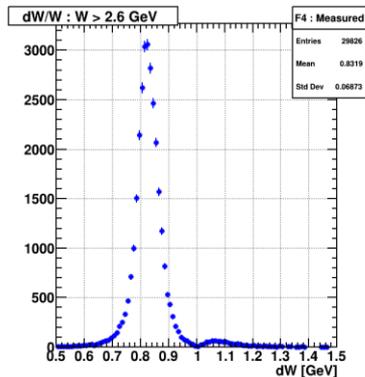
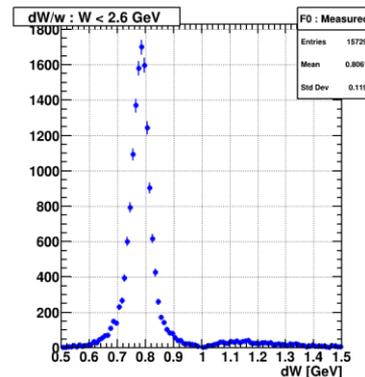
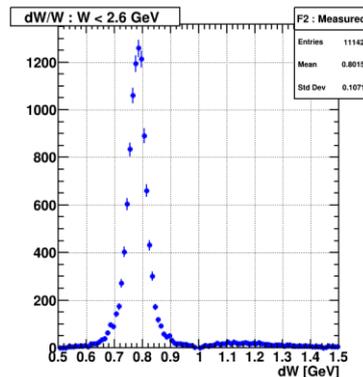
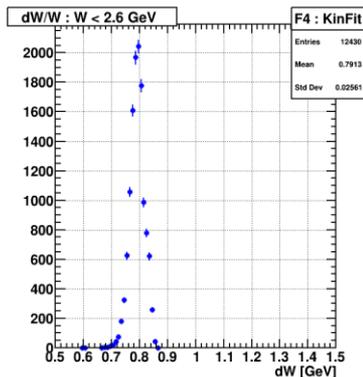
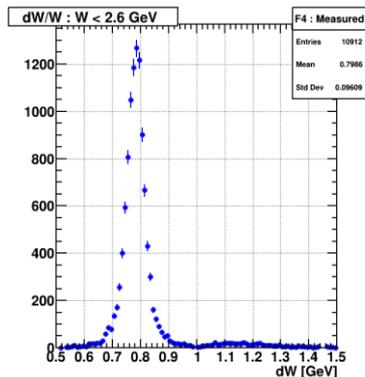


W STUDIES : dW



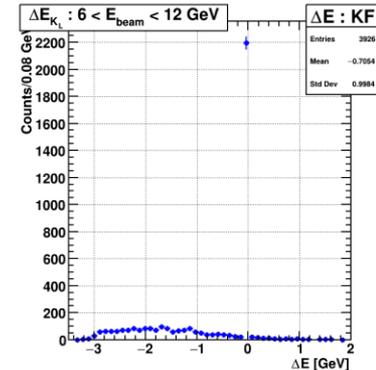
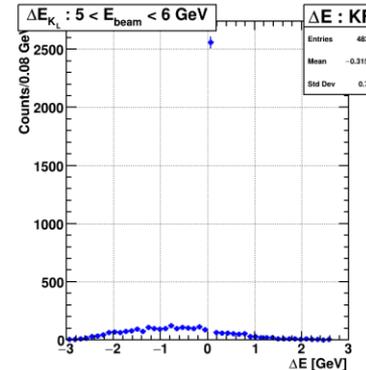
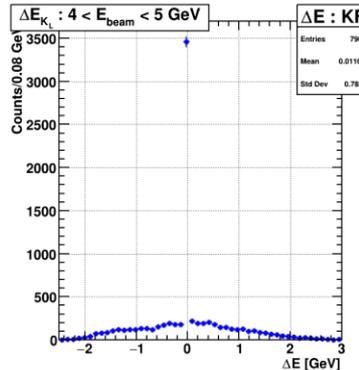
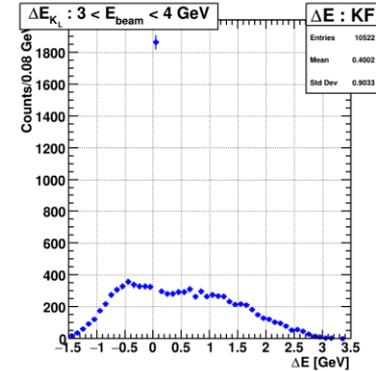
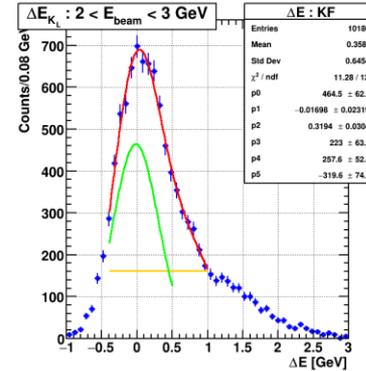
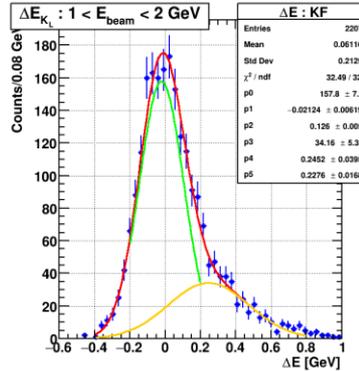
W STUDIES : DW/W

