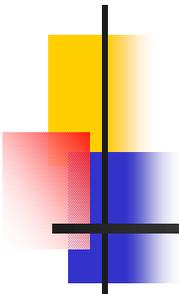


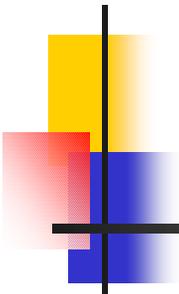
ICR Corrections Update

- Looking at cuts
 - Data Vs. Monte Carlo
- Results with Cryofactor correction



Default Cuts

- Cuts on Photon (Simple Cone)
 - Leading photon is highest pt EM cluster with $\text{Abs}(\text{EM_id}) = 10$ or 11
 - The leading photon must then pass
 - EM Fraction > 0.95 ; Isolation < 0.2
 - Photon $\text{Abs}(\text{detector eta}) < 0.8$
 - EM object > 0.01 radians from azimuthal cracks
- Jet Cuts (Run II $R=0.7$)
 - $0.05 < \text{EM Fraction} < 0.95$
 - Coarse Hadronic Fraction < 0.5
 - HotFraction < 10 ; N90 > 1
 - No jets in the event that fail these cuts
- Vertex Cut
 - $|\text{Pvsel_psz}| < 50$ cm

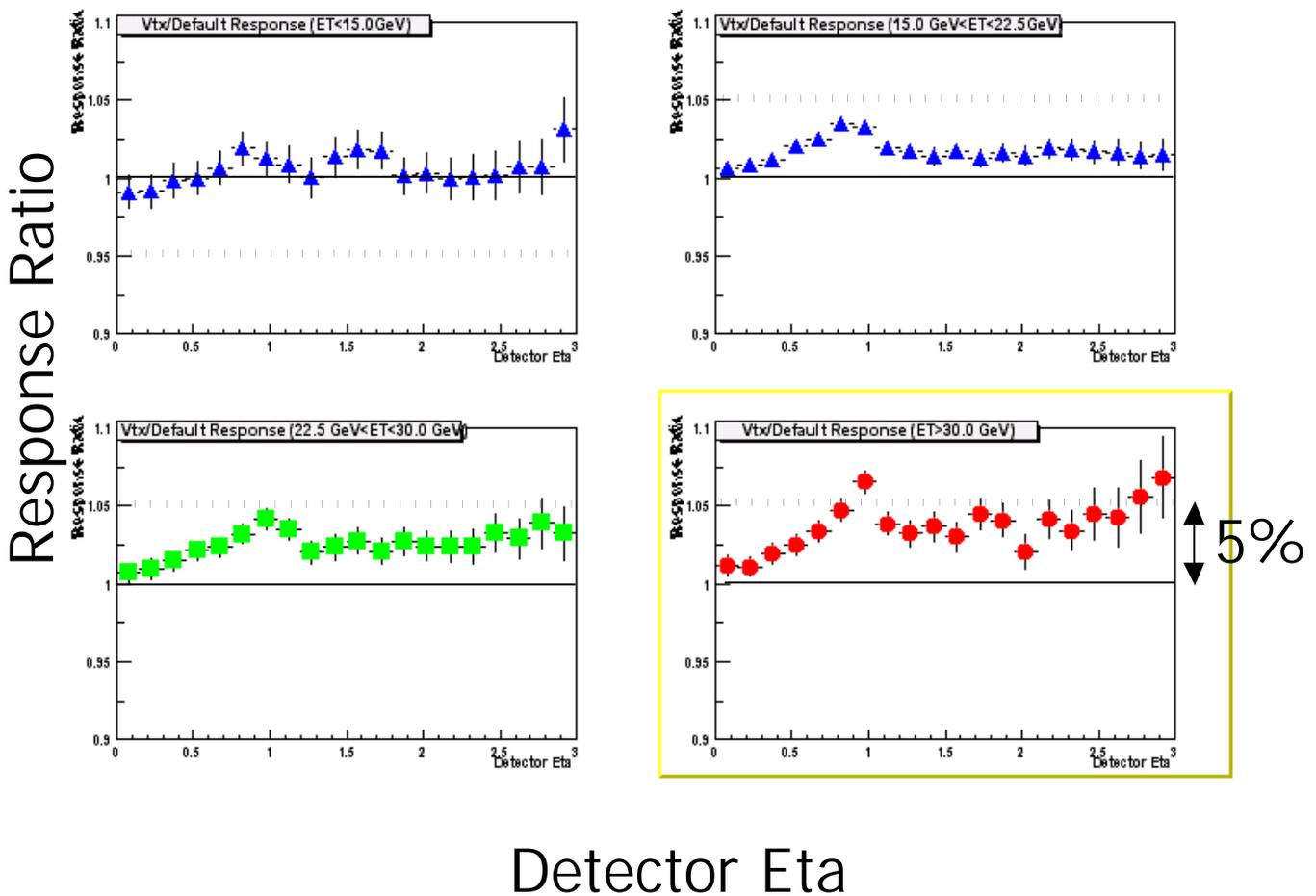


Tight Vertex Cuts

- Default Cuts +
- Must have at least one vertex candidate
 - $Pvsel_psnvtx > 0$
- Must have at least three tracks pointing to vertex
 - $pvsel_psntrk > 2$

Data: Tight Vertex Cuts

DATA: Ratio Response(TightVtxCuts)/
Response (DefaultCuts)



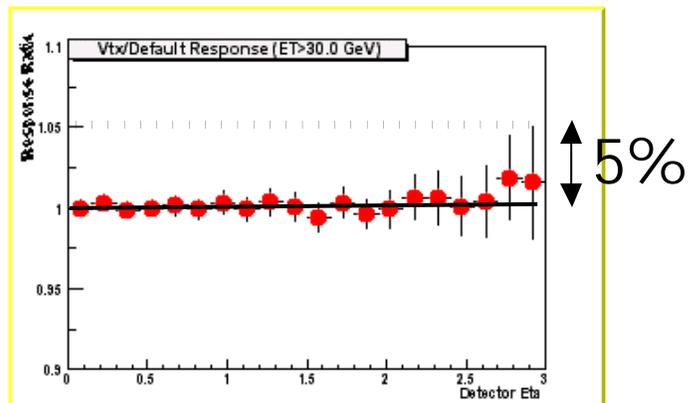
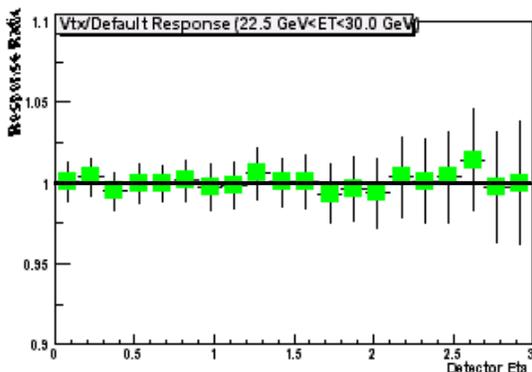
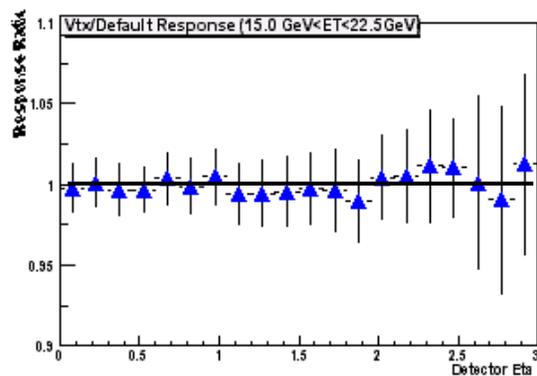
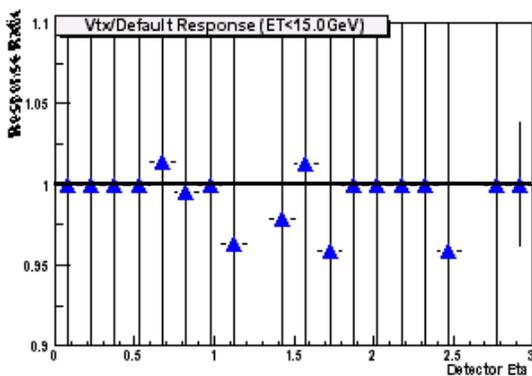
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Monte Carlo: Tight Vertex Cuts

MC: $\text{Ratio Response(TightVtxCuts) / Response (DefaultCuts)}$

Response Ratio

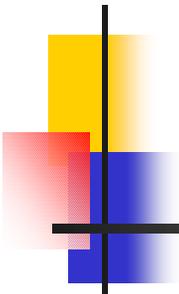


Detector Eta

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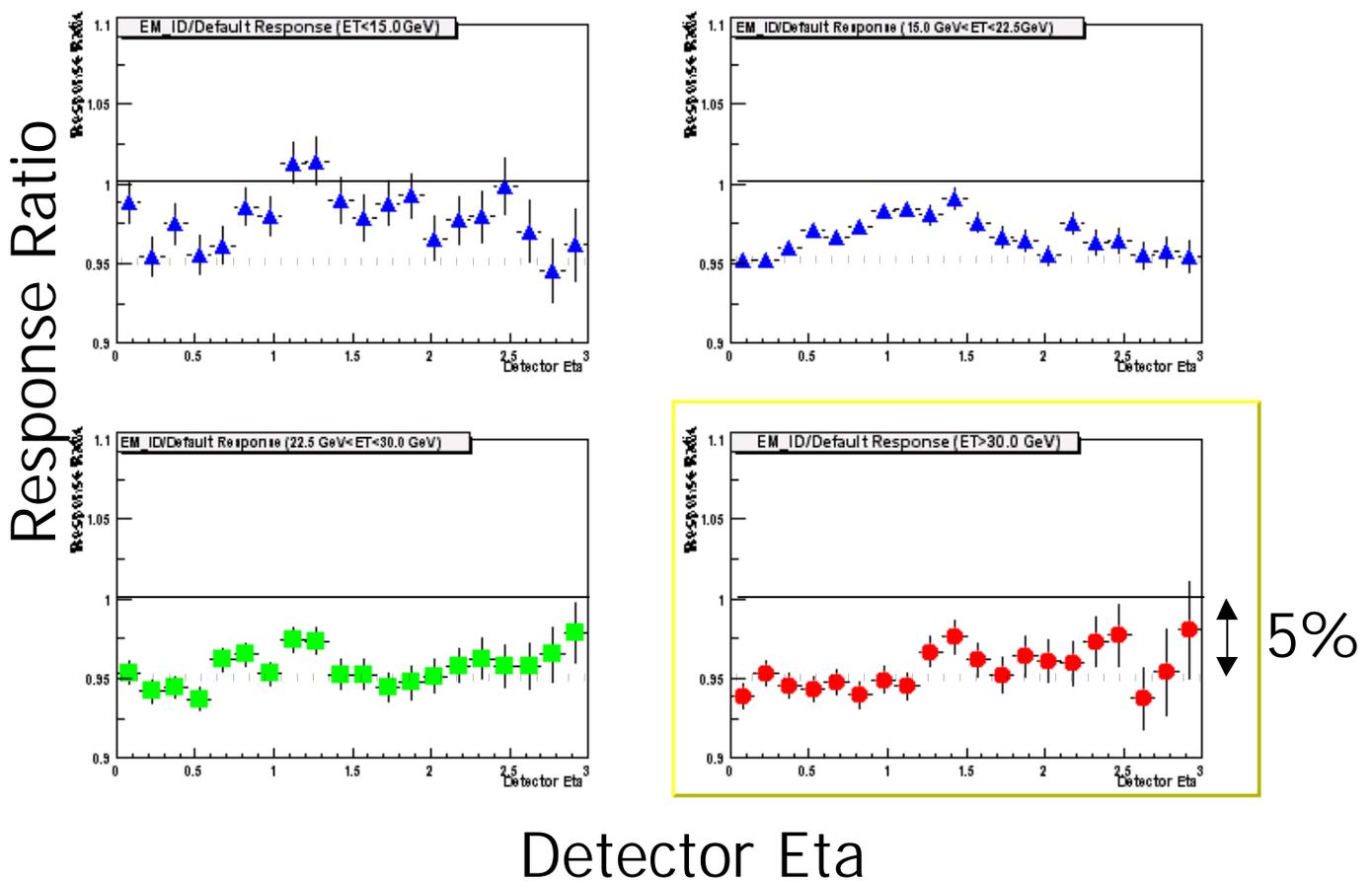


