Sixth Weekly MicrobooNE Meeting

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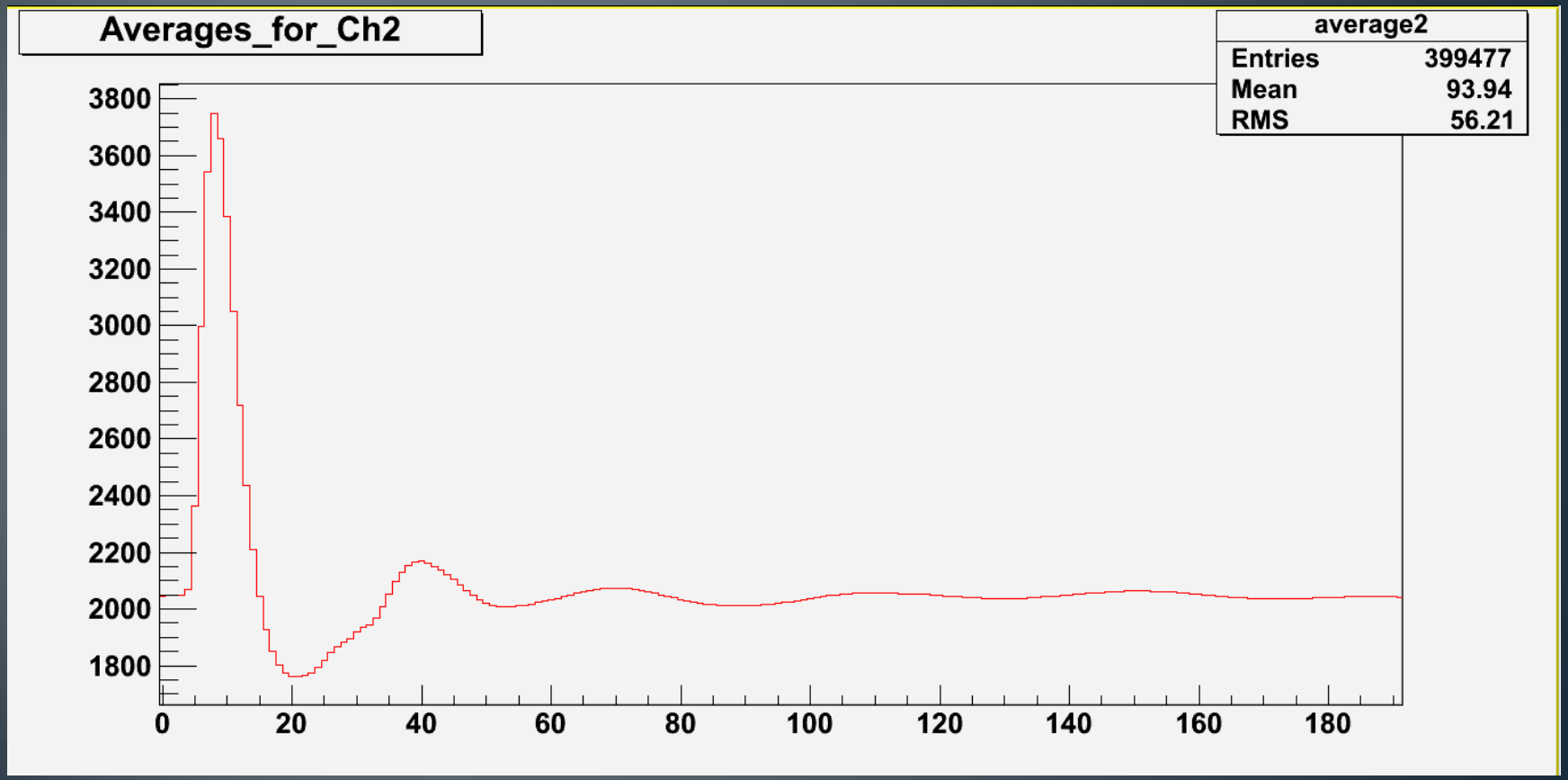
Hardware

