D* analysis in PHP for different energies

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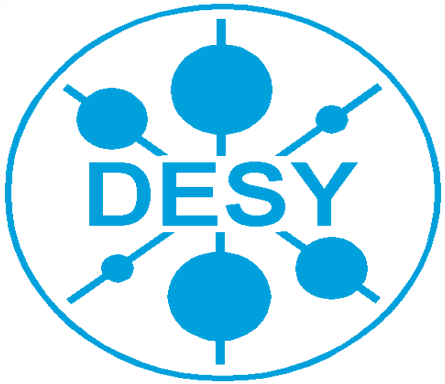


Kyiv Group Meeting, Hamburg, May 13

OUTLINE

- Data samples, cuts
- Mass distribution
- Distributions of kinematic variables
- Control plots in bins of Pt(D*,K,π,π_s)
- Control plots in bins of η(D*,K,π,π_s)
- Calculation the number of D* mesons in HER, MER,LER
- Summary and Plans

Data samples, cuts

- **D* selection in PHP:**

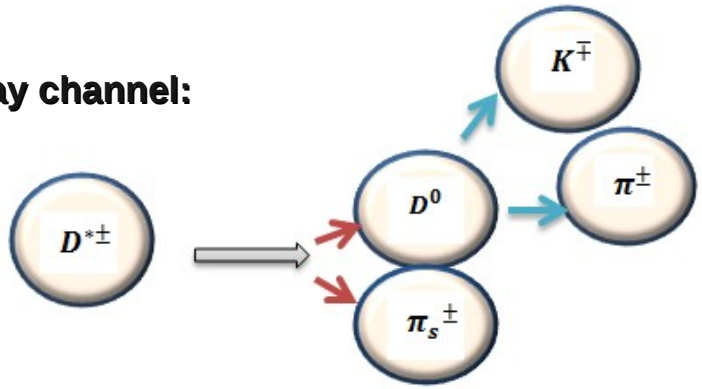
No good SINISTRA electron with E>5 GeV and probability >0.9
130 < W_{zufo} < 285

- **D* selection:**

$|\eta(D^*,K,\pi,\pi_s)|$ <1.6
1.9 GeV<Pt(D*)<20 GeV
Pt(K,π)>0.4 GeV
$Pt(\pi_s)$>0.12 GeV
Pt/Et>0.12
1,83 GeV< m(D0) <1.90 GeV

Trigger cuts:
HFLO1 (charm hadrons in photoproduction)
HFMO1 (D* meson selection)

decay channel:



Data:
2006/07p Common Ntuples (v04b):
HER~136pb-1
MER~7pb-1
LER~12pb-1

MC:
•2006/07p Pythia Inclusive Charm in Photoproduction Monte Carlo Sample — **HER**

•2006/07p Pythia Inclusive Charm in Photoproduction Monte Carlo Sample with D* filter (v05b) -**LER,MER**

HER -high energy run 920 GeV

MER-middle energy run 575 GeV

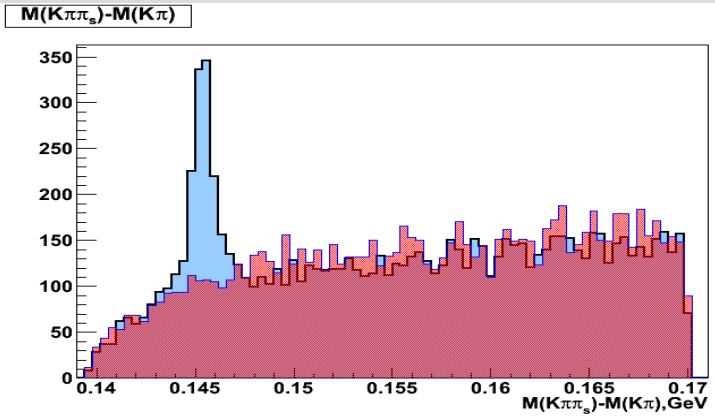
LER-low energy run 460 GeV

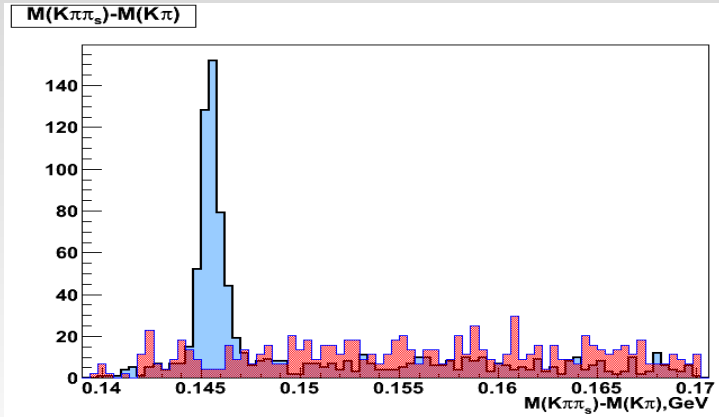
Mass distribution
(ΔM = M(D*)-M(D0)

DATA:

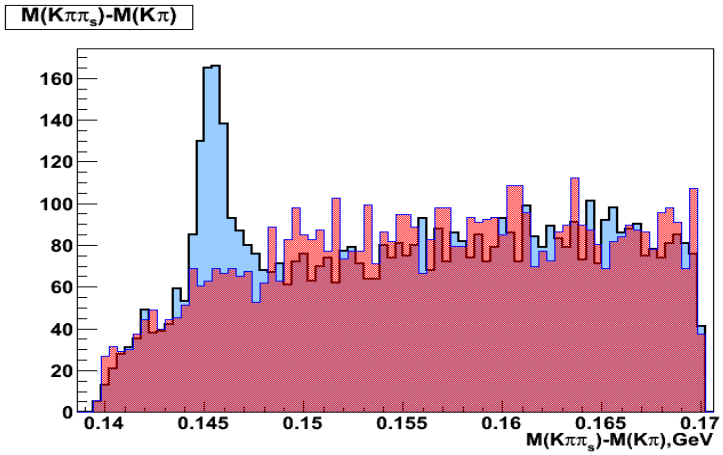
MC:

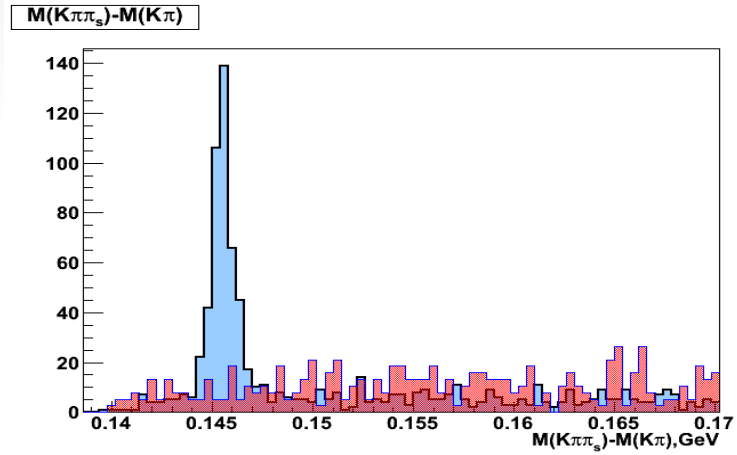
LER:



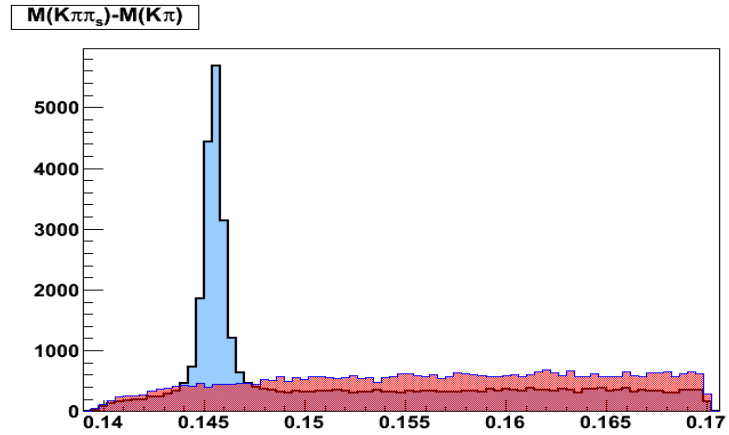


MER:



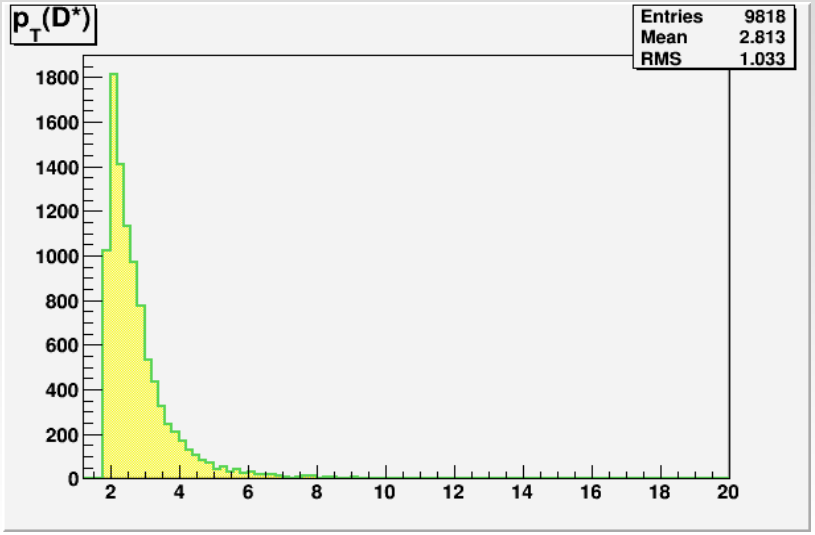


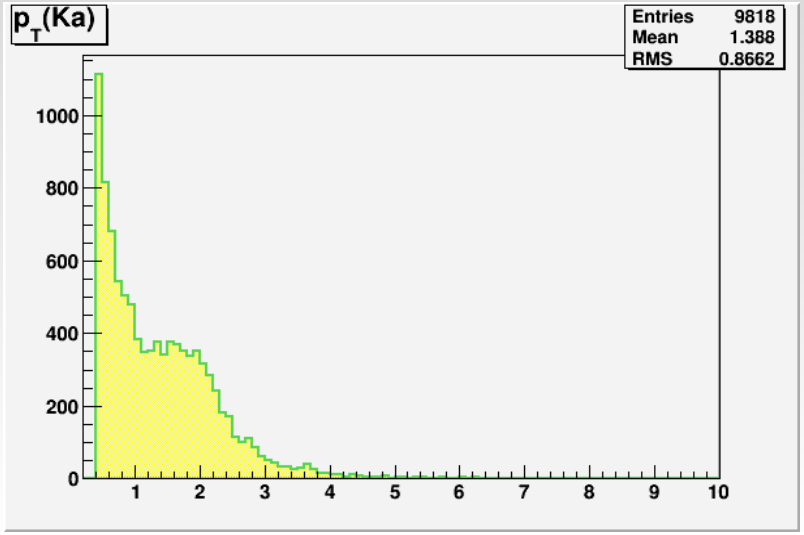
HER:

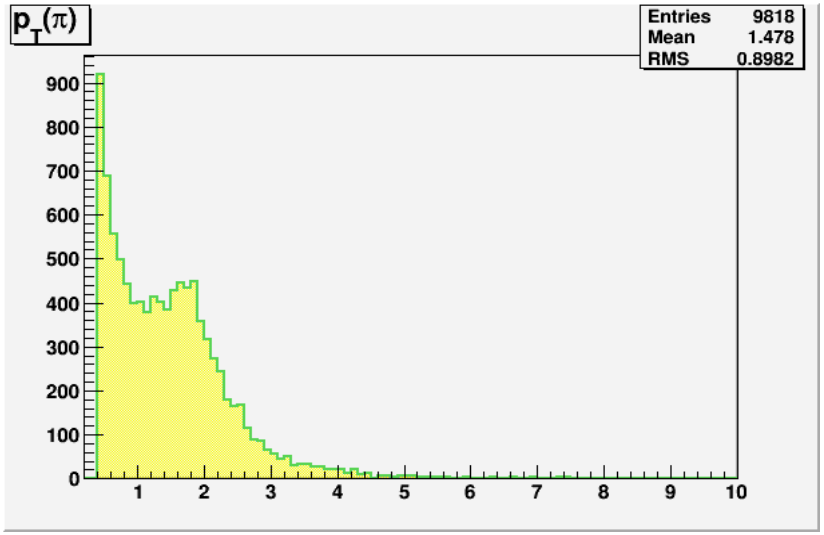


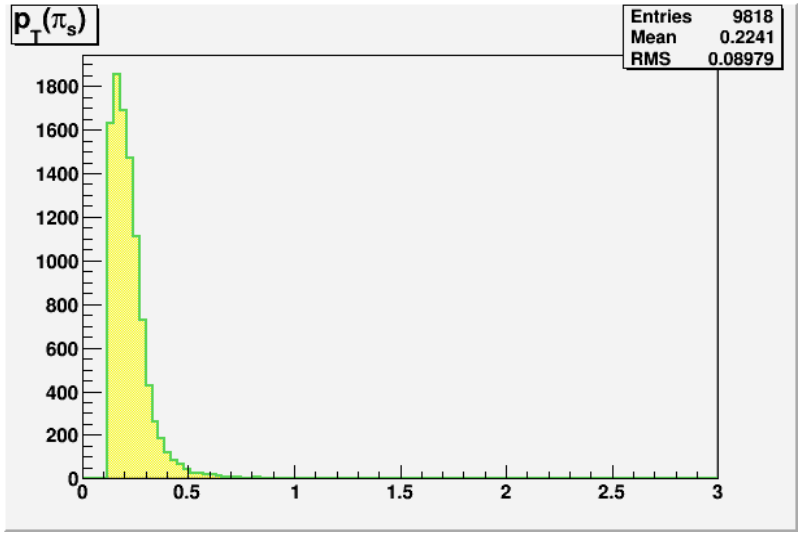
Distributions of kinematic variables

✔Plots for Pt(D*,K,π,πs) in LER:



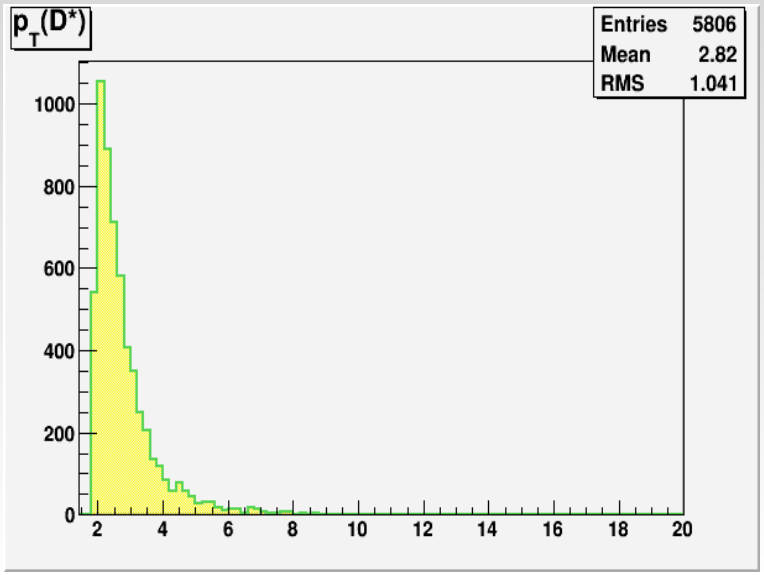


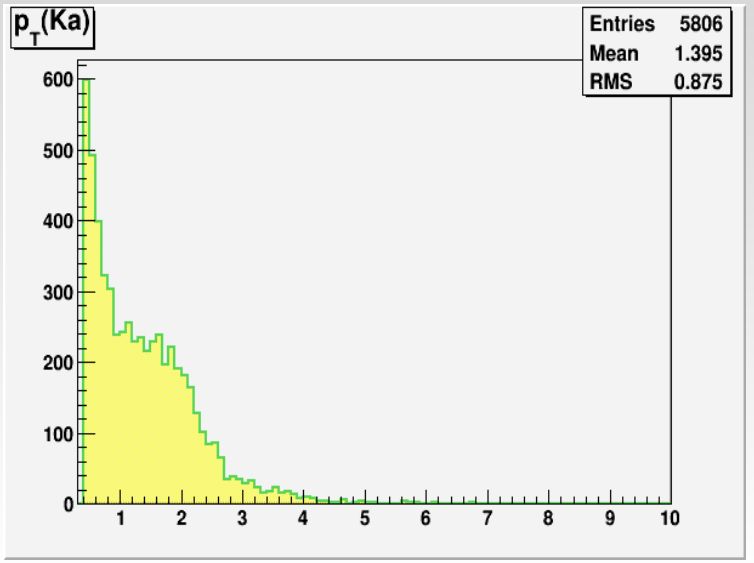


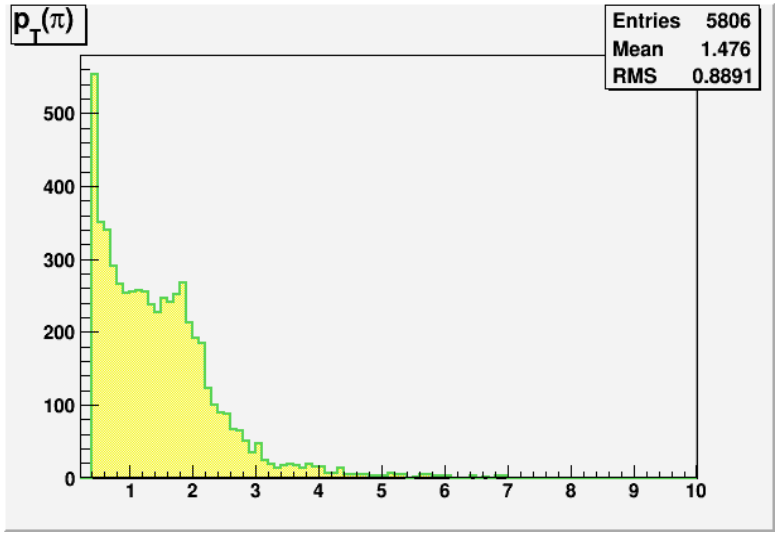


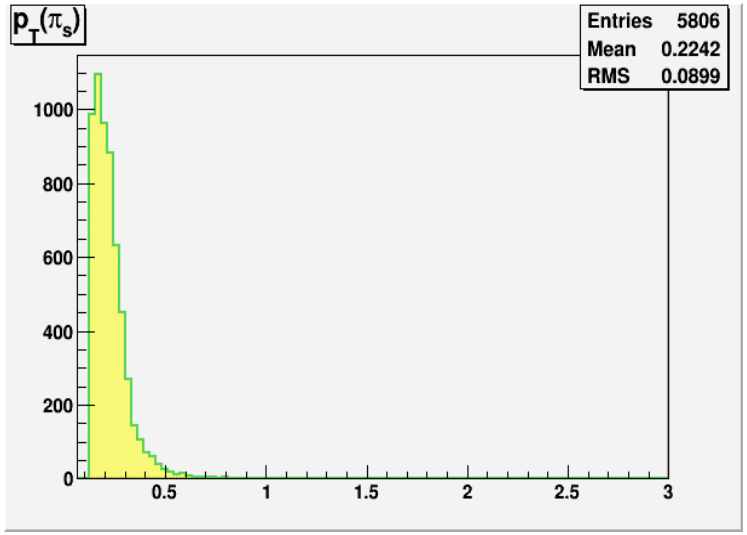
Distributions of kinematic variables

✔Plots for Pt(D*,K,π,πs) in MER:



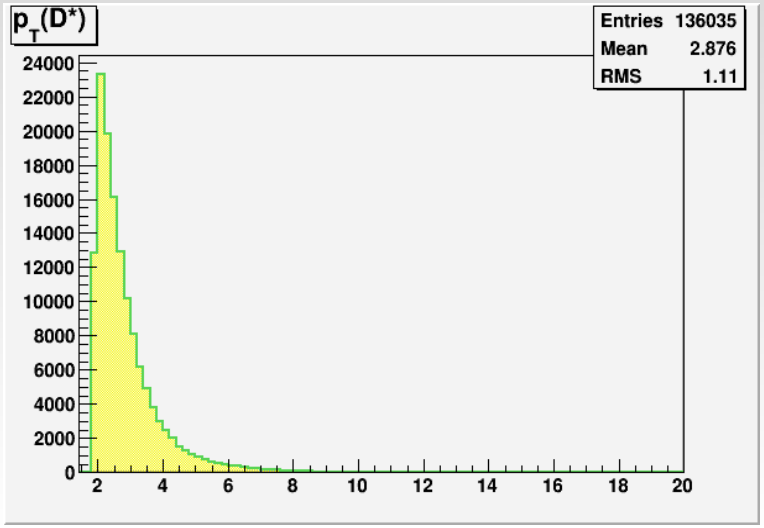


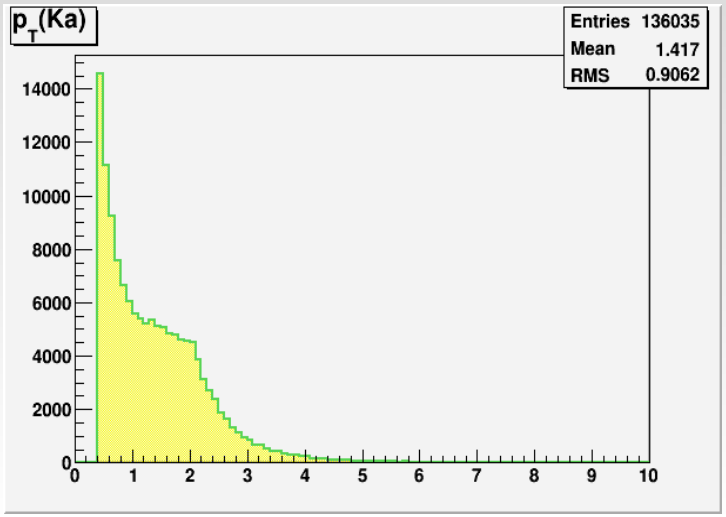


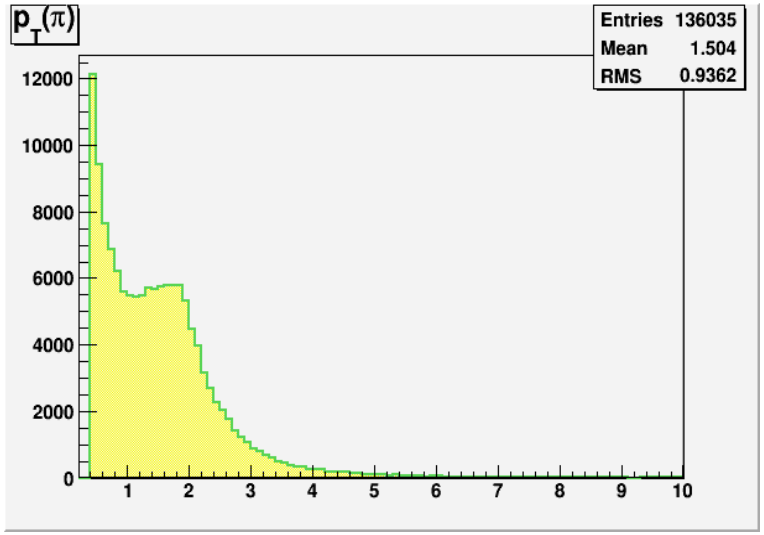


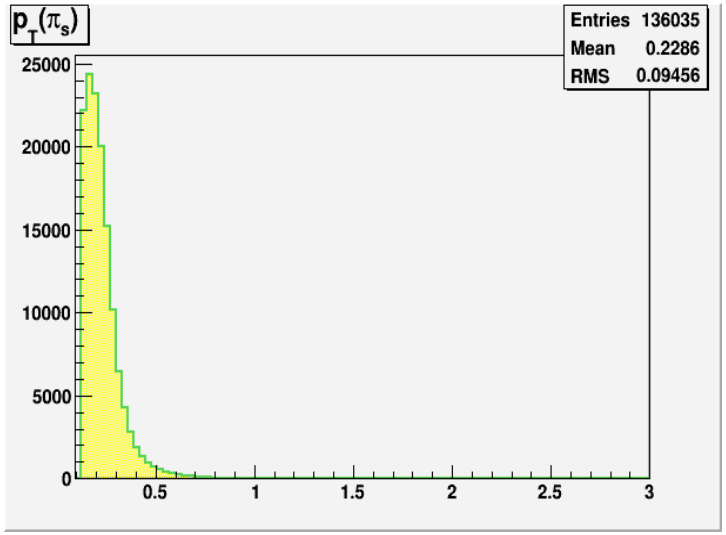
Distributions of kinematic variables

✔Plots for Pt(D*,K,π,πs) in HER:



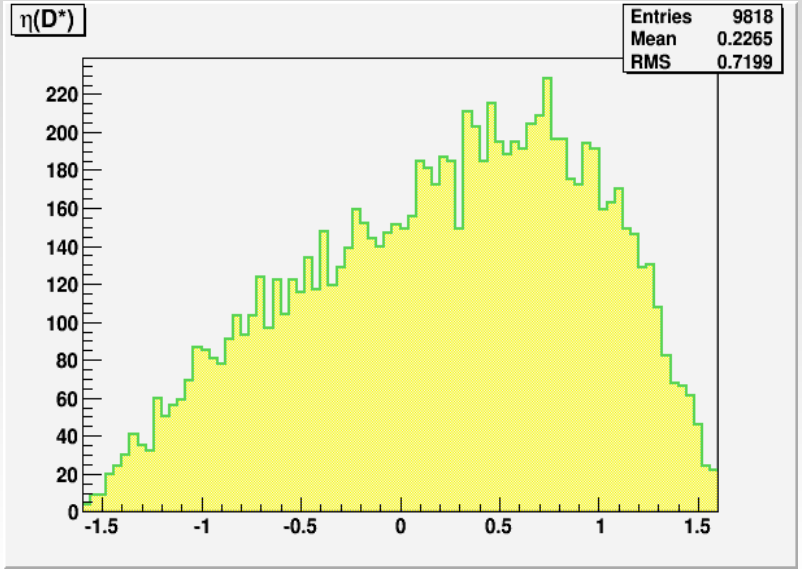


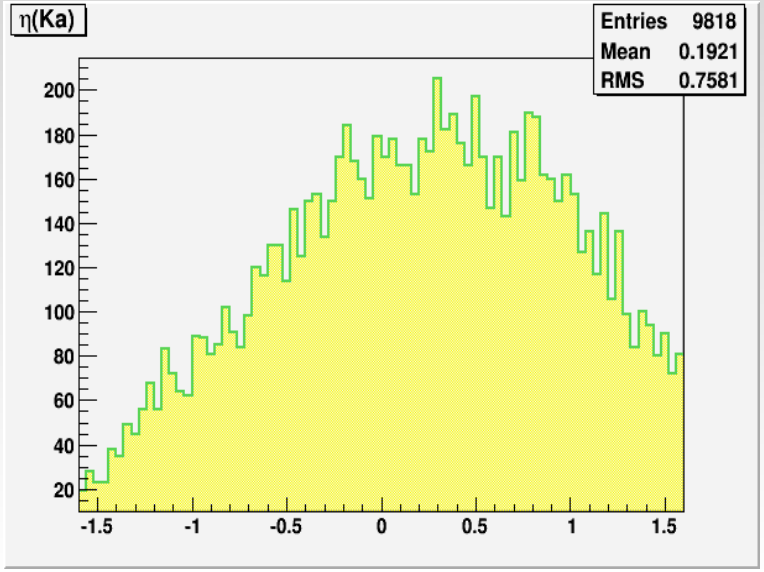


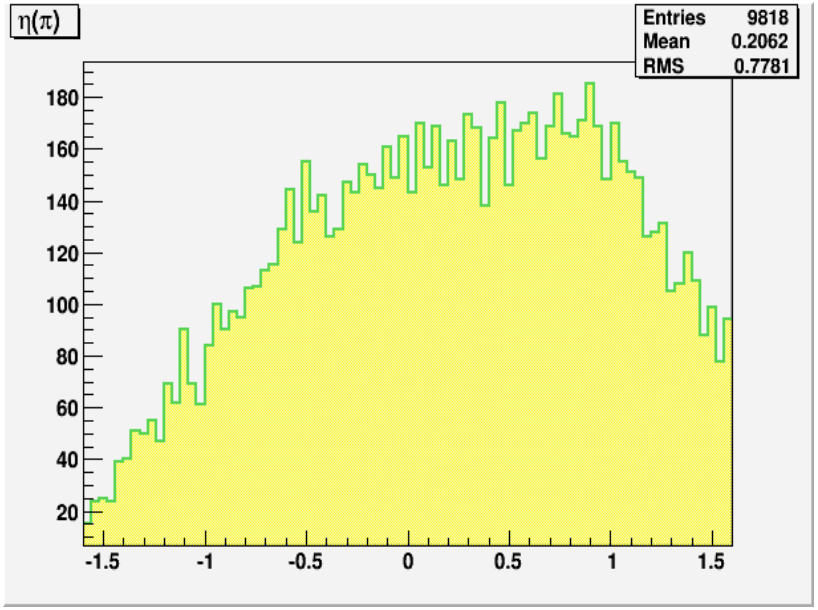


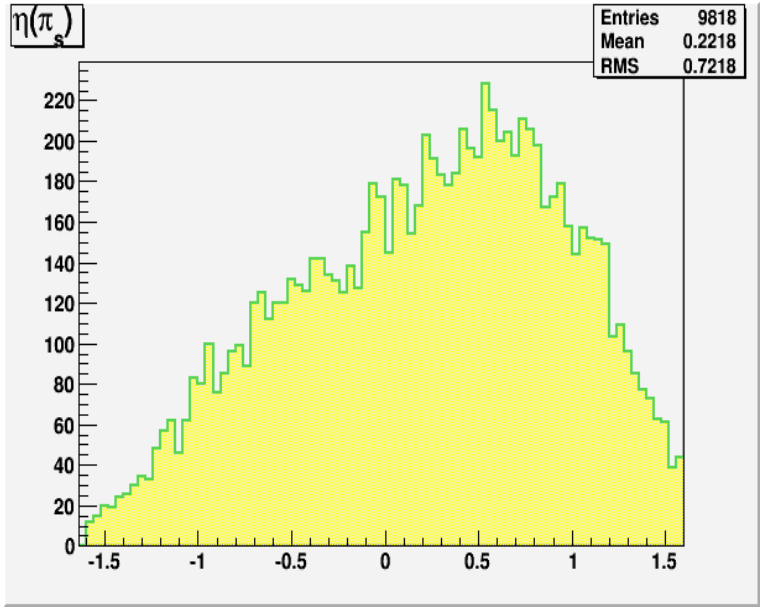
Distributions of kinematic variables

✔Plots for η(D*,K,π,πs) in LER



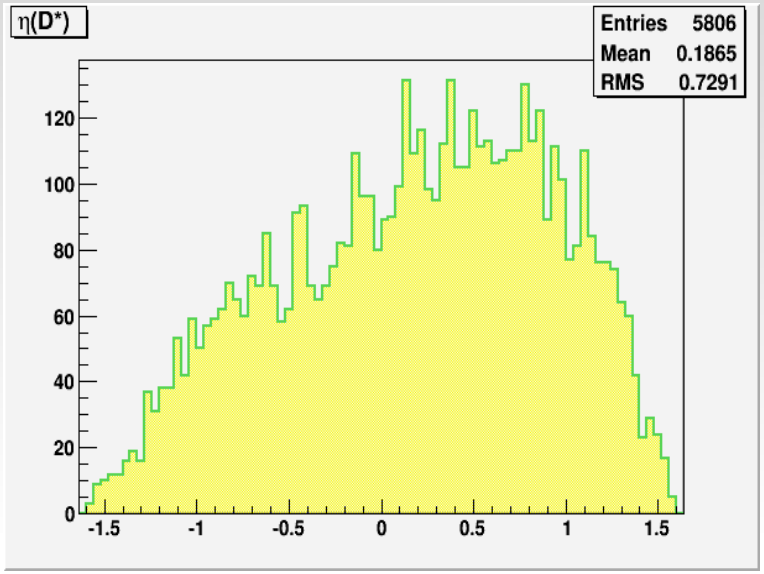


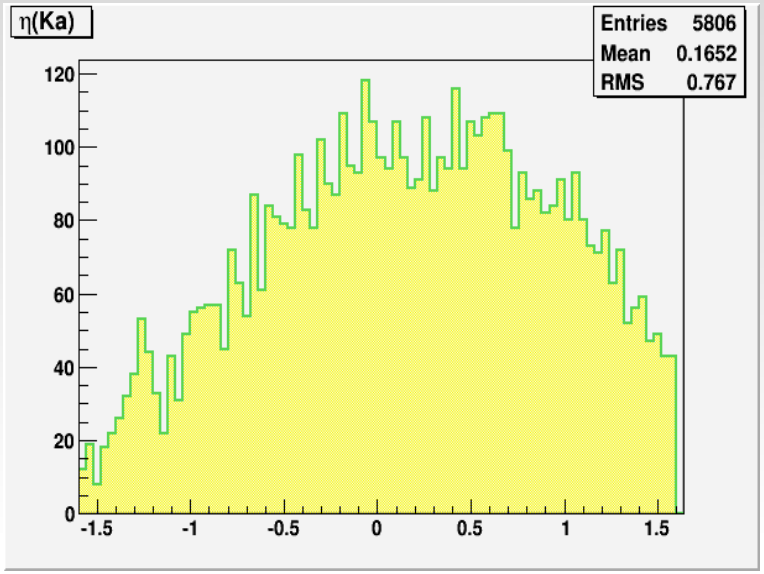


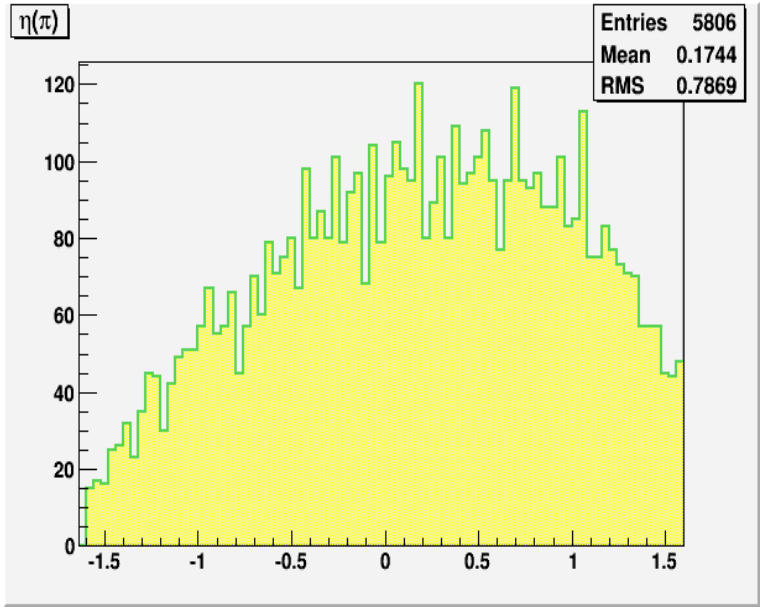


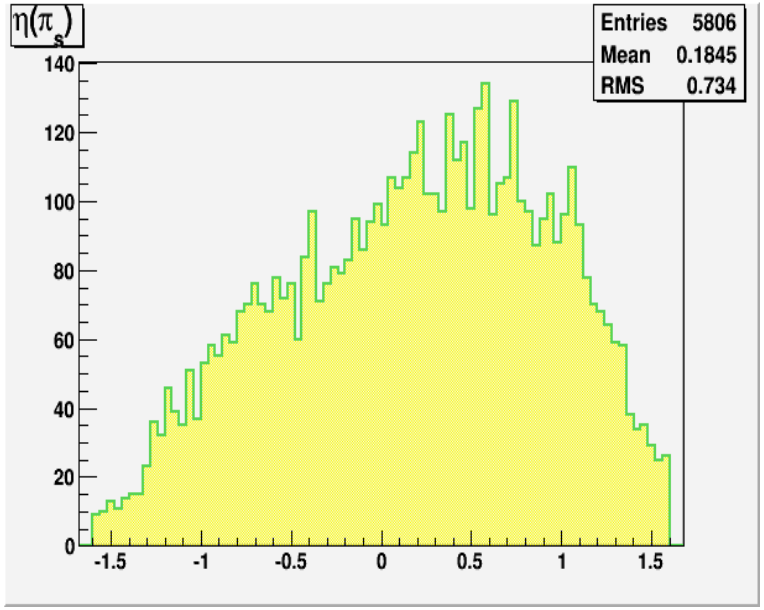
Distributions of kinematic variables

✔Plots for η(D*,K,π,πs) in MER



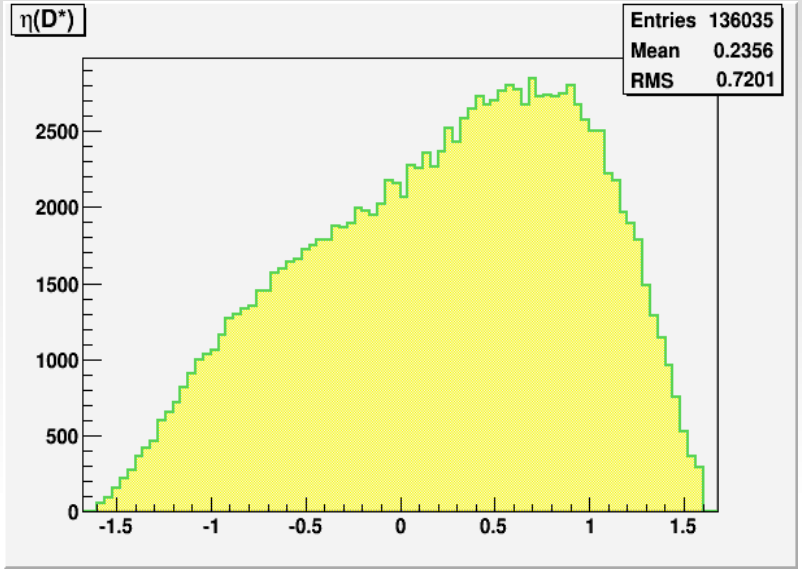


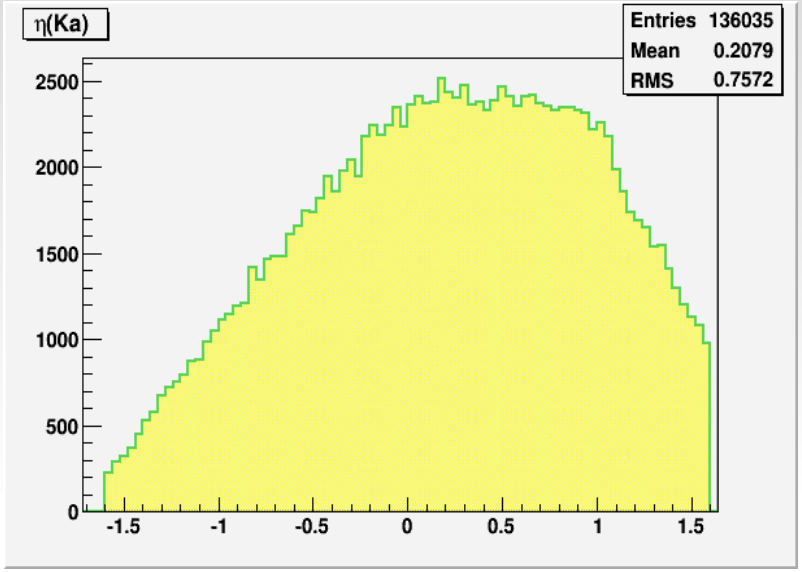


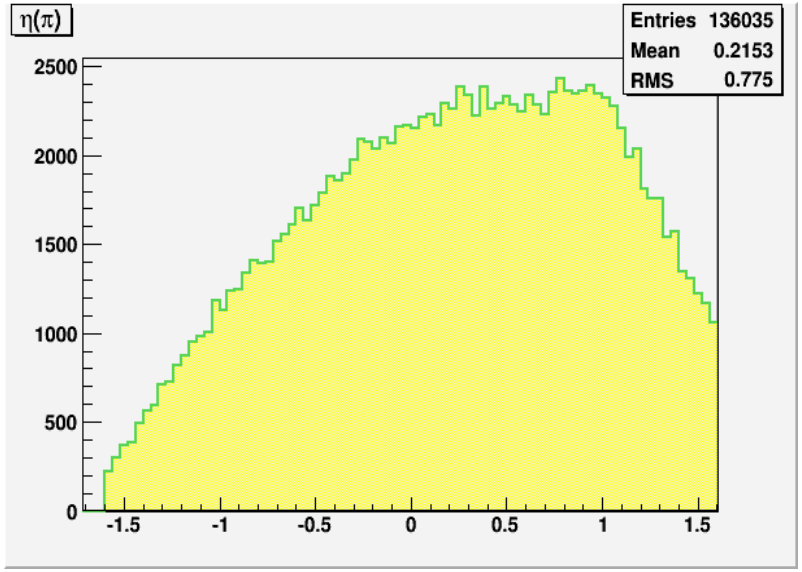


