

Dream06 Test Beam Analysis

Dual-Readout Calorimetry with Lead Tungstate Crystals (PbWO_4)

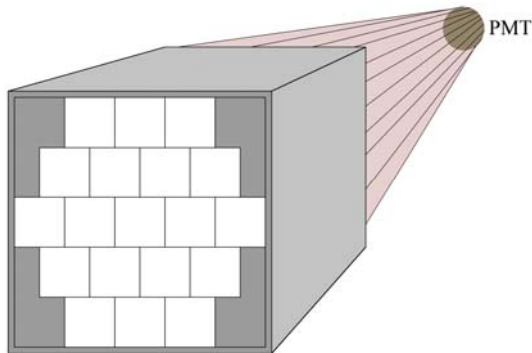
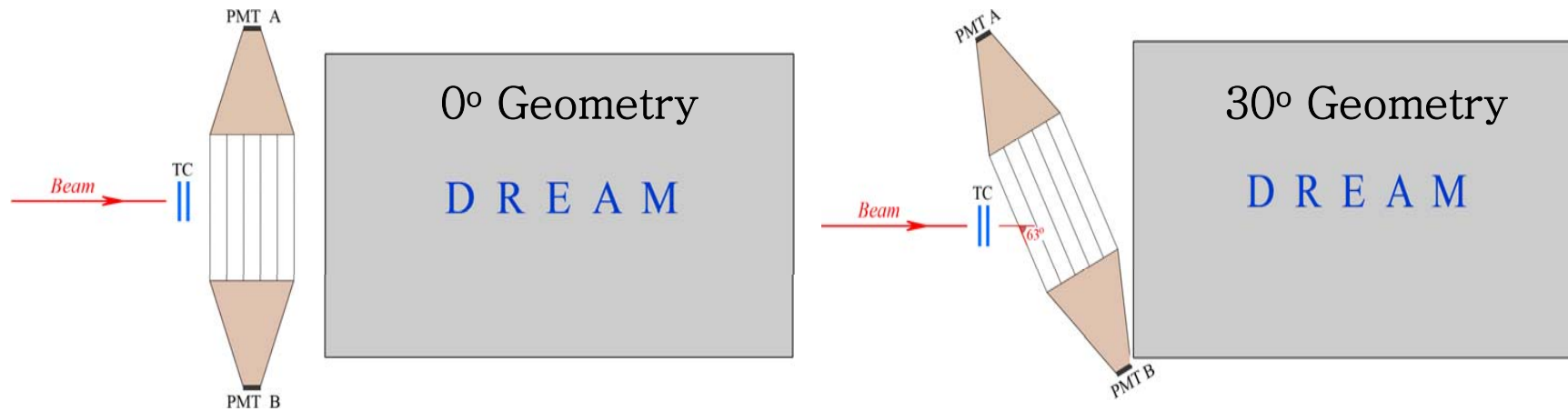
HEP TTU

Richard Wigmans, Heejong Kim,
Youn Roh

Outline

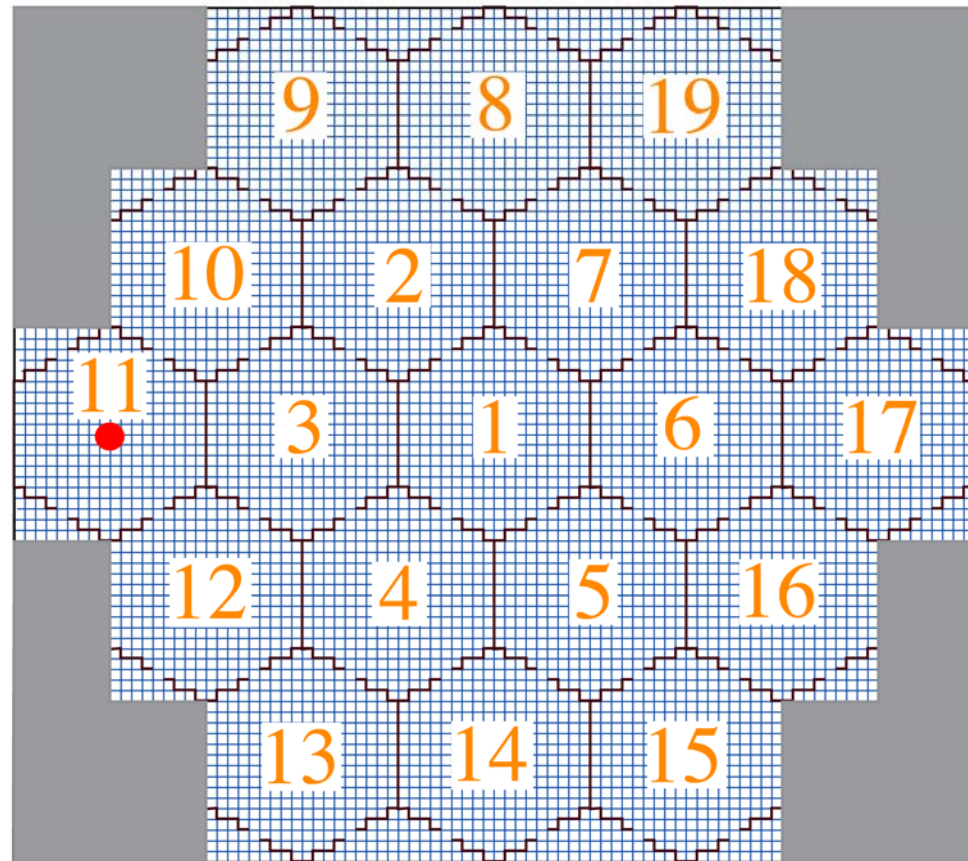
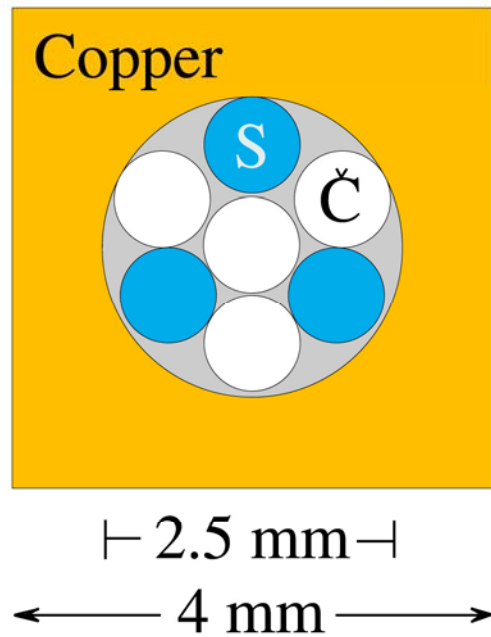
- Setup & Data Sets
- Pedestals & Calibration factors
- Electron Corrected QADC Signal
& Forward/Backward Asymmetry
- Pion Corrected QADC Signal
& Forward/Backward Asymmetry

Setup



Run 1077 Calibration data
(0° Geometry, 50 GeV e⁻)
Run 1082 Reference data
(30° Geometry, 50 GeV e⁻)
Run 1089–1090 Pion
(30° Geometry, 50 GeV π⁺)

DREAM



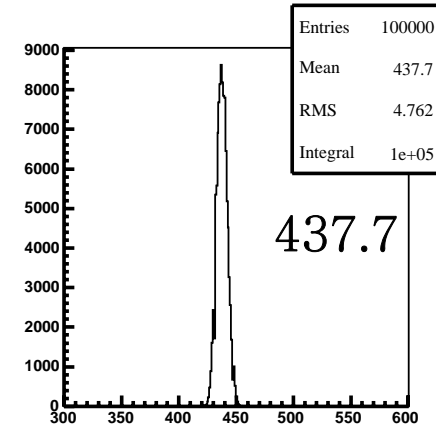
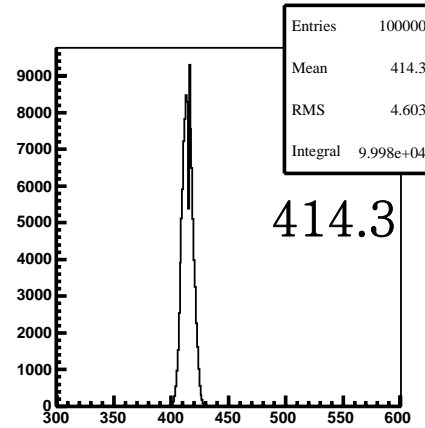
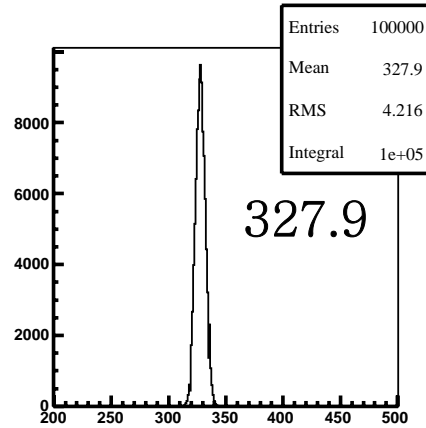
Data Sets

