PMCS Jet RunII Resolutions

update

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The Outline:

1) Dijets Resolutions for RunII post shutdown data

2) Dijets Resolutions from RunII Monte Carlo Detector simulation

3) The Resolutions

4) Compares to PMCS

Dijets Resolutions for RunII Postshutdown data

Data samples Selection:

- Post-shutdown data processed with p10.15;
- Scan Runs V1.1, from 139910 to 145040; stript root tuples only contains JCCA, MET, Nada and CAL;
- Select Jets by:
  - 0.05<EmFraction<0.95
  - CH Fraction <0.4
  - Hot Fraction <10
  - N90>1

Trigger selections:

- JT_LO, JT_MX, 4CJT7, 3CJT7,JT_HI_4CJT5,2CJT7,JT_MD, 3CJT5, JT_LO30, JT_LO21, JT_LO15, JT_LO9

Dijets Selection:

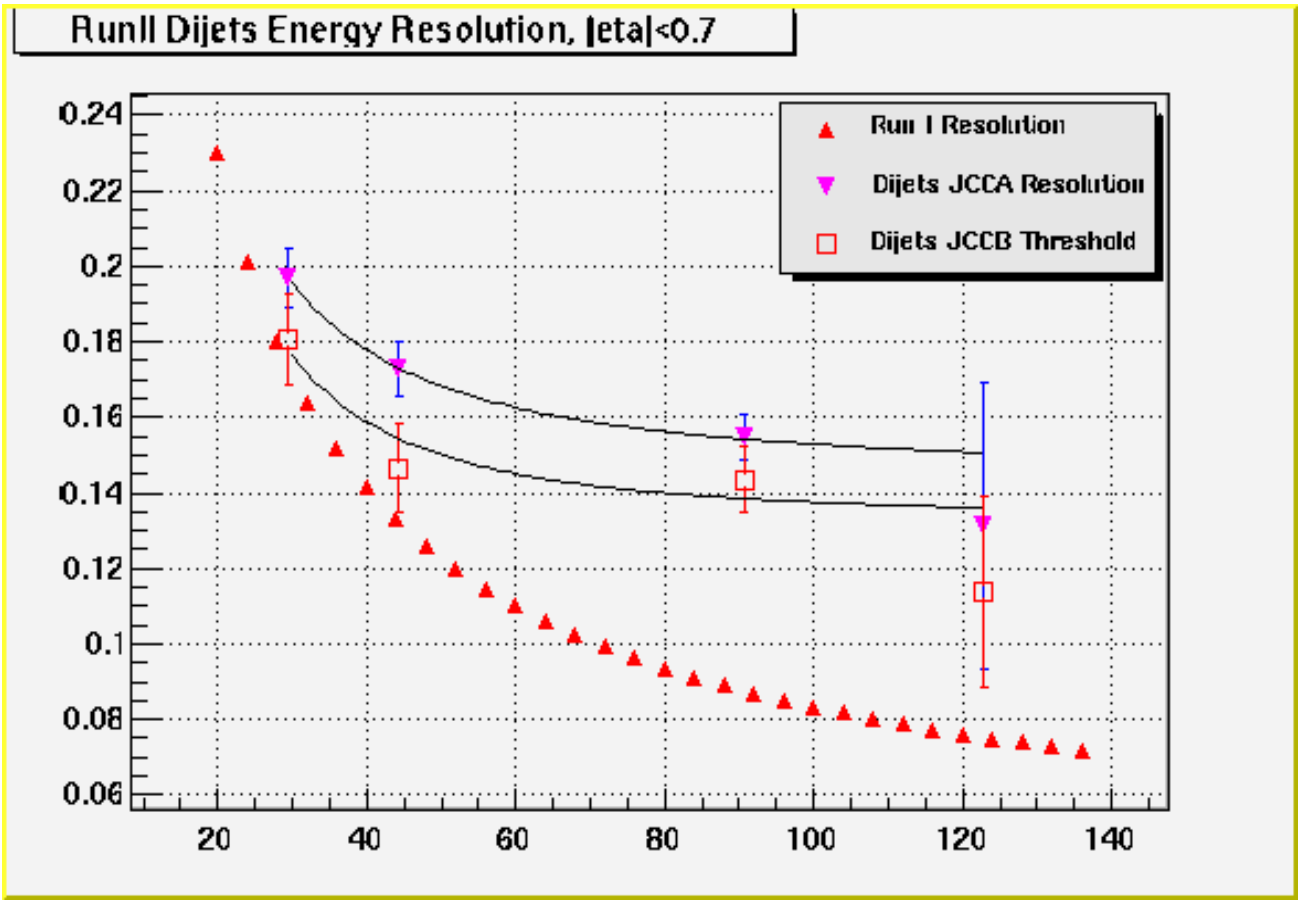
- Two maximum Pt jets in one event must be in the same region
- The third Pt below certain cut
- For the real data, MET<0.7Pt_{max}
- Leading Pt must be back-to-back within 5°

