

Studying High Rates on the Tracker

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Beamtest Telecon

VRVS

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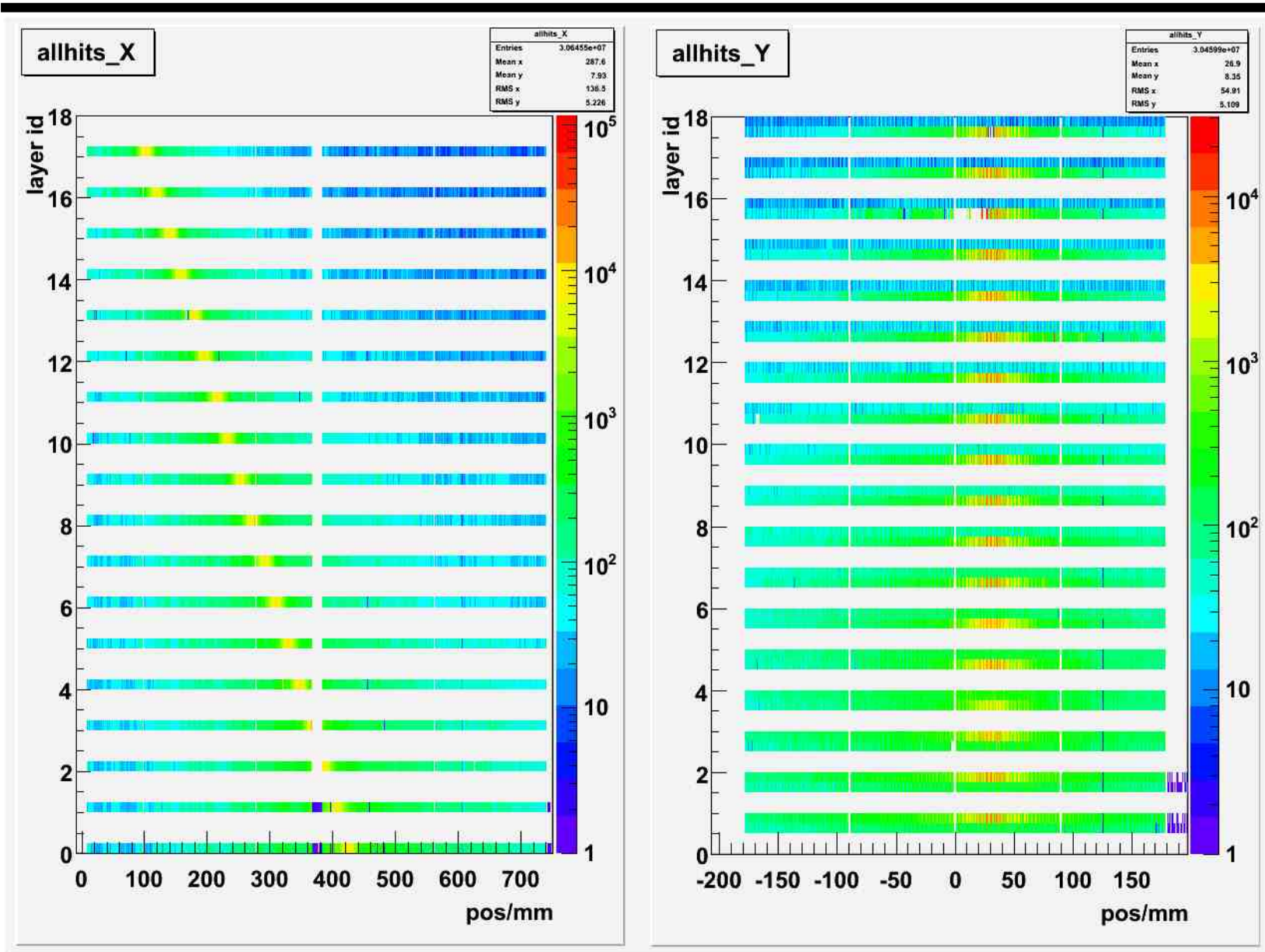