- Run 1077 ECAL Calibration(0° Geometry, 50 GeV e^-)
- Run 1032–1037 HCAL Calibration (Dream:#1–#6)
- Run 1039–1049 HCAL Calibration (Dream:#7–#17)
- Run 1051–1052 HCAL Calibration (Dream:#18–#19)

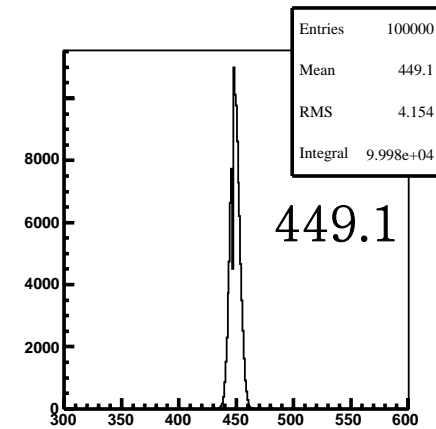
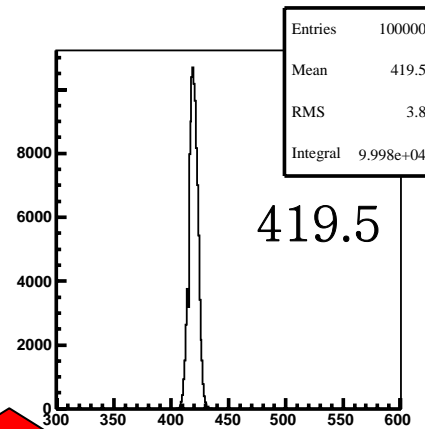
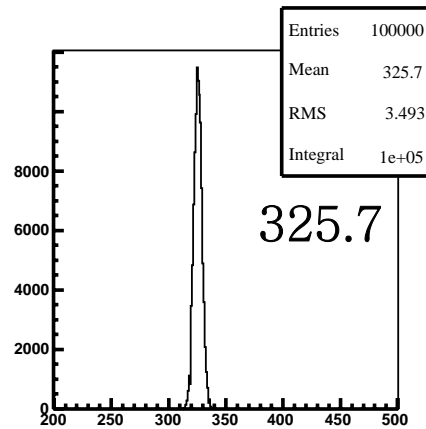
- Run 1082 Reference data(30° Geometry, 50 GeV e^-)
- Run 1089–1090 Pion data(30° Geometry, 50 GeV π^+)