Tight EM Cuts

- **Default Cuts +**
- **The leading photon must have**
 - $0.95 < \text{EM Fraction} < 1.05$;
 - $-0.05 < \text{Isolation} < 0.1$

Data: Tight EM Cuts

DATA: Ratio Response(TightEMCuts)/
Response (DefaultCuts)



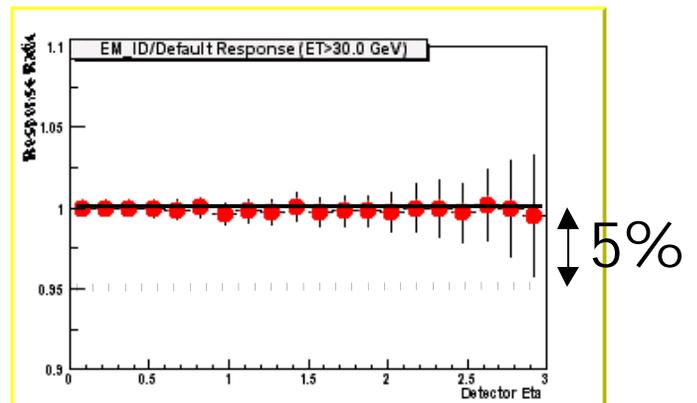
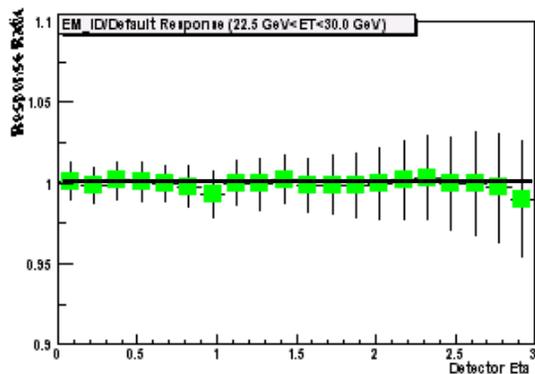
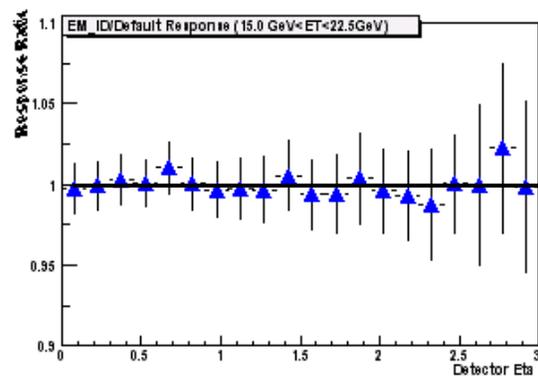
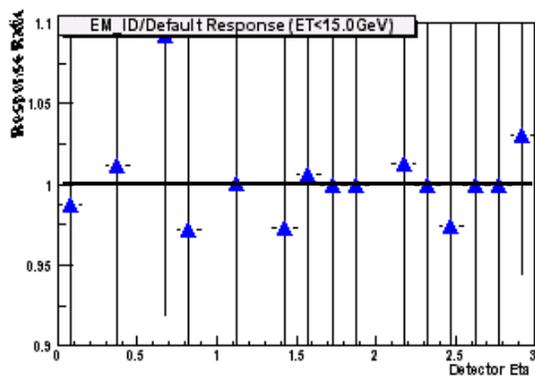
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Monte Carlo: Tight EM Cuts

MC: Ratio Response(TightEMCuts)/
Response (DefaultCuts)

Response Ratio



Detector Eta

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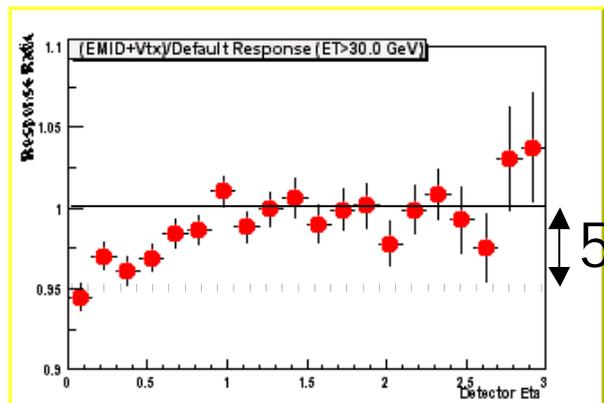
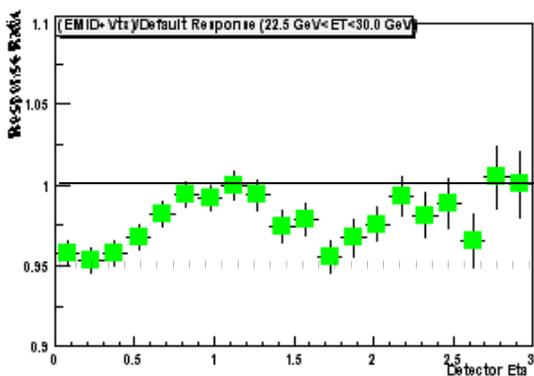
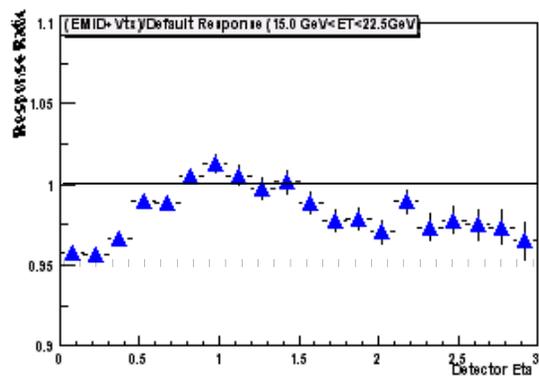
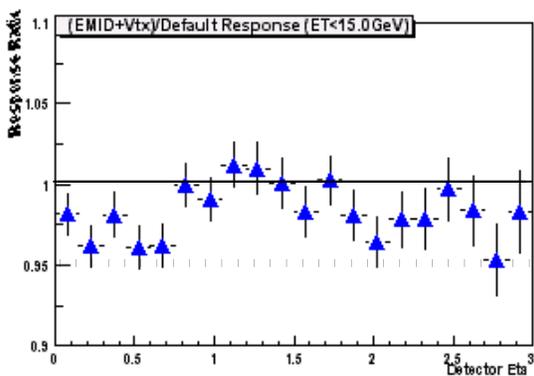
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Data: Tight EM+VTX Cuts

DATA: Ratio Response(TightEMVTXCuts)/
Response (DefaultCuts)

Response Ratio



Detector Eta

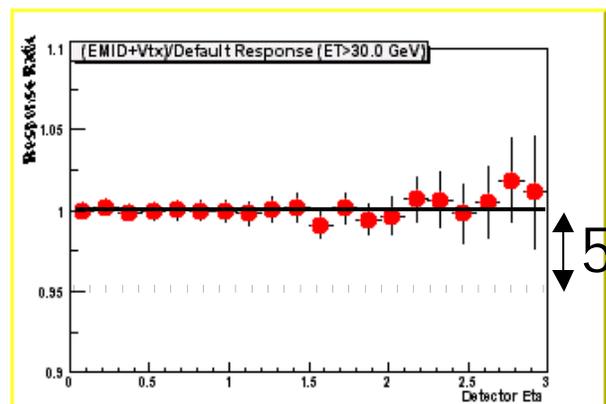
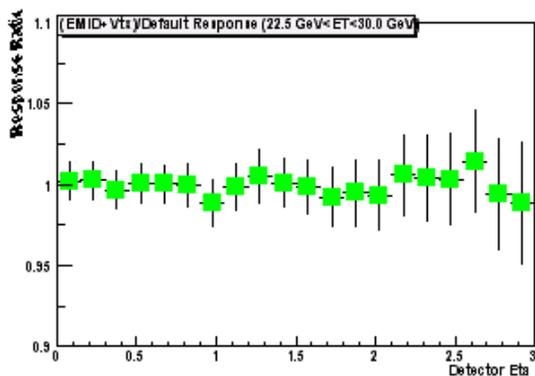
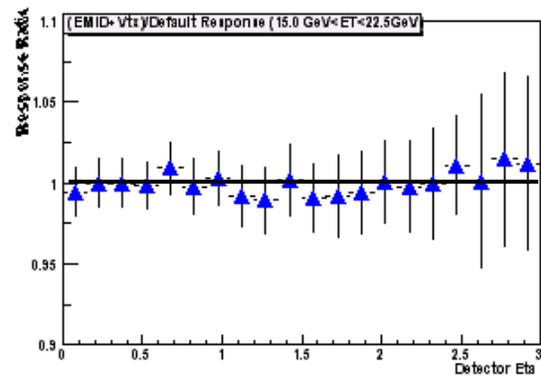
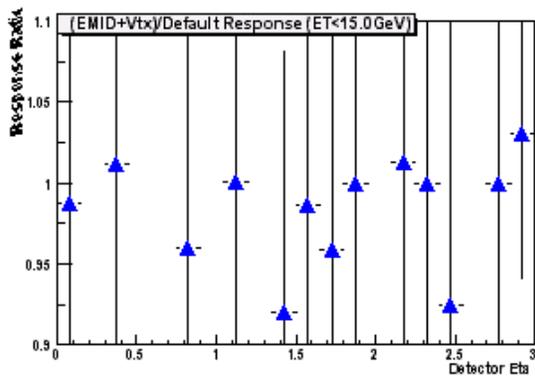
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Monte Carlo: Tight EM+VTX Cuts