Runs

run id	particle	XYZ	p/GeV	angle/°	events	time/s	rate/Hz
700001369	protons	-50,43,985	10	-51	30887	334	92
700001370					986583	2682	368
700001371					510597	1246	410
700001372					261639	635	412
700001373					21793	45	484
700001374					518601	1258	412
700001375					616383	1507	409
700001376					505902	1229	412
700001377					502469	1217	413
700001378					539220	1366	395
700001379					506498	1272	398
700001381					513668	2769	186
700001382					533586	2899	184
700001383			504680		2757	183	
700001384			527469		3190	165	
700001385			500793		2965	169	



Brigida Style Event Display





tower 2 layer 9 view 0

700001369	2	9	0	99.90 %	0.10 %	17431	18
700001371	2	9	0	99.91 %	0.09 %	295880	261
700001372	2	9	0	99.92 %	0.08 %	151592	128
700001373	2	9	0	99.95 %	0.05 %	12534	6
700001374	2	9	0	99.91 %	0.09 %	300573	263
700001375	2	9	0	99.91 %	0.09 %	357445	310
700001376	2	9	0	99.91 %	0.09 %	293538	254
700001377	2	9	0	99.91 %	0.09 %	290600	253
700001378	2	9	0	99.90 %	0.10 %	305439	304
700001379	2	9	0	99.91 %	0.09 %	292911	258
700001381	2	9	0	99.93 %	0.07 %	311982	209
700001383	2	9	0	99.91 %	0.09 %	295098	276
700001384	2	9	0	99.92 %	0.08 %	317331	253
700001385	2	9	0	99.93 %	0.07 %	301964	224



tower 2 layer 15 view 1

700001369	2	15	1	70.97 %	29.03 %	17328	5030
700001371	2	15	1	71.83 %	28.17 %	294577	82969
700001372	2	15	1	71.82 %	28.18 %	150891	42515
700001373	2	15	1	71.59 %	28.41 %	12489	3548
700001374	2	15	1	71.90 %	28.10 %	299291	84115
700001375	2	15	1	71.59 %	28.41 %	355876	101109
700001376	2	15	1	71.74 %	28.26 %	292238	82597
700001377	2	15	1	71.79 %	28.21 %	289201	81596
700001378	2	15	1	71.50 %	28.50 %	303987	86634
700001379	2	15	1	71.88 %	28.12 %	291697	82014
700001381	2	15	1	74.47 %	25.53 %	310876	79358
700001383	2	15	1	74.42 %	25.58 %	294003	75193
700001384	2	15	1	74.48 %	25.52 %	316079	80667
700001385	2	15	1	74.56 %	25.44 %	300718	76511