Pedestal Runs

QADC A



QADC B



run106
3

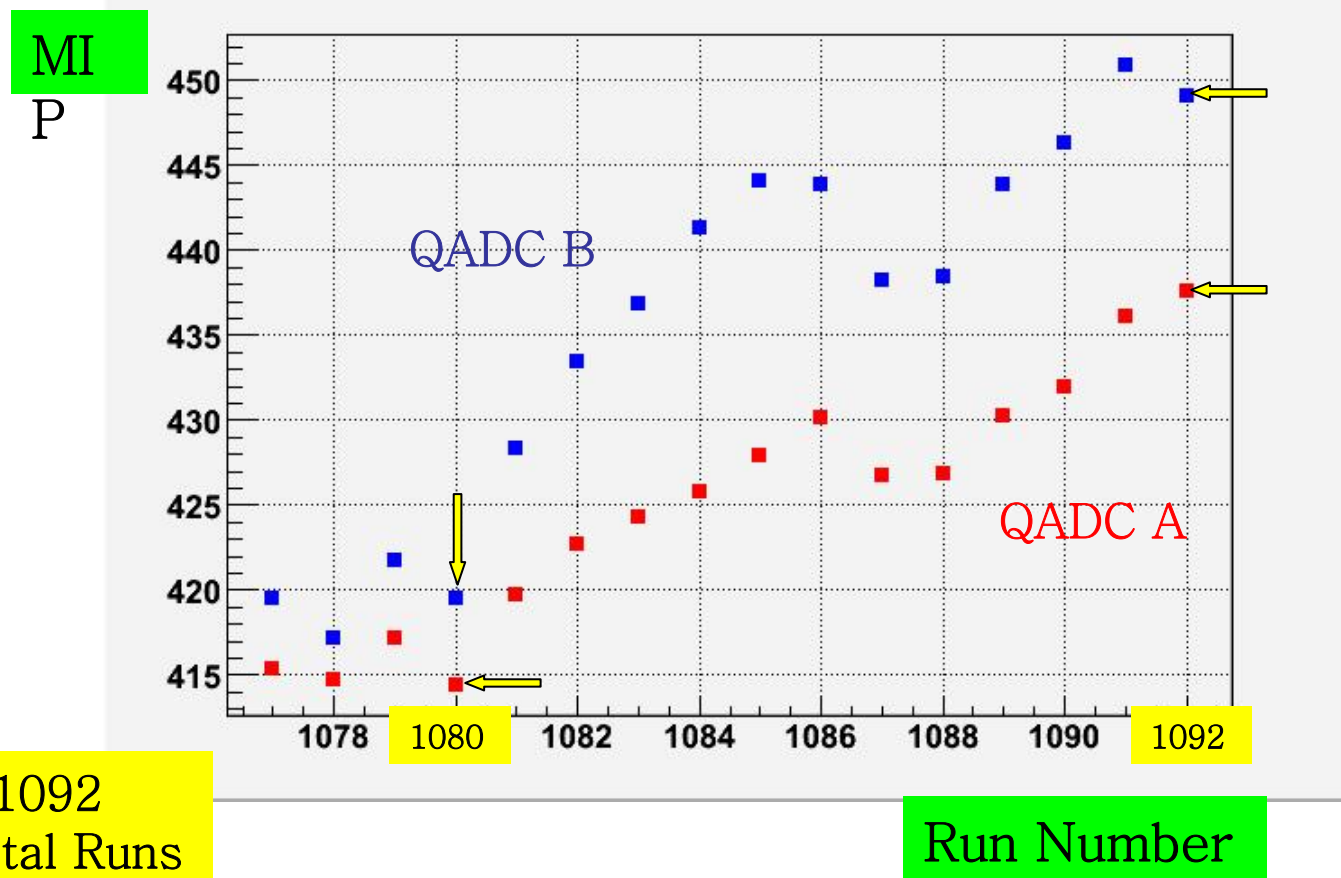
HV
changed

run108
0

run109
2

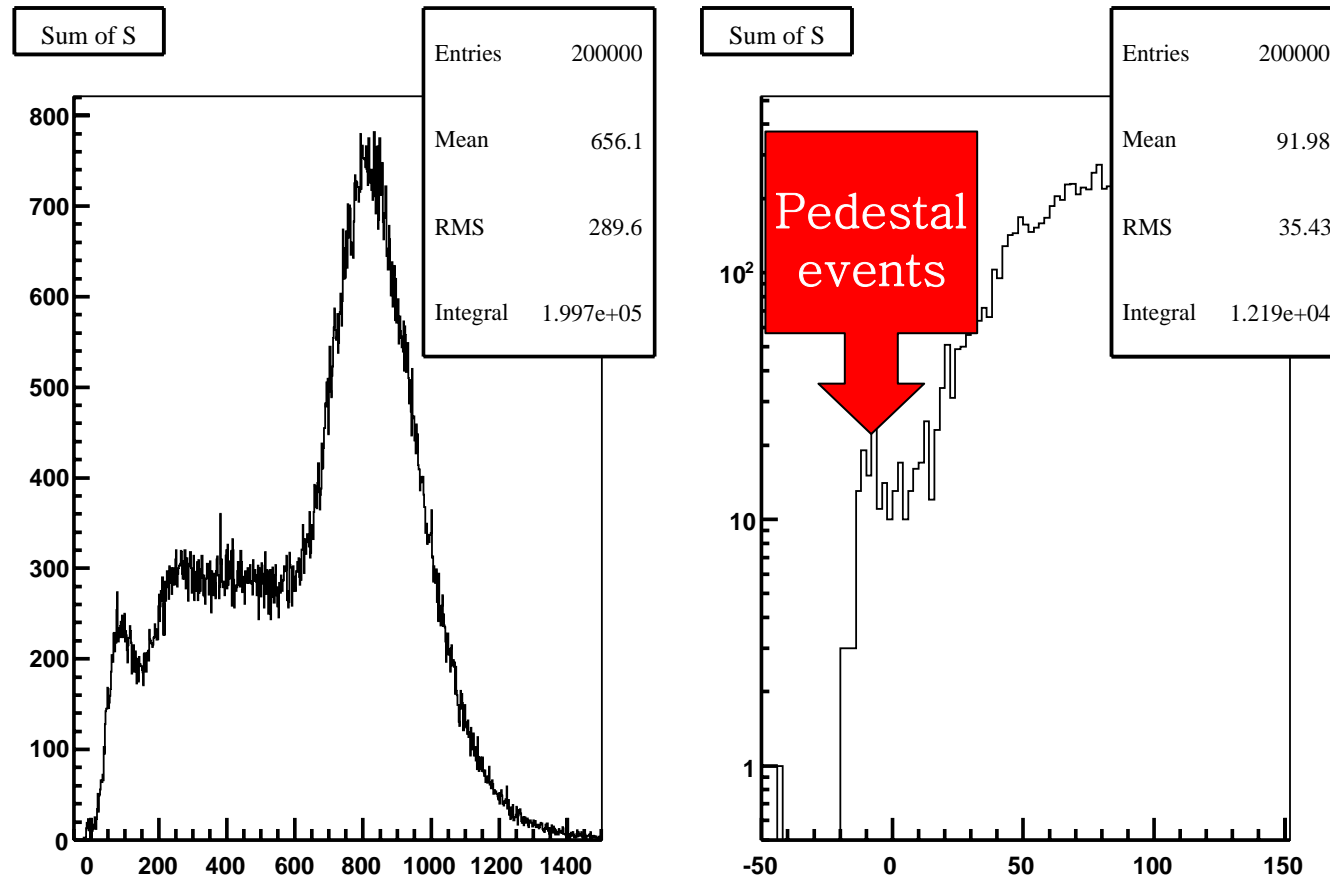
March 15, 2007

Pedestal drift



March 15, 2007

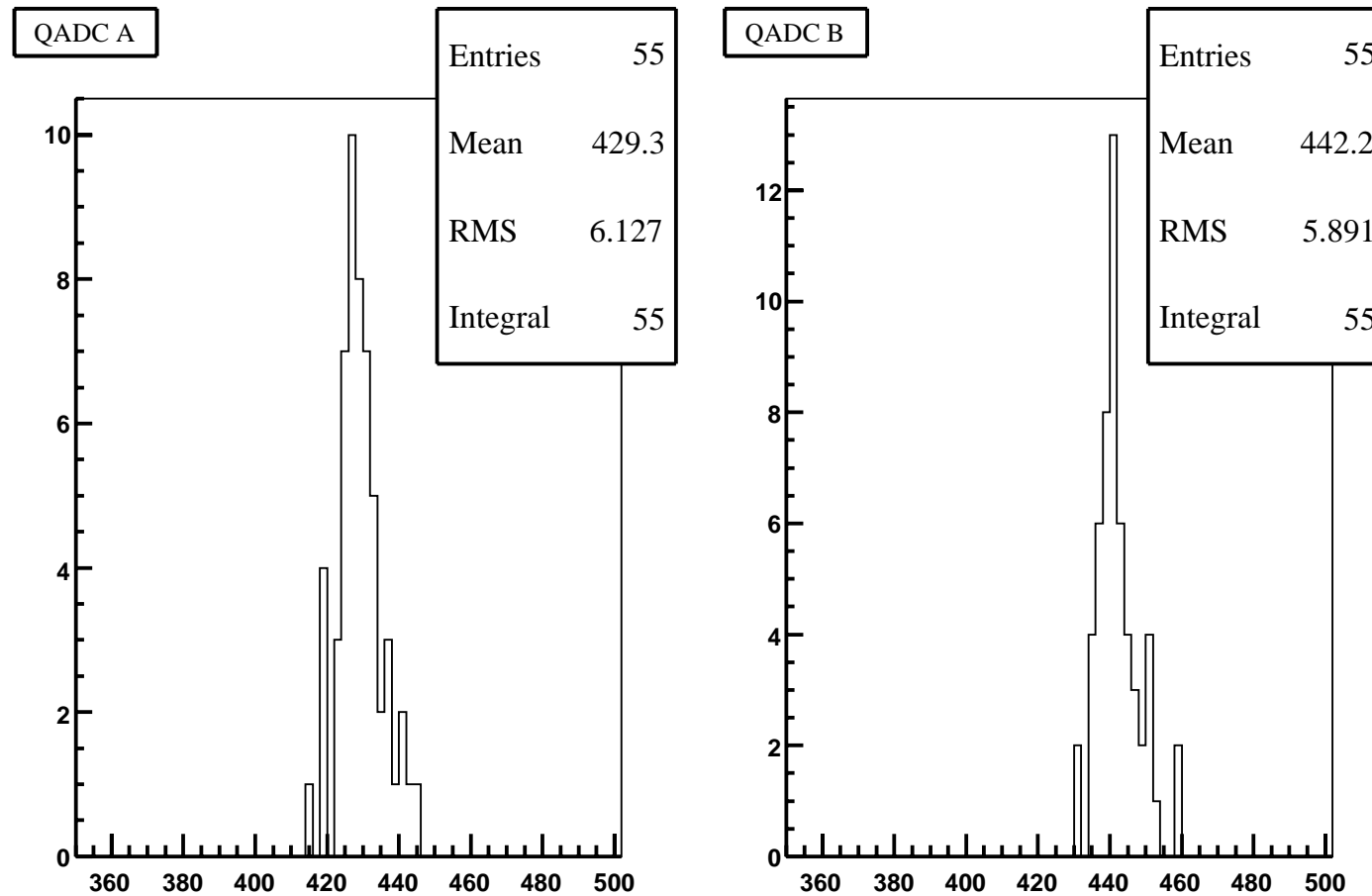
Pedestal Pion Runs 1089,1090 (Sum of Dream S)



2007-02-26 15:41:22

March 15, 2007

Pedestal Pion Runs 1089,1090 (ECAL)

