

# $d_2^n$ BigBite: Čerenkov Pedestals

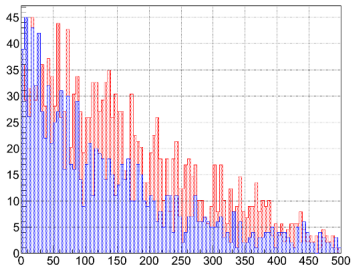
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# Big Bite Čerenkov Pedestals

When looking at BB Čerenkov photo electron yield for beamline side PMTs, the pedestal subtraction seemed to be too large.

mirra 03



mirra 03

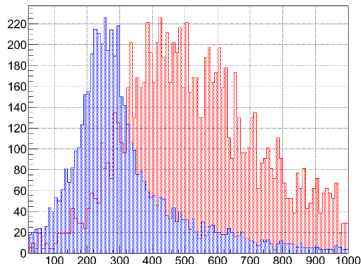


Figure 1: ADC for run 1849 of PMT 3: Ped subtracted and gain corrected (left), Raw (right)

# Pedestal Shifts?

- Is the Pedestal shifting? If so how does it look with...
  - LED runs
  - Cosmic runs
  - Low current runs
  - Full current runs
- Two ADC modules used, v792 and 1881
  - How do these look?

## Beam line 1881 ADC

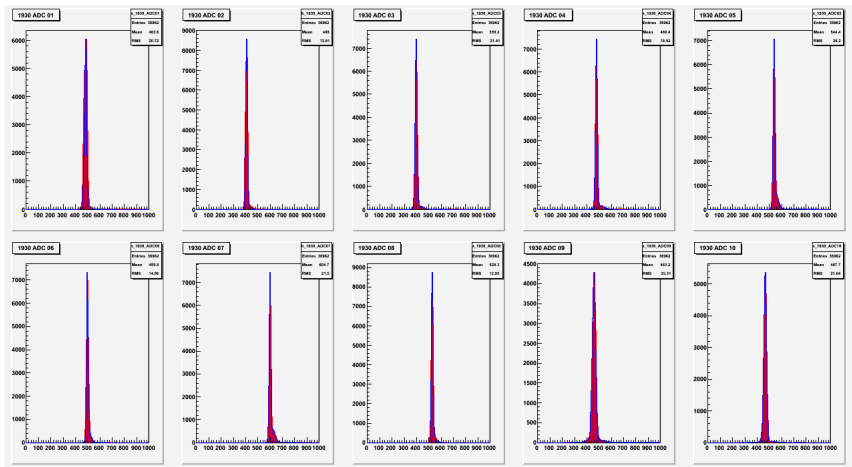


Figure 2: Beam line ADC for cosmic run 1930 (red) and LED run 1829 (blue).

## RHRS line 1881 ADC

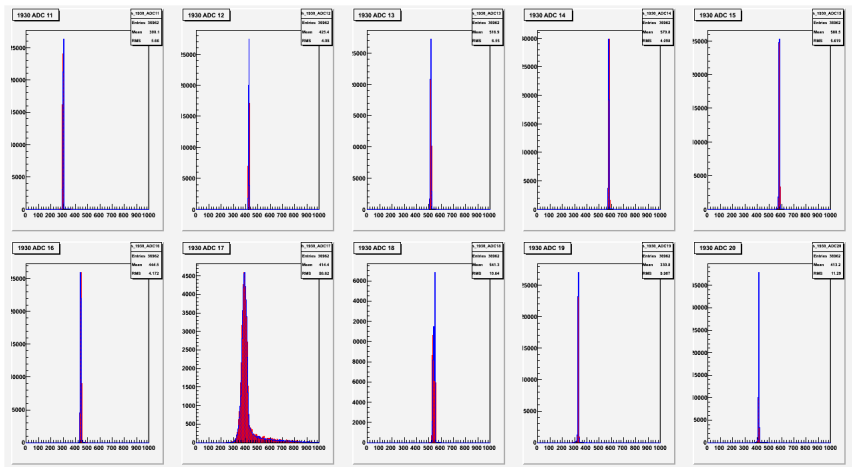


Figure 3: RHRS line ADC for cosmic run 1930 (red) and LED run 1834 (blue).