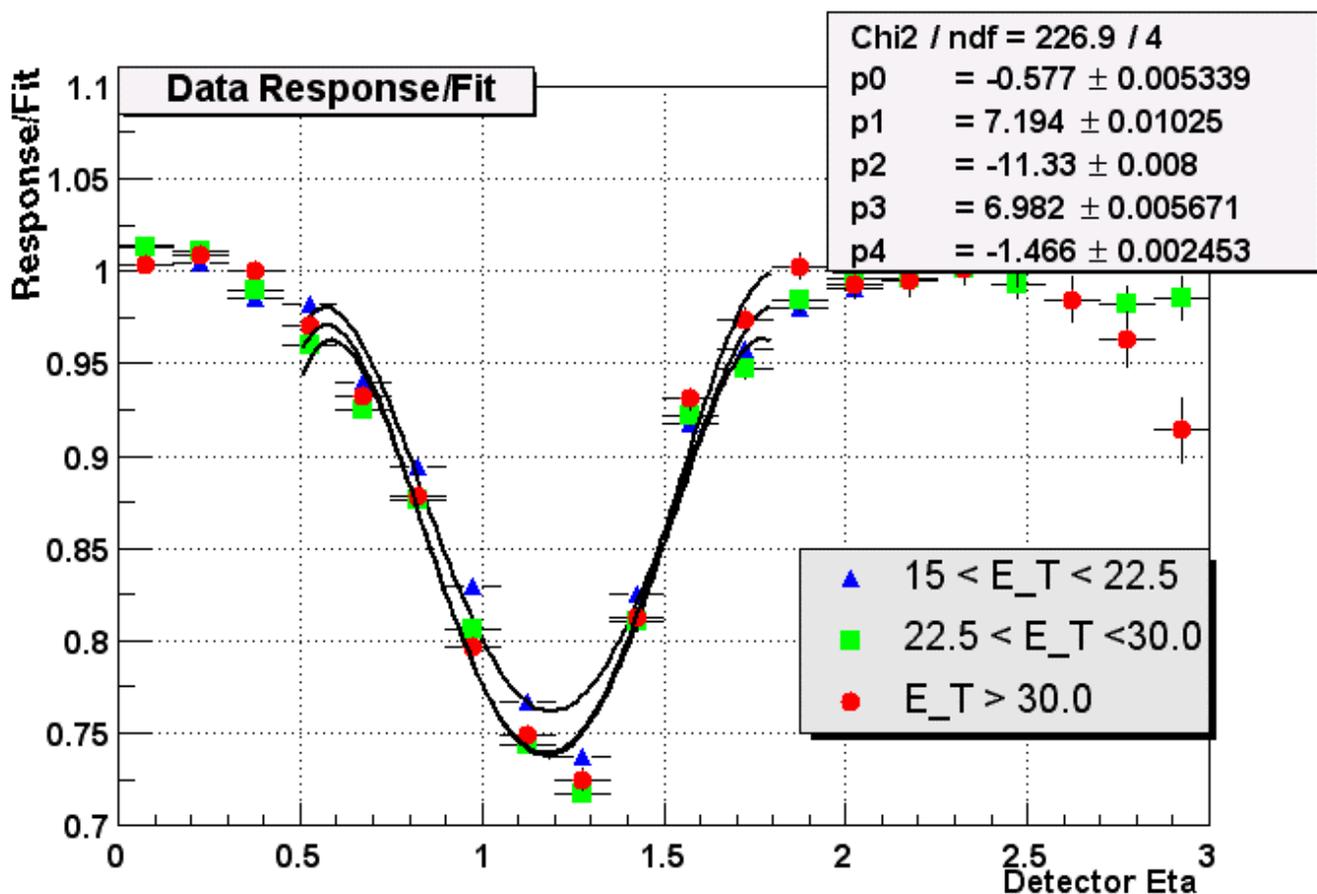
MC: Ratio Response(TightEMVTXCuts)/
Response (DefaultCuts)

Response Ratio



Detector Eta

Data/EFit Response vs. η – Default Cuts



All stripped data – 4th order fit

MC/EFit Response vs. η – Default Cuts

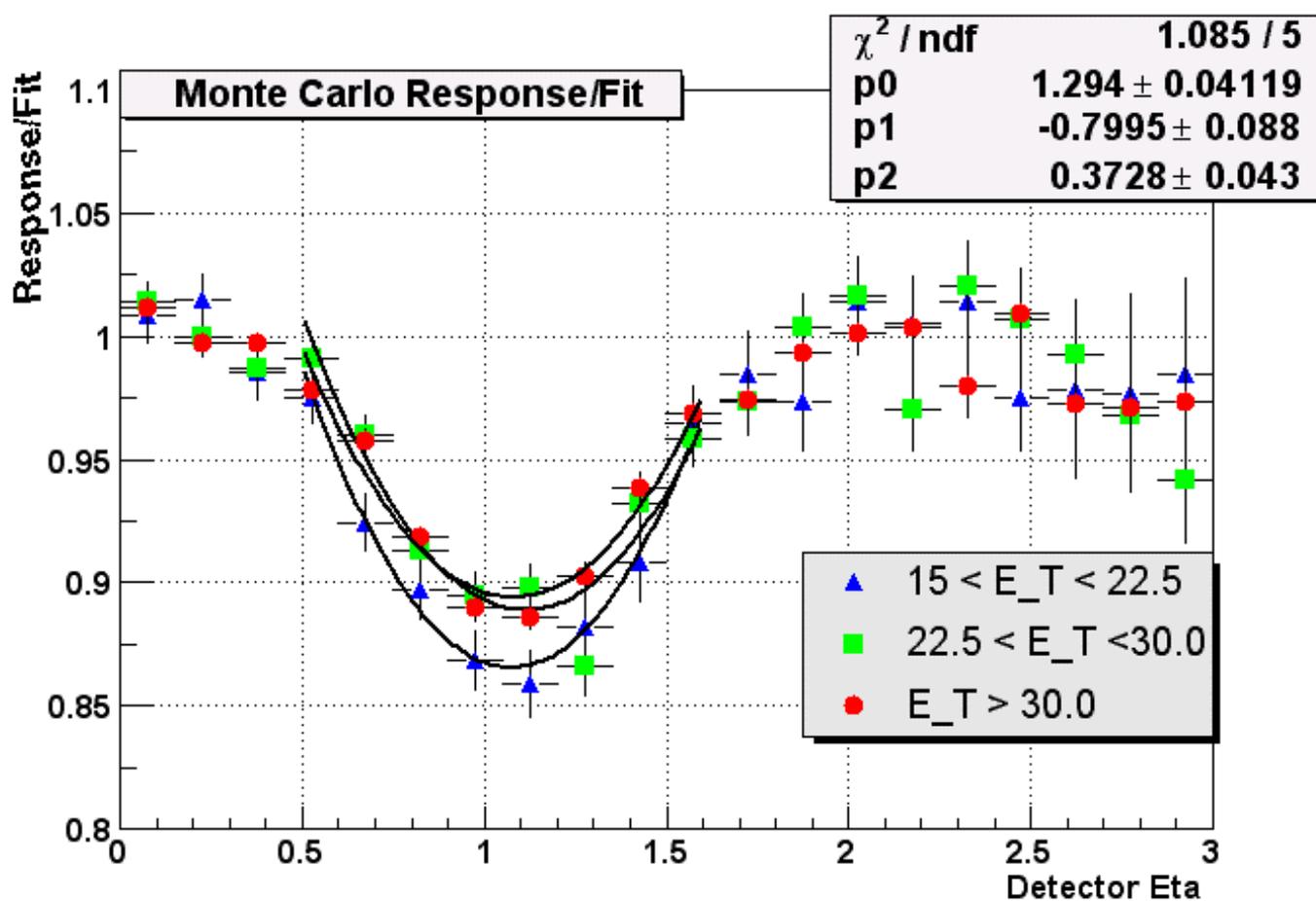
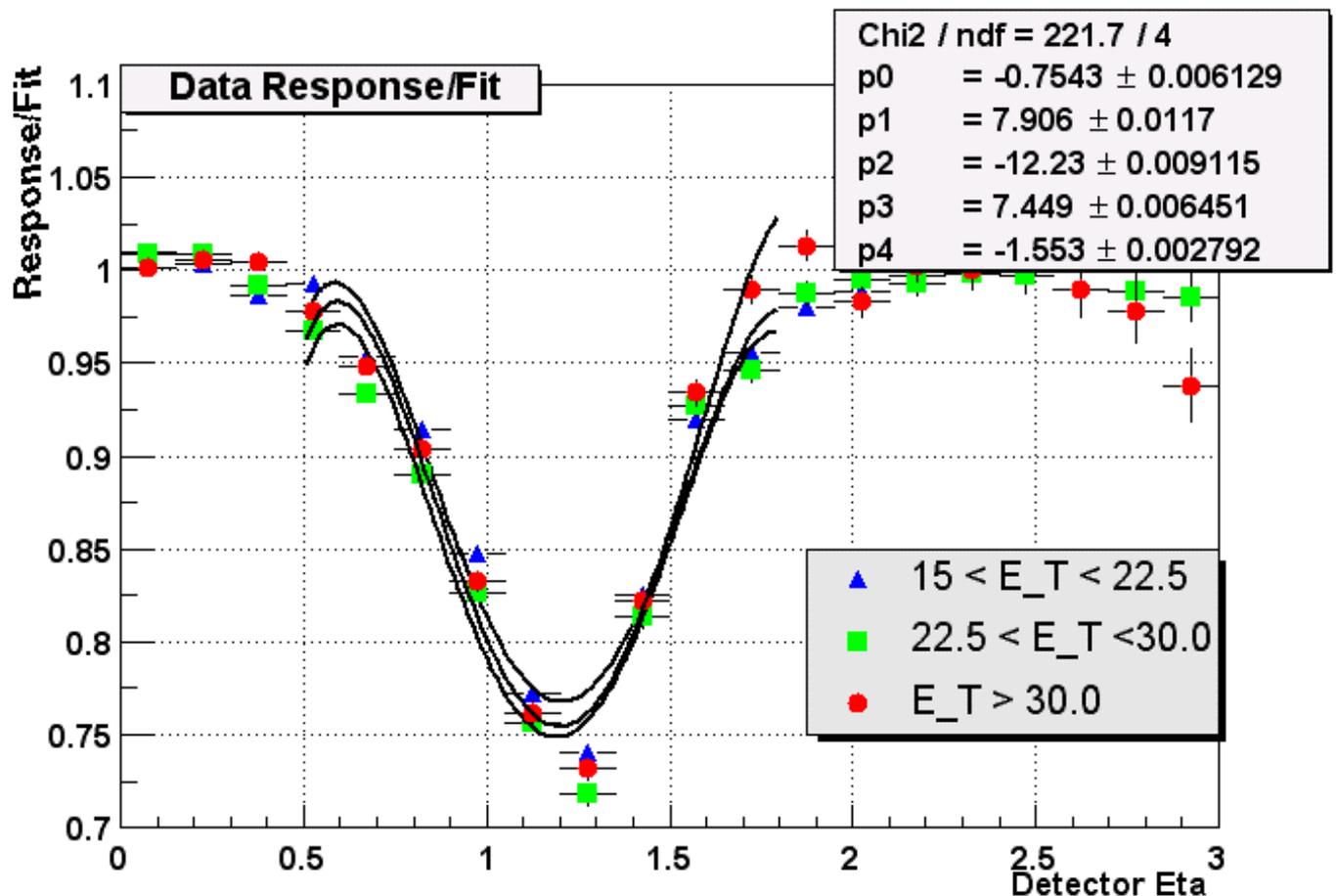