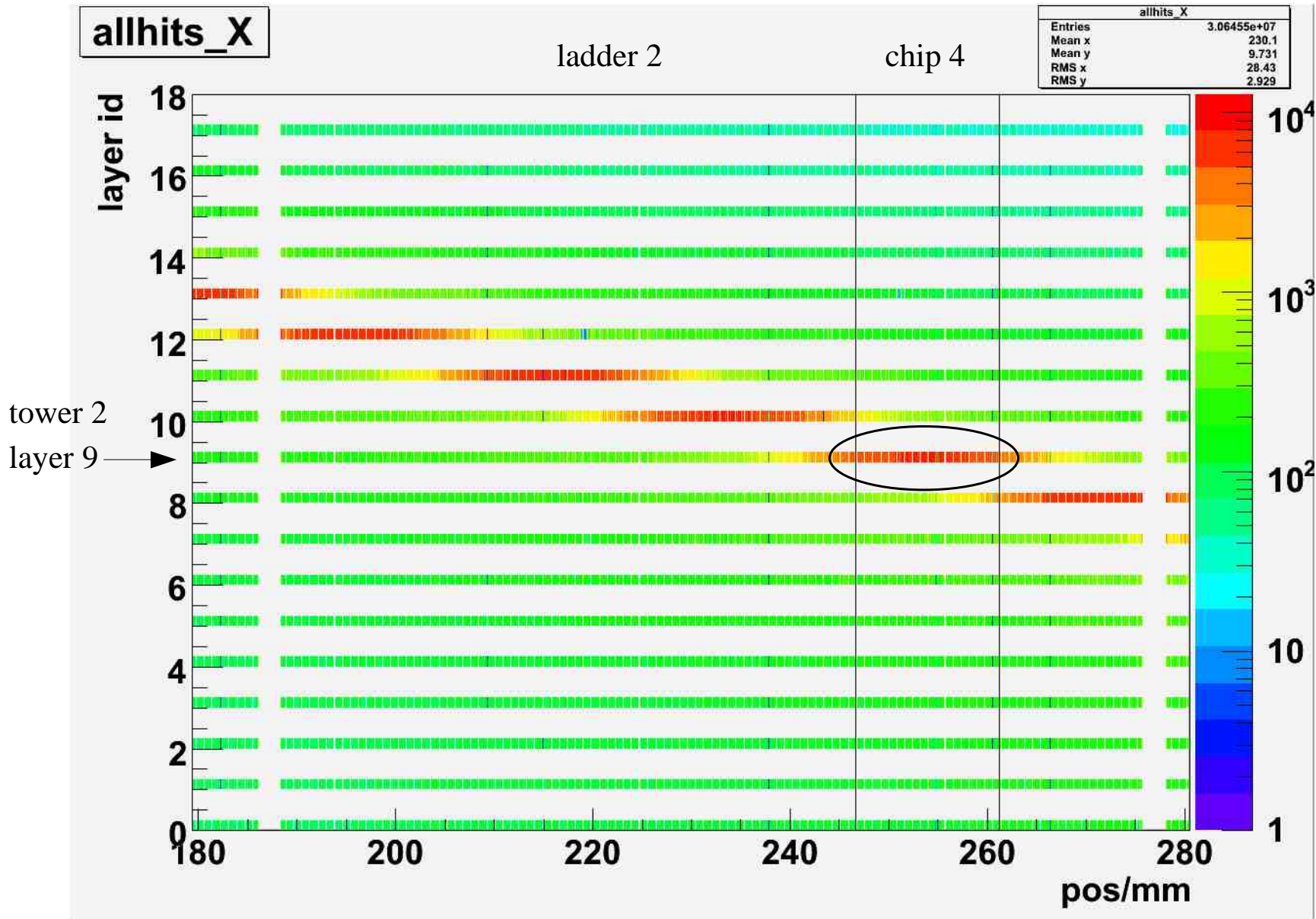


tower 2 layer 13 view 0

700001369	2	13	0	96.94 %	3.06 %	17425	534
700001371	2	13	0	97.05 %	2.95 %	295867	8734
700001372	2	13	0	97.02 %	2.98 %	151556	4519
700001373	2	13	0	97.18 %	2.82 %	12534	354
700001374	2	13	0	97.04 %	2.96 %	300629	8889
700001375	2	13	0	97.08 %	2.92 %	357461	10446
700001376	2	13	0	97.01 %	2.99 %	293544	8771
700001377	2	13	0	97.11 %	2.89 %	290593	8400
700001378	2	13	0	97.02 %	2.98 %	305365	9098
700001379	2	13	0	97.06 %	2.94 %	292901	8625
700001381	2	13	0	96.68 %	3.32 %	312374	10385
700001383	2	13	0	96.57 %	3.43 %	295518	10130
700001384	2	13	0	96.62 %	3.38 %	317709	10739
700001385	2	13	0	96.58 %	3.42 %	302323	10340