# Low Current vs LED

Beam line 1881 ADC,  $\sim 1\mu\text{A}$  5-pass

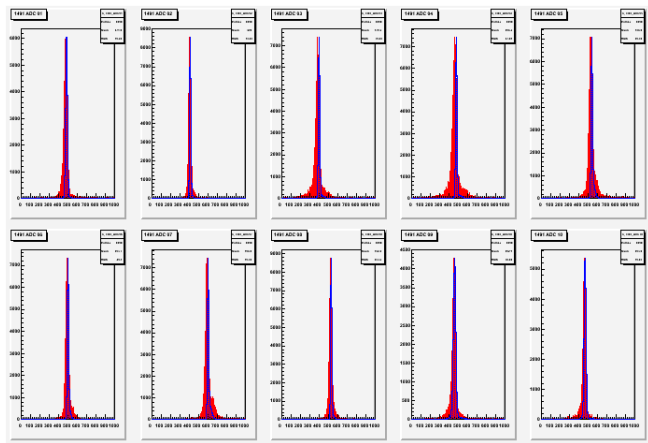


Figure 4: Beamline ADC for  $1\mu\text{A}$  run 1491 (red) and LED run 1829 (blue).

# Low Current vs LED

RHRS line **1881** ADC,  $\sim 1\mu\text{A}$  5-pass

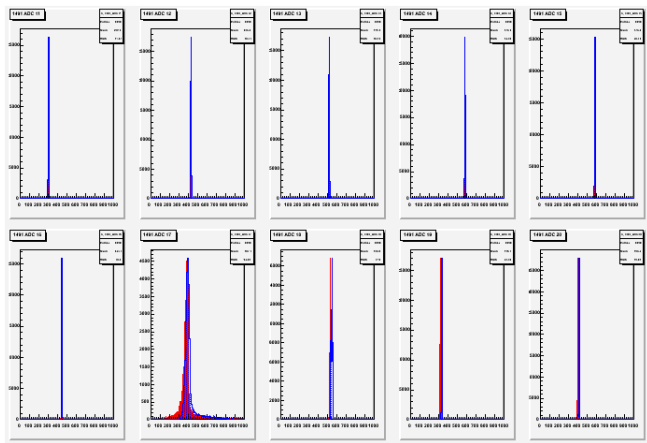


Figure 5: RHRS line ADC for  $1\mu\text{A}$  run 1491 (red) and LED run 1834 (blue).

# Mid Current vs LED

Beam line 1881 ADC,  $\sim 8\mu\text{A}$  5-pass

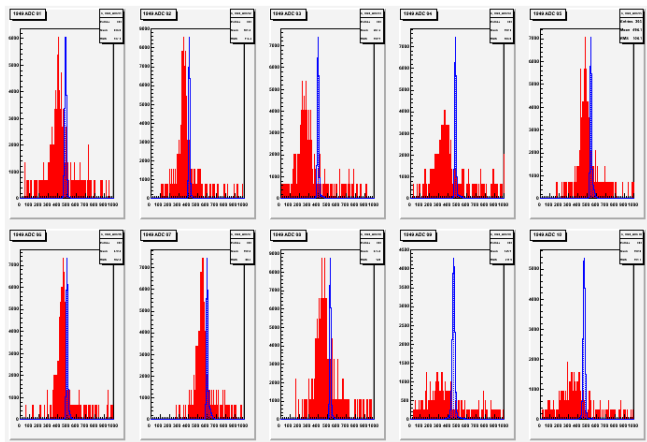


Figure 6: Beamline ADC for  $8\mu\text{A}$  run 1949 (red) and LED run 1829 (blue).



# Mid Current vs LED

RHRS line ADC,  $\sim 8\mu\text{A}$  5-pass

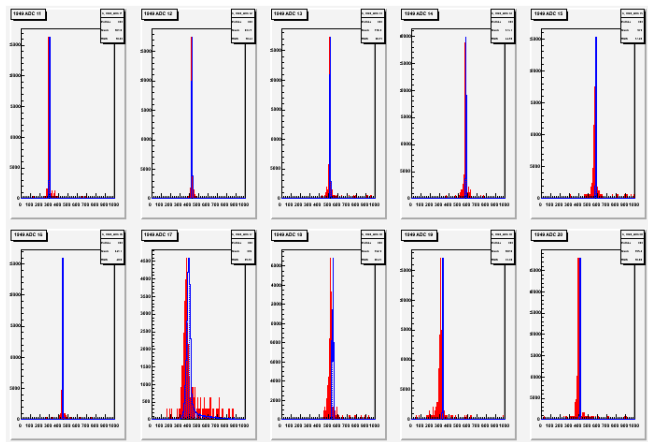


Figure 7: RHRS line ADC for  $8\mu\text{A}$  run 1949 (red) and LED run 1834 (blue).

