Royal Holloway
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Energy Resolution Outliers

Calo Trigger Meeting: 10/03/10.





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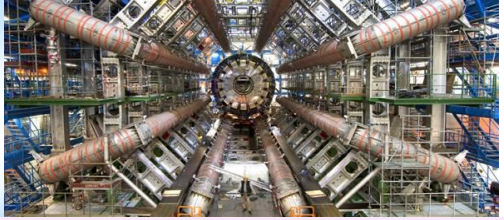


Input:

All Reprocessed L1Calo Stream in the Good Runs List, with COLLCAND Tag, passing any Trigger, and requiring a pass of L1_EM3 to obtain L1CaloEM. Also only taking Good Runs List Lumi Blocks.

List of Run Samples:

141811, 141794, 142149, 142154, 142165, 142166, 142171, 142174, 142189, 142193, 142195, 142383.

Amounting to;

Events: 1136

Summary

L1 vs L2

EM Objects: 620

Outliers: 67

L1 vs EF

EM Objects: 585

Outliers: 53

L2 vs EF

EM Objects: 591

Outliers: 42

L2 vs EF

EM Objects: 591

Outliers: 42

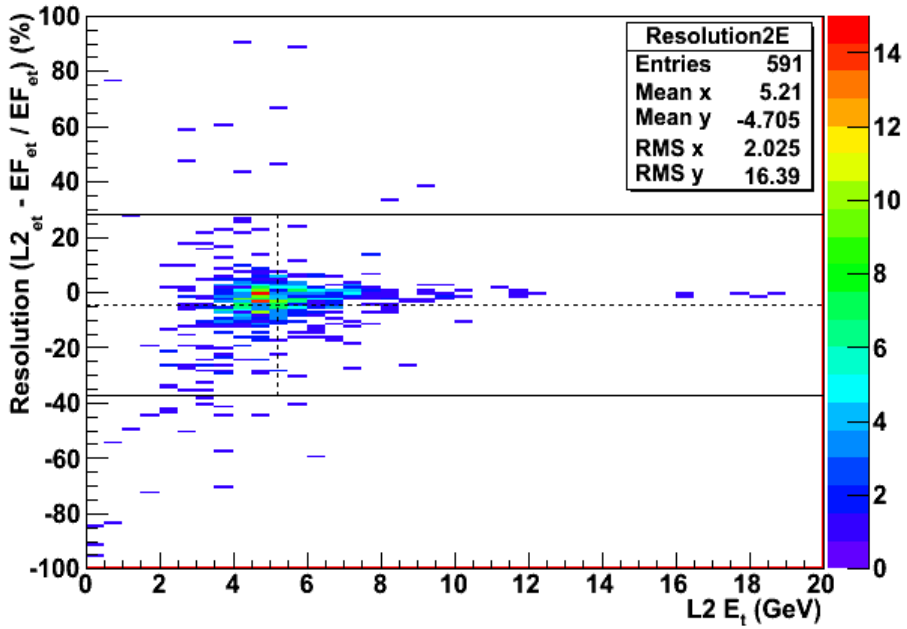
EM Objects are those that passed |eta| < 2.5 & DR < 0.15
(DR Between L2 and EF)

Outlier Definition:

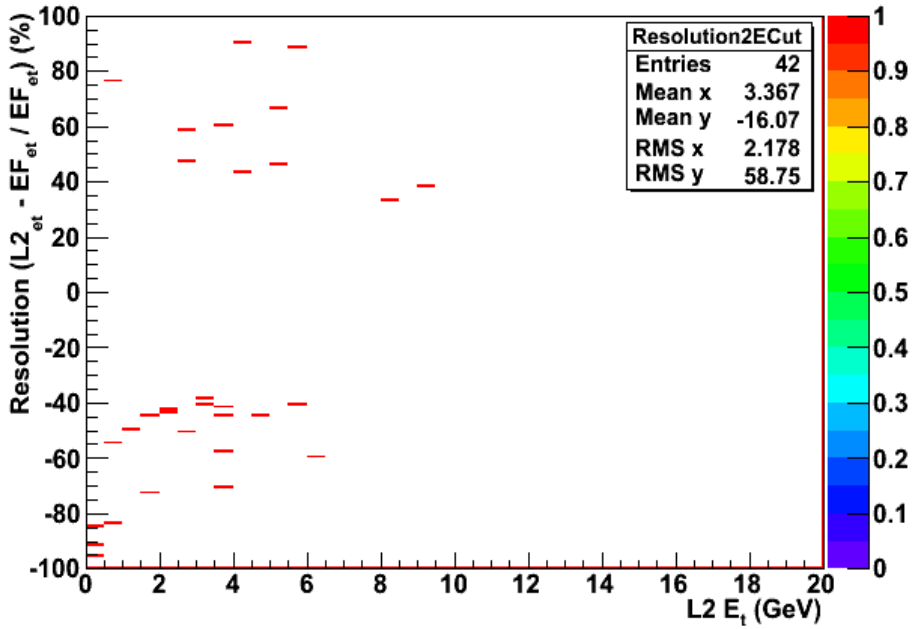
Take the Mean of (L2-EF)/EF et
Objects +/- 2 Sigma from the Mean are Outliers.

Each object is a L2 EM Cluster, matched to a EF CaloCluster,
i.e. able to have multiple entries per event, but each is unique.