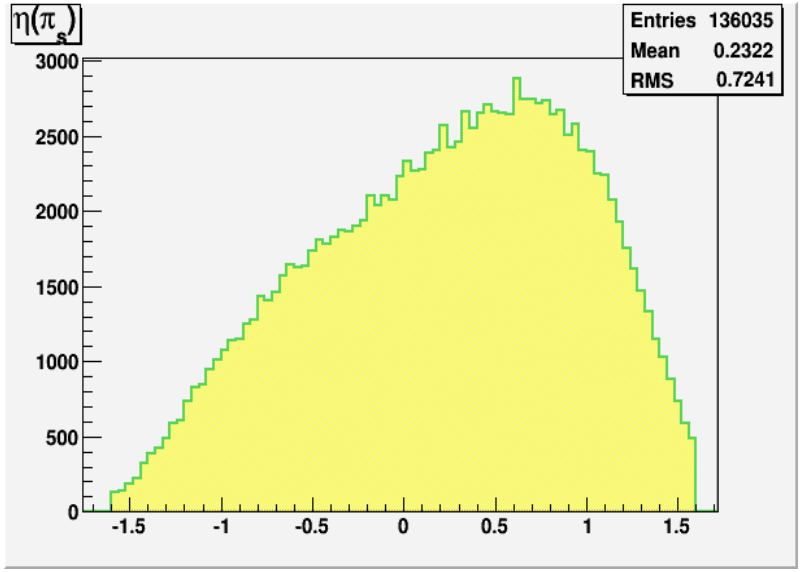
Distributions of kinematic variables

✔Plots for η(D*,K,π,πs) in HER

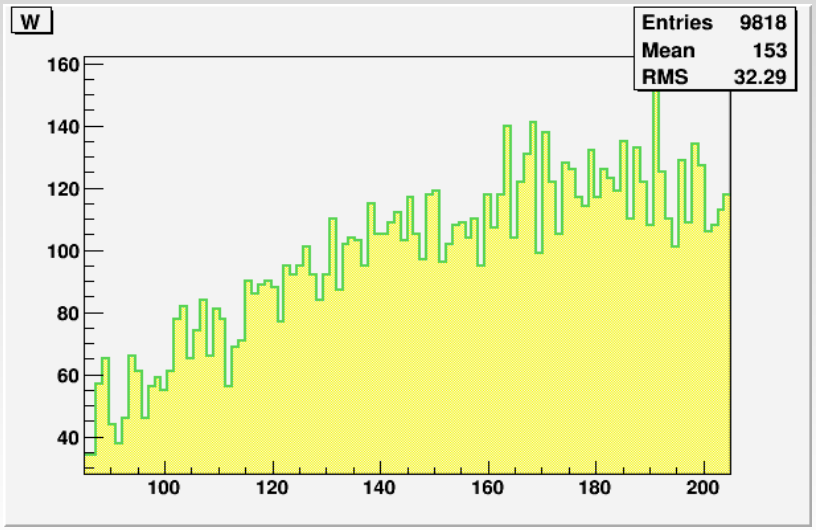


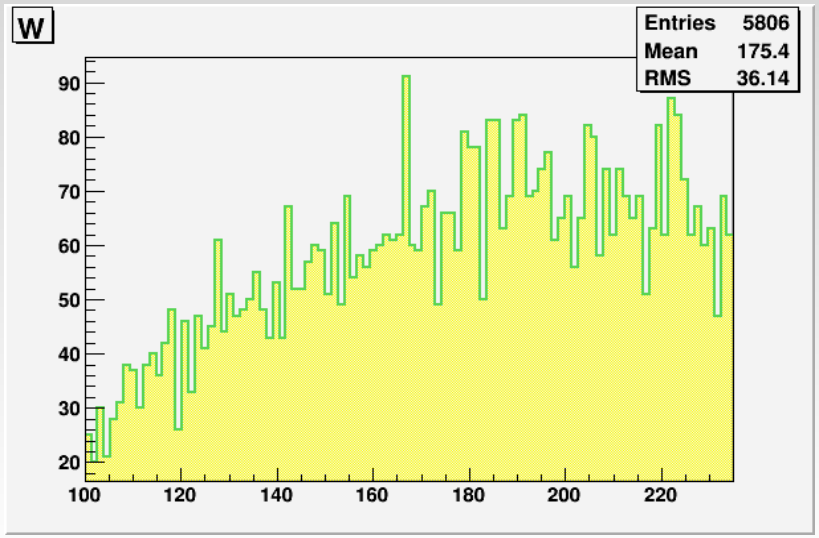


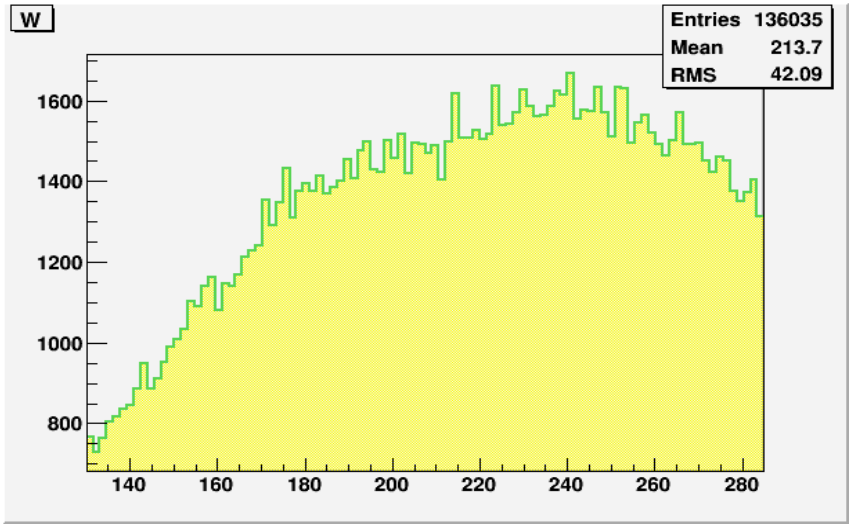




✔Plots for W in LER,MER,HER

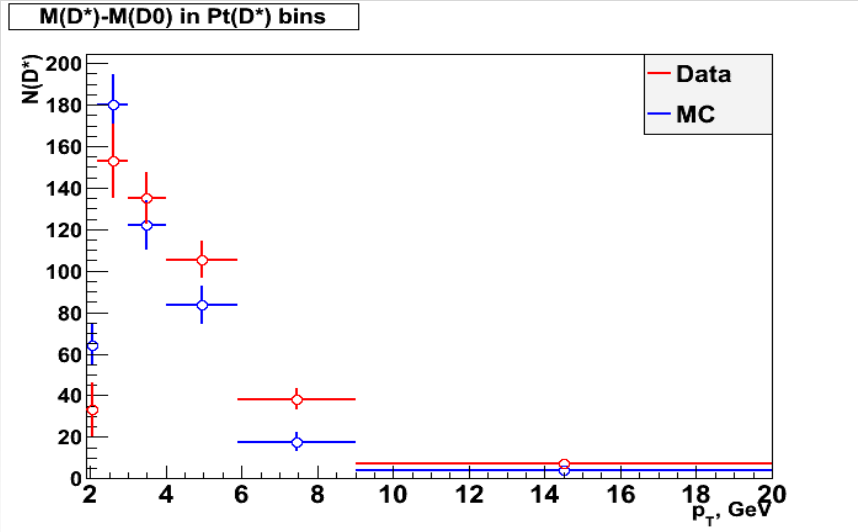




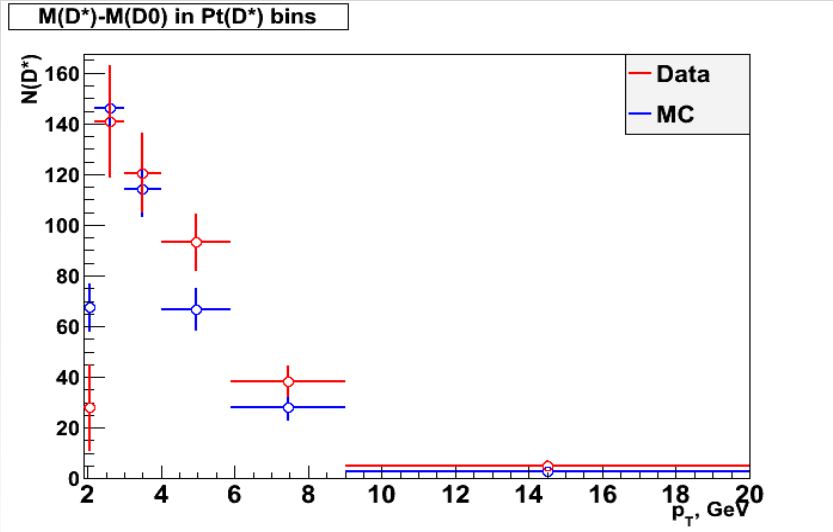


Control plots in Pt(D*) bins

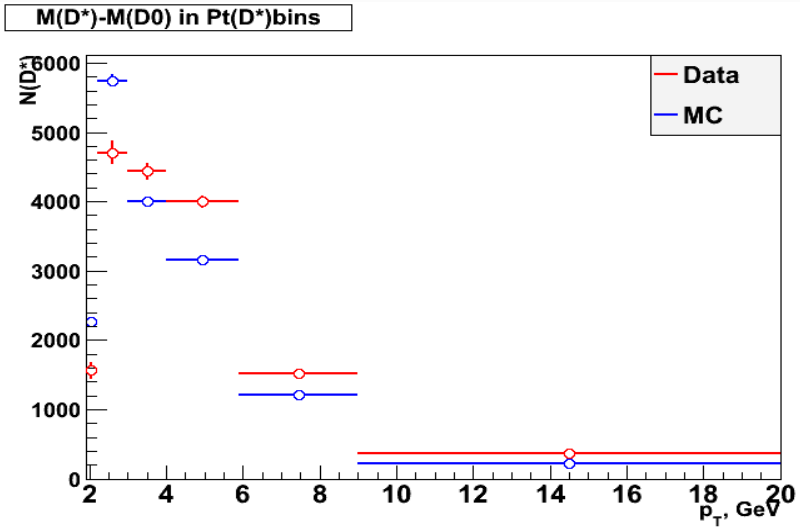
LER



MER

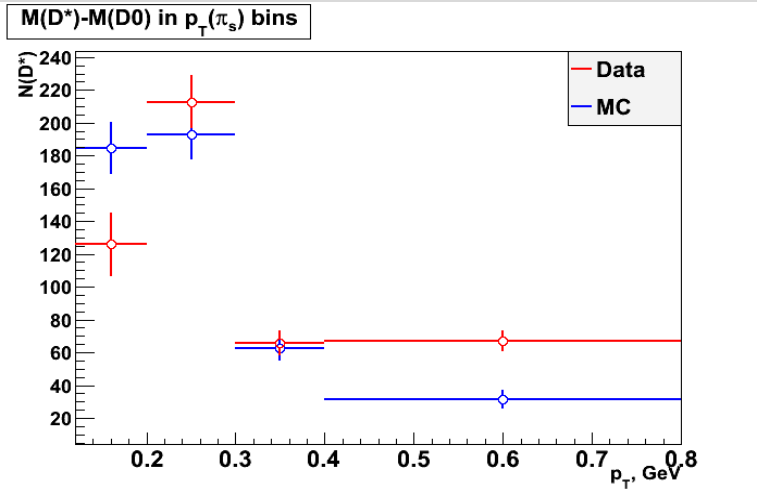


HER

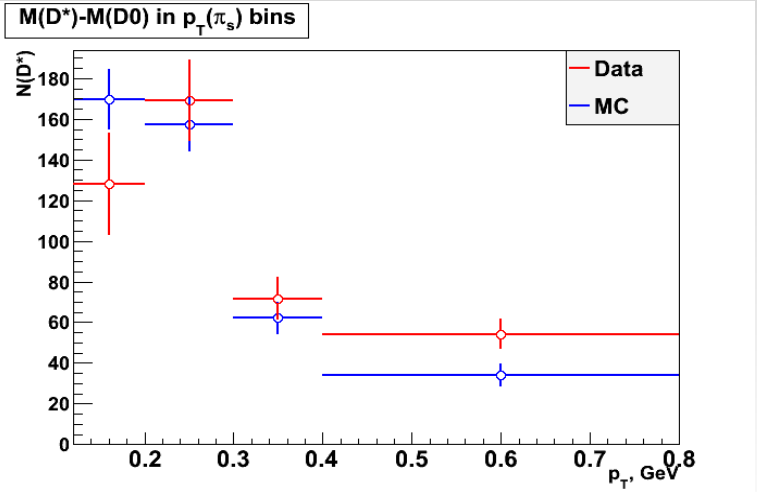


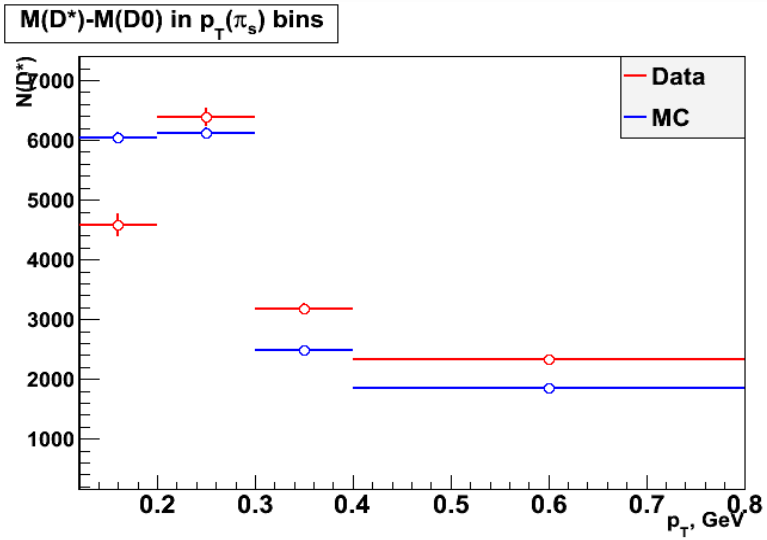