Trigger Turn on Pt

(From John Krane, ADM Meeting)

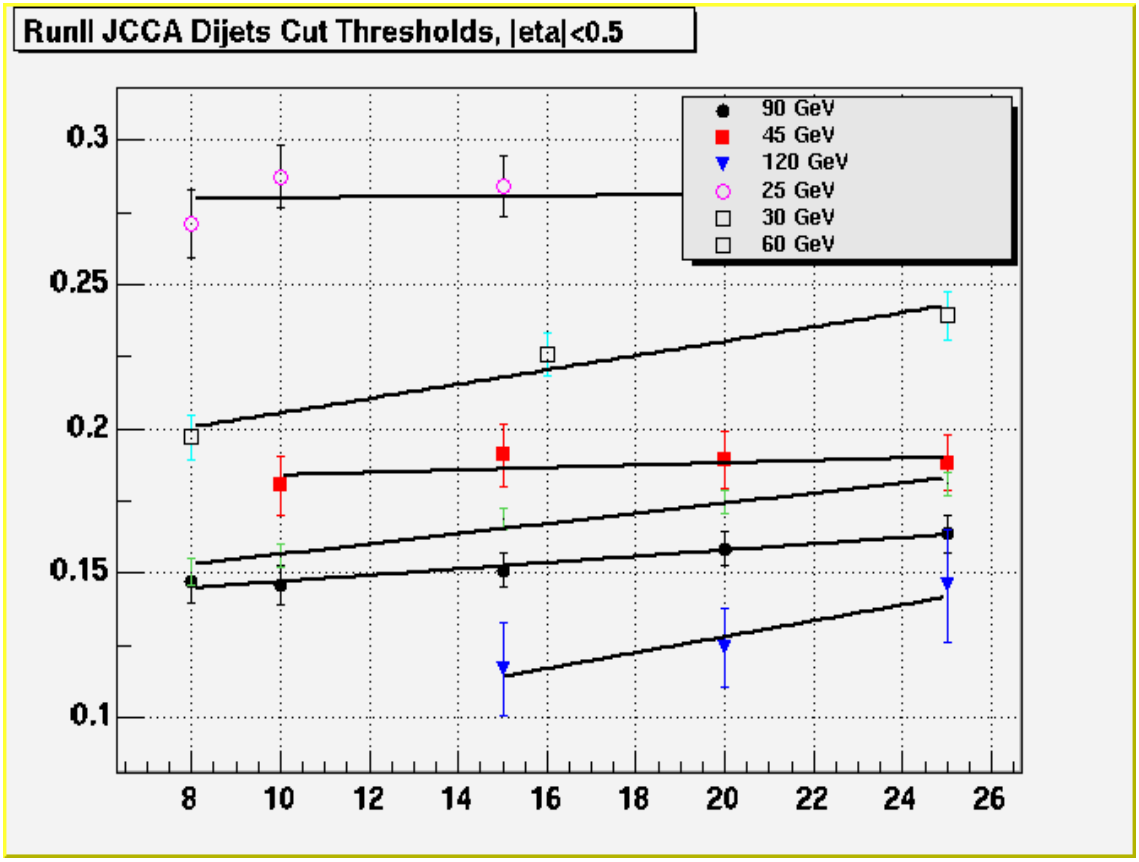
L1 Trigger	JES Pt Turn-on
2,3(JT_LO9)	50
2,3 1,5(JT_LO15)	60
2,3 1,7(JT_LO21)	70
2,3 1,10(JT_LO30)	90
2,7	90
3,5	100
3,7	180?
4,5	180
4,7	200?