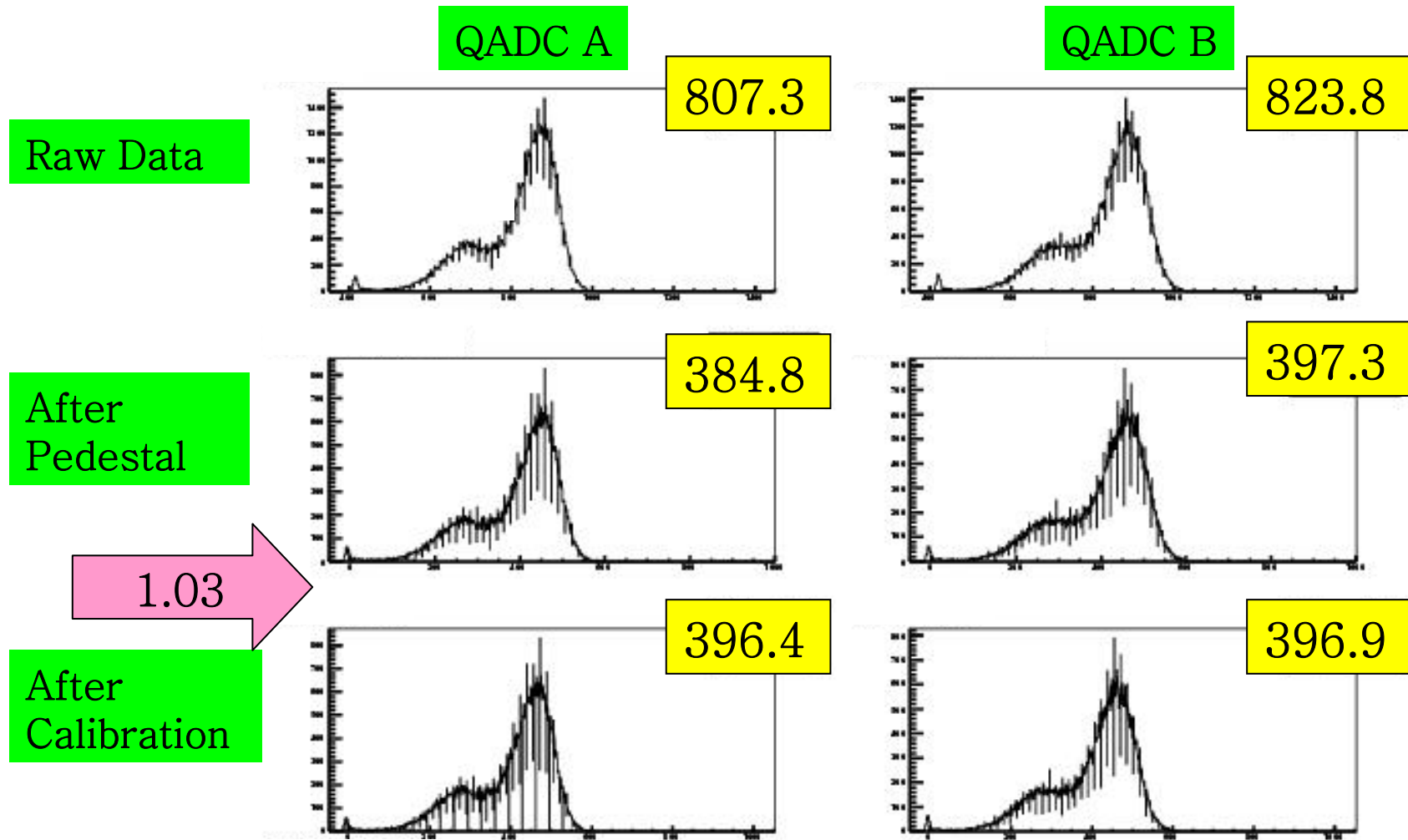


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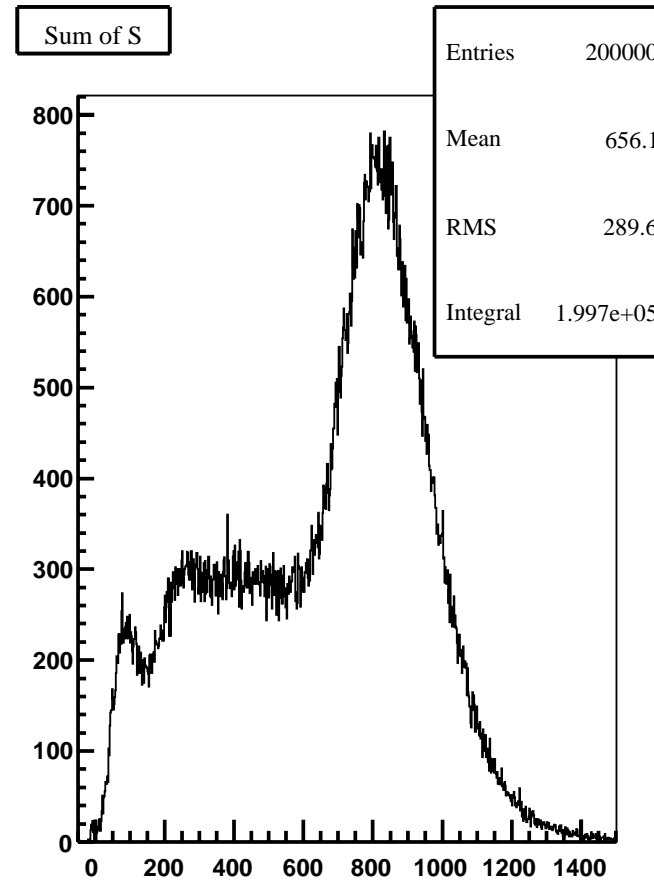
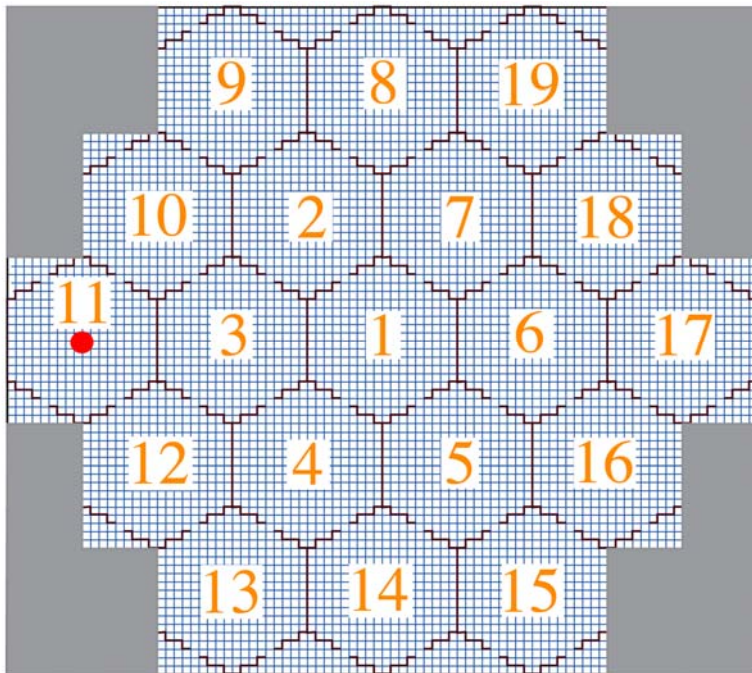
March 15, 2007

Calibration

(ECAL: Run 1077, 50 GeV e^- , 0°)



