ICR Corrections Update

- SmallTuple status (Aside)
- Data Sample & Cuts
- Response Vs. Eta for Data & Monte Carlo
- Fitting ICR region
- Cone size 0.5 vs. Cone size 0.7
- Next steps

SmallTuple Status

- Data Sample I
  - All post-Moriond production p10.15 runs completed as of April 9
  - Bad runs macro
    - **v 1.11 from jet/met group**
    - **Hot trigger towers from Bob Kehoe (runs 143772-143889)**
    - **Bad runs flagged by Ia/Viv: on clued0**

/rooms/library/work/jetscale/data/p10.15Apr9/badruns.C

- Data Sample II
  - p10.15 runs > 151000 completed as of May 14
  - Bad runs macro
    - **1 bad run from MET analysis (15xxxx)**

/rooms/library/work/jetscale/data/p10.15May14/badruns.C

Now back to the ICR story

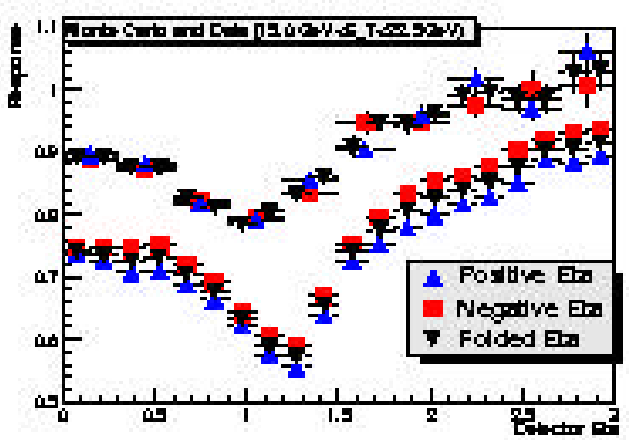
- **Analysis Data Quality cuts**
- **“Final” ICR correction from Apr9 data sample used in jetcorr 2.0**
- **ICR correction from May14 sample only – comparison with Apr9**
- **Comparison of conesize 0.7/0.5 from Apr9 data sample**

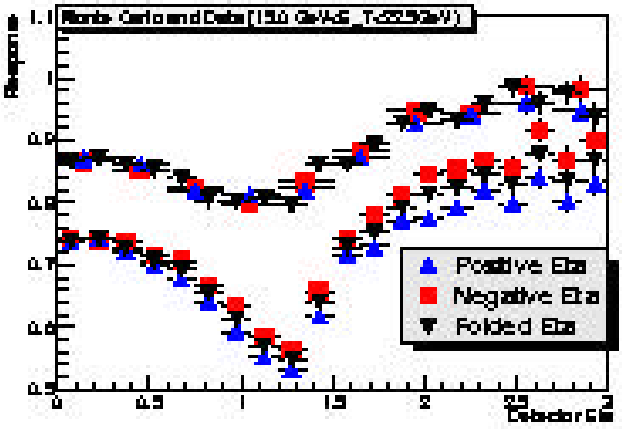
Data Quality Cuts

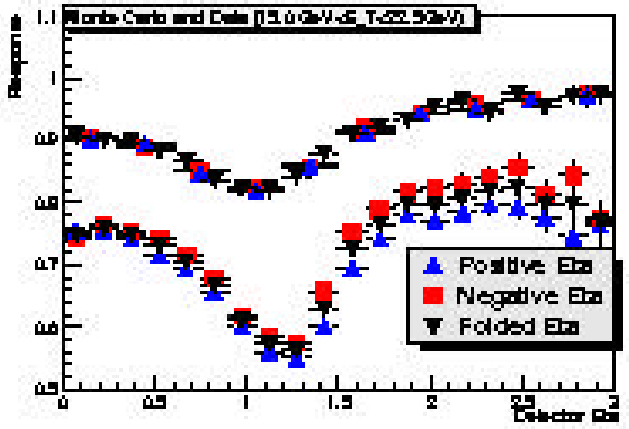
- Cuts on Photon (Simple Cone)
  - **Leading photon is highest pt EM cluster with Abs(EM_id) = 10 or 11**
  - **The leading photon must then pass**
    - **EM Fraction > 0.95; Isolation < 0.2**
    - **Photon Abs(detector eta) < 0.8**
    - **EM object > 0.01 radians from azimuthal cracks**
- Jet Cuts (Run II R=0.7)
  - **0.05 < EM Fraction < 0.95**
  - **Coarse Hadronic Fraction < 0.5**
  - **HotFraction < 10; N90 > 1**
  - **No jets in the event that fail these cuts**
- Vertex Cut
  - **|Pvsel_psz| < 70cm**

Comparing Data and Monte Carlo Response Vs. Eta

April 9 smalltuple







Fit Results Description

- Fit data and Monte Carlo to the function:

  a + ln(cosh(detector_eta))

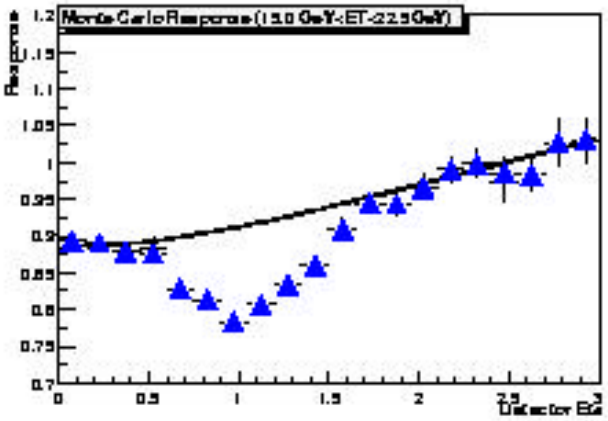
  For $\eta < |0.5|$ and $|2.0| < \eta < |2.5|$

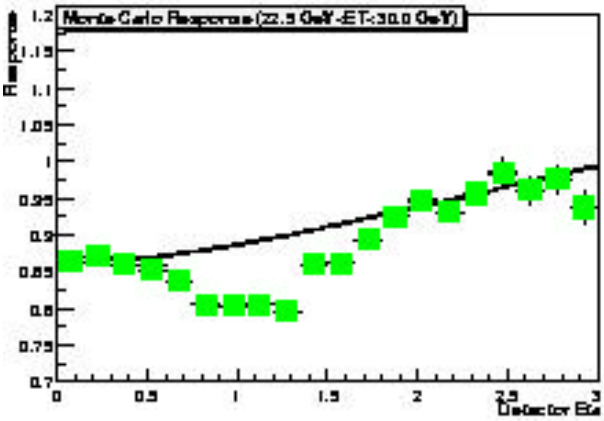
  (outside the ICR region)