JCCA/JCCB Resolution (RunII data, |η|<0.7)



Third Pt Cut 8 GeV

Soft Radiation Corrections

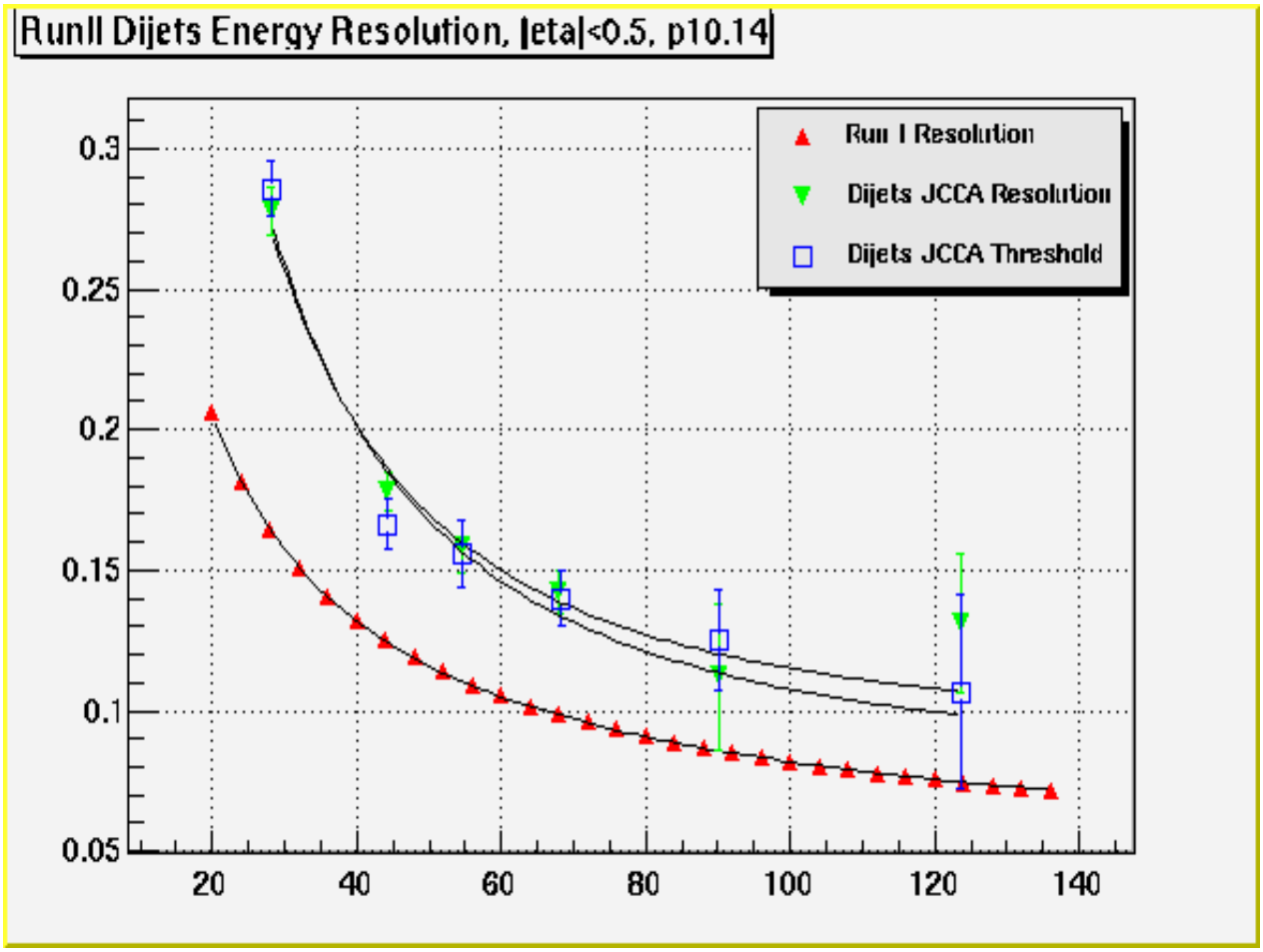


- **Fit with a straight line, with slope**

