

MIP Calibration

Update 1

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HELMHOLTZ RESEARCH FOR
GRAND CHALLENGES



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CALICE
Calorimeter for ILC



Outline ToDo list defined

- Mean/RMS distributions for memcell offsets:
 - Channelwise, memcell 0-10
 - Chipwise, memcell 0 only, memcell 1 only, etc.
- For individual memcell 0,1,2 same channels, pedestal value difference:
 - Two runs (short time scale and long time scale)
 - Two runs (May vs. June and PP vs. no PP)
- Implement MIP - Pedestal in MIP extraction
- Quality tests, Outliers etc. output pedestal (first) and MIP lists
- Compare μ runs PP vs no PP, higher statistics
- MIP/Pedestal T-check

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Done yesterday

RMS/Mean Distributions full Muon scan May 2018

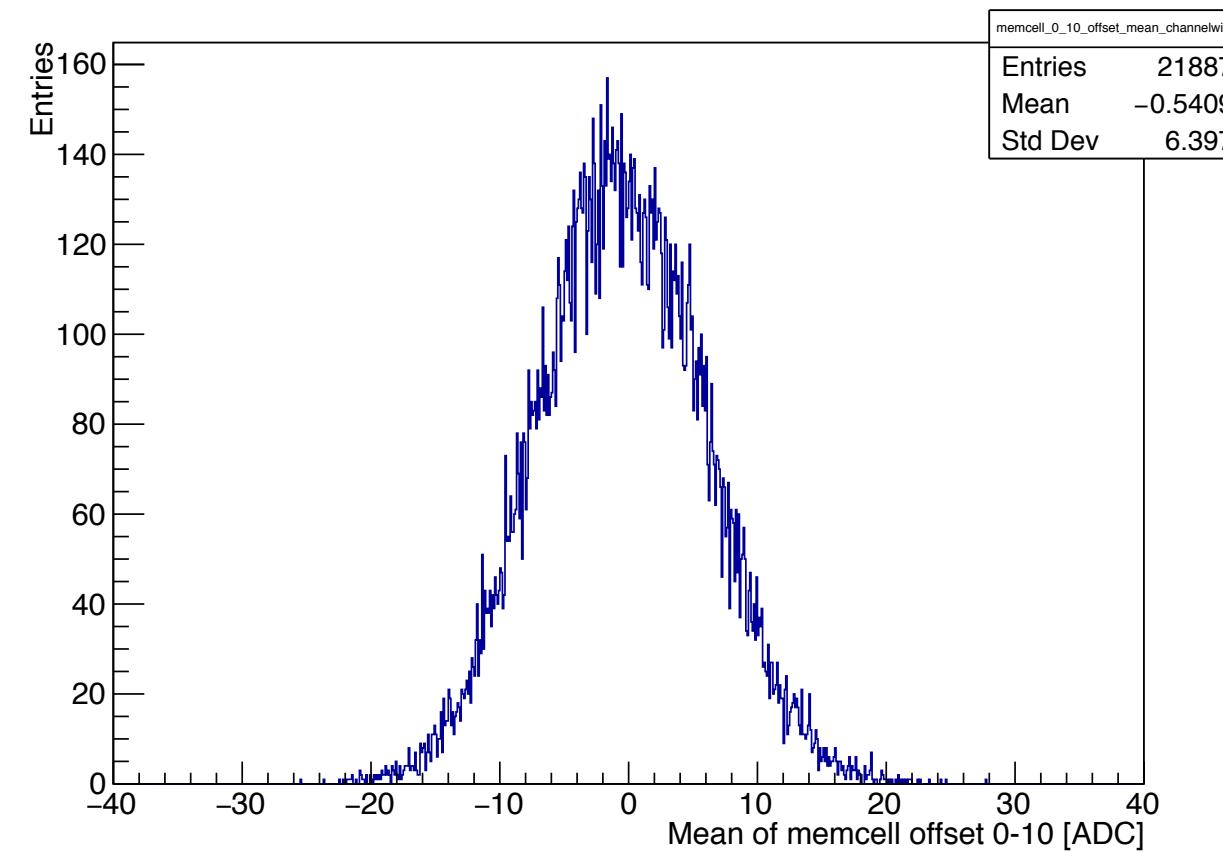
First: RootTreeGeneration of full muon scan runs of testbeam may 2018 had to be done again: Only „good“ runs, before mixed up.