TPC Crate Tests

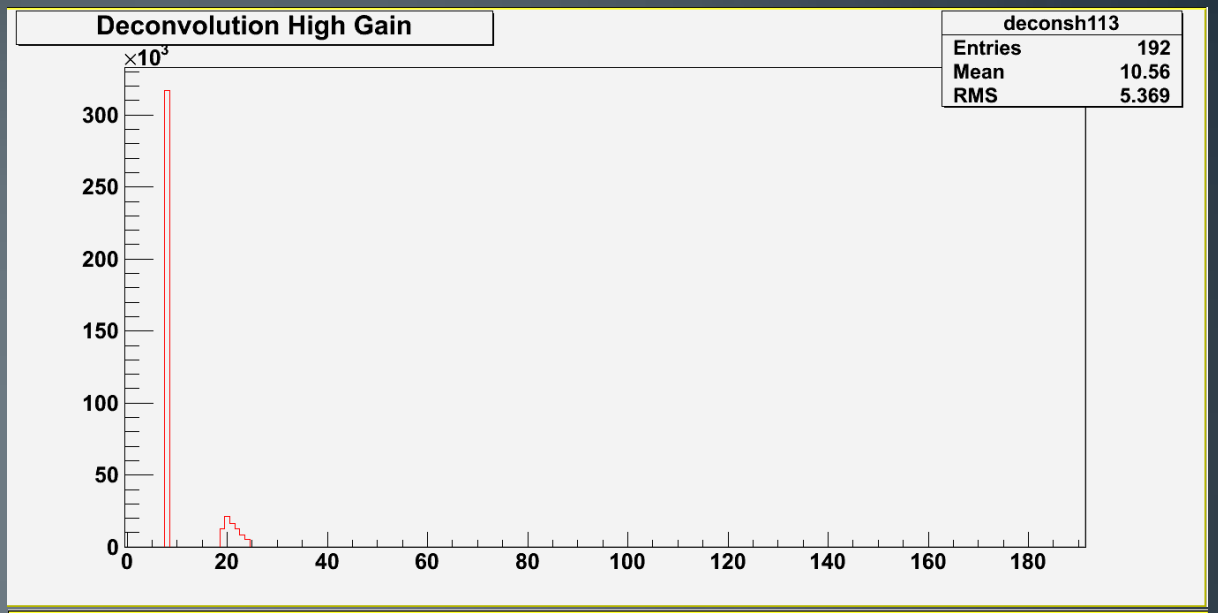
- - All tests have been completed
- - Labeled Everything
- - Everything double checked by David with a checklist
- - Diagnosed DMA timeout problem
- Done!