  k=Resolution at Threshold/Resolution at 8 GeV cut

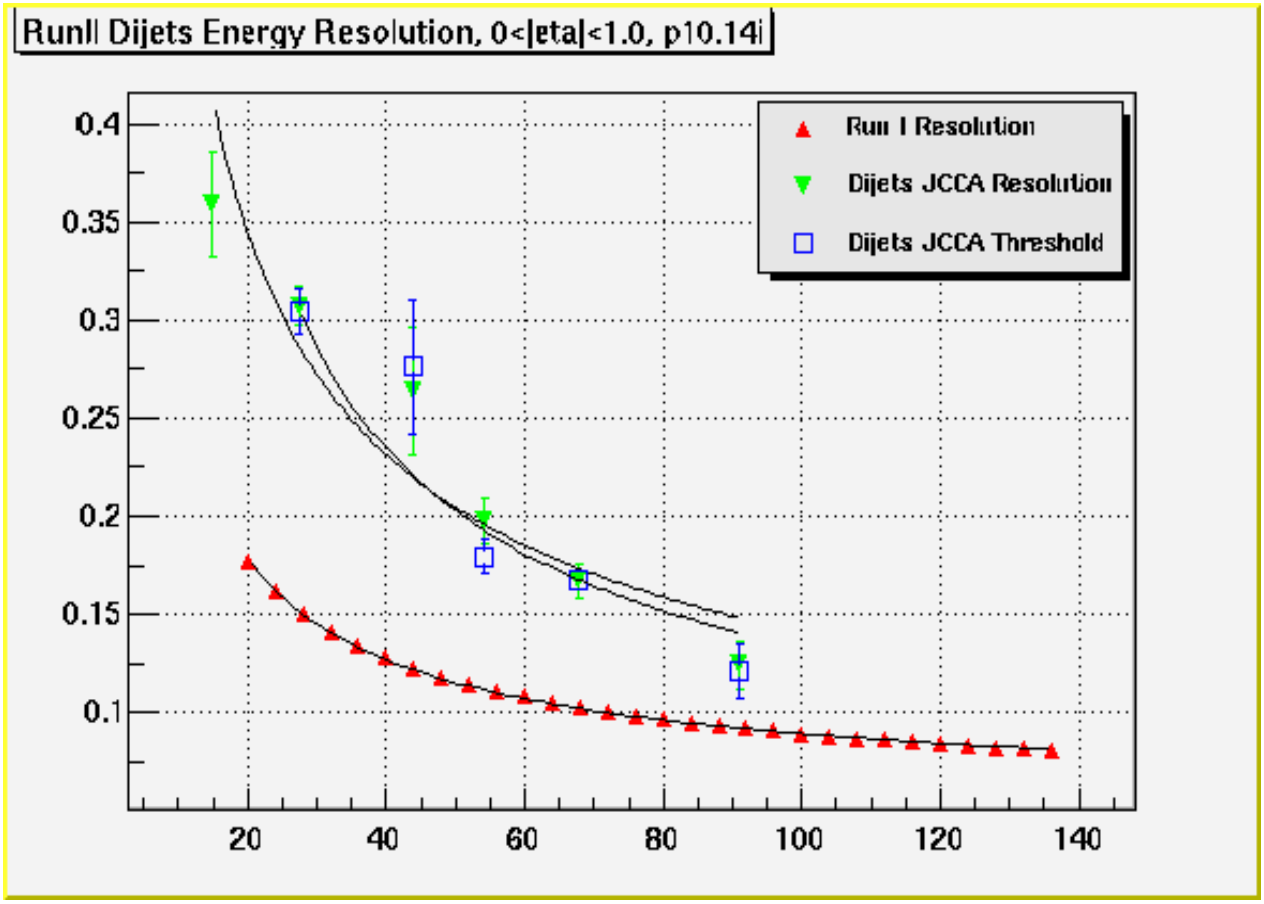
- **Calculate dijets resolution at third Pt=0**