- Re-run the Pedestal_Extraction code over it: Pedestal.tsv list with 21.888 lines!
- Do the RMS/Mean distributions:
 - Channelwise: Memcell 0-10 (statistic: Typical width of ADC distribution between 5-15 ADC for this memcells, nhits > 100 hits) mean and RMS
 - Chipwise: Mem0 for channel 0-35, RMS and mean

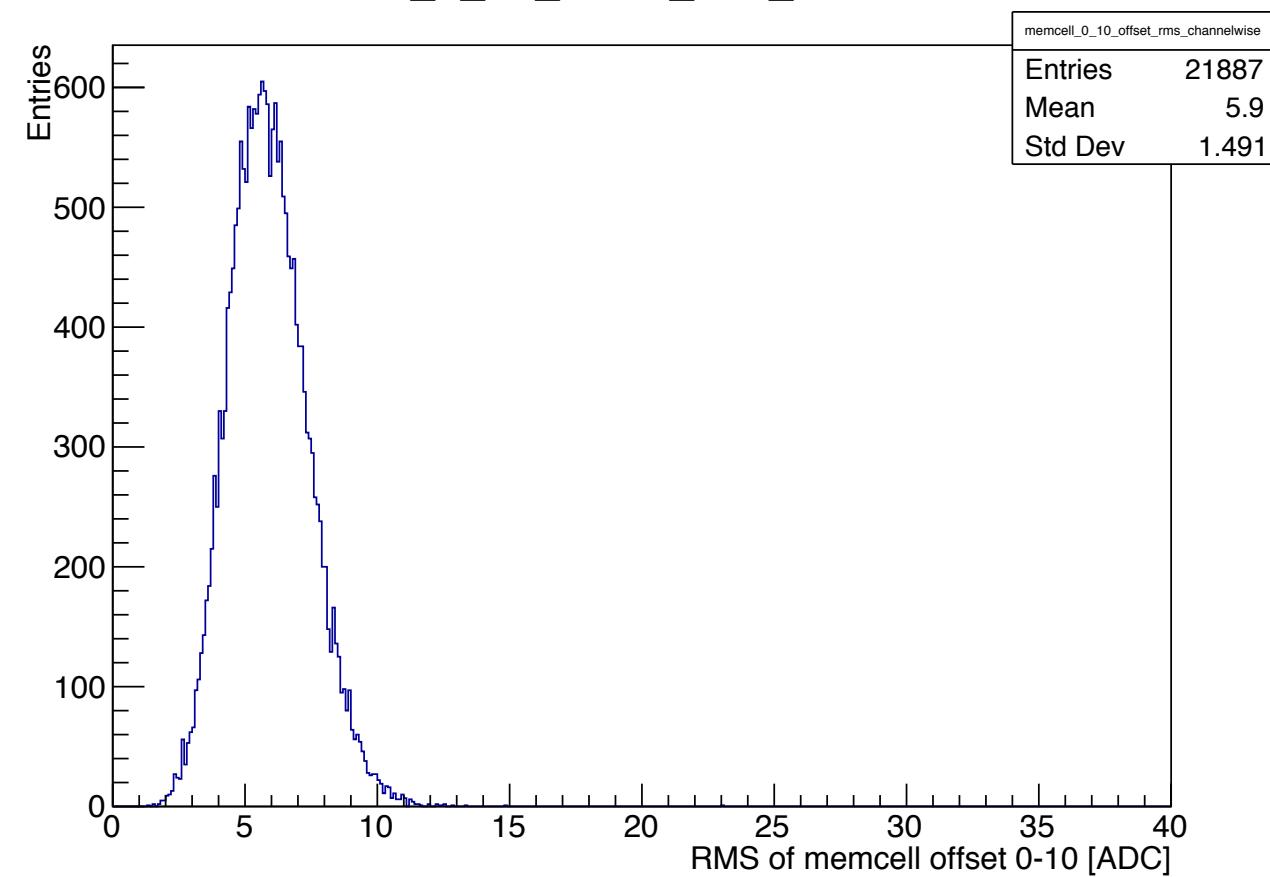
Done yesterday

RMS/Mean Distributions full Muon scan May 2018, Channelwise

memcell_0_10_offset_mean_channelwise

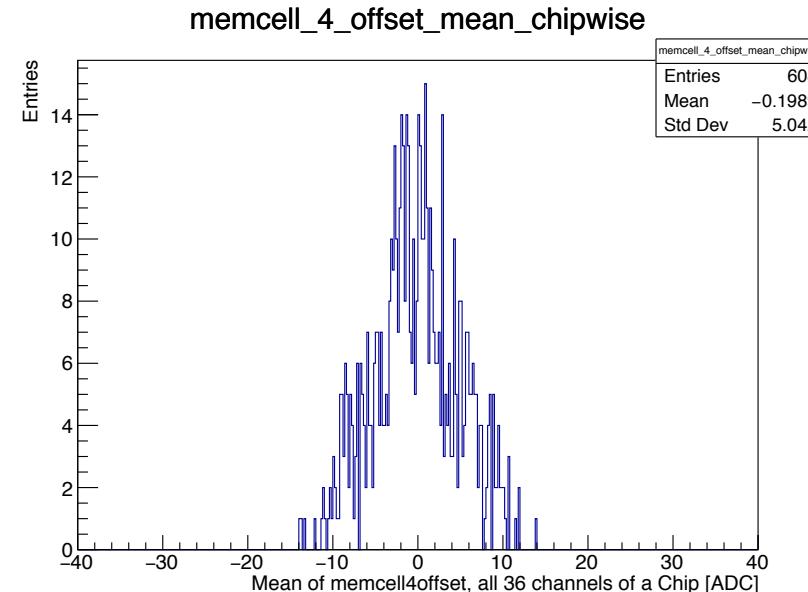
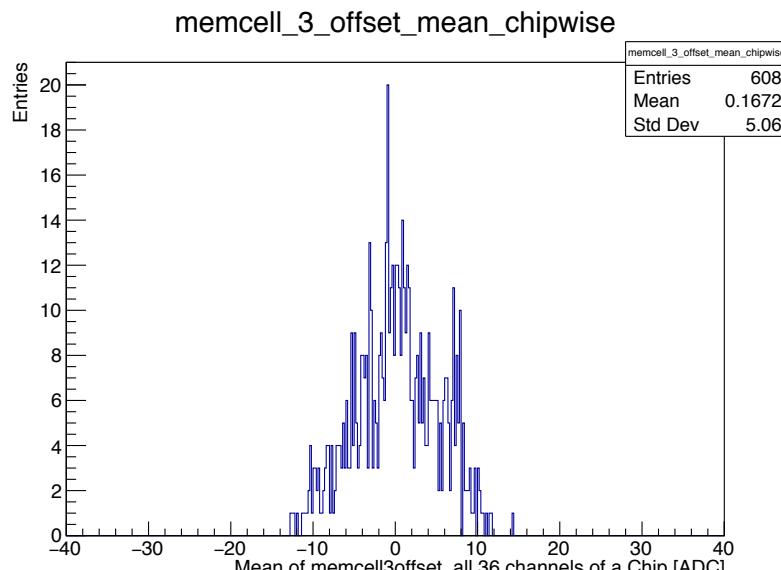
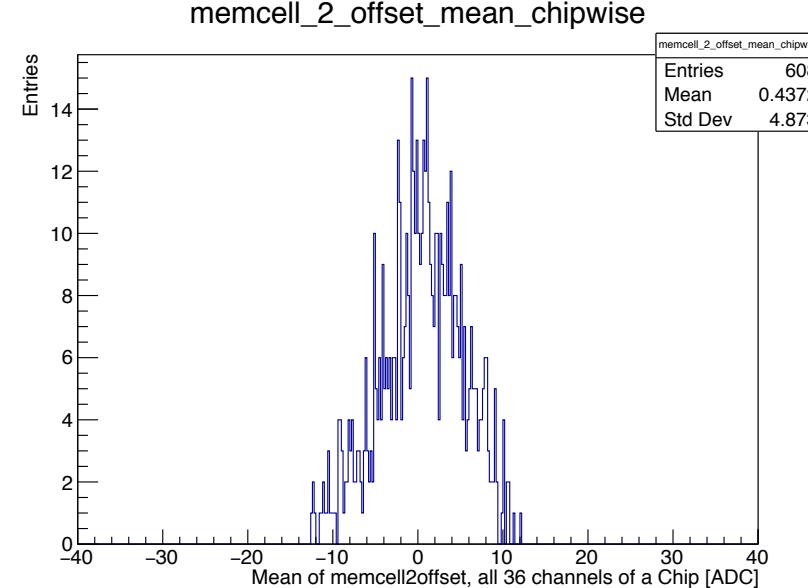
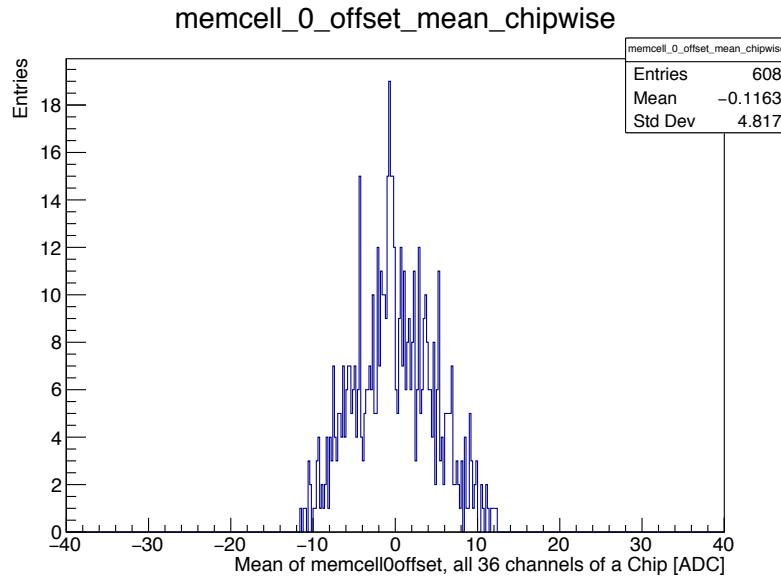