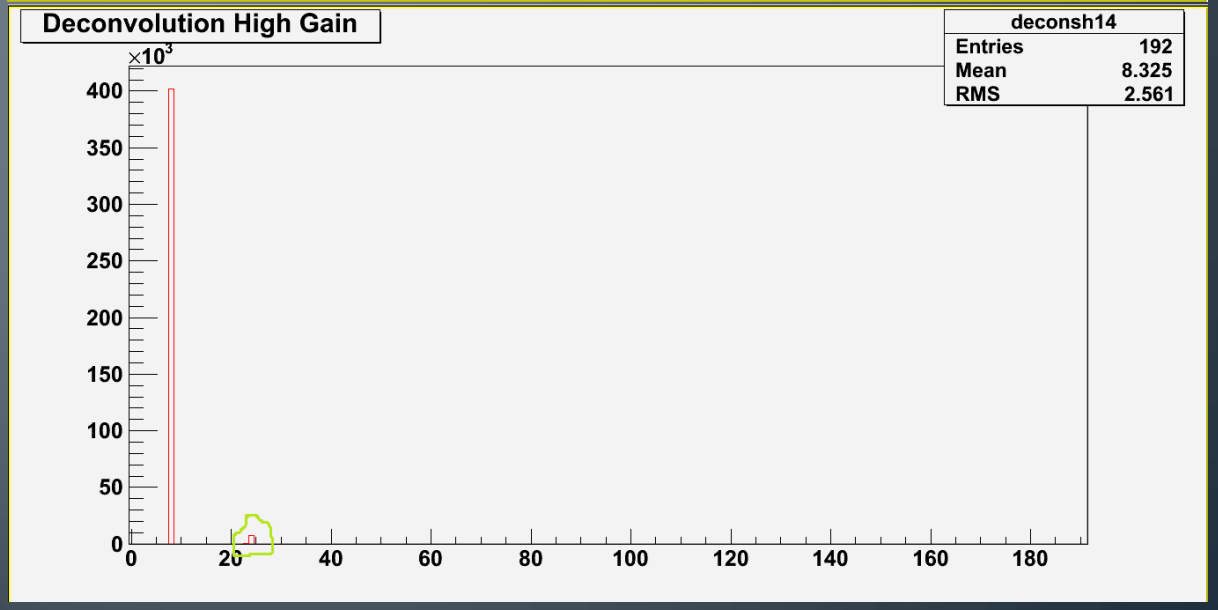
Imposing Stricter Conditions on Shaper



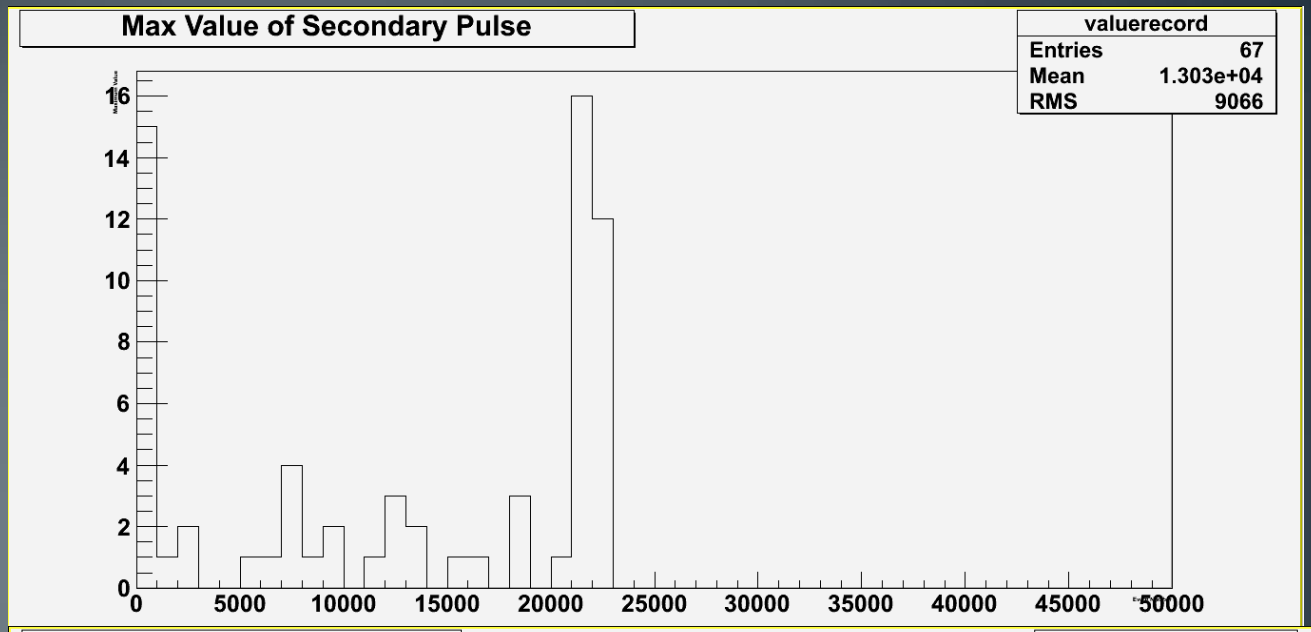
- No Bin Issue

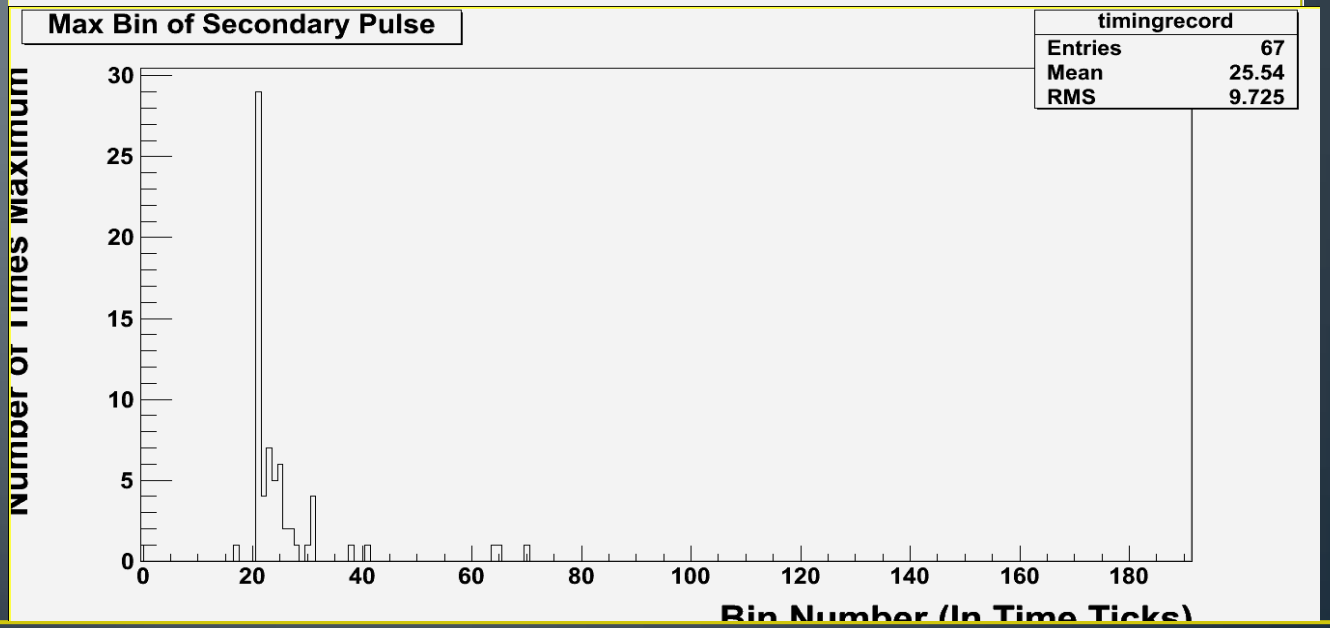
Cosmic Deconvolutions: A Variety



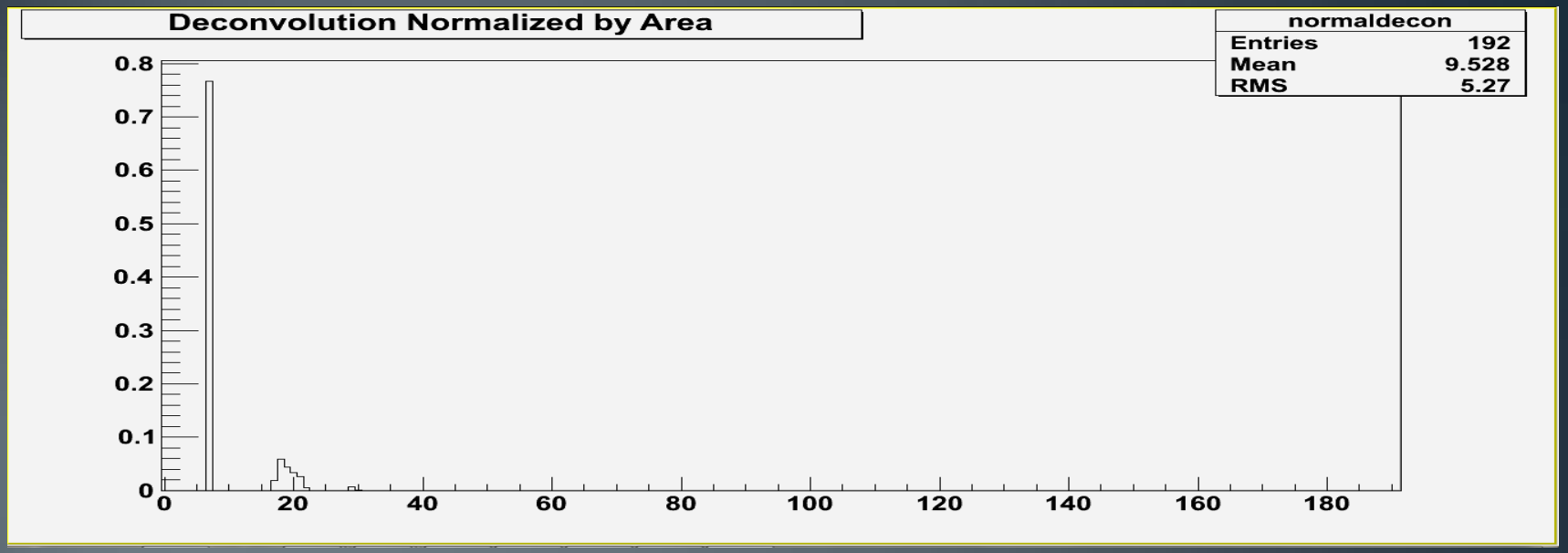


Overview of 200 Cosmics' Secondary Pulse





Relative to NPE

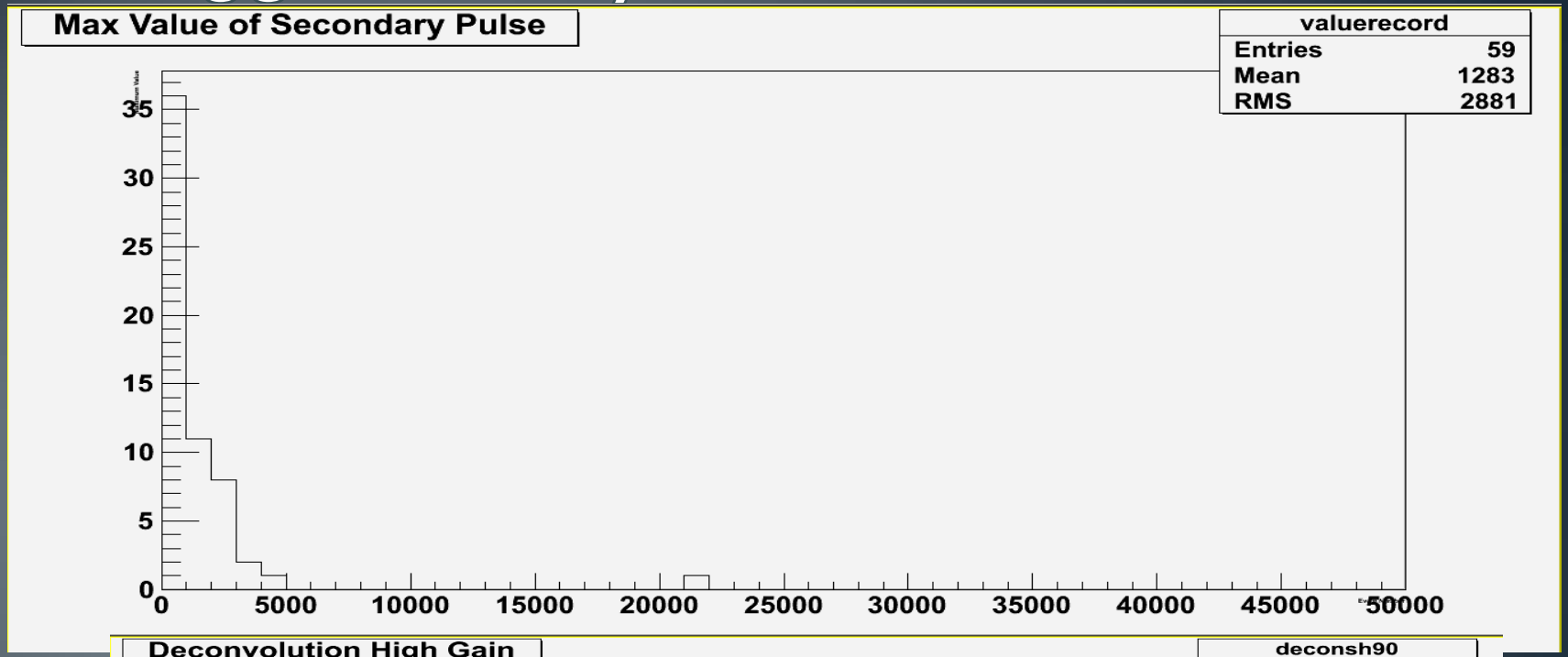


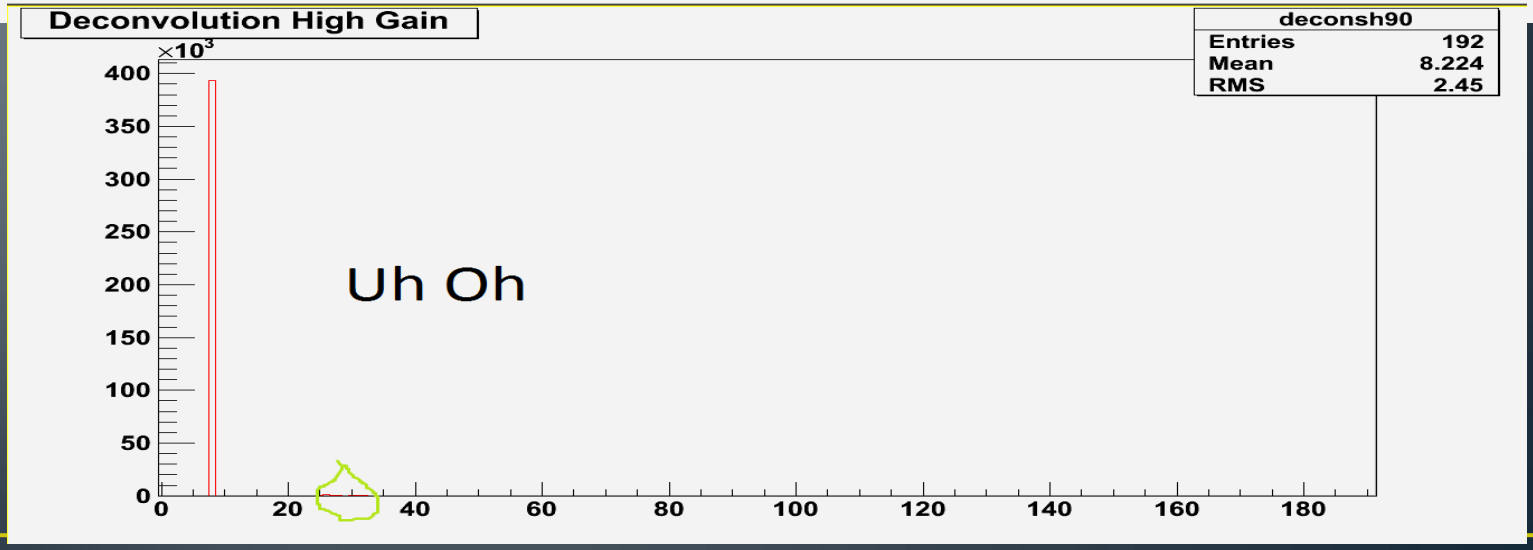
Idea: The deconvoluted pulse height is apparently proportional to the integral, so maybe we can retrieve this in terms of ADC and hence NPE if we assume width = 1 bin.

If we Assume that the tall pulse correlates to the 4096 Max Value achieved by the LED, then then we can take a proportion of the deconvoluted pulse heights to find the ADC value of the "secondary pulse" at about the 20th Bin.

Works well for some, i.e. : Primary pulse: 314698. Secondary pulse: 5186.5
314698/5186.5 = 54.33
4096/54.33 = 75.39 others are near 55, 60 etc. So the range is about 45-80

Biggest Worry: The LEDs are Back





Further Points of Inquiry

- Is there a good method for comparing NPE to ADC?
- What is the suggested integral comparison? And what times would be appropriate?
- Why do some numbers get favored? Why do some not even have a secondary pulse?

Investigations:

-Checking the comparative timing of primary, secondary, etc pulses, we see that the primary tends to occur at 9, the secondary at 21, and the tertiary at 32, so each are usually 12 ticks apart.

- The Secondary pulse has little consistency on where it occurs for an LED, the values are usually either in the tens or 100s
- Changing from LED1650 to LED1500 has the same effects but all pulses have lower values across the board

- Maybe the unipolar shaper, without the splitter, will clear it up?