σ_{Et} as a Function of E_t for $0<|\eta|<0.5$



- **JCCA, P10.14.01**

σ_{Et} as a Function of E_t for $0.5<|\eta|<1$



- **JCCA, P10.14.00**

Measured Resolutions for $0<|\eta|<0.5$

<Pt>	Uncorrected Resolutions	Uncorrected Error	Soft Radiation Correction	Corrected Resolutions	Errors
28.1	0.2780	0.0086	1.0274	0.2856	0.0099
44.25	0.1782	0.0068	0.9324	0.1661	0.0090
54.52	0.1585	0.0096	0.9827	0.1568	0.0120
68.03	0.1423	0.0077	0.9845	0.1401	0.0098
90.12	0.1123	0.0026	1.1142	0.1252	0.0178
123.6	0.1308	0.0248	0.8153	0.1066	0.0343

Fitted Variables

C	S	N
7.409 ± 0.338	0.0 ± 0.538	0.078 ± 0.015

Measured Resolutions for 0.5<|η|<1

<Pt>	Uncorrected Resolutions	Uncorrected Error	Soft Radiation Correction	Corrected Resolutions	Errors
27.36	0.3071	0.0100	0.9903	0.3041	0.0118
43.85	0.2635	0.0326	1.0477	0.2761	0.0341
54.18	0.1976	0.0119	0.9091	0.1797	0.0084
67.87	0.1670	0.0092	1.0060	0.1680	0.0011
90.98	0.1241	0.0121	0.9752	0.1211	0.0143