Plate Monte Carlo p10.11 – 2nd order fit

Data/EFit Response vs. η – Tight Vtx Cuts



All stripped data – 4th order fit

MC/EFit Response vs. η – Tight Vtx Cuts

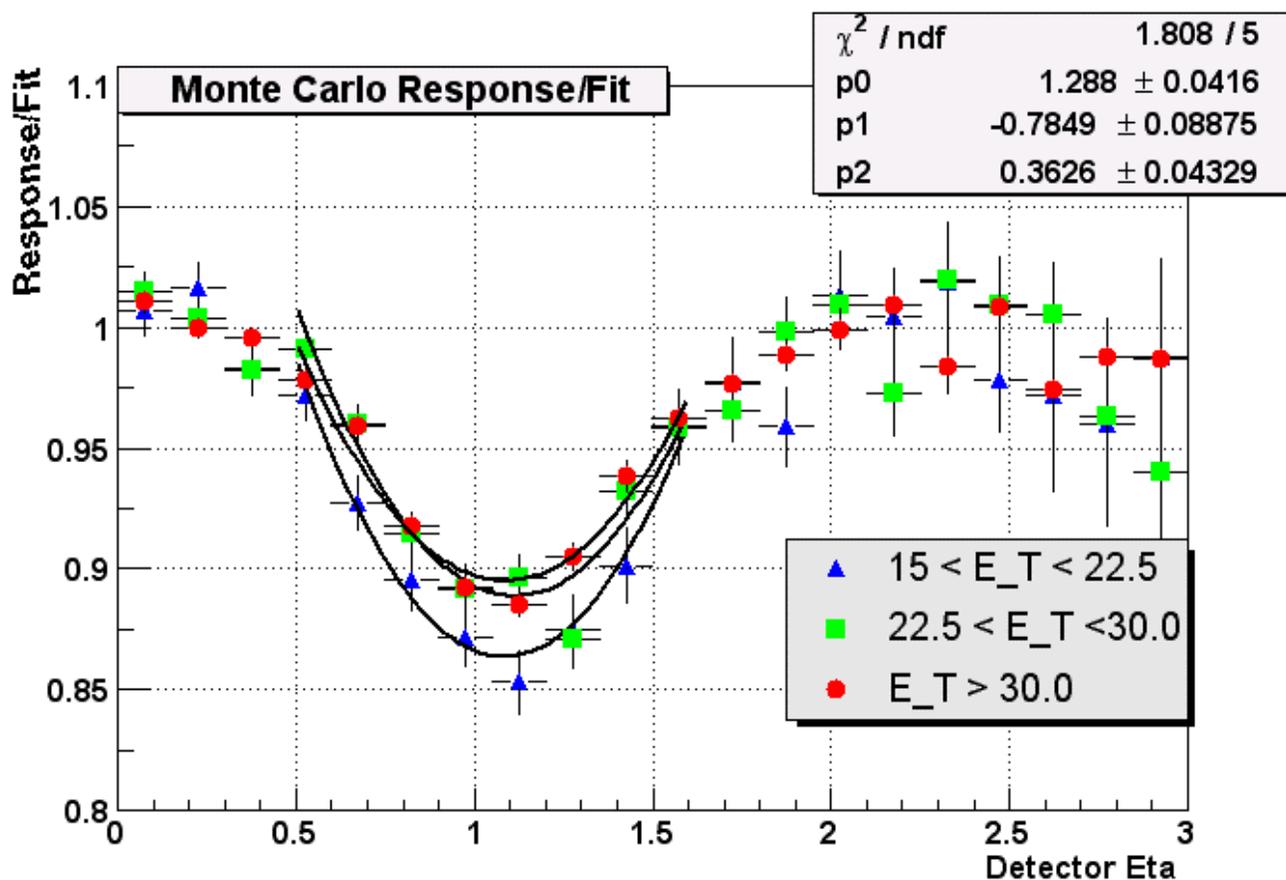
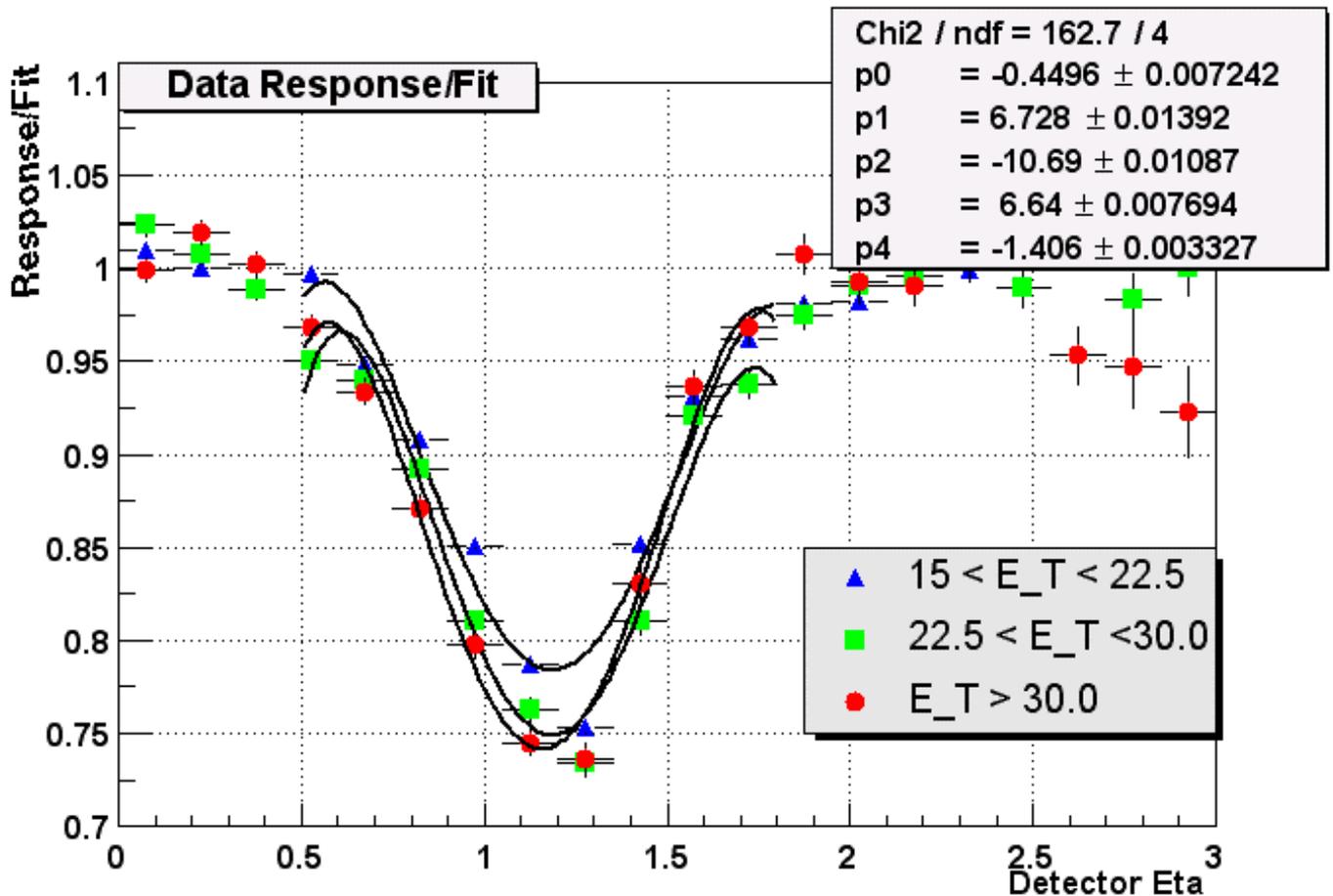