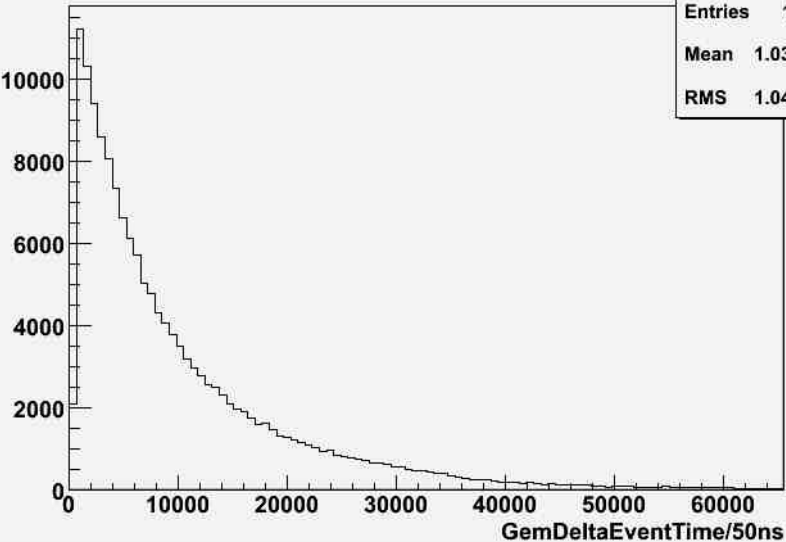
Choosing the Readout Chip





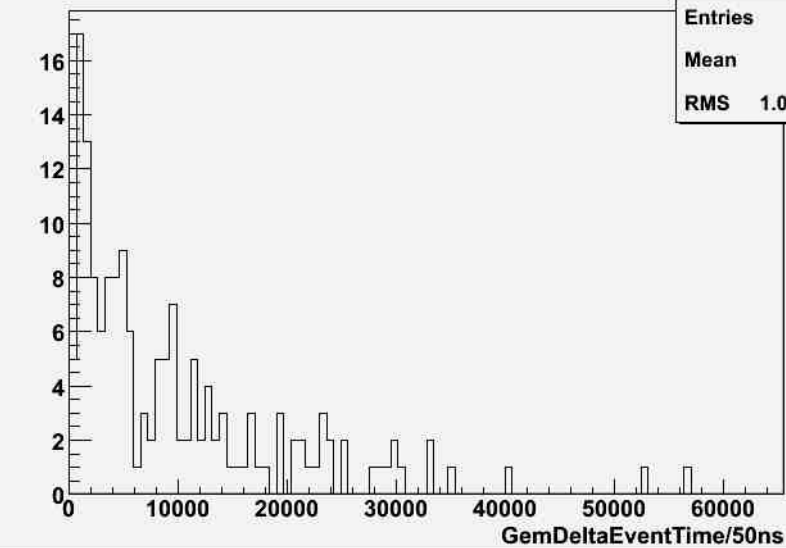
efficiency vs. GemDeltaEventTime

allhits_tower_2_layer_9_view_0_ladder_3_chip_4



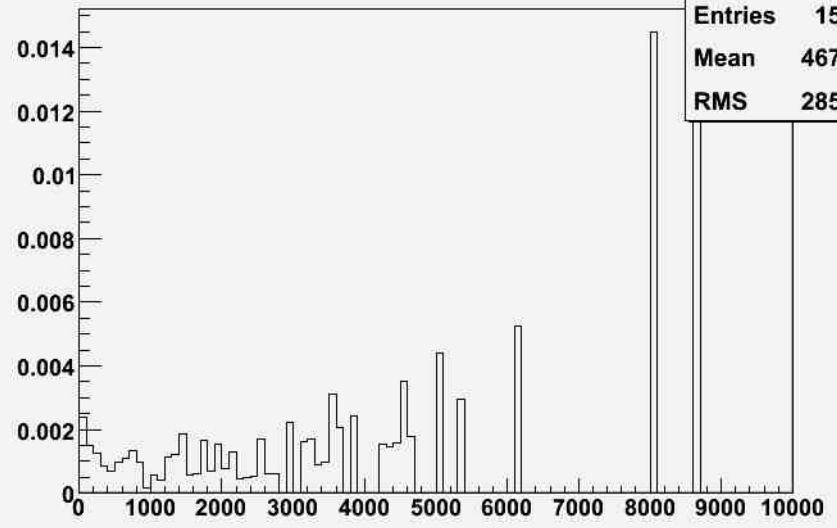
Entries	156584
Mean	1.039e+04
RMS	1.049e+04