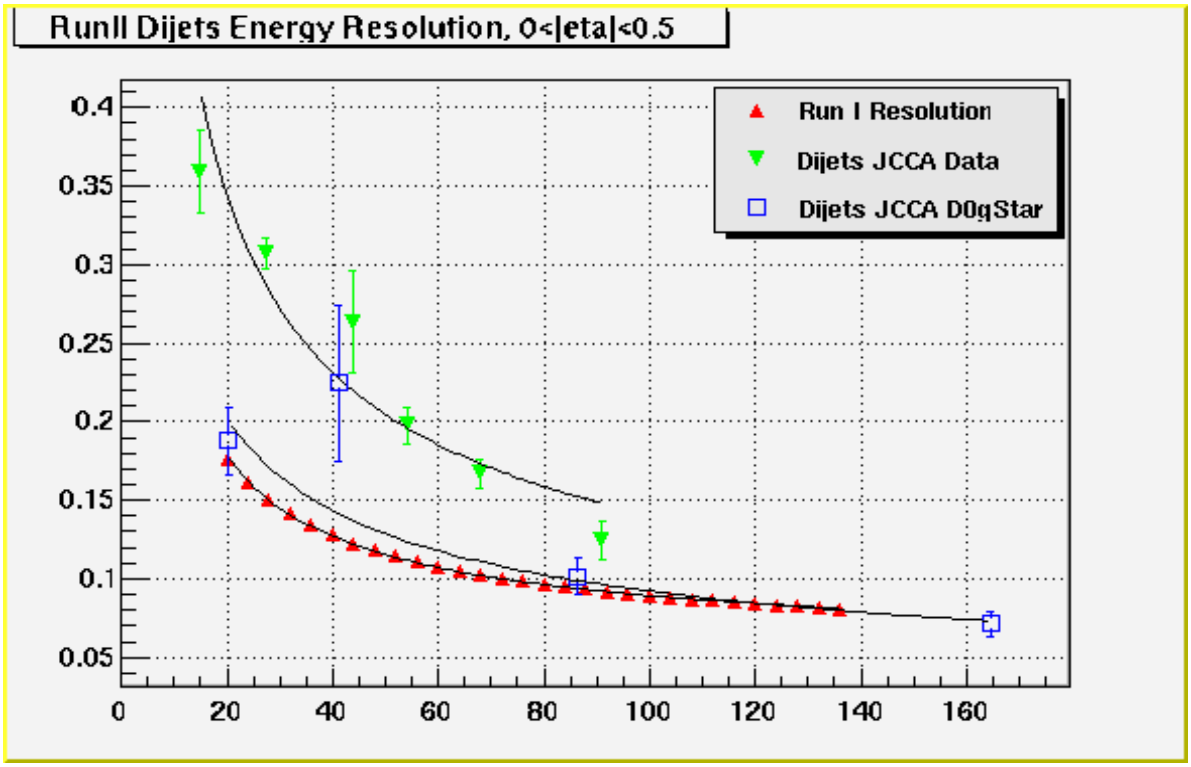
Fitted Variables

C	S	N
5.334 ± 0.830	1.221 ± 0.056	0.0 ± 0.149

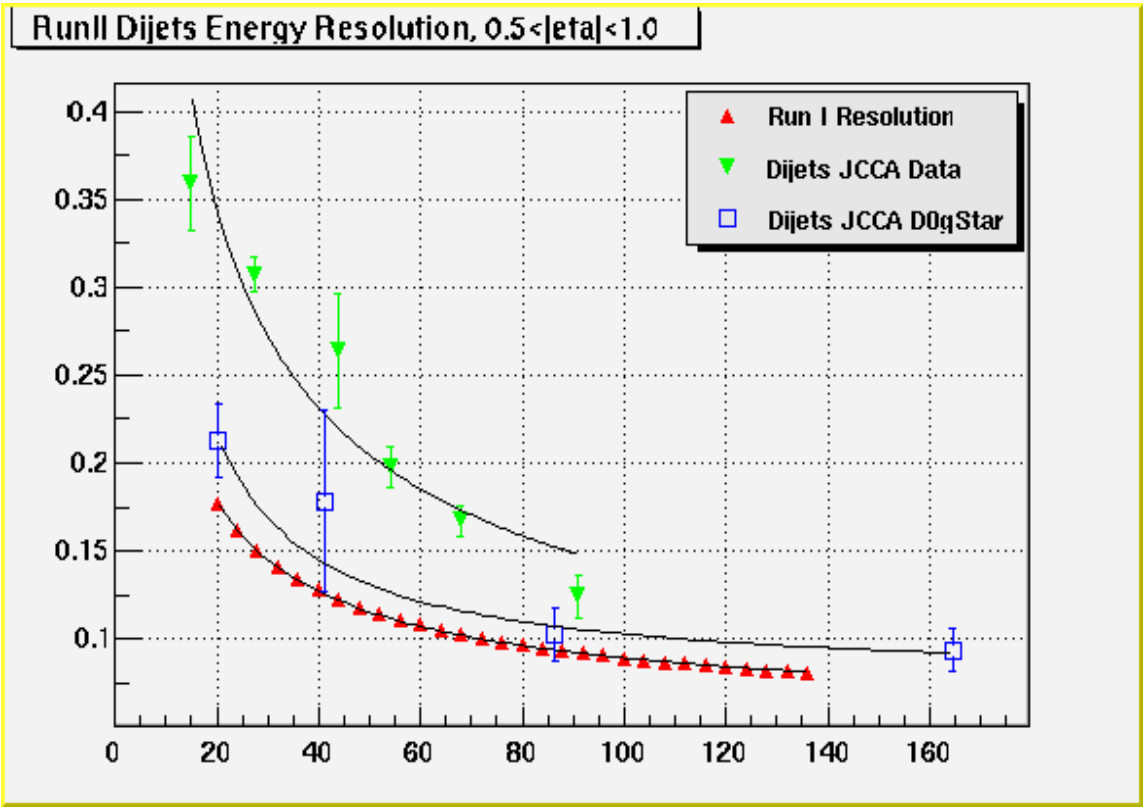
Real Data compares to MC

We generated 5000 QCD events using D0gStar, use MinBias, and data was processed by Reco version p10.11.00