Dream

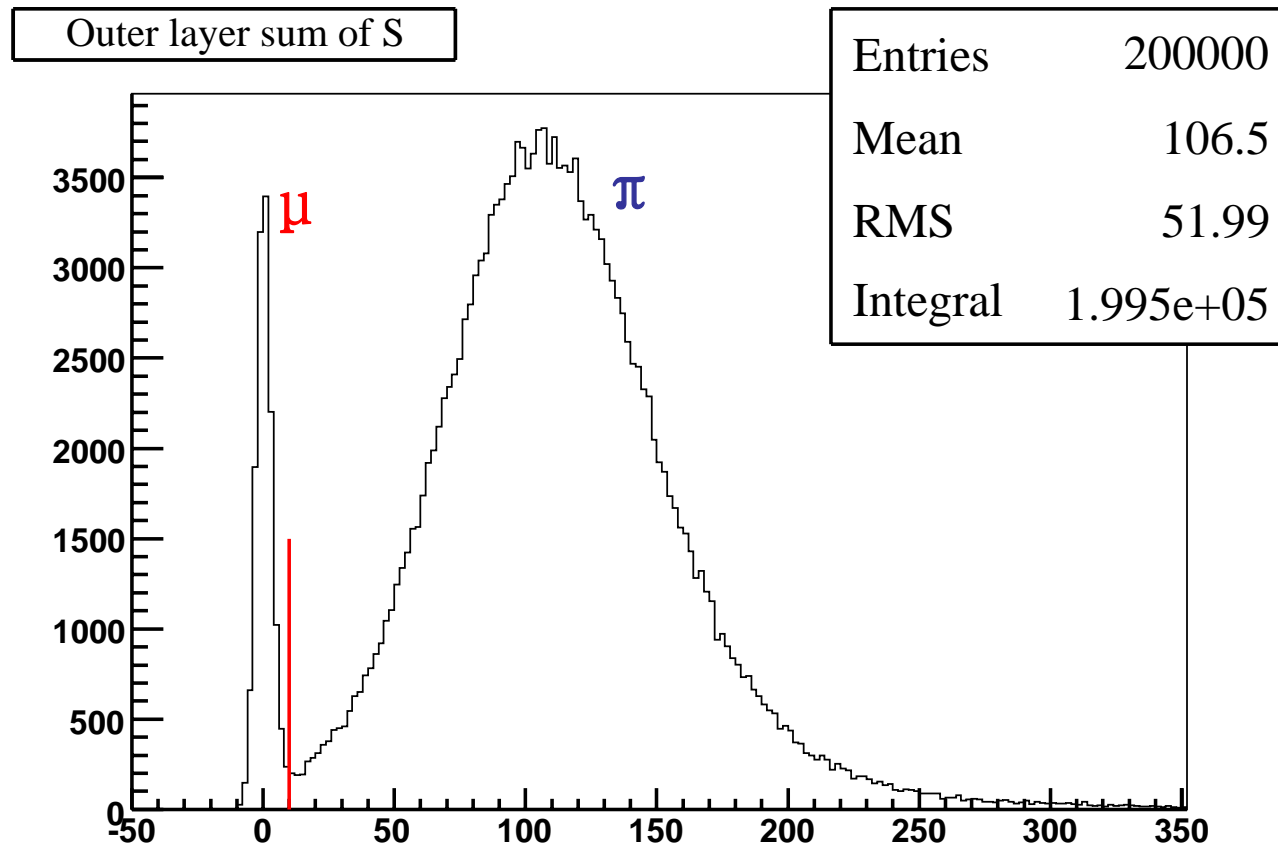


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March 15, 2007

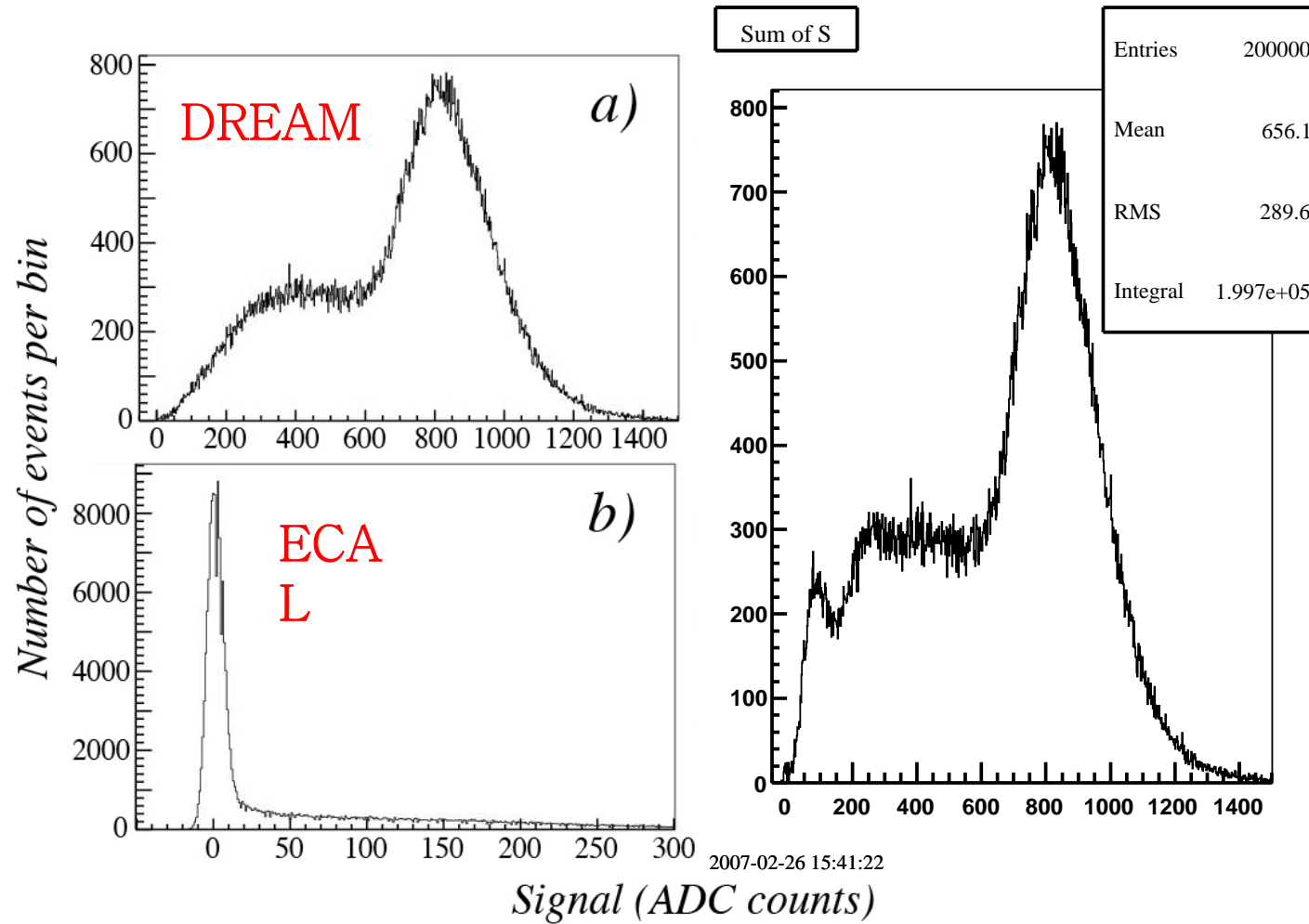
Muon & Pion Selection

(Based on Sum of Outer Ring Dream)



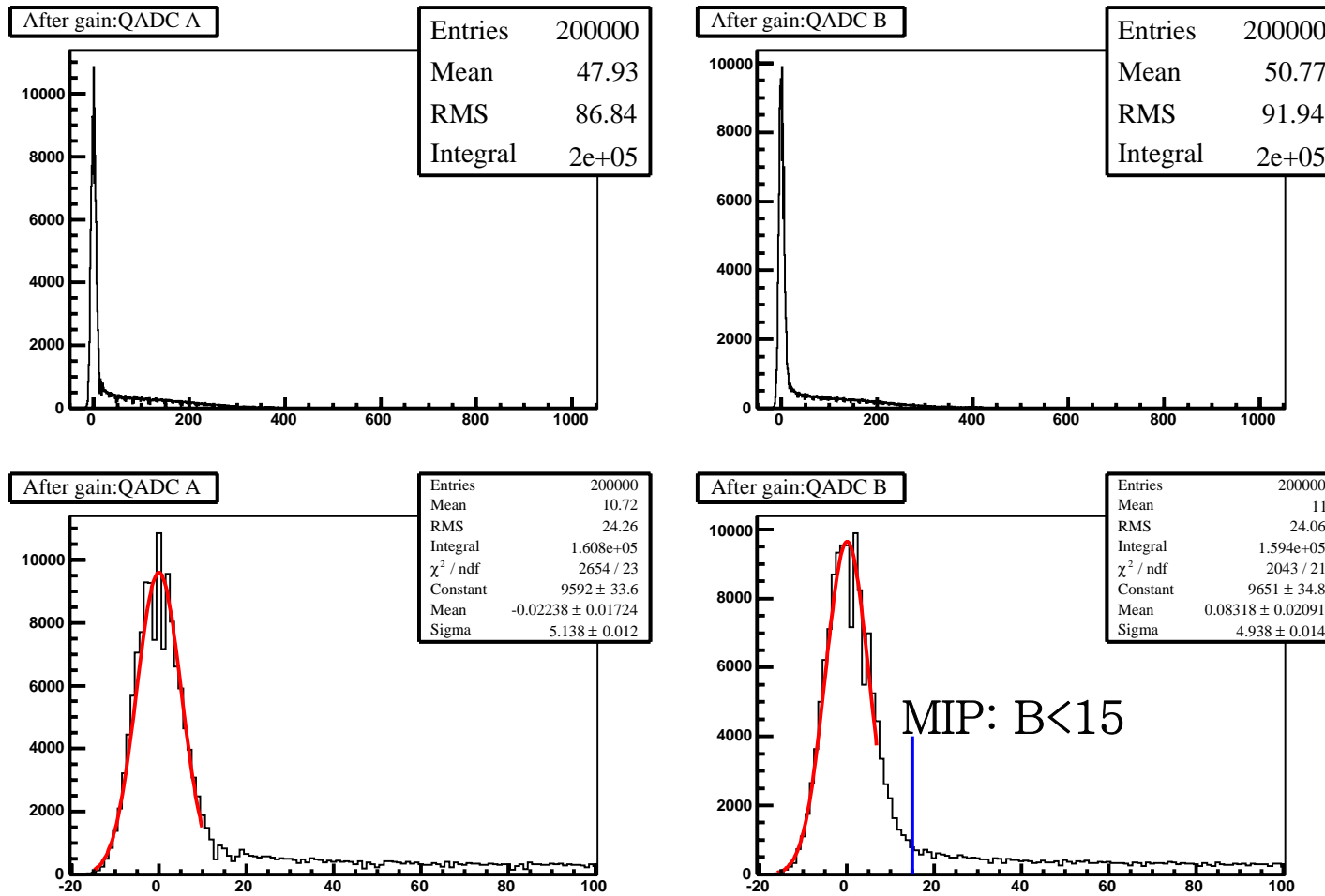
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Pion