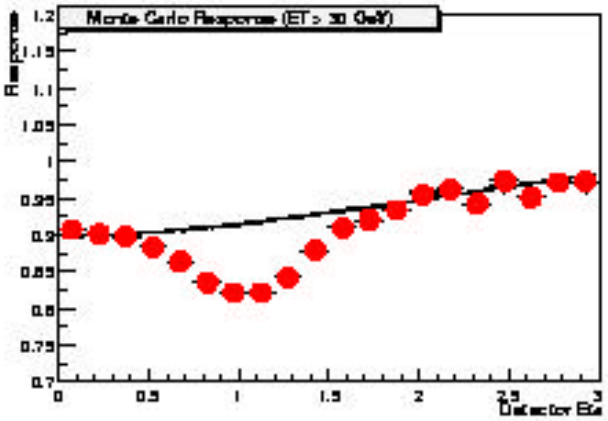
- Take ratio of Data/Fit and Monte Carlo/Fit – this is response after removing eta/energy dependence

- Make the ratio of Data/Fit to Monte Carlo/Fit – this is the difference between measured response and MC prediction

Monte Carlo Response Vs. Eta

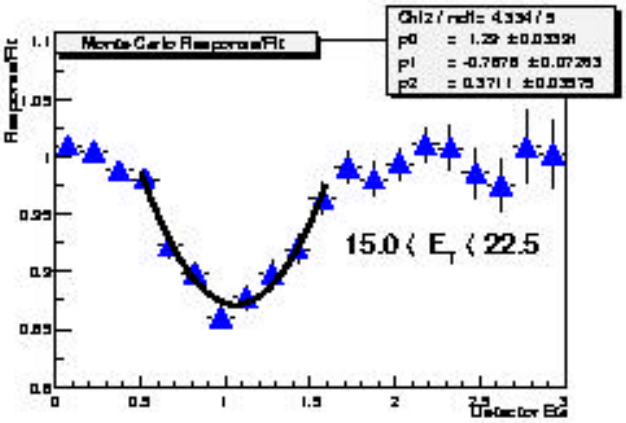


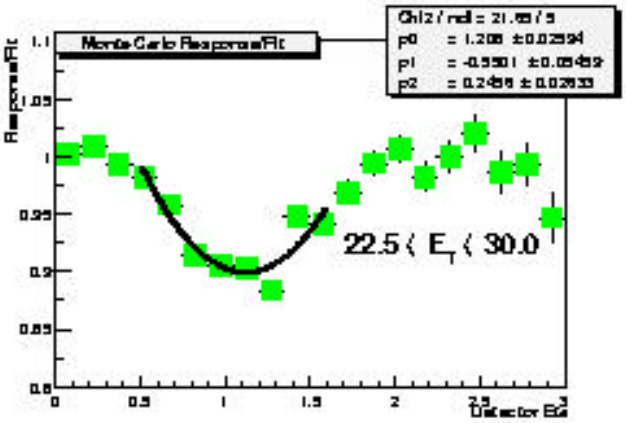


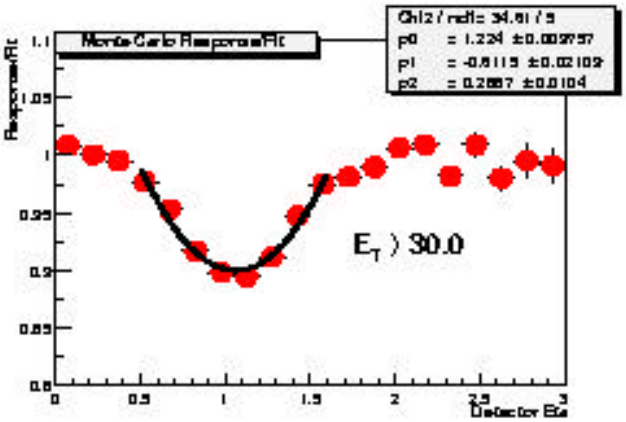


Monte Carlo Response Vs. Eta

- Divide out the energy dependence from last slide

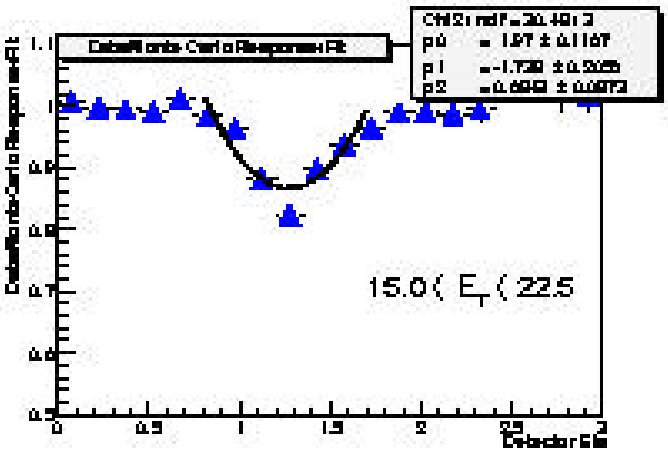


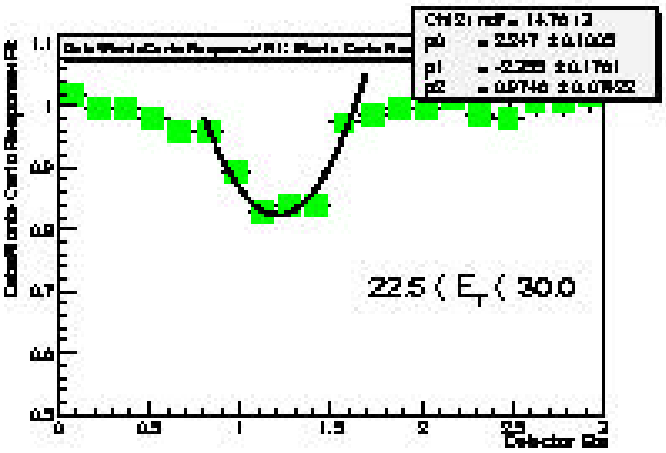