$W < 2.6$ GeV ($W > 2.6$ GeV) have means at 0.8(0.83)



BEAM ENERGY RESOLUTION AS A FUNCTION OF BEAM ENERGY

- Above 3 GeV, the resolution is essentially a delta function with a background
- Below 3 GeV
 - Width is 0.126 GeV for $1 < E < 2$ GeV
 - Width is 0.319 GeV for $2 < E < 3$ GeV
 - Both have a long tail toward higher dE



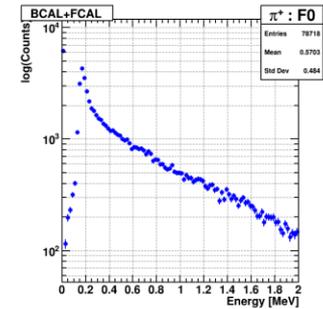
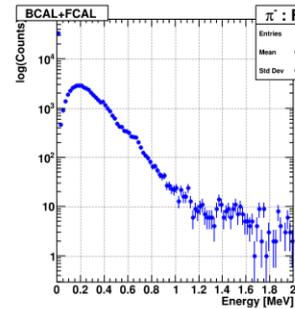
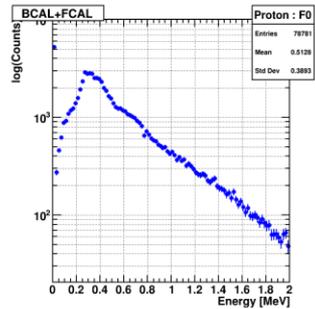
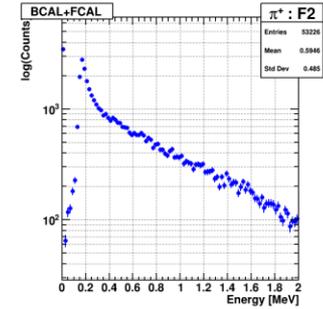
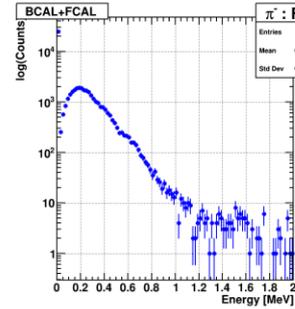
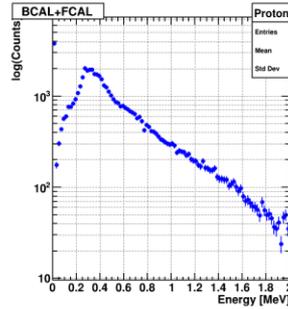
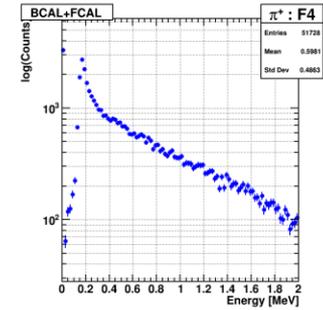
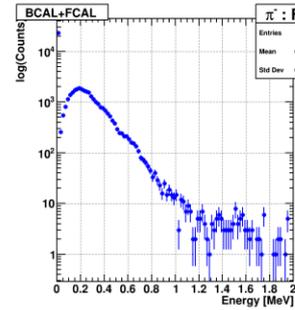
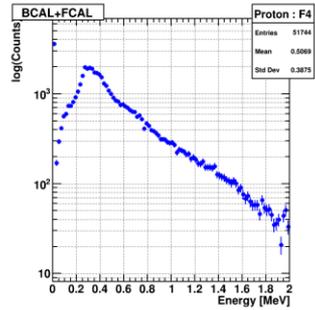
Back up slides



ENERGY DEPOSIT

Deposit = BCAL + FCAL

Particle	% w/ E. Deposit	Mean Deposit (MeV)
Proton	92.9	0.507
Pi+	93.6	0.598
Pi-	54.9	0.153



W STUDIES : M_x