Plate MC p10.11 – 2nd order fit

Data/EFit Response vs. η – Tight EM Cuts



All stripped data – 4th order fit

MC/EFit Response vs. η – Tight EM Cuts

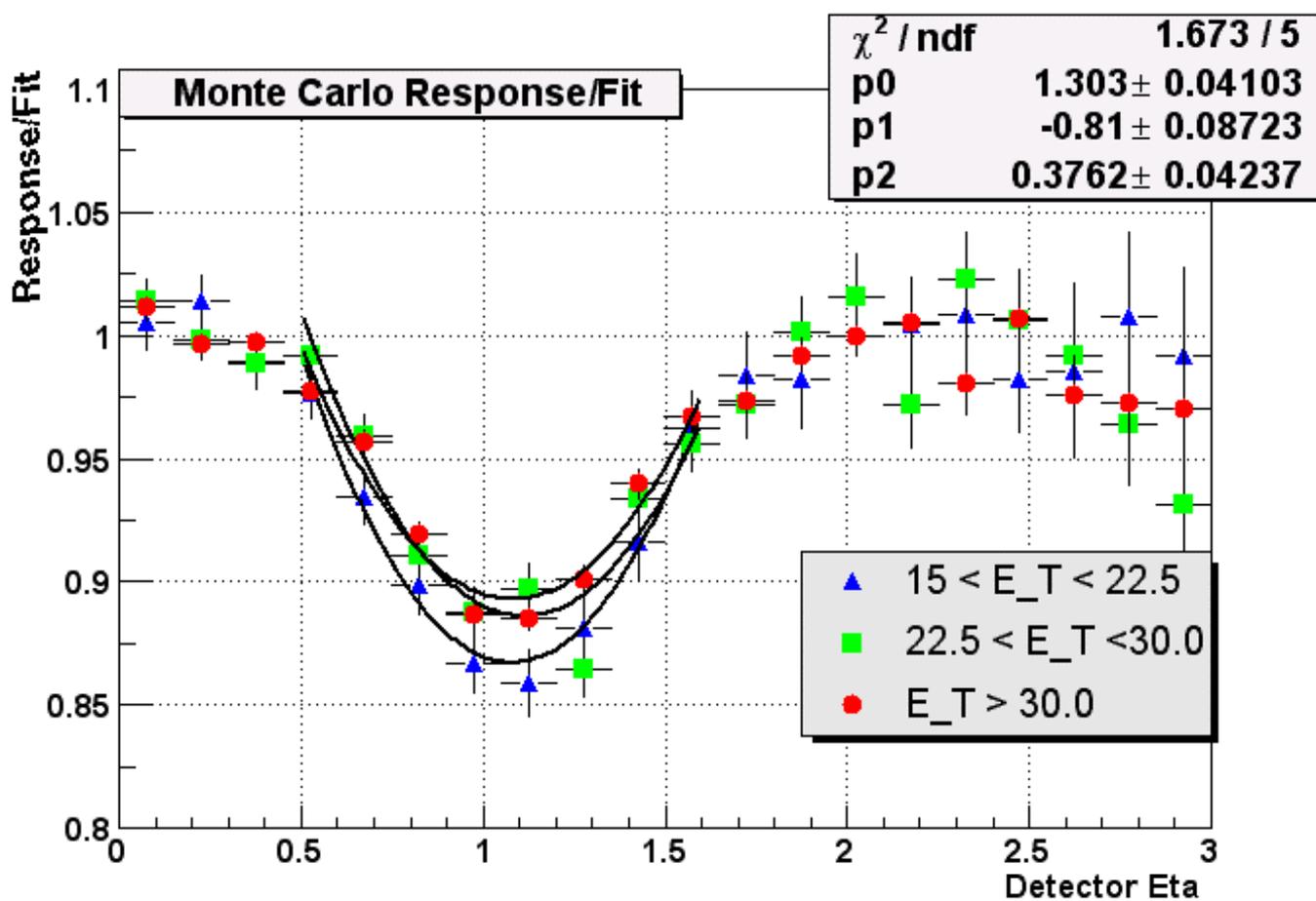
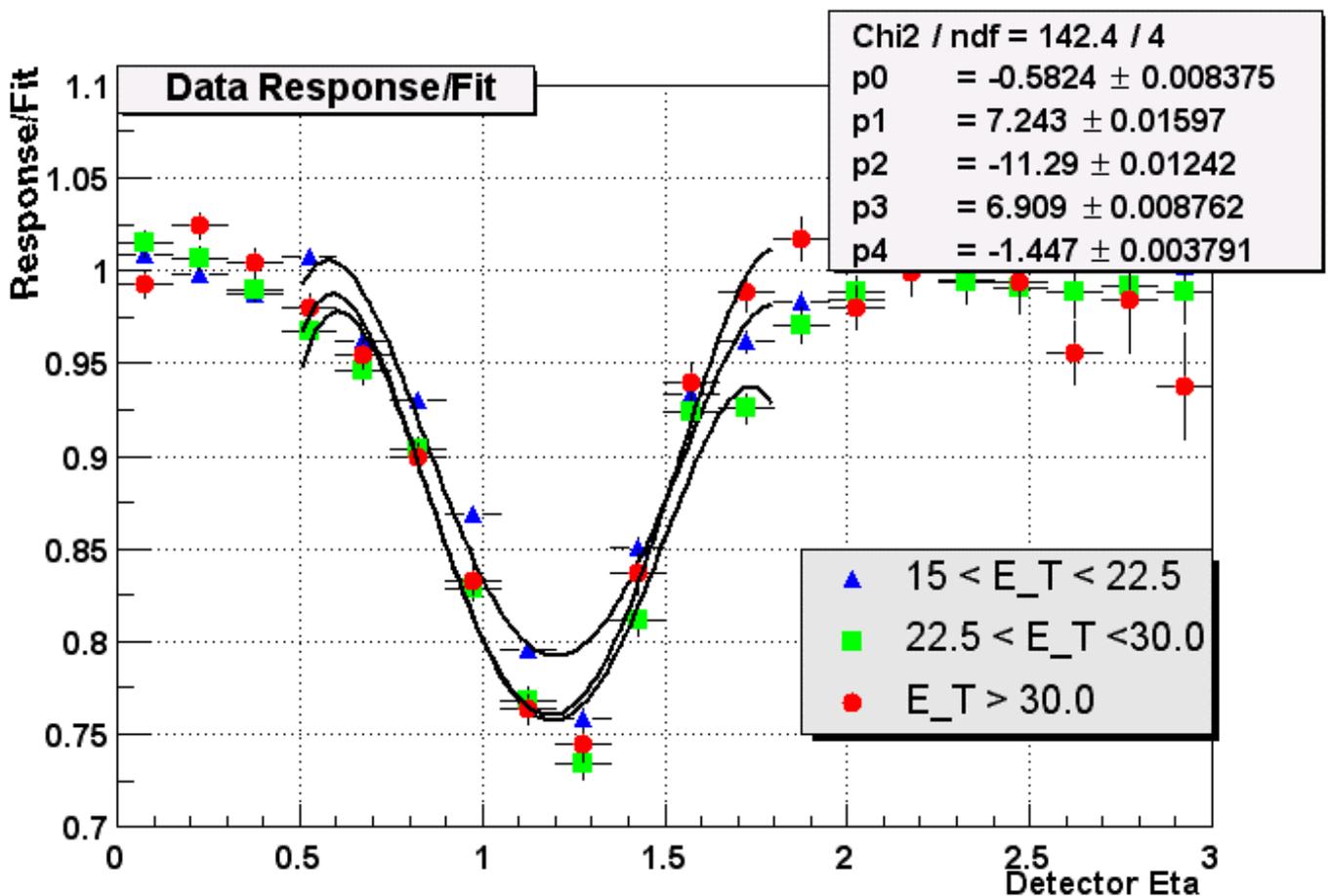


Plate MC p10.11 – 2nd order fit

Data/EFit Response vs. η – Tight VTX+EM Cuts



All stripped data – 4th order fit

MC/EFit Response vs. η – Tight VTX+EM Cuts

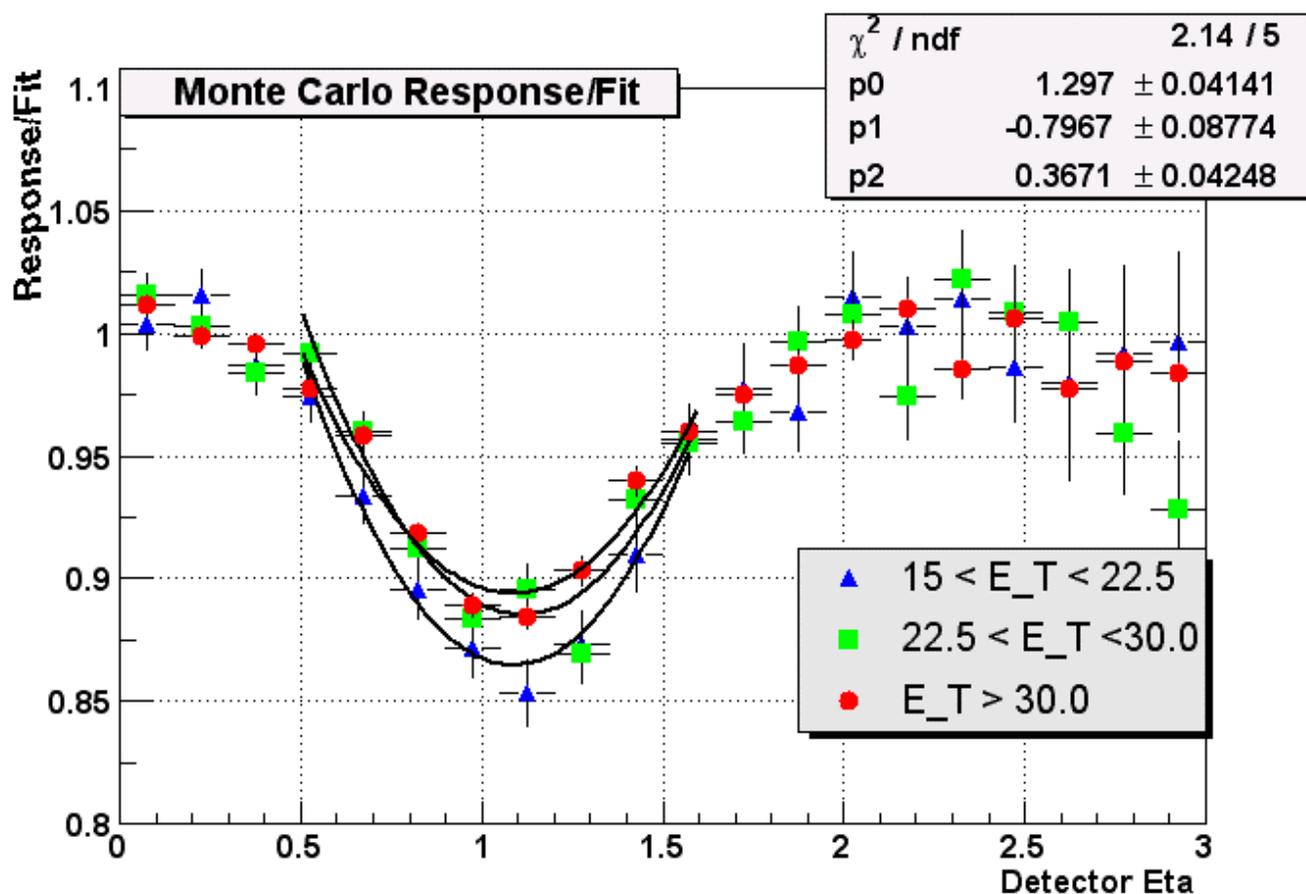
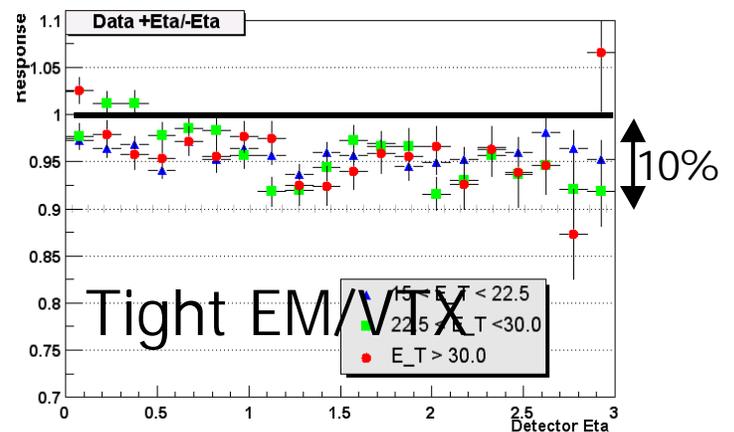
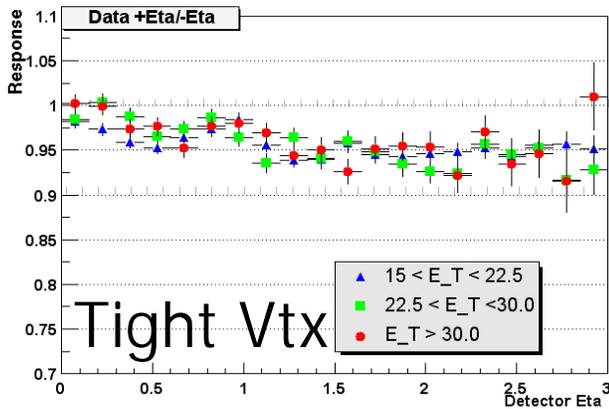
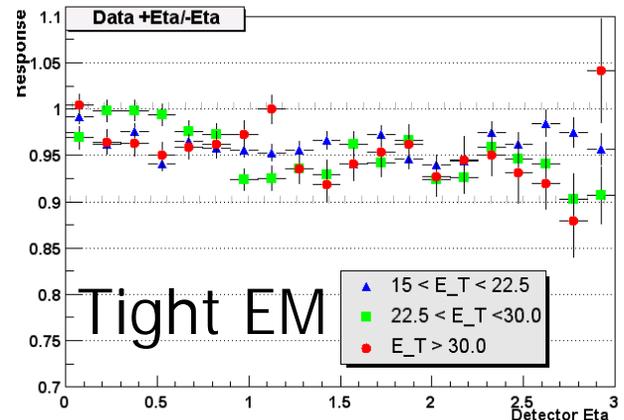
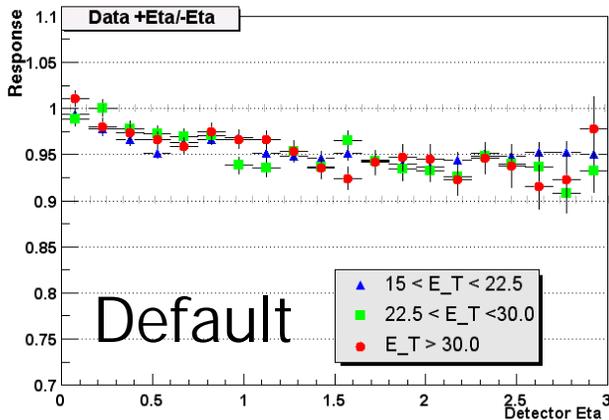