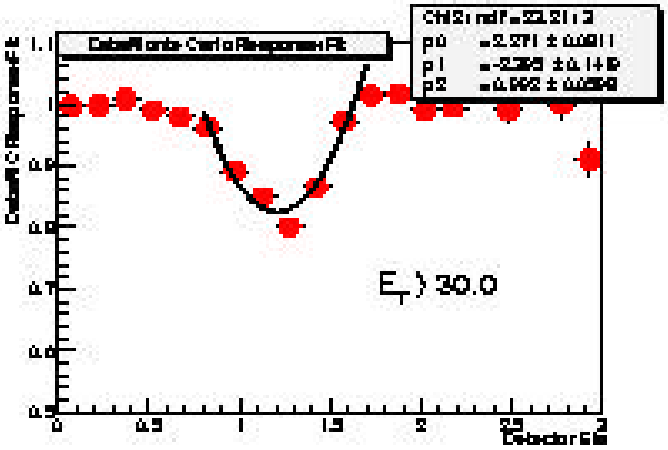


Fit to 2nd order polynomial

Ratio of Data/EFit to MC/Efit Response vs.η



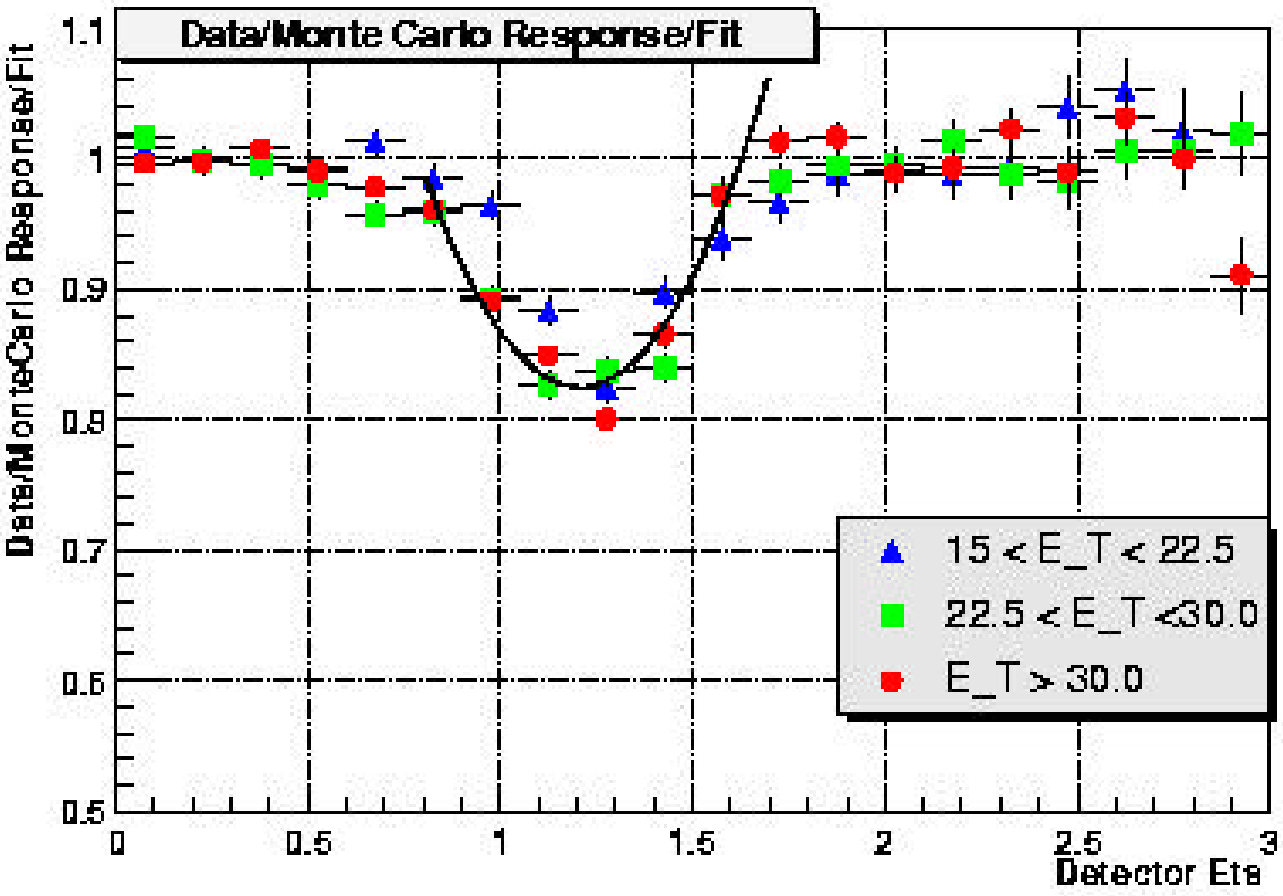




Fit to a 2nd order polynomial

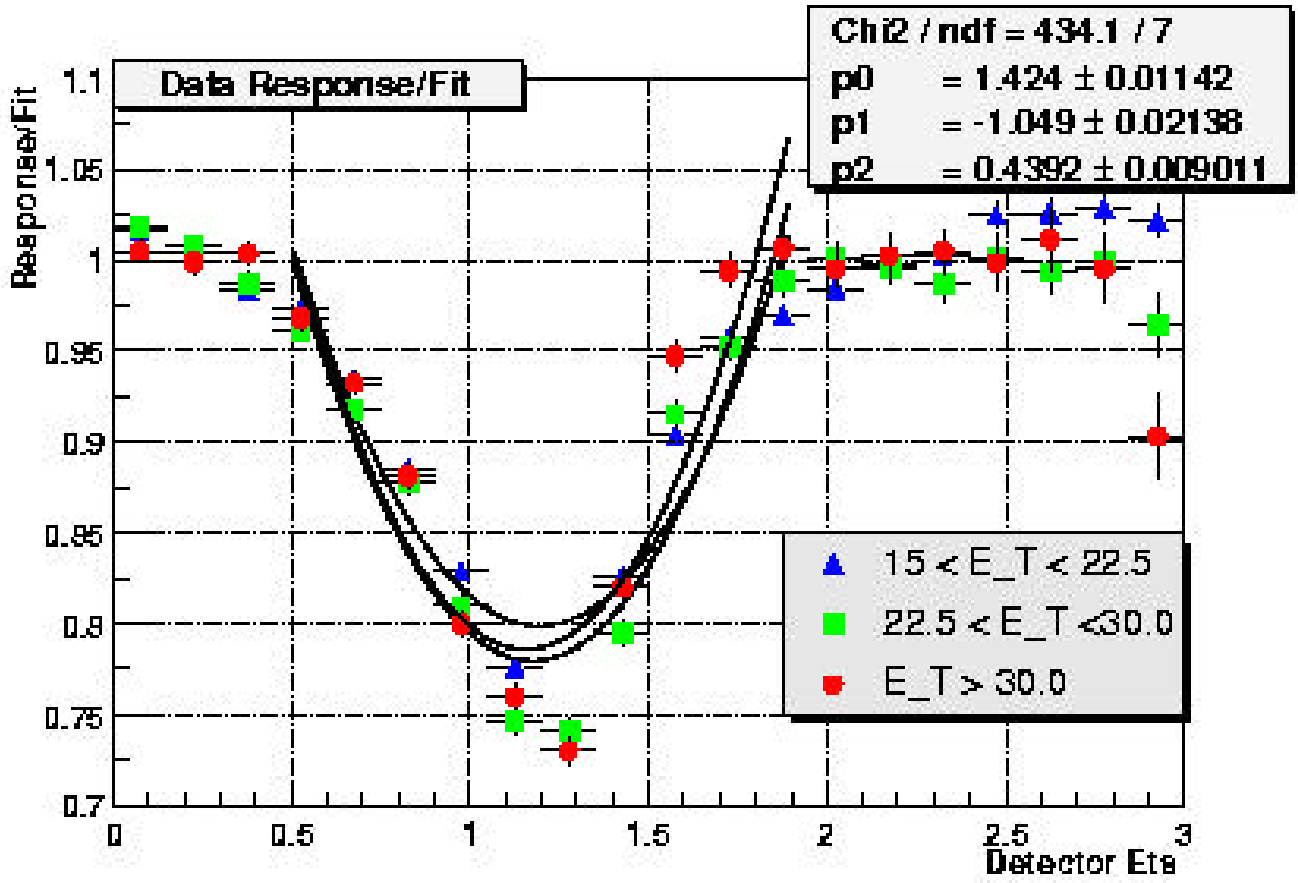
April 9 smalltuple

Ratio of Data/EFit to MC/Efit Response vs.η