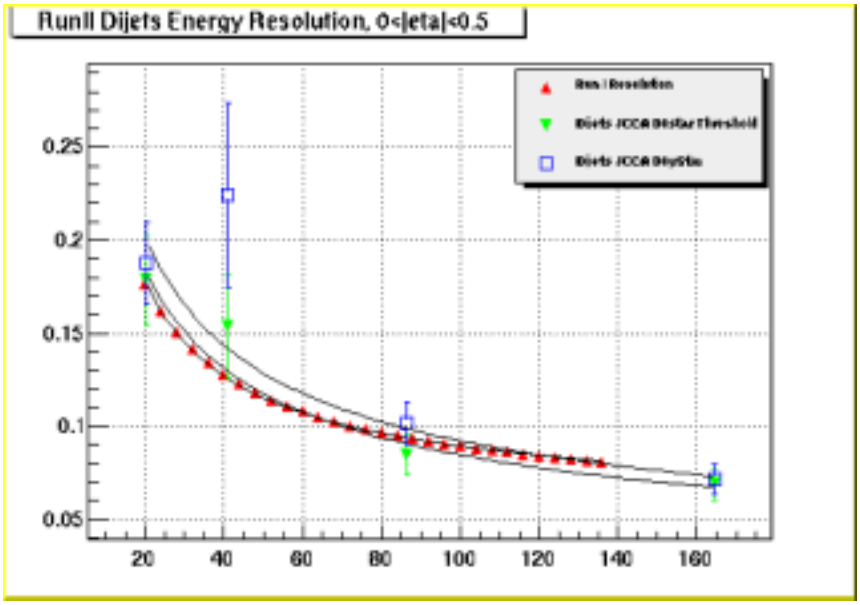
Region $0<|\eta|<0.5$, the third Pt Cut is 8 GeV

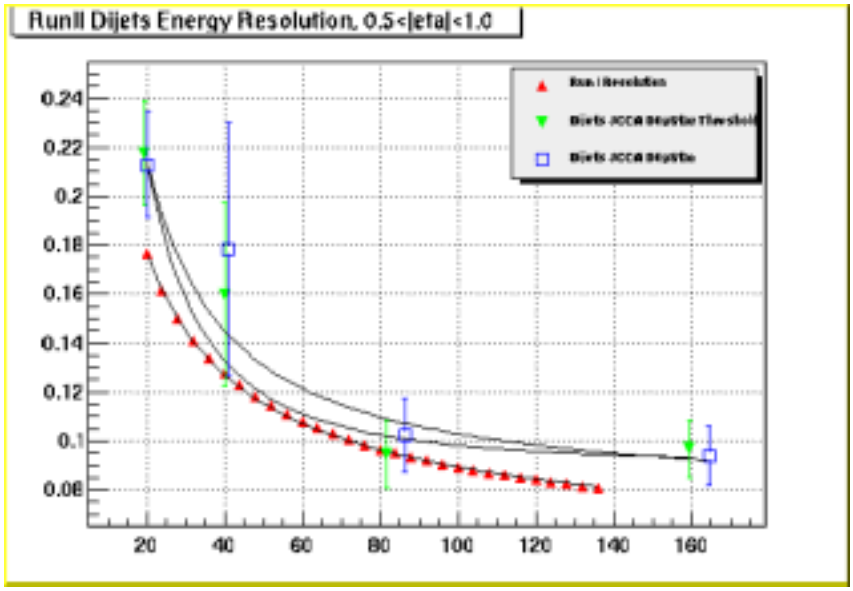


MC Simulation of 0.5<|η|<1.0, third Pt Cut 8GeV



Soft Radiation of MC data at Different η regions





The Measured Resolutions for $0<|\eta|<0.5$

<Pt>	Uncorrected Resolutions	Uncorrected Error	Soft Radiation Correction	Corrected Resolutions	Errors
20.36	0.1878	0.0220	0.9521	0.1788	0.0240
41.06	0.2242	0.0495	0.6842	0.1534	0.0277
86.36	0.1018	0.0111	0.8340	0.0849	0.0111
164.5	0.0715	0.0082	0.9594	0.0686	0.0085

Fitted Variables

C	S	N
0.0 ± 0.2.54	0.898 ± 0.104	0.021 ± 0.043

The Measured Resolutions for $0.5<|\eta|<1.0$

<Pt>	Uncorrected Resolutions	Uncorrected Error	Soft Radiation Correction	Corrected Resolutions	Errors
19.56	0.2129	0.0212	1.0225	0.2177	0.0213
40.09	0.1783	0.0518	0.8951	0.1596	0.0375
81.67	0.1024	0.0152	0.9229	0.0945	0.0136
159.6	0.0938	0.0122	1.0309	0.0967	0.0116

Fitted Variables

C	S	N
2.909 ± 2.989	0.633 ± 0.733	0.076 ± 0.043