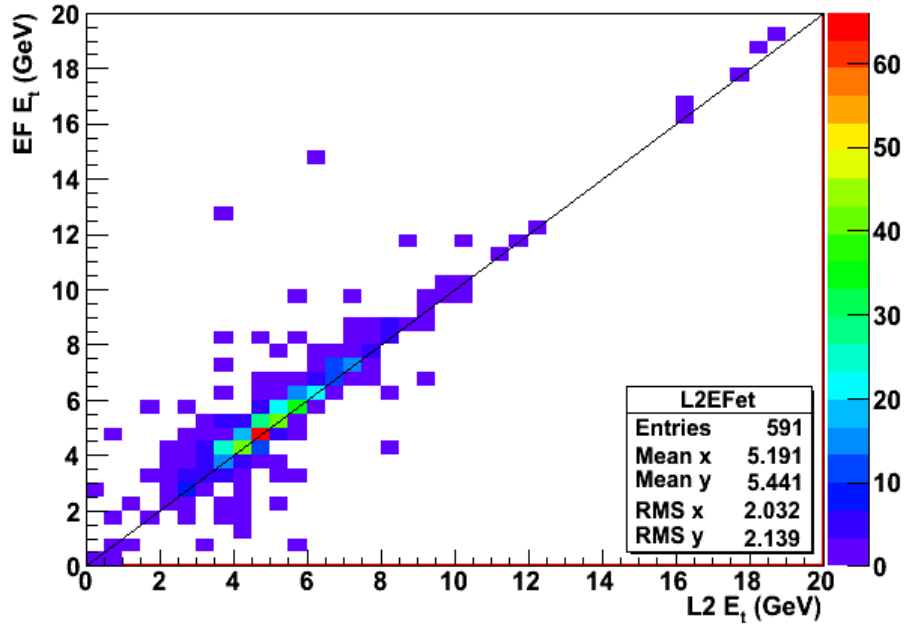
L2 vs EF Energy Resolution



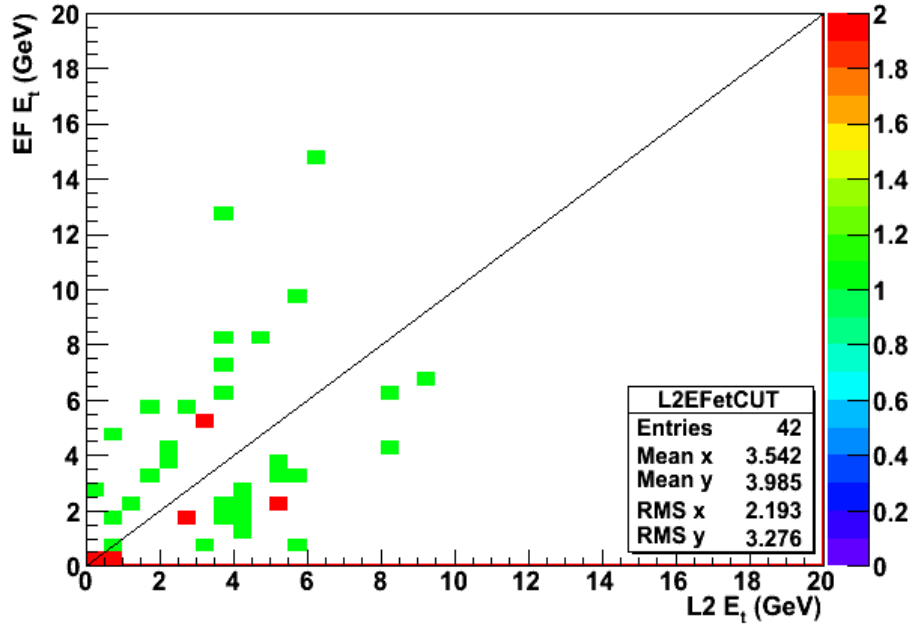
Interesting Events L2vsEF E Resolution



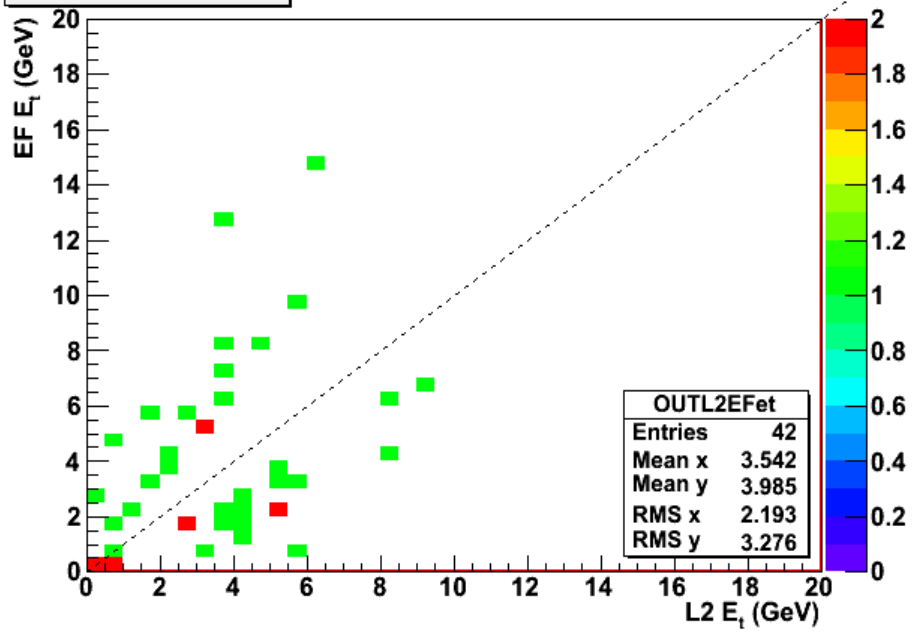
L2 vs EF Et



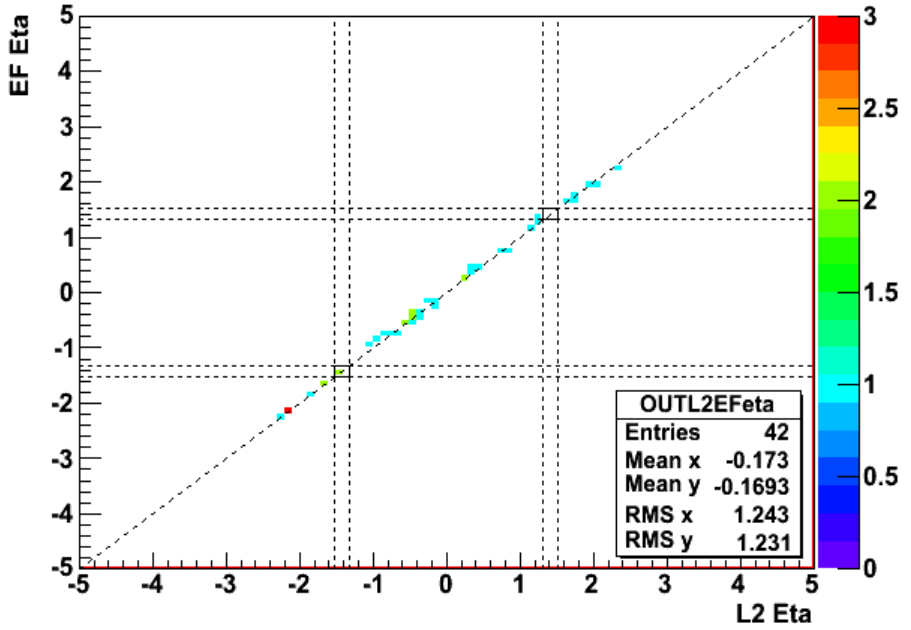
L2 vs EF Et



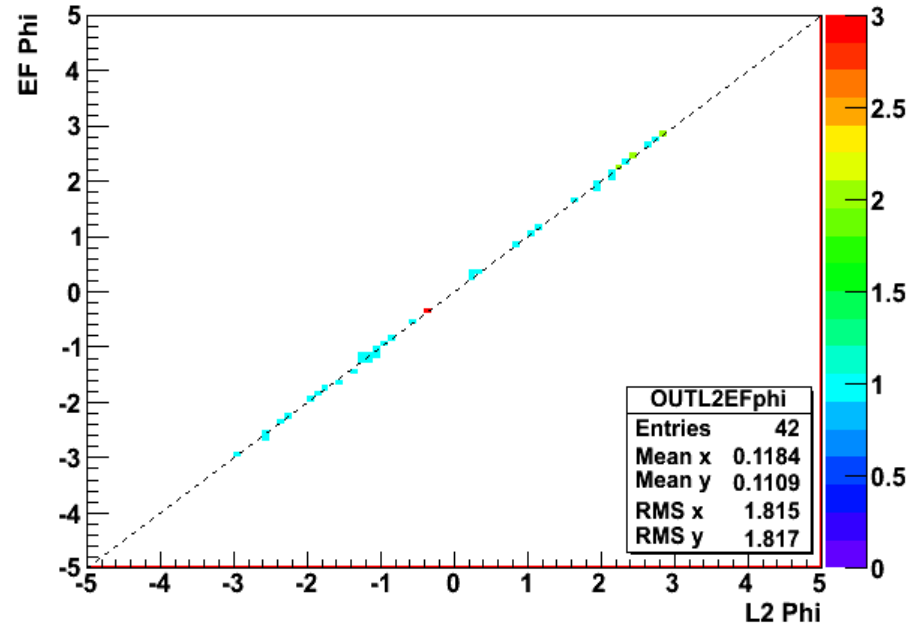
L2 vs EF Outlier E_t



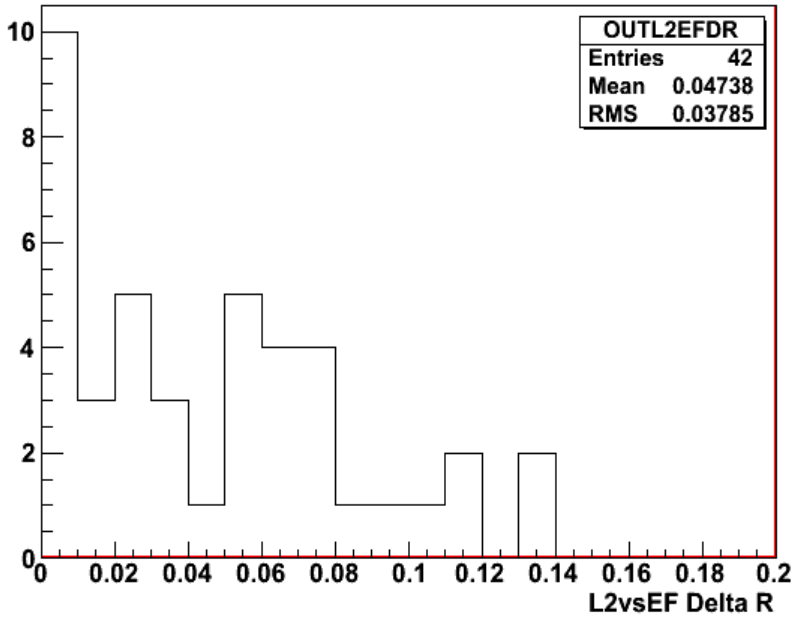
L2 vs EF Outlier Eta

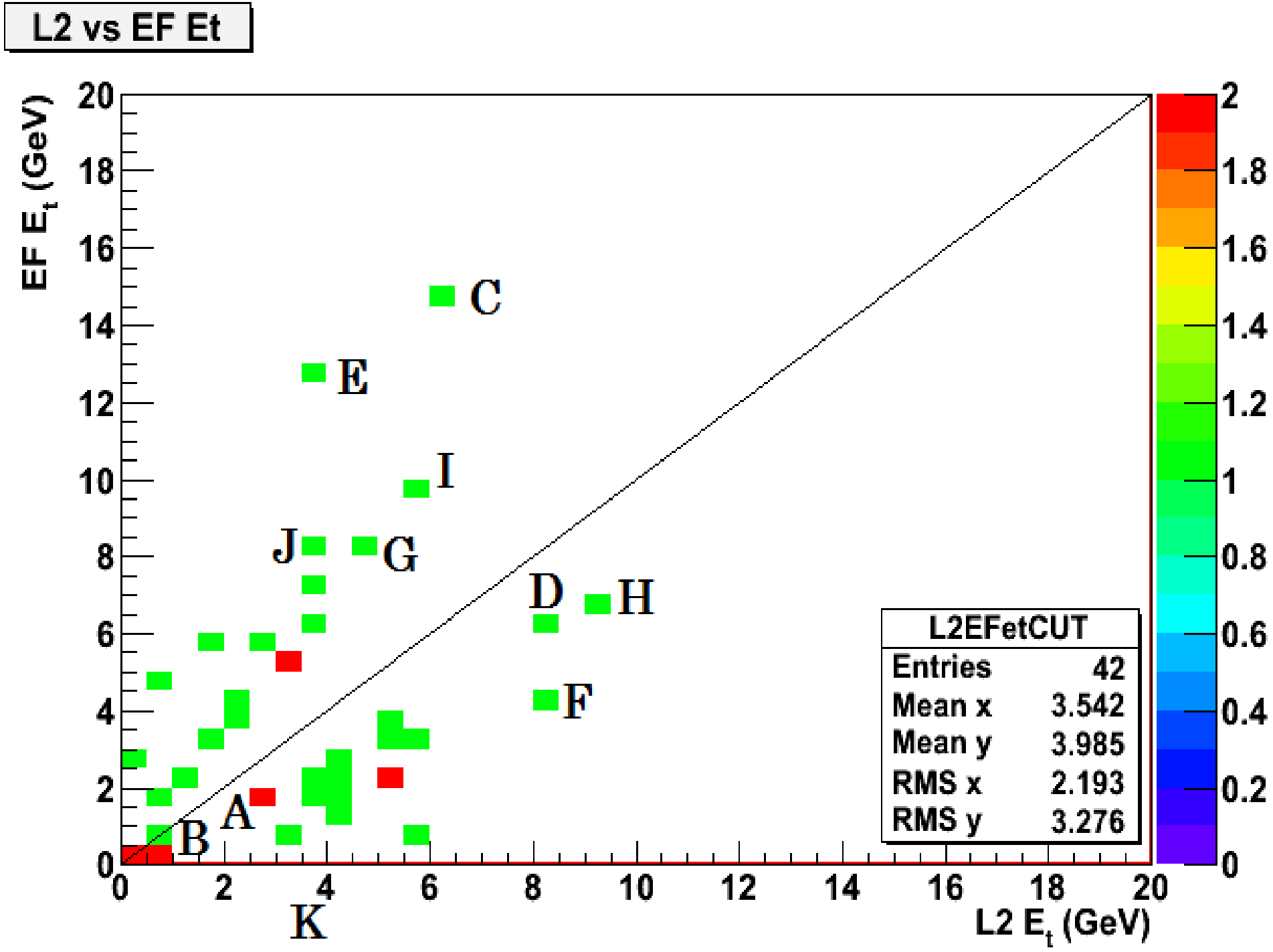


L2 vs EF Outlier Phi



L2vsEF Outlier Delta R