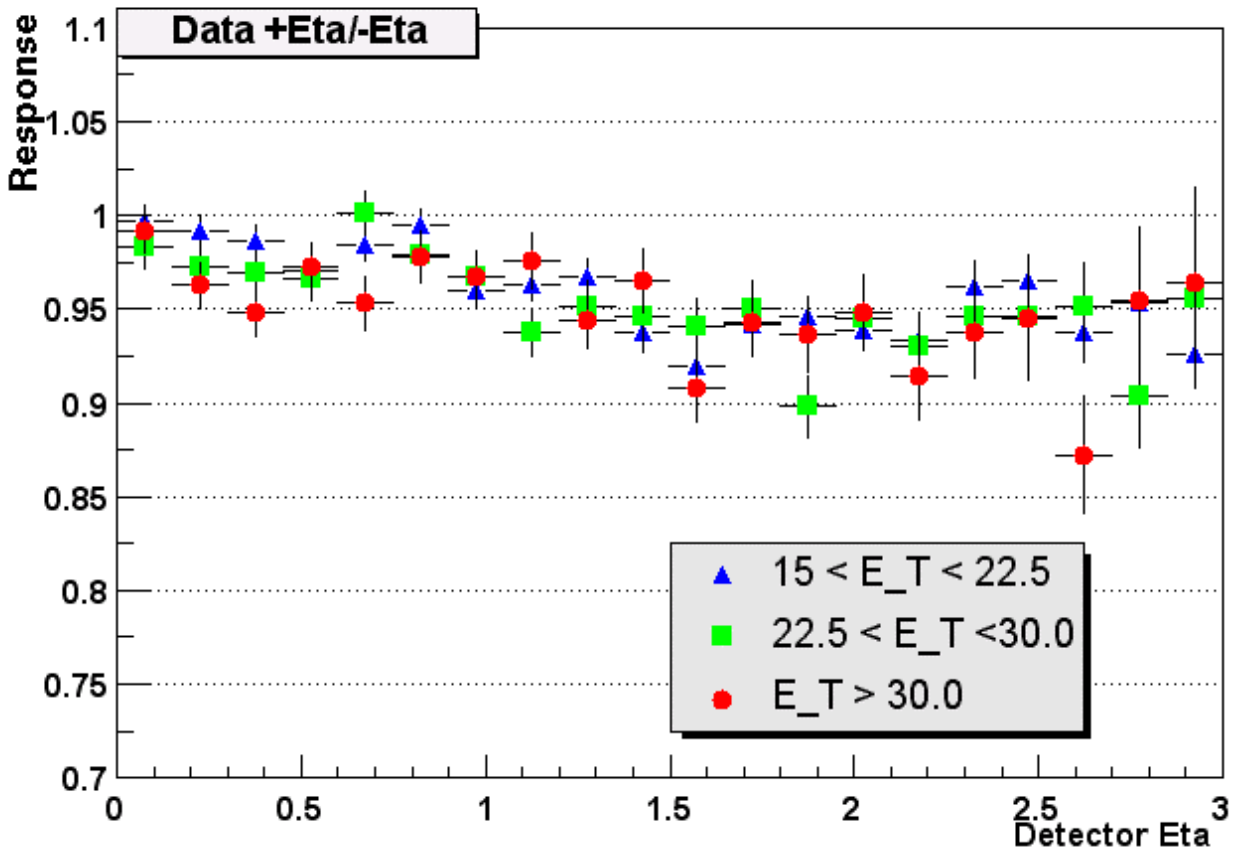
April 9 smalltuple

Data/EFit Response vs.η



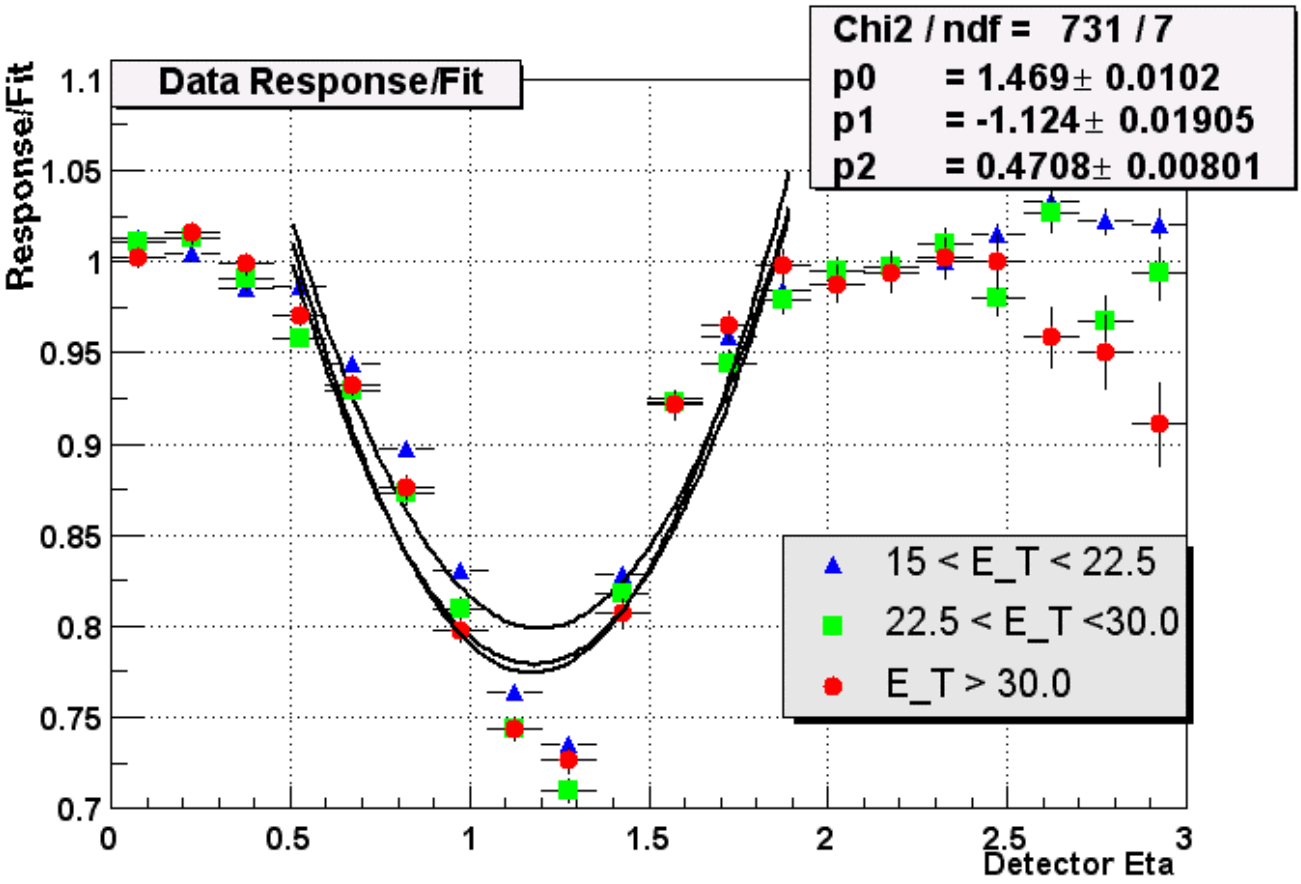
April 9 smalltuple

Ratio of +/- Eta Response from Data



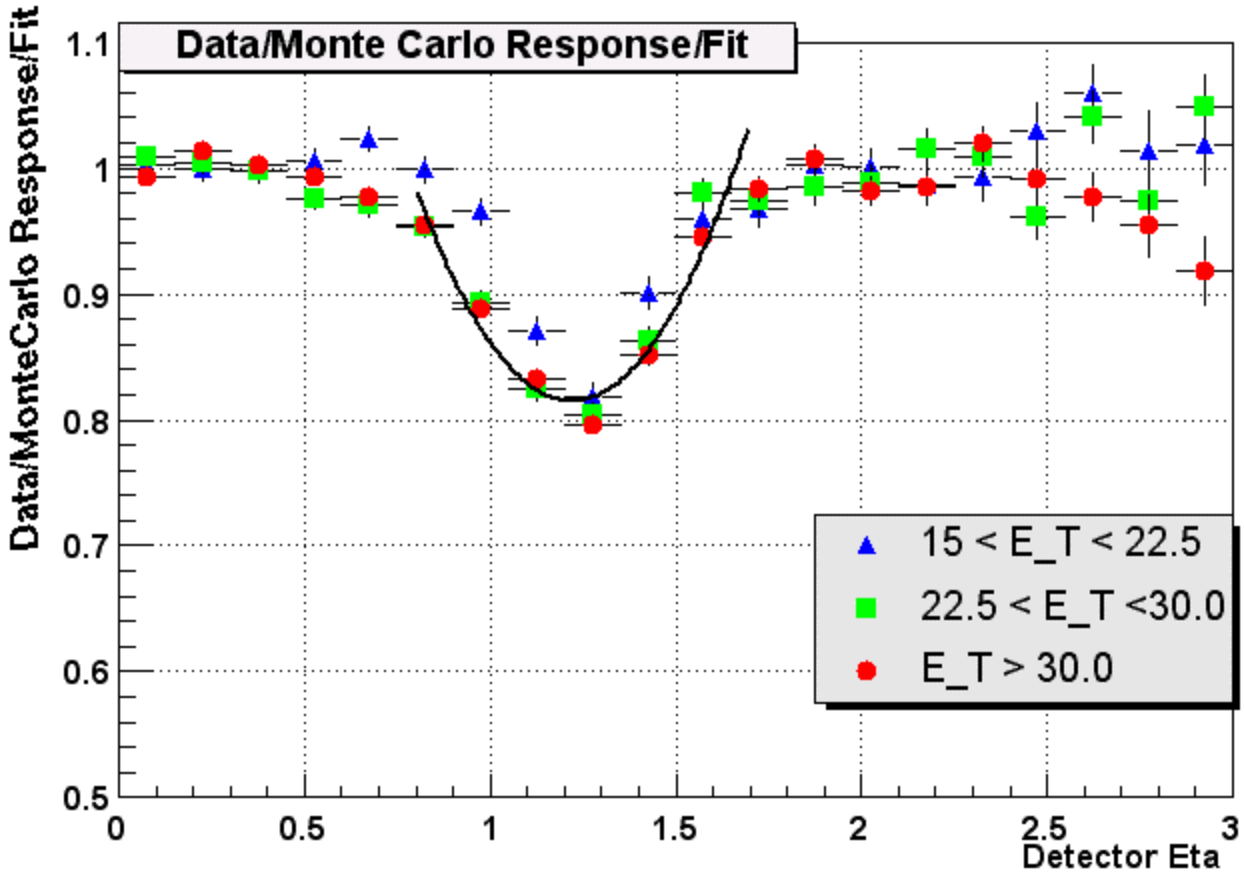
Uncertainties statistical only
April 9 smalltuple