memcell_0_10_offset_rms_channelwise



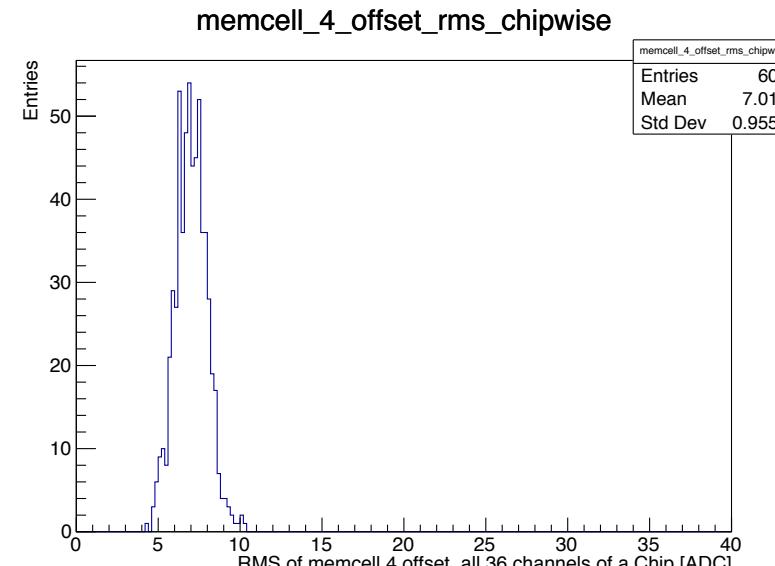
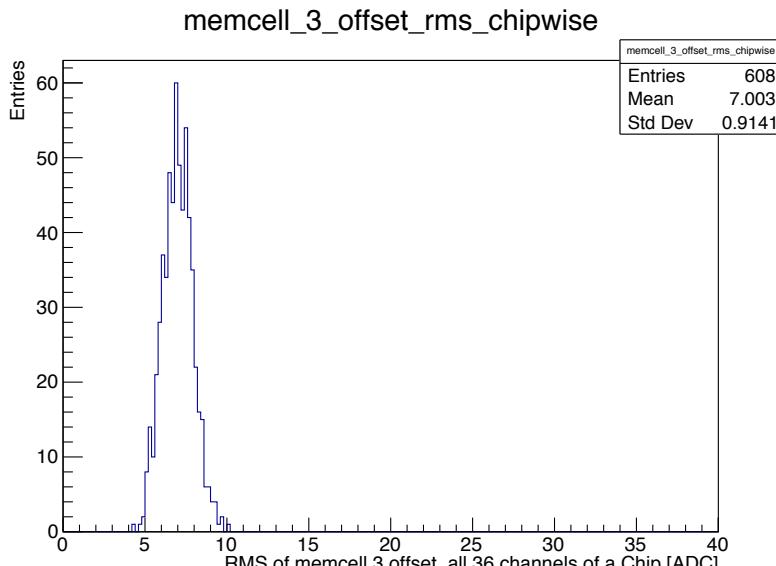
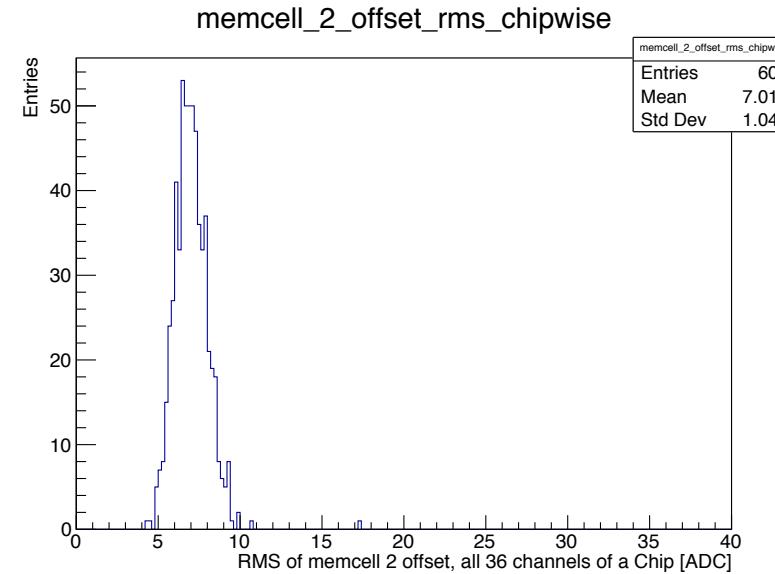
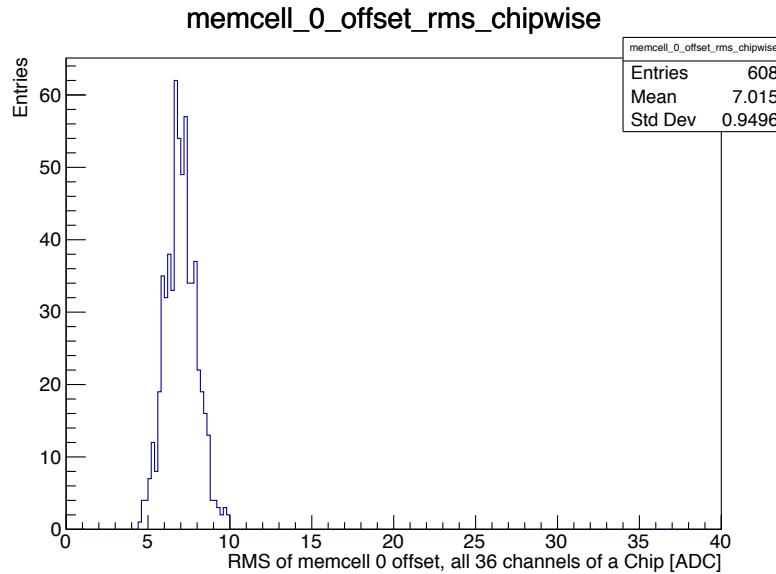
Done yesterday