Control plots in Pt(π_s) bins

LER



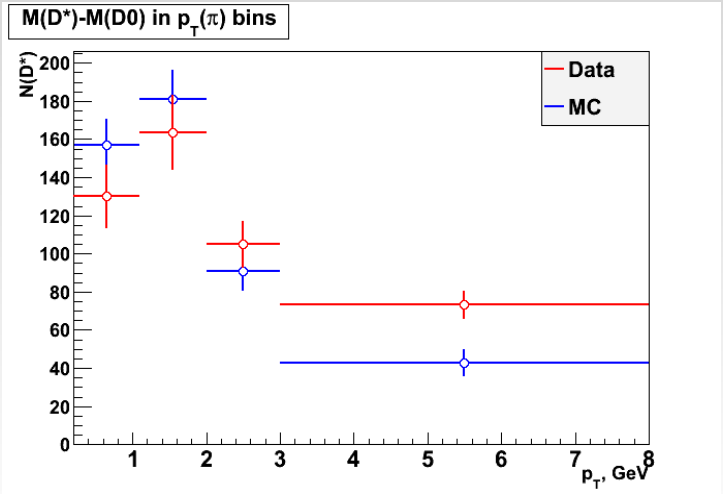
MER



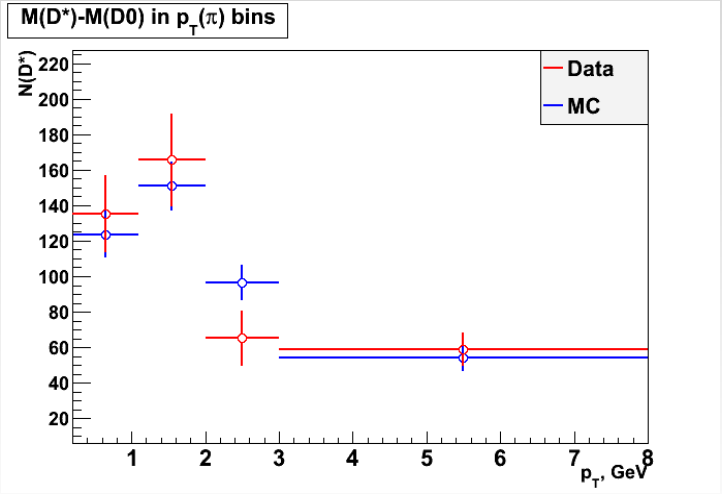


Control plots in Pt(π) bins

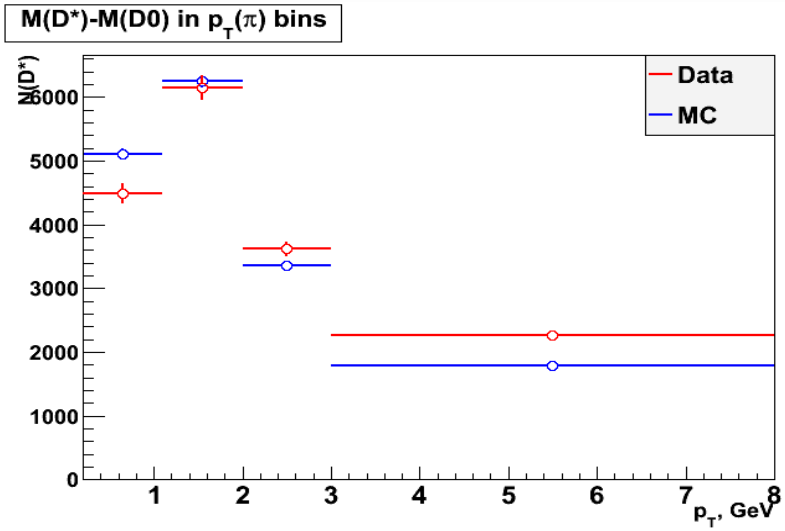
LER



MER

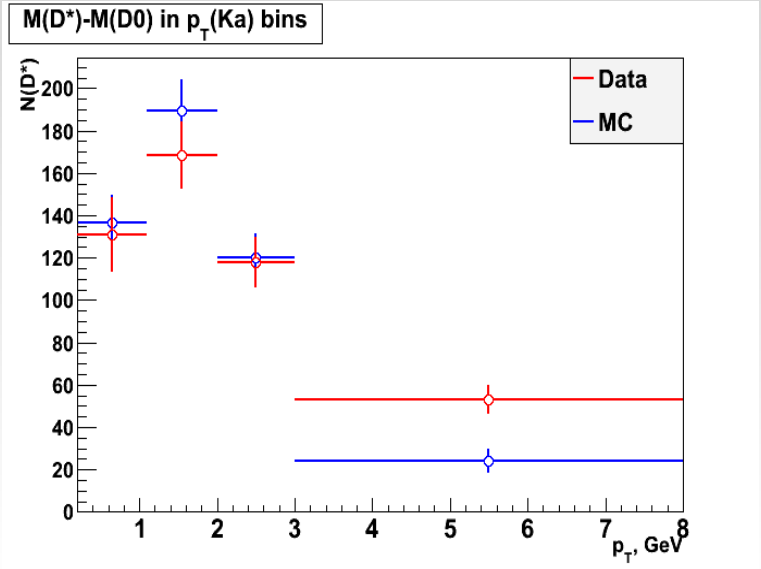


HER

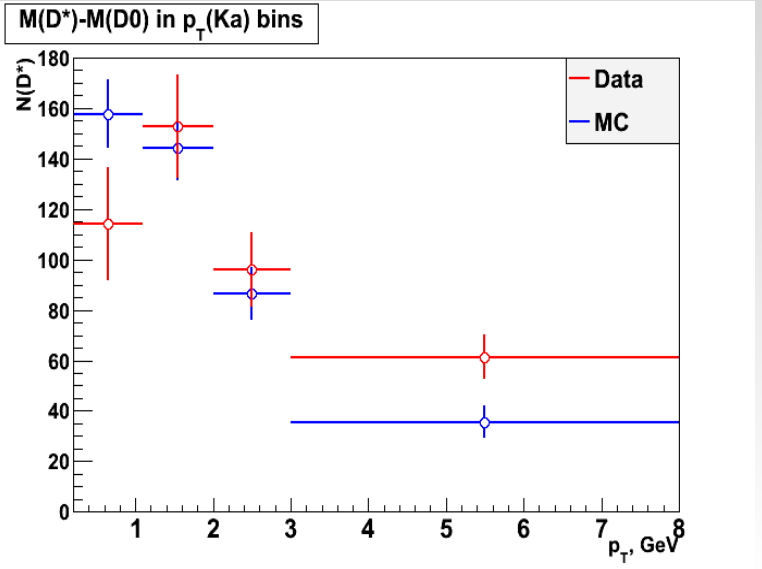


Control plots in Pt(K) bins

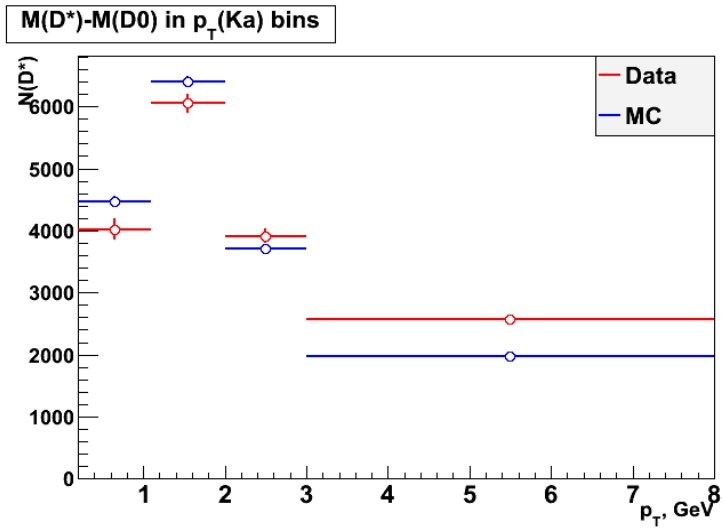
LER



MER

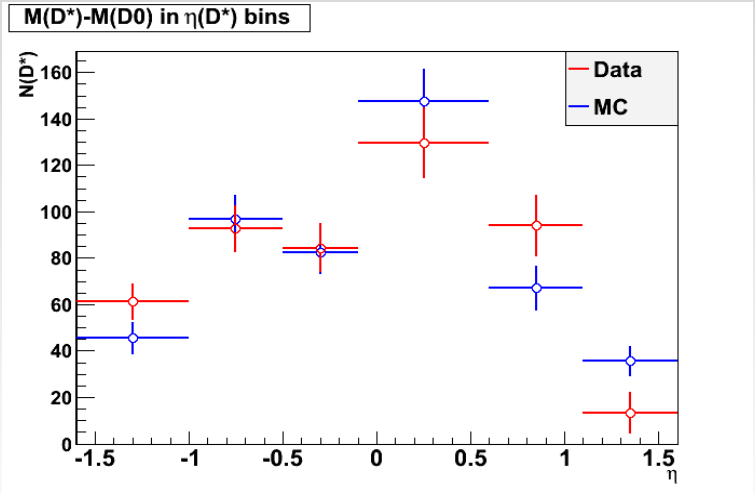


HER

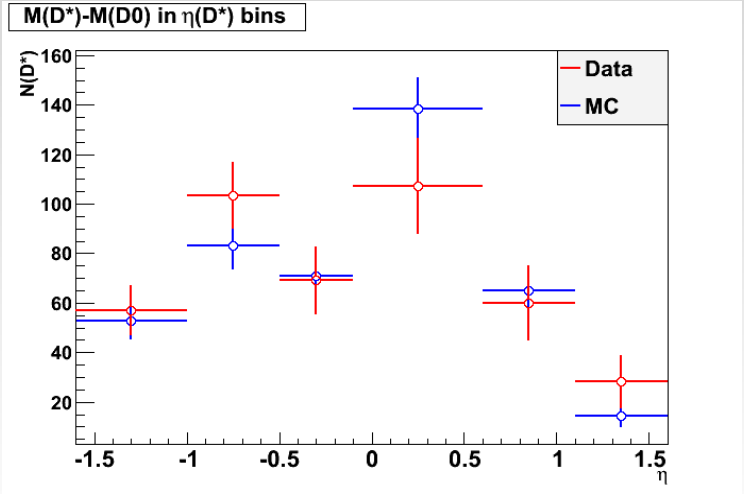


Control plots in η(D*) bins

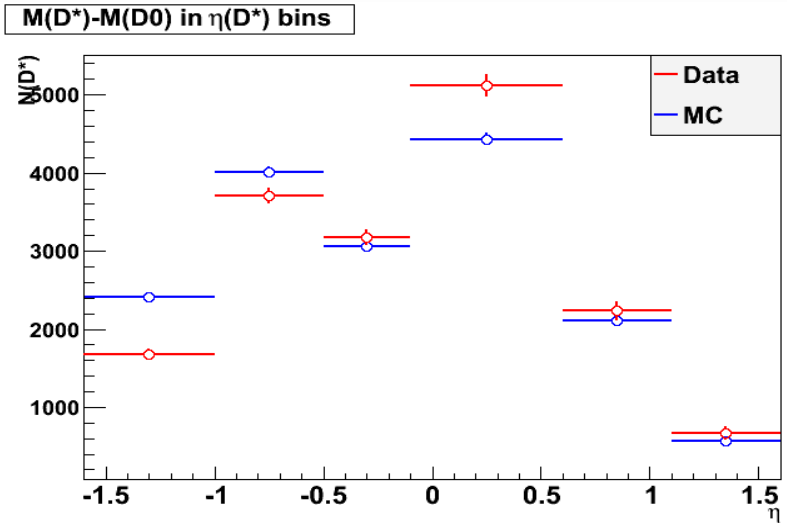
LER



MER

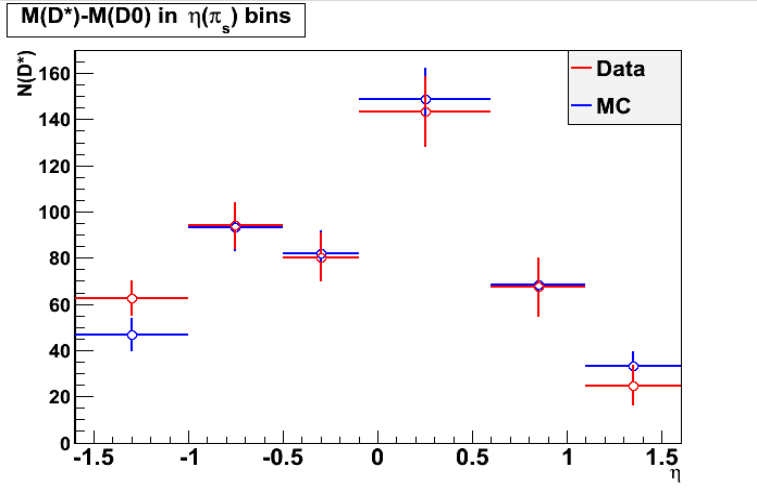


HER