Data/EFit Response vs.η



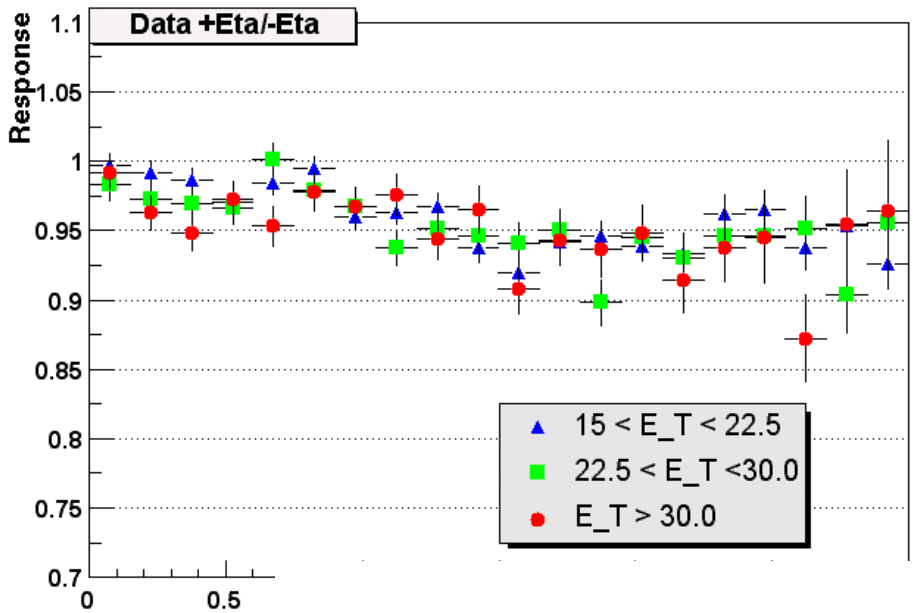
May 14 smalltuple

Ratio of Data/EFit to MC/Efit Response vs.η



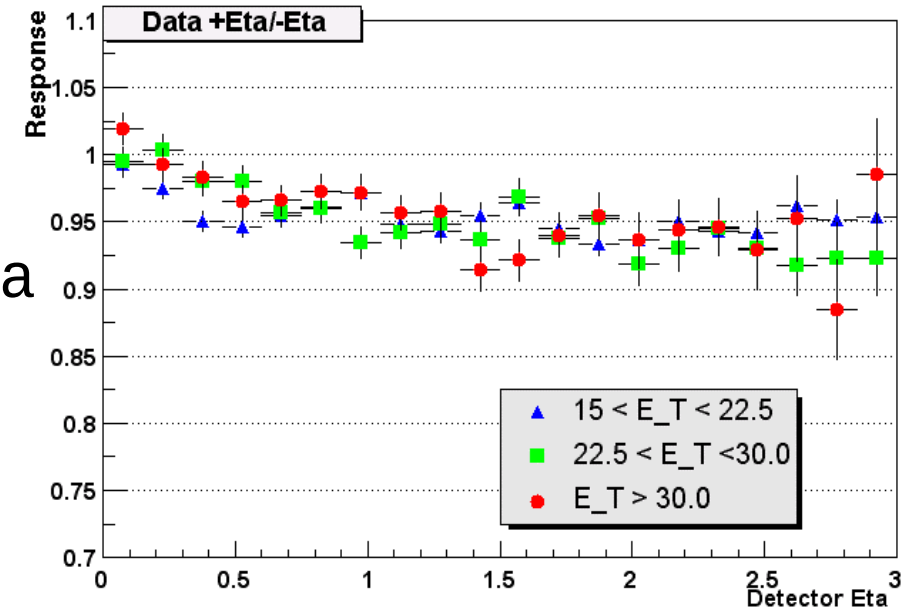
May 14 smalltuple

Ratio of +/- Eta Response from Data



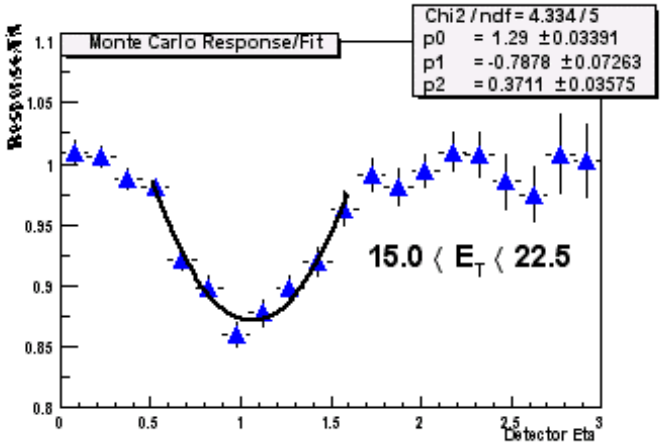
Apr9 data

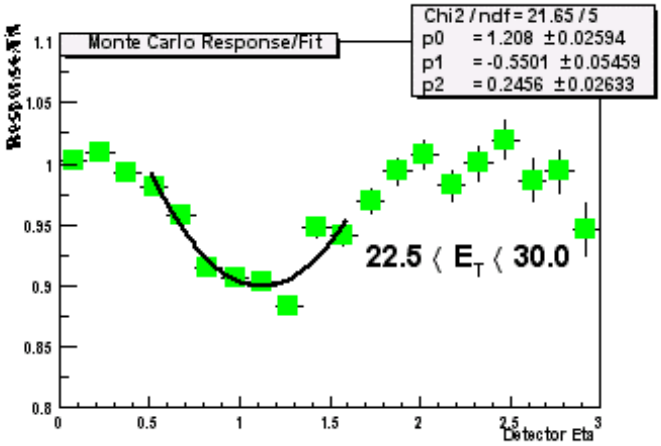
May14 data

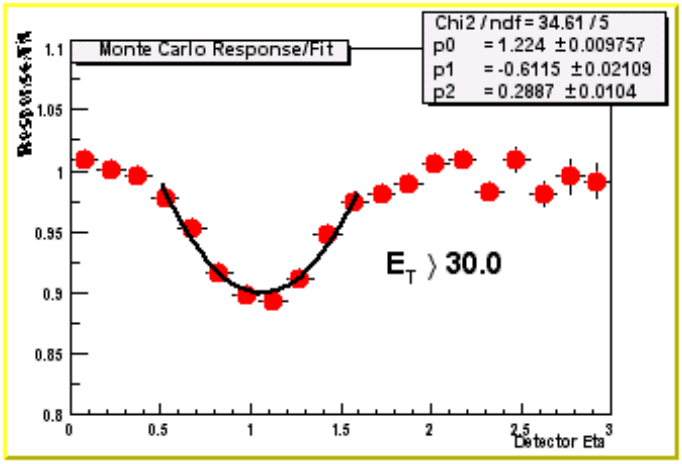