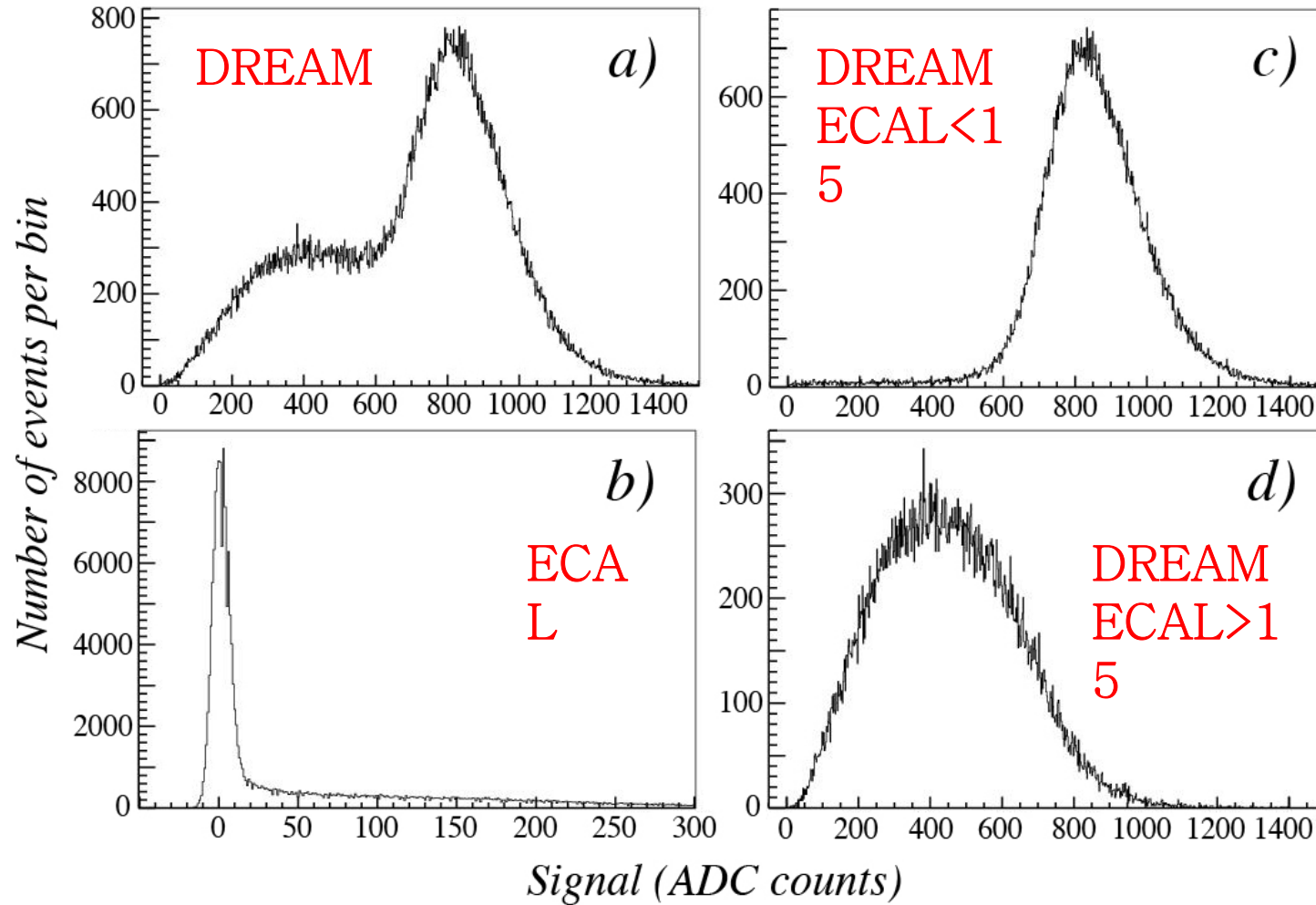


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Pion MIP Selection (Based on QADC B)