Plate MC p10.11 – 2nd order fit

Comparing +eta/-eta

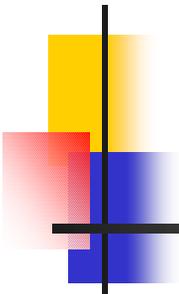


Ratio +Eta/-Eta roughly same,
Independent of cuts

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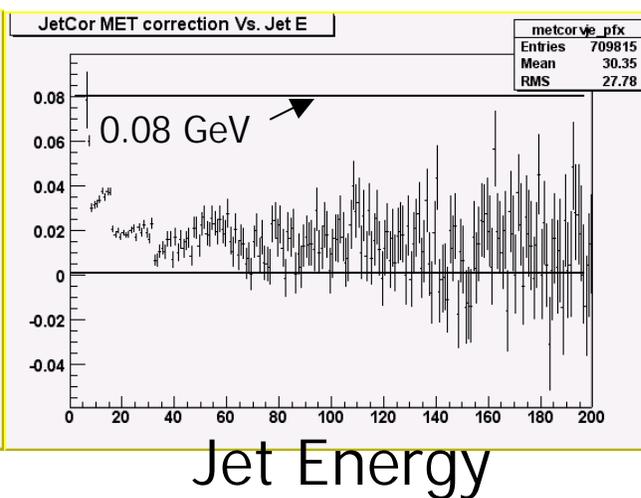
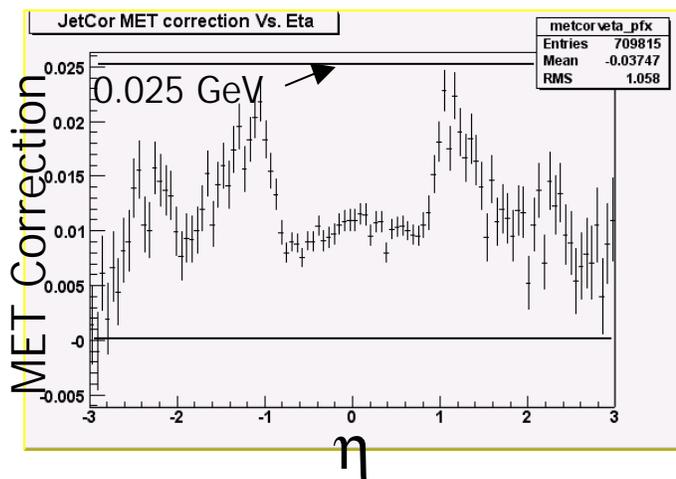
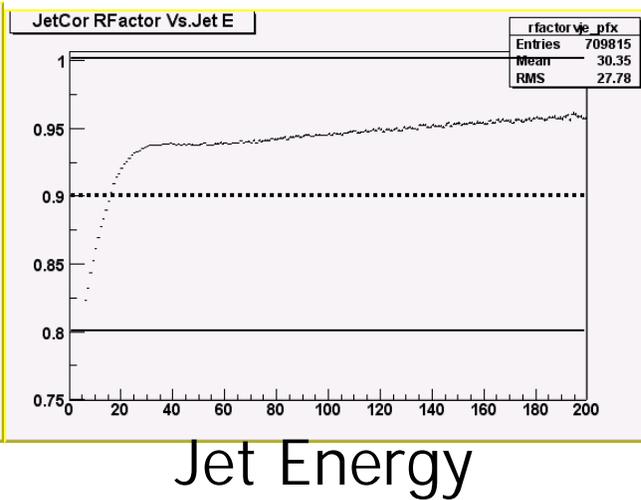
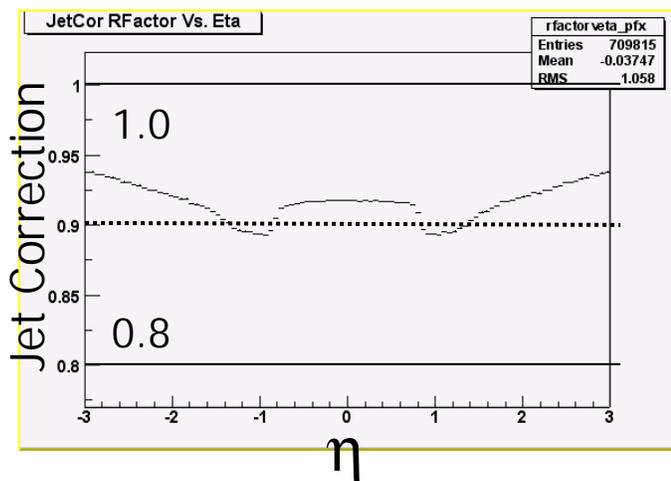
Cryostat Correction

- Using latest version of JetCor
I applied ONLY the Offset correction and the Cryostat correction
 - Offset correction calculated from
 - Cryostat correction calculated from

- (Show Offset and Offset+cryo separately here)

Offset Correction

■ Offset Correction Only



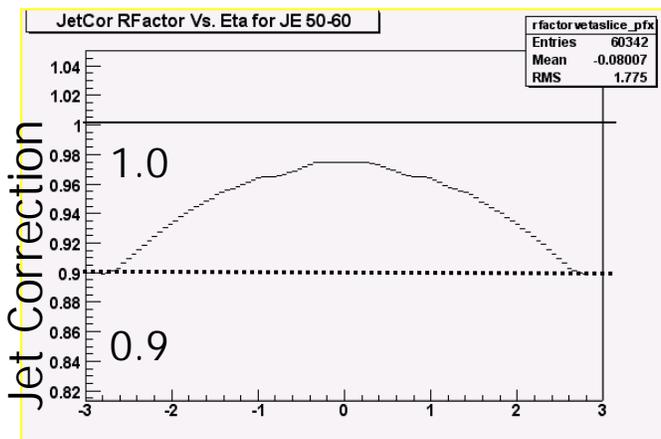
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Offset Correction