Monte Carlo Response Vs. Eta – R=0.5

- After dividing out energy dependence

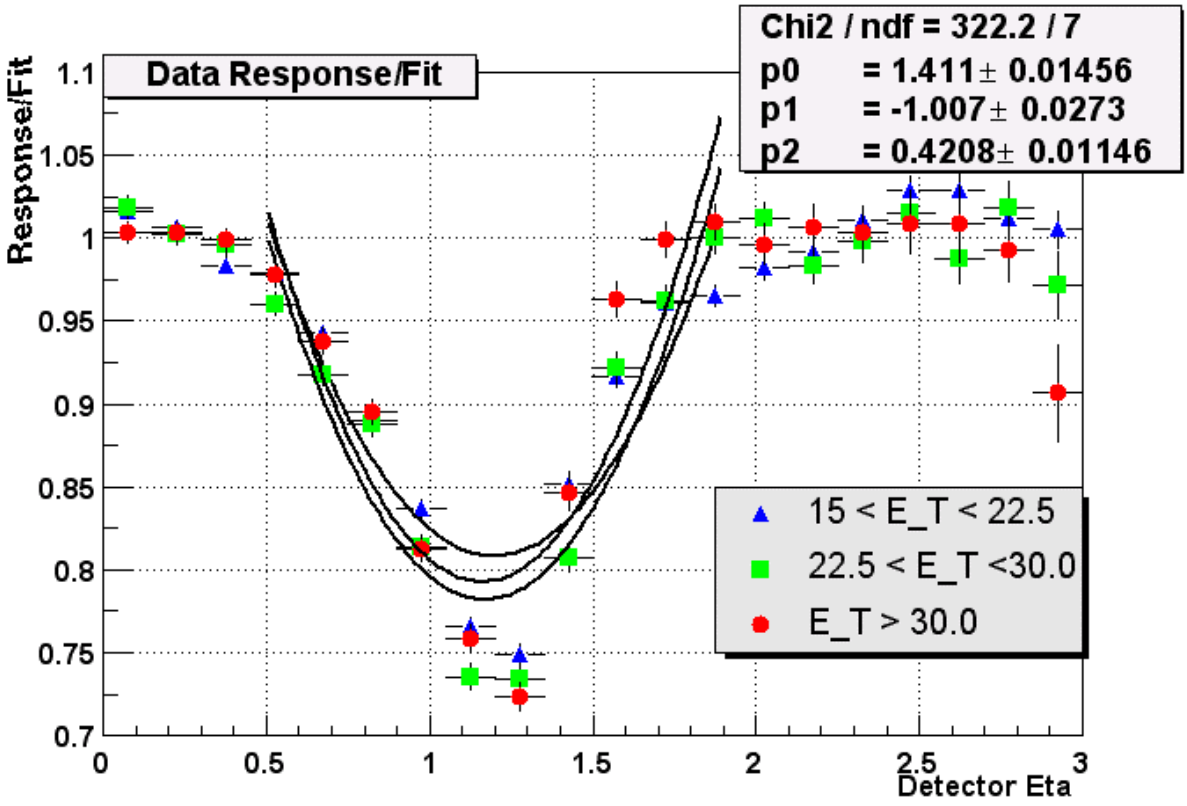






Fit to 2nd order polynomial

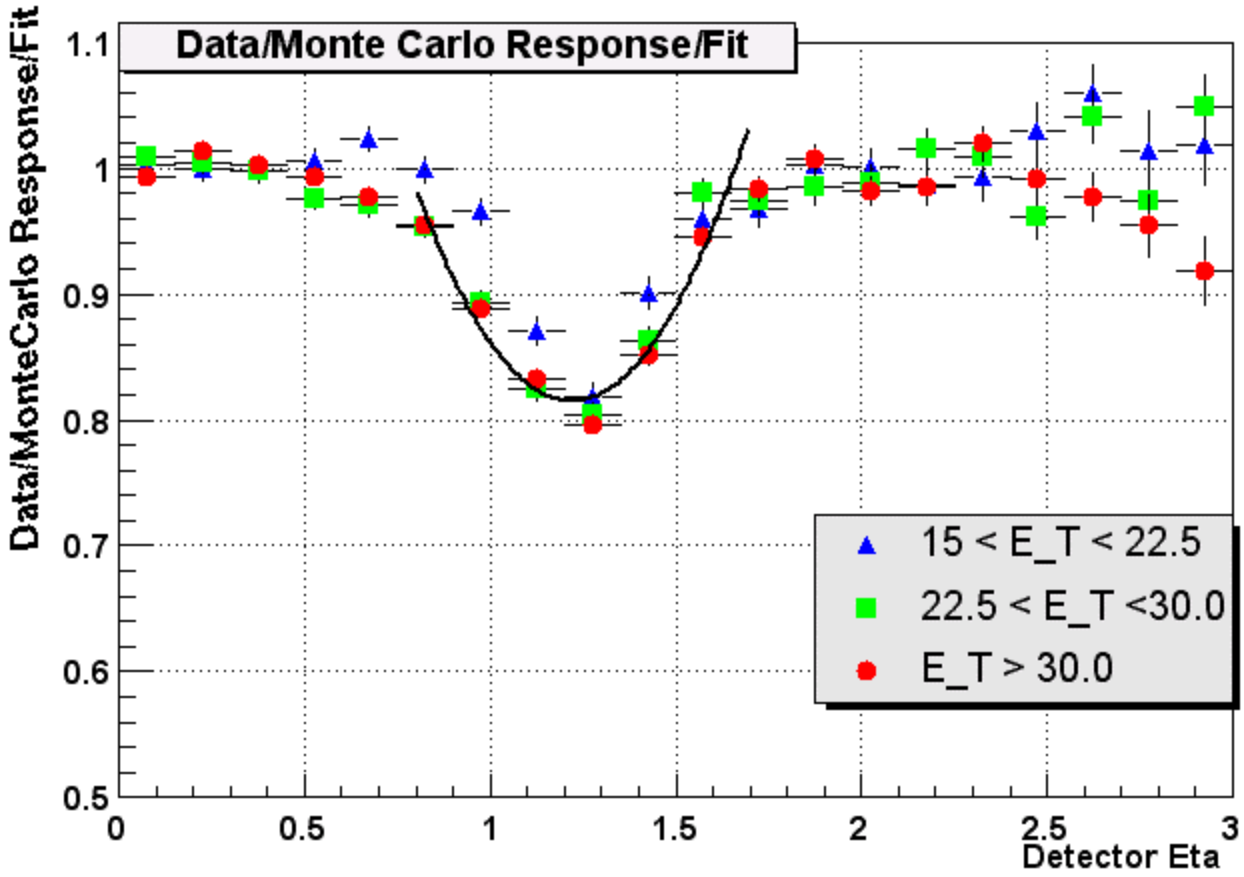
Data/EFit Response vs.η R=0.5



April 9 smalltuple

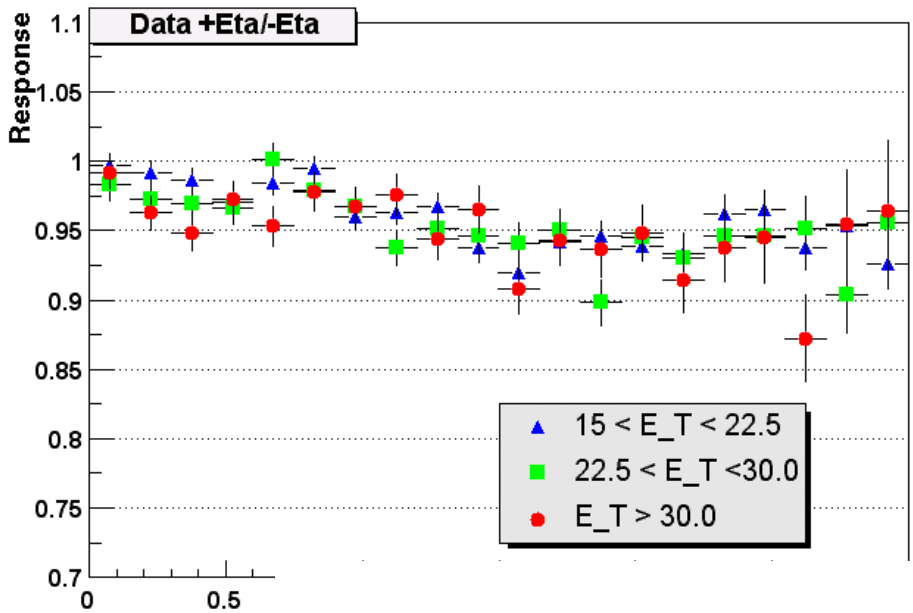
Ratio of Data/EFit to MC/Efit Response vs.η

R=0.5

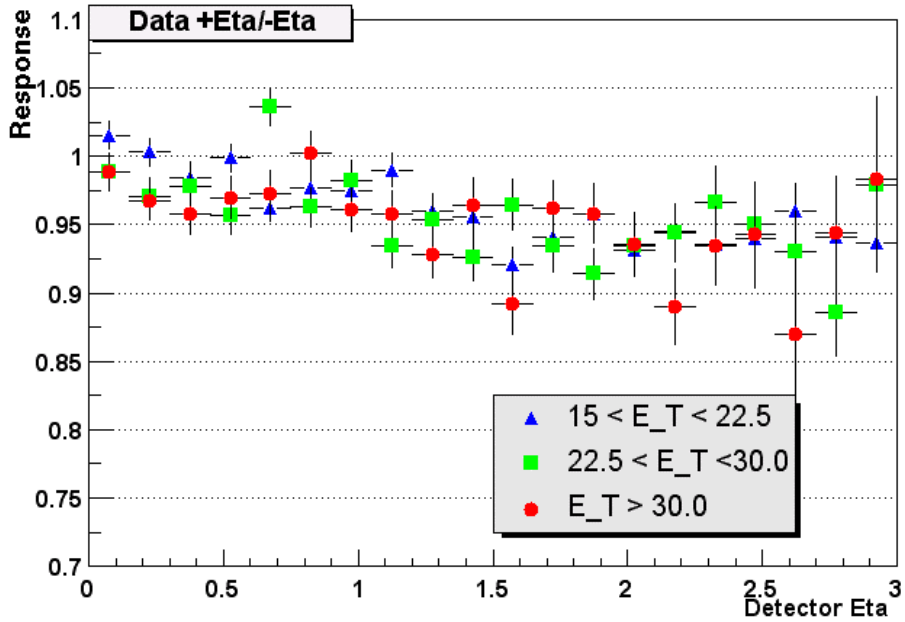


April 9 smalltuple

Ratio of +/- Eta Response from Data



Apr9 data
R=0.7



Apr9 data
R=0.5

To Do

- **ToDo**
  - **Redo correction after using cryofactor correction**
  - **Combine all data**
  - **Understanding statistical uncertainties/correlations**
  - **Testing new JetAnalyze which has separate MG/ICD fractions**
  - **Estimating/understanding systematic uncertainties**