L2 vs EF Et
EF E_t (GeV)
L2 E_t (GeV)
A
B
C
D
E
F
G
H
I
J
K
L2EFetCUT
Entries 42
Mean x 3.542
Mean y 3.985
RMS x 2.193
RMS y 3.276

Outlier	Run	Event	Lumi	Eta|Phi (L1_ROI)	L1|L2|EF|OFF Et (GeV)	Comment	Comment (2)	Seen Again	Catagory
A	142166	816392	95	-1.40|-0.30	4|2.7|1.7|3.1	Crack	L1>L2		Crack
B	142166	844700	101	-1.40|1.28	4|0.73|0.14|0.23	Crack	L1>L2	L1vsL2(B) EF(K)	Crack
C	142193	894091	78	1.30|-2.36	7|6|14.9|14.8	f3	L1>L2	L1vsEF (A)	f3
D	142193	954394	81	-1.60|2.95	5|8|6|7.9				Bad Calibration
E	142193	164417	34	-2.10|-0.29	9|3.8|12.8|17.1		L1>>L2		Bad Channel + f3
F	142165	366495	87	-0.5|-1.08	10|8|4|7.9	EF <	L1>L2		No EF Cluster
G	142166	34678	23	-2.1|-2.65	6|4.6|8.3|5		L1>L2		Bad Calibration
H	142166	475902	66	-0.70|-1.96	5/9/6.5/6.5				Bad Calibration
I	142193	1654098	124	1.80|0.29	5|5.9|10|10.4	f3			f3
J	142383	430598	265	2.30|-1.67	4|3.5|8.4|7		L1>L2	L1vsEF (C)	f3
K	142193	252169	39	-0.40|-1.57	4|-0.01|4.3|4.3	L2et -ve	L1>L2	L1vsL2 (K)	L2 Problem

Outlier Catagory	No. Events (Out of 42)
Resolution (>100|<-100)	11
Crack (1.37 < Eta < 1.52)	2
Et < 0 GeV	1
Et < 4 GeV	36
L1 > L2 (Et)	32
Known Bad Channel (L1Calo)	1
Other Nearby Clusters	0
f3	4
False EF Cluster	1
Bad Calibration	3

Trigger Level	Total Outliers	141749	141811	142149	142154	142165	142166	142171	142174	142189	142193	142195	142383
L1 vs L2	67	0	4	1	0	10	6	7	7	6	20	4	2
L1 vs EF	53	0	3	0	0	12	6	5	1	3	17	4	2
L2 vs EF	42	0	2	0	0	8	9	3	1	2	14	2	1