hitsUnknown_tower_2_layer_9_view_0_ladder_3_chip_4



Entries	159
Mean	9857
RMS	1.01e+04

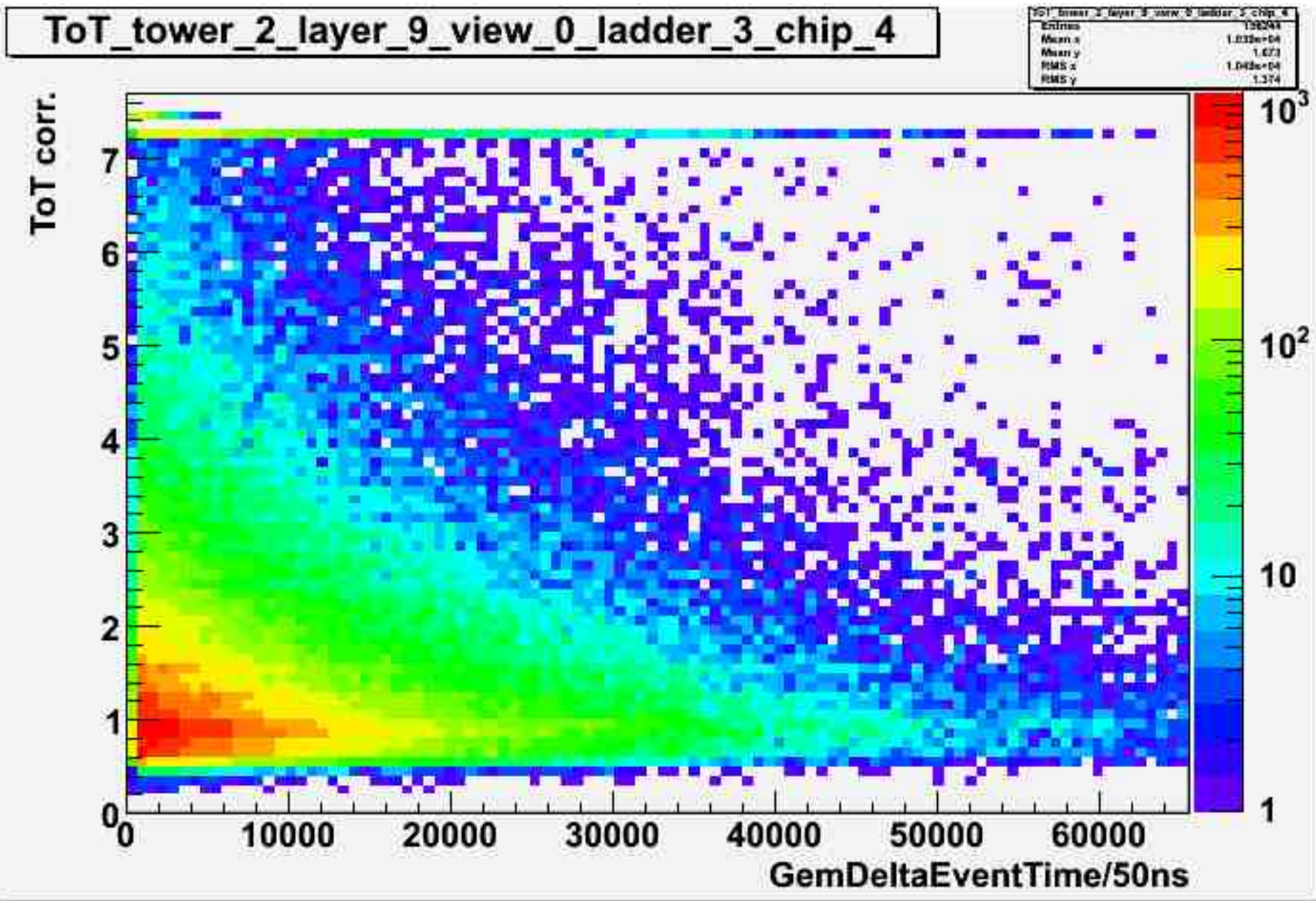
ineff



Entries	159
Mean	4675
RMS	2856



ToT vs. GemDeltaEventTime





Preliminary Summary

I don't see (yet) a hint that the performance of the tracker is affected by high rates (400Hz) on a single element (e.g. one readout chip).