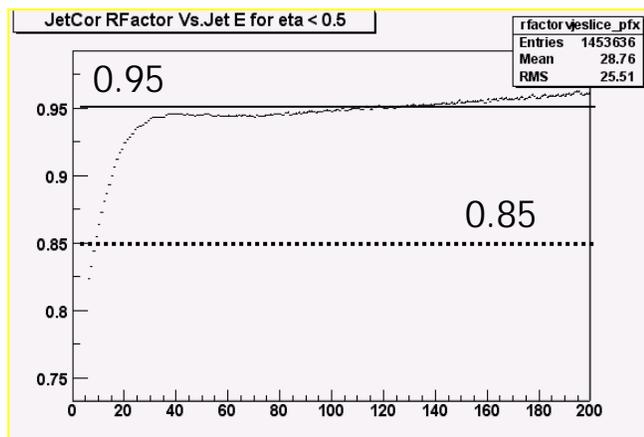
- Offset Correction Only



50 GeV < Jet
Energy < 60GeV

η

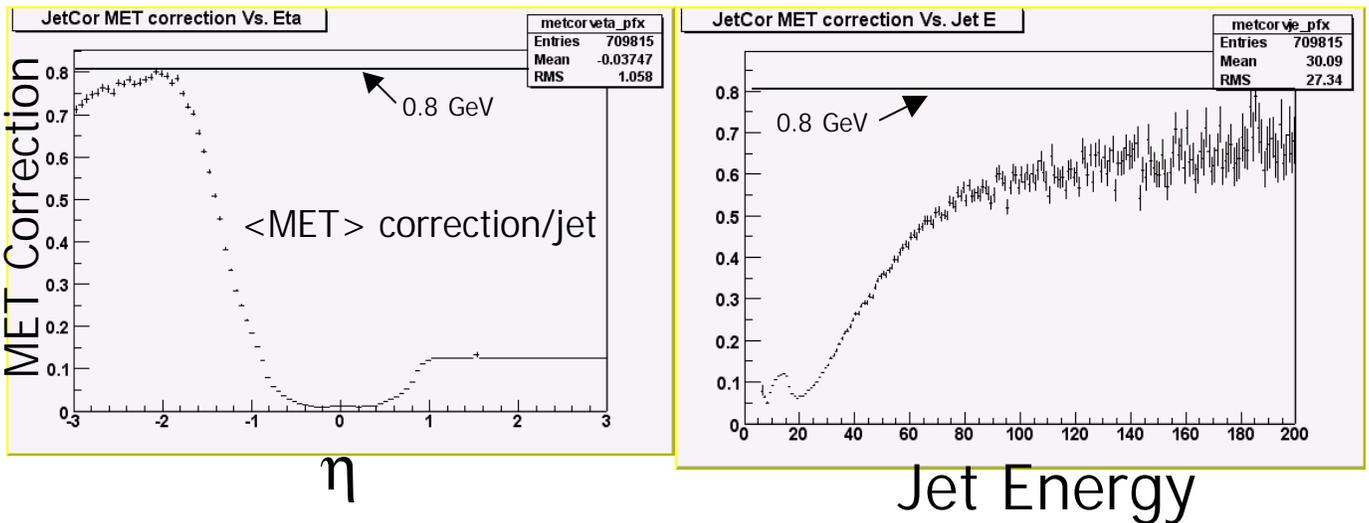
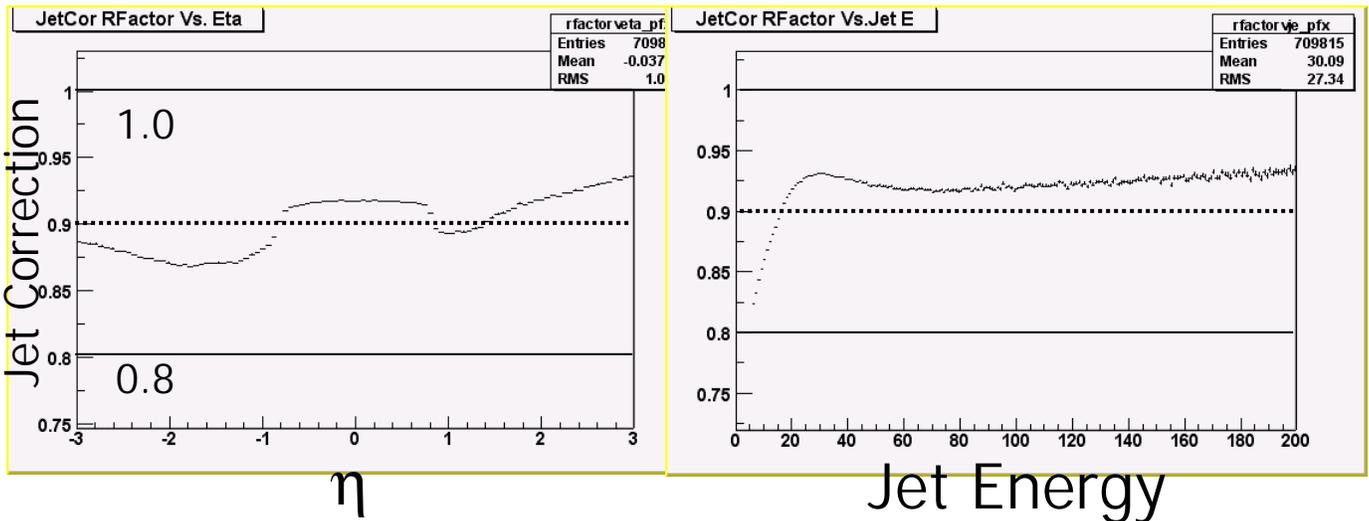
$|\eta| < 0.5$



Jet Energy

Cryostat Correction

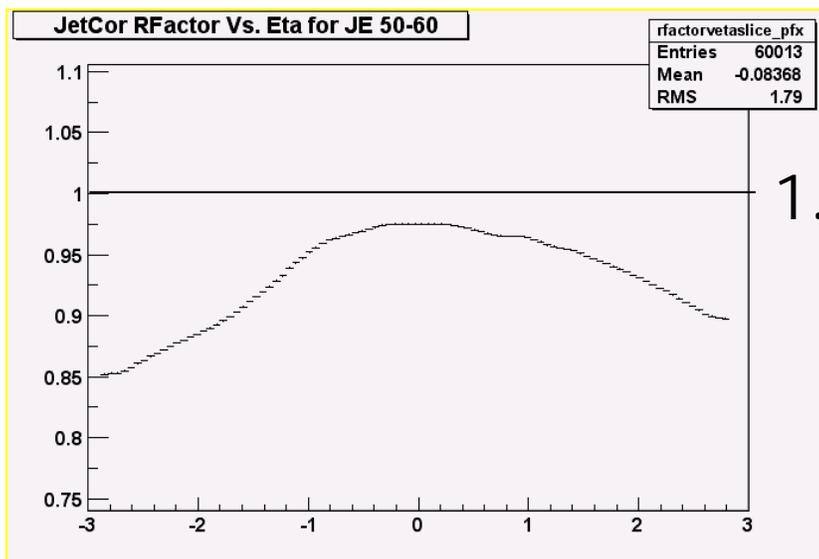
- Offset + Cryostat factor



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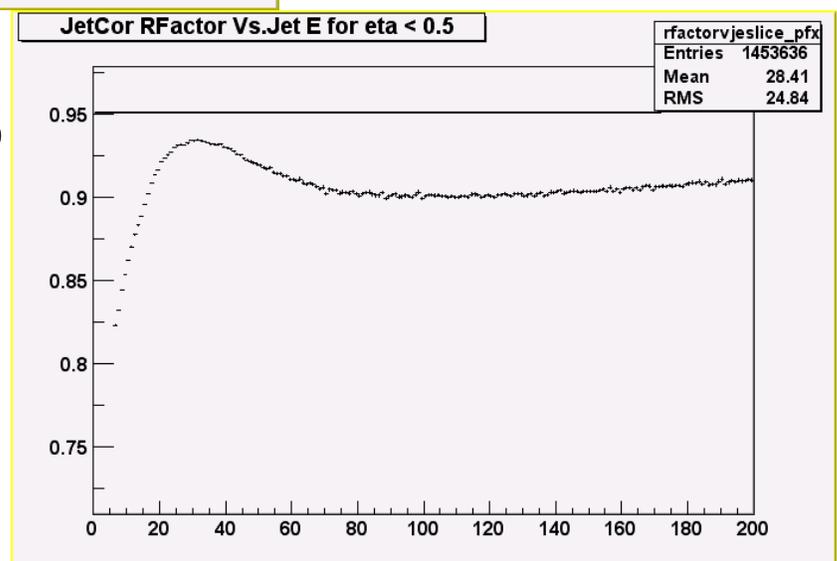
Offset Correction

- Offset+Cryostat Factor Only



50 GeV < Jet
Energy < 60GeV

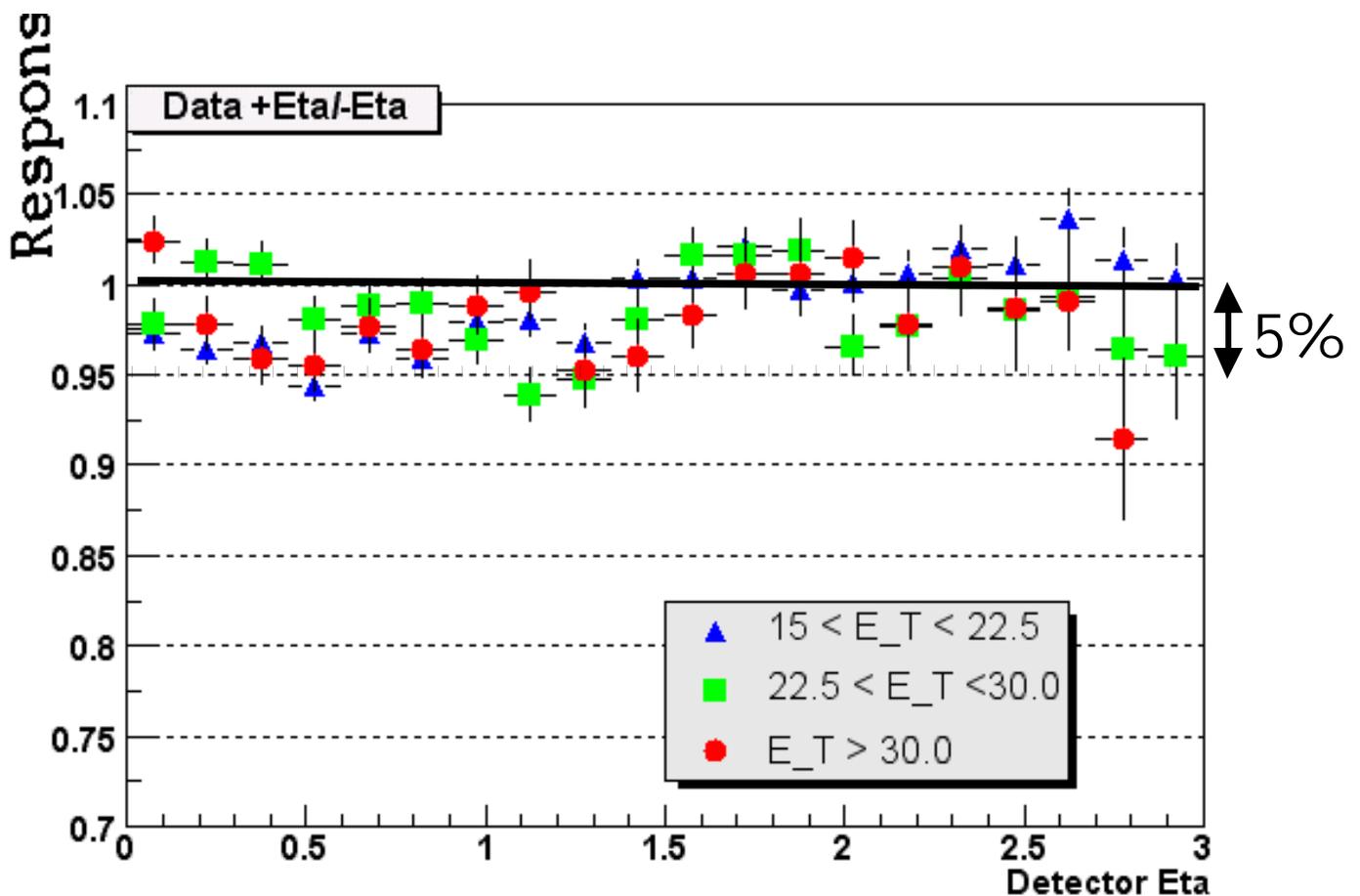
0.95
 $|\eta| < 0.5$



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Comparing +eta/-eta

- all cuts + offset and cryostat corrections



Correction seems to be doing the right thing!