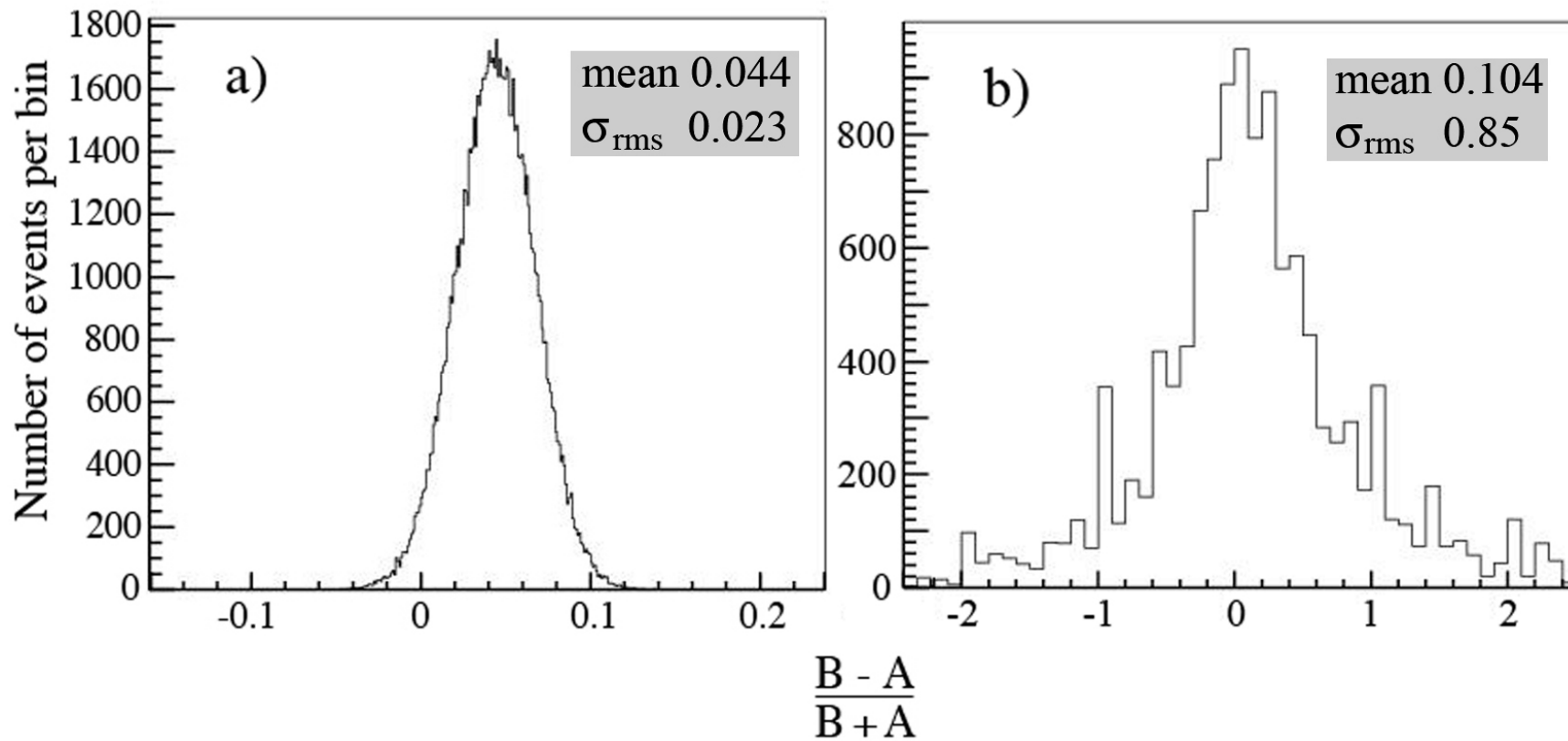
50 GeV Pion Signals



Forward/Backward Asymmetry

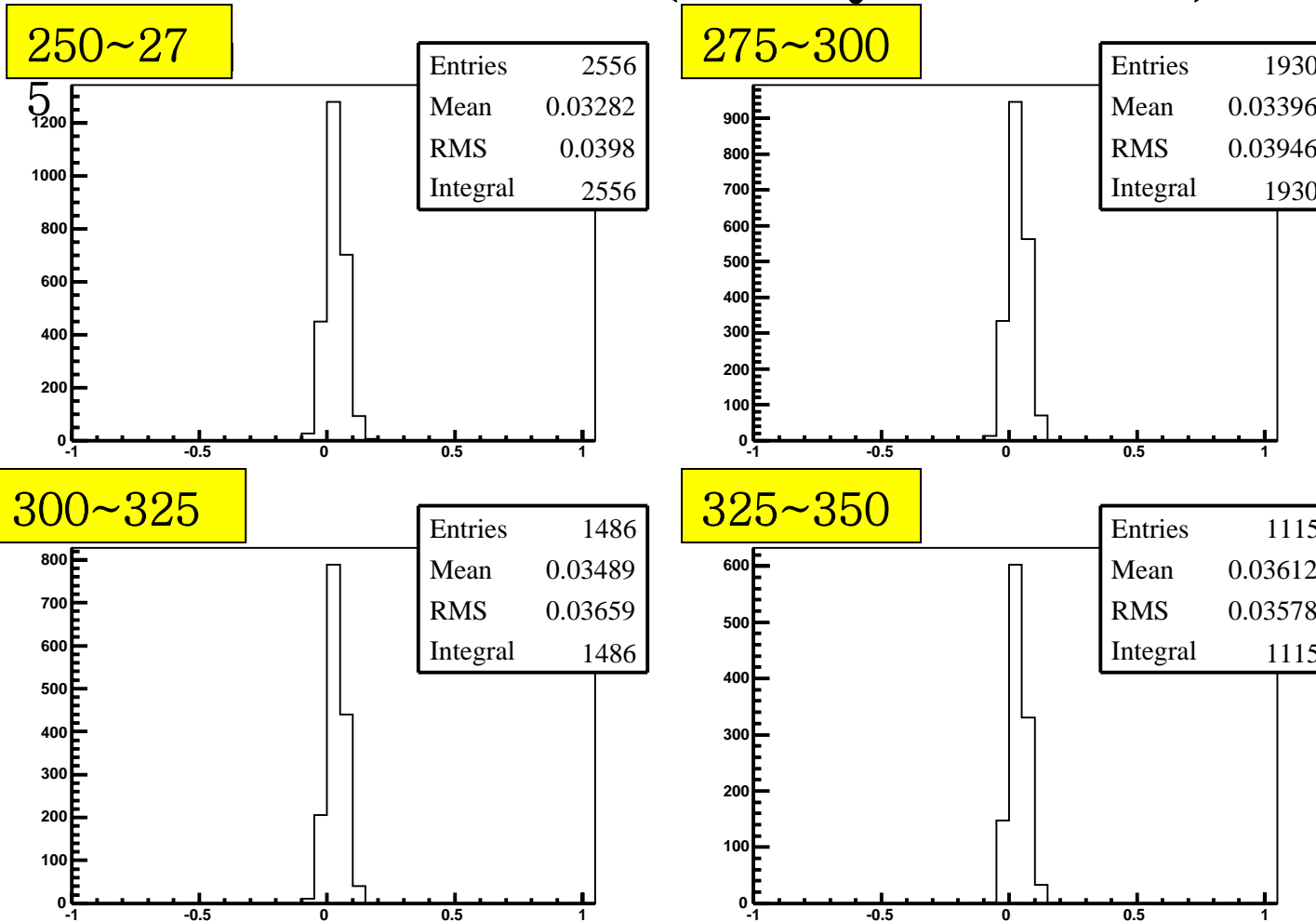
50 GeV e^-

50 GeV μ^+



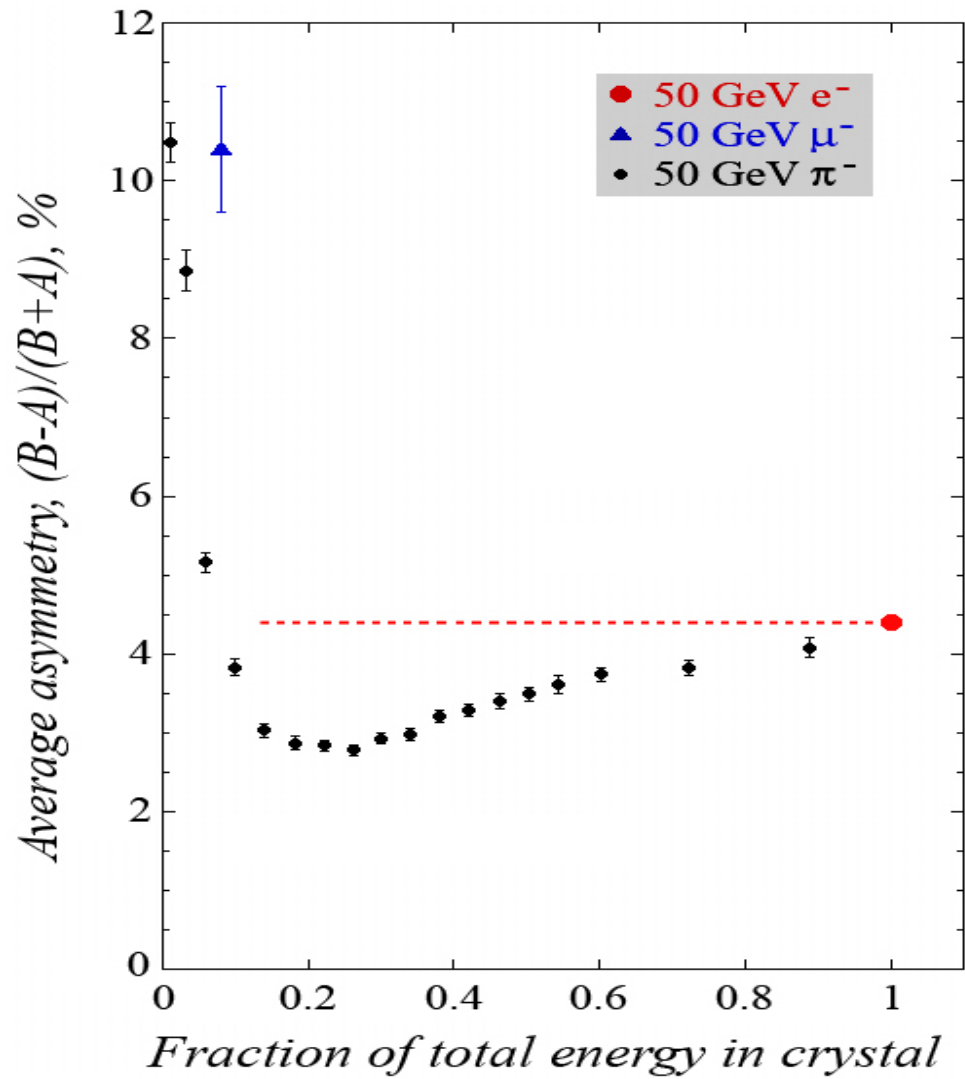
Forward/Backward Asymmetry

50 GeV π^+ (250 < QADC B < 350)