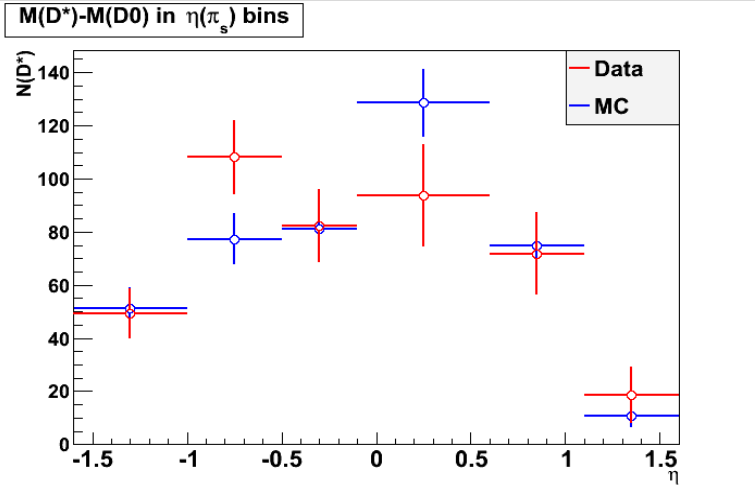


Control plots in η(πs) bins

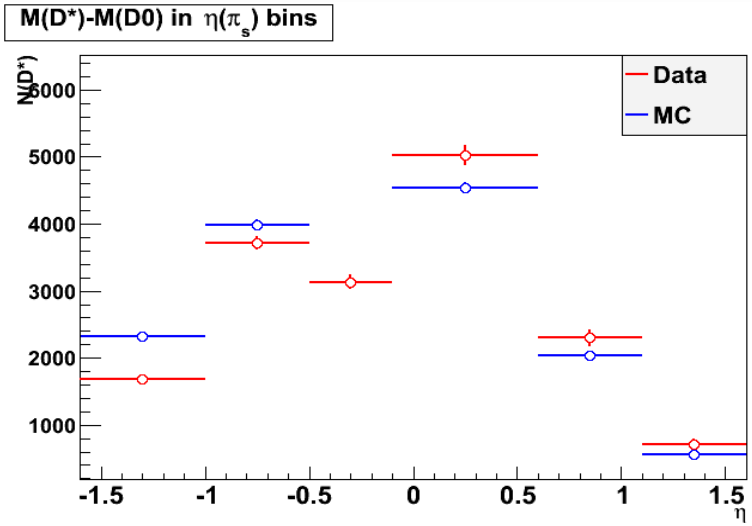
LER



MER

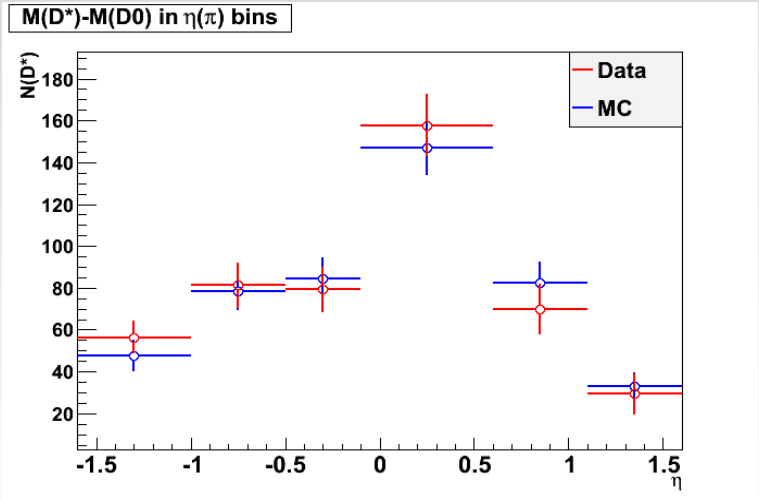


HER

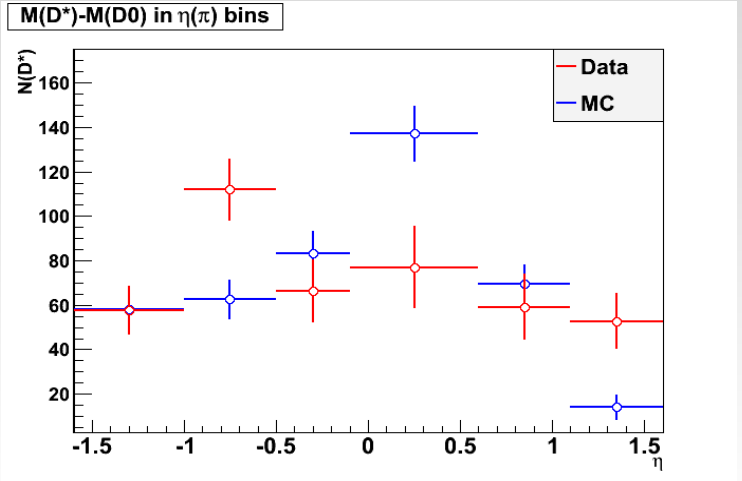


Control plots in η(π) bins

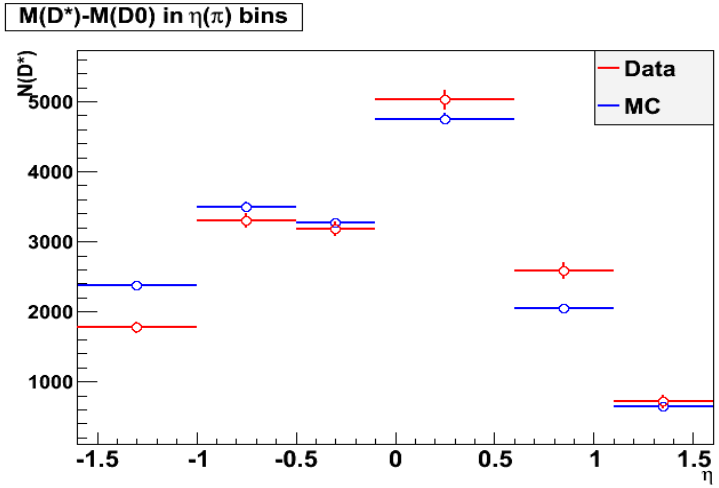
LER



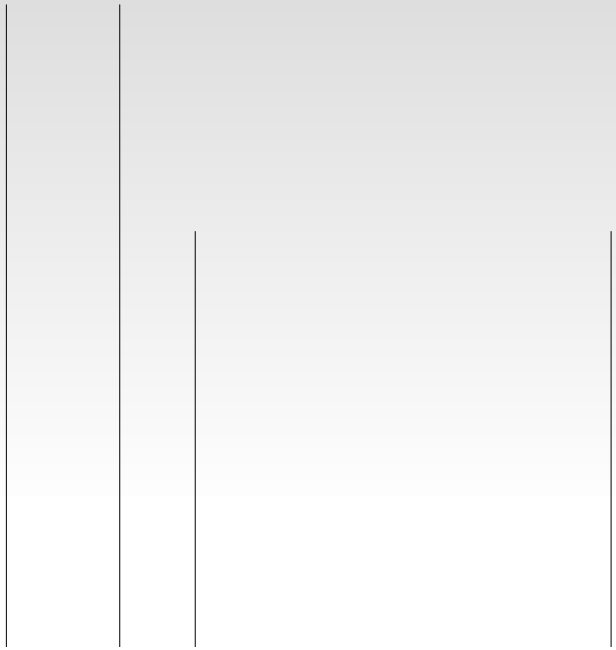
MER



HER



Calculation of the number N(D*) in HER, MER,LER



A –number of entries in mass interval [0.1435,0.1475] for signal
B –number of entries in mass interval [0.1435,0.1475] for background
C –number of entries in mass interval [0.15,0.167] for signal
D –number of entries in mass interval [0.15,0.167] for background

N(D*)=A-B*C/D

	DATA	MC
LER	941.382 +- 54.5161	4106 +- 64.0781
MER	505.669 +- 41.4005	4309 +- 65.643
HER	12557.7 +- 200.	134729 +- 367.054

Summary

- Showed the plots of η(D*,K,π,πs) for HER, MER and LER
- Showed the plots of Pt(D*,K,π,πs) for HER), MER and LER
- Got the distributions of ΔM(D*-D0) and M(D0) for MER and LER ,HER
- Showed the control plots for η(D*,πs,π) bins and Pt(D*,πs,π,K)bins
- Calculated the number of D* mesons for diferences energy.

Plans

- Fitting of the distributions mass;
- Calculating acceptance and cross section