RMS/Mean Distributions full Muon scan May 2018, Chipwise, specific memcell



Done yesterday

RMS/Mean Distributions full Muon scan May 2018, Chipwise, specific memcell



Done yesterday

Modifying the Extraction_MIP software, pedestal_all subtraction

The important line in the code...

```
TF1 *fit = hist->GetFunction("landau_gauss_function");
float MPV = fit->GetMaximumX() - b.getPositionTotal(Chips->first, ichan); //Get MPV pedestalall subtracted
float chi2 = MIPfit->Chi2();
float ndf = MIPfit->Ndf();
```

Giving now:

ChipID	Chn	MPV	MPV_Error	lw	gw	Chi2	NDF
268	0	211.114	2.5292	25.0184	41.2934	278.962	239
268	1	214.694	4.71912	24.7469	59.5448	246.522	255
268	6	162.793	2.99281	21.594	39.126	204.567	209
268	7	201.04	5.31974	39.6927	43.1706	190.059	256
268	12	205.572	10.5321	5.00001	72.6658	184.369	227
269	0	256.724	4.87204	27.7327	73.1938	361.243	358
269	1	251.289	4.14243	21.151	62.0799	380.41	277
269	2	273.976	7.15798	16.2876	69.8939	306.428	288
269	3	232.975	3.12708	30.0203	56.7156	323.15	287
269	4	248.059	2.6415	29.5828	44.7732	276.157	241
269	5	263.218	2.86863	32.3082	51.3993	319.942	325
269	6	249.321	4.3716	36.7797	64.3415	270.578	357
269	7	268.907	4.70117	27.9698	67.3279	289.045	335
269	8	246.145	3.27884	35.2598	51.7595	355.361	289
269	9	239.534	3.00798	32.3835	46.7244	257.637	275
269	10	246.644	3.54293	28.6606	57.8761	329.908	300
269	11	266.28	4.20684	27.3118	65.473	324.703	348
269	12	267.432	6.87508	40.7626	85.5432	206.337	327

→ Stash

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Run MIP_Extraction
for full Muon Run
May