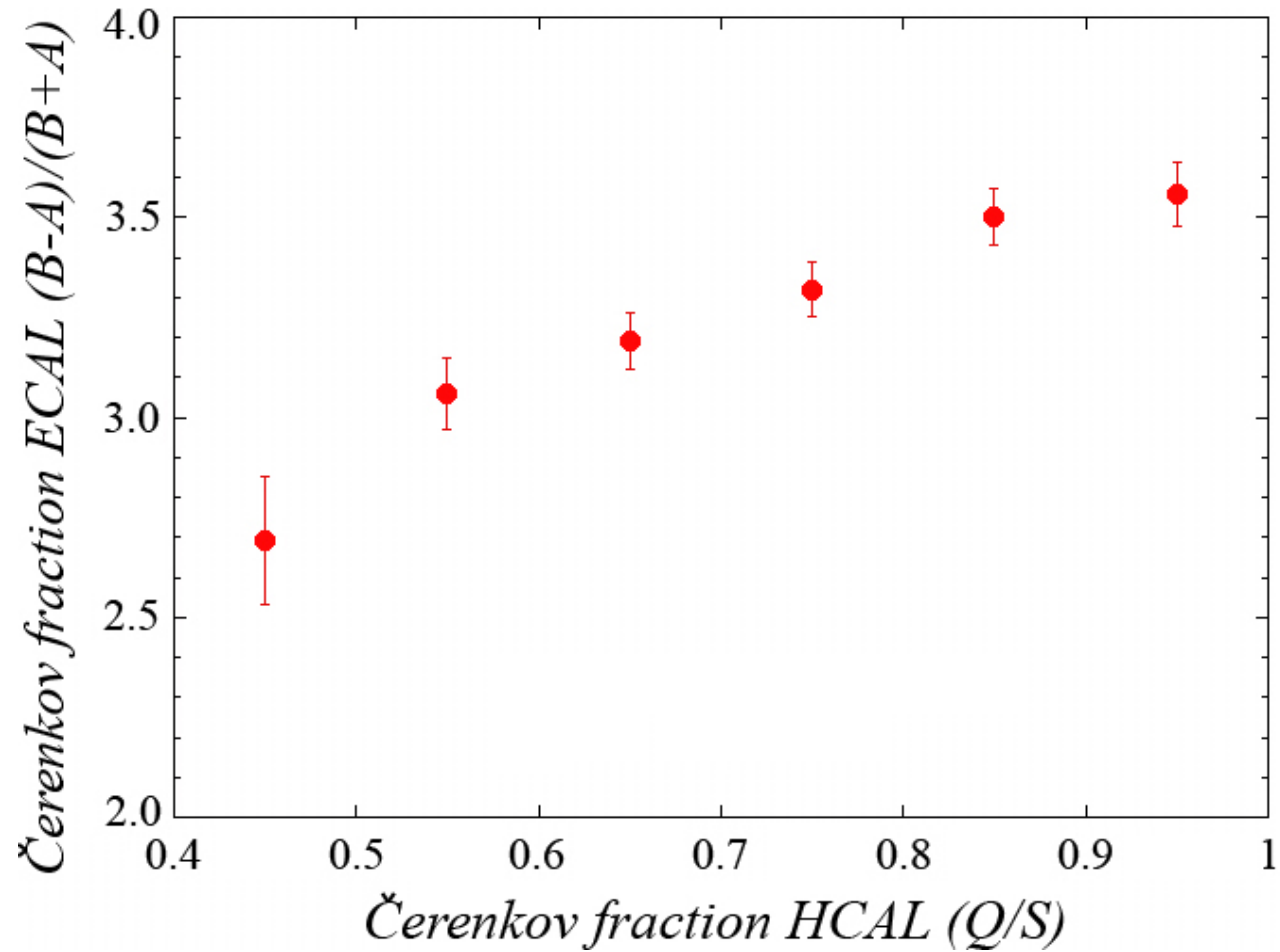


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Asymmetry

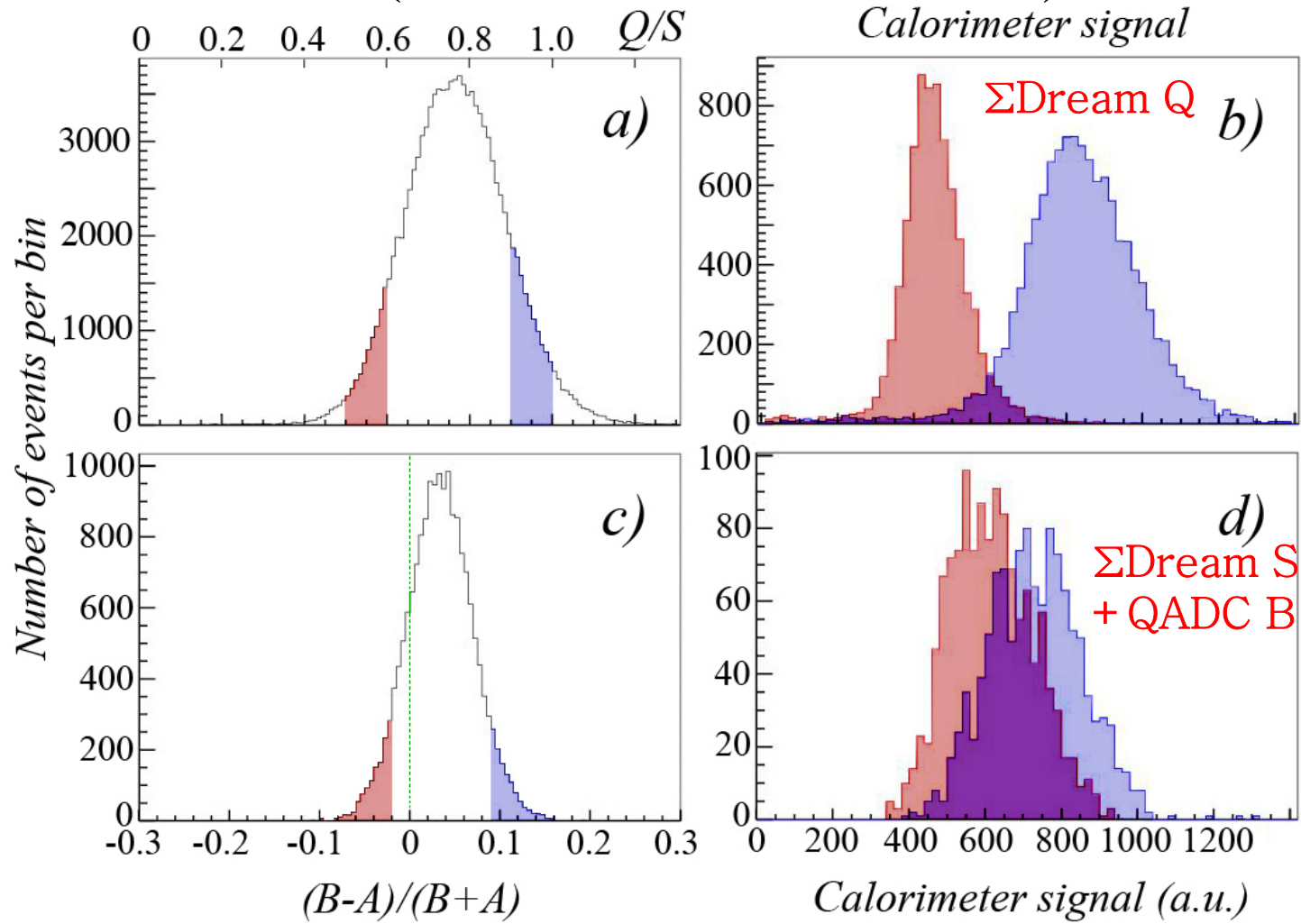


Correlation Hcal & Ecal (Pion 50 GeV: 30°)



Correlation Hcal & Ecal

(Pion 50 GeV: 30°)



Calorimeter Signal

(Pion 50 GeV: 30°)