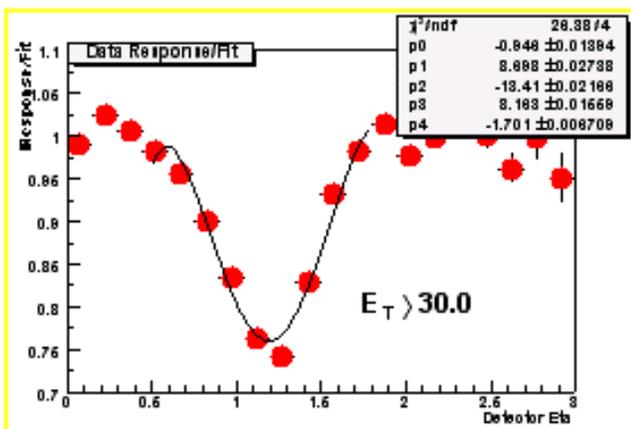
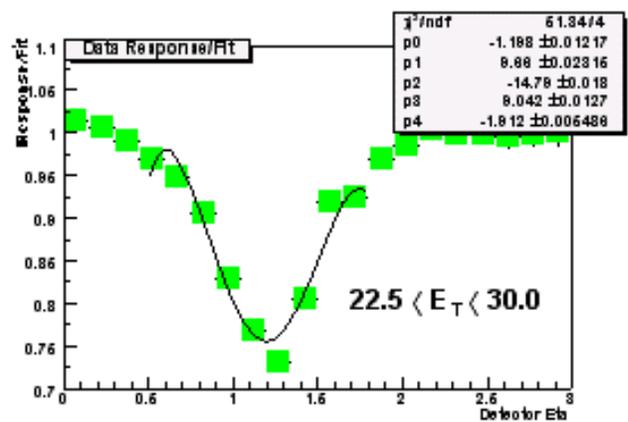
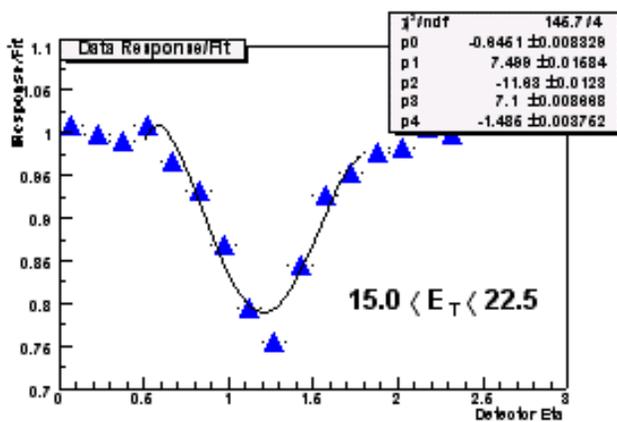
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ICR corrections

- Results from Offset/Cryo corrected data



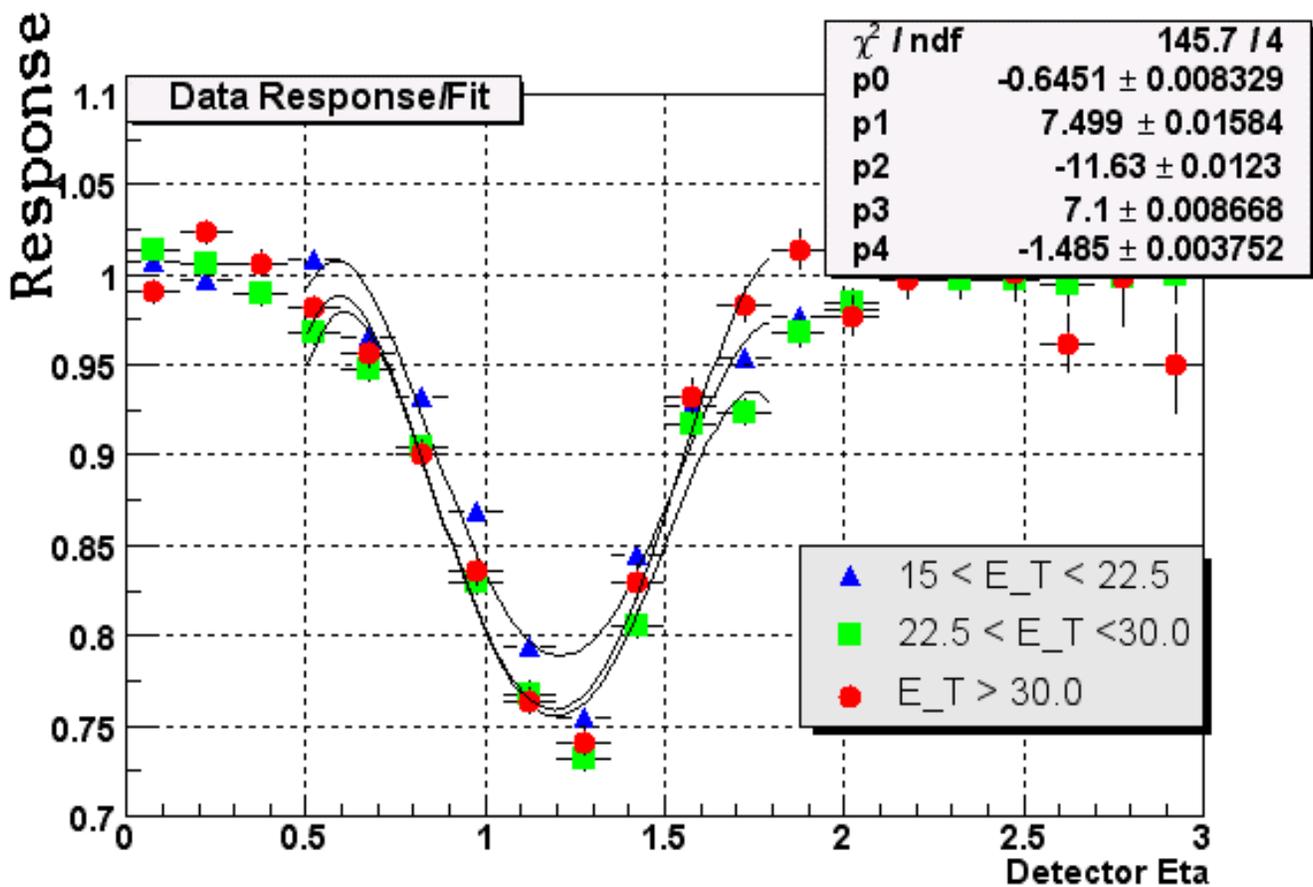
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ICR corrections

- Results from Offset/Cryo corrected data



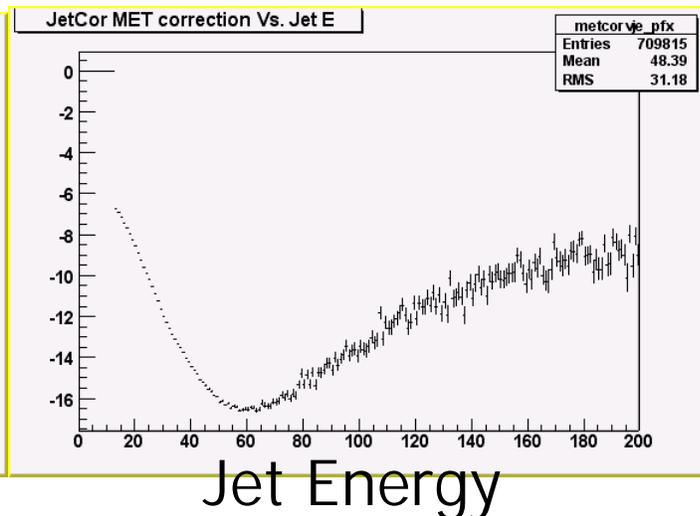
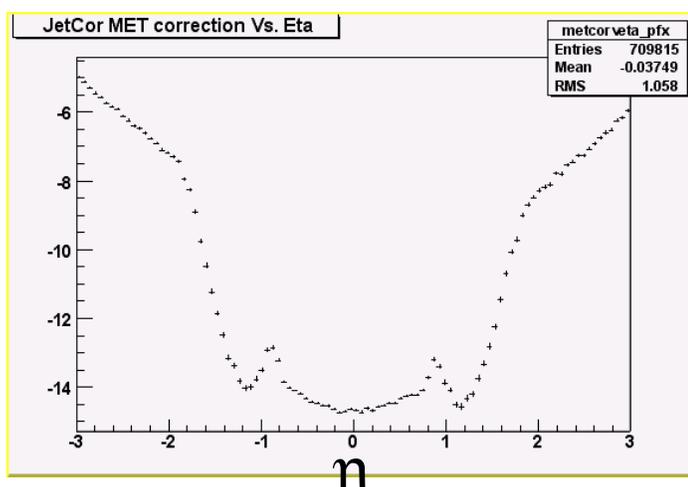
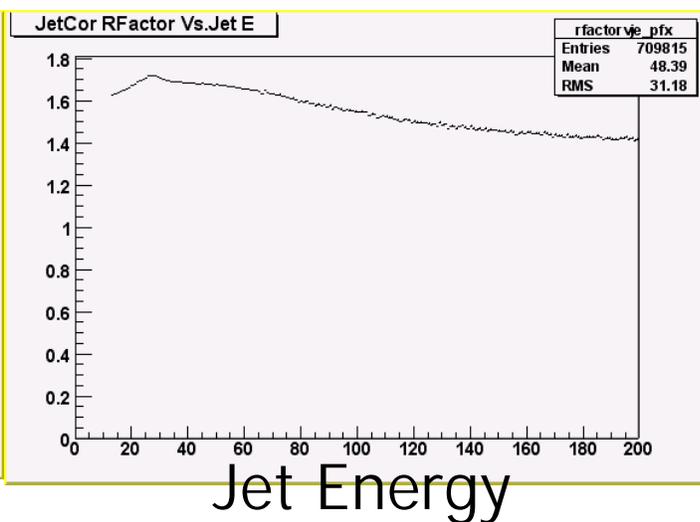
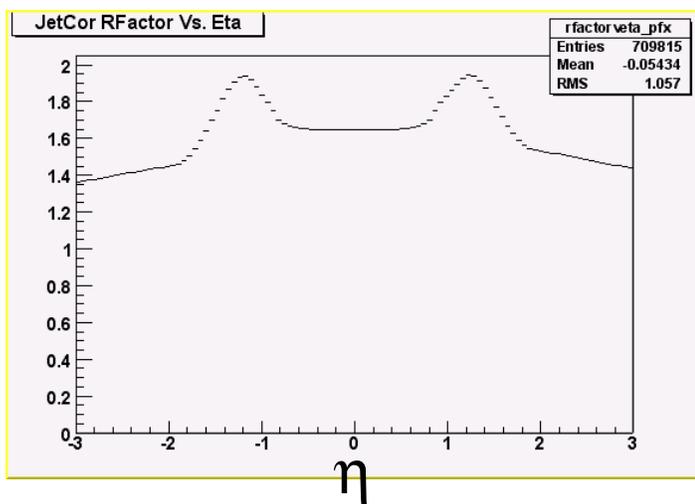
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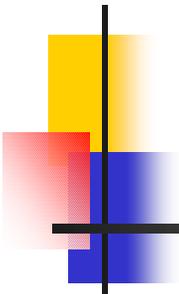
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All JES corrections

- What the full corrections look like



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To Do

- **ToDo**
 - **Estimating/understanding systematic uncertainties**
 - **Understanding statistical uncertainties/correlations**
 - **Testing new JetAnalyze which has separate MG/ICD fractions**