# Full Current vs LED

Beam line 1881 ADC,  $\sim 13\mu\text{A}$  5-pass

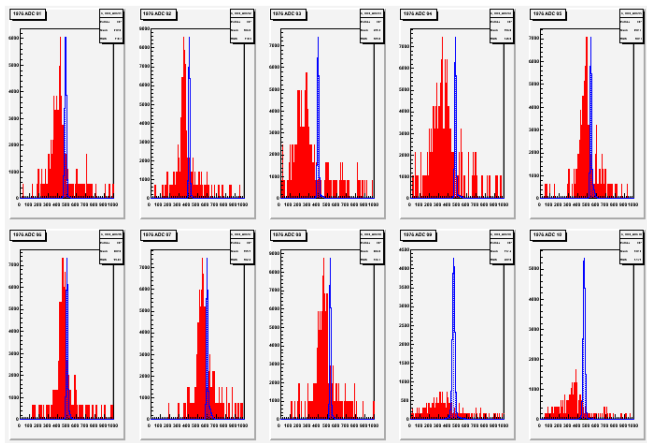


Figure 8: Beamline ADC for  $13\mu\text{A}$  run 1976 (red) and LED run 1829 (blue).

# Full Current vs LED

RHRS line ADC,  $\sim 13\mu\text{A}$  5-pass

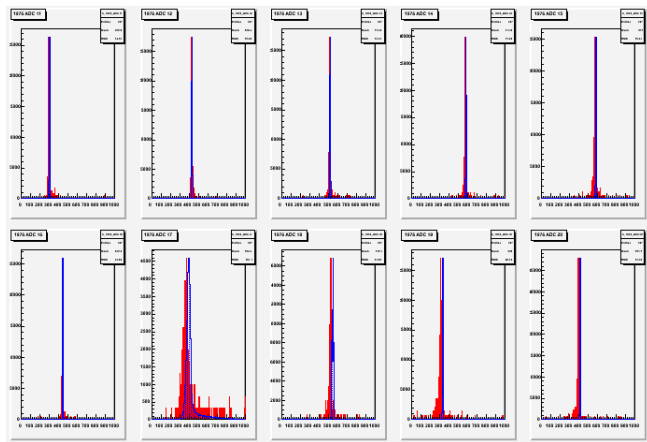


Figure 9: RHRS line ADC for  $13\mu\text{A}$  run 1976 (red) and LED run 1834 (blue).

# Full Current vs LED

Beam line 1881 ADC,  $\sim 12\mu\text{A}$  4-pass, PMT 9,10 bypassing 2nd Amp.

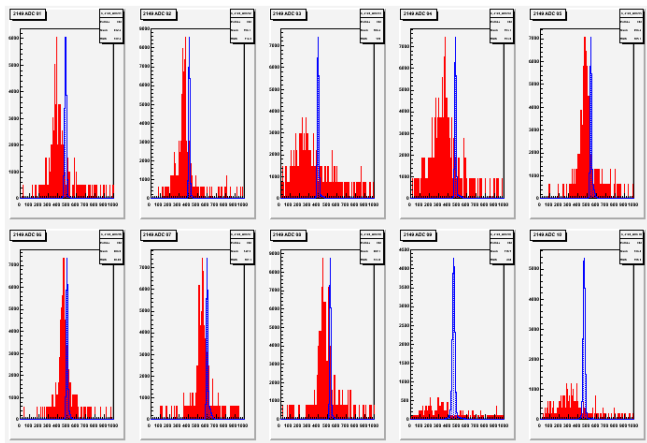


Figure 10: Beamline ADC for  $12\mu\text{A}$  run 2149 (red) and LED run 1829 (blue).

# Full Current vs LED

RHRS line ADC,  $\sim 12\mu\text{A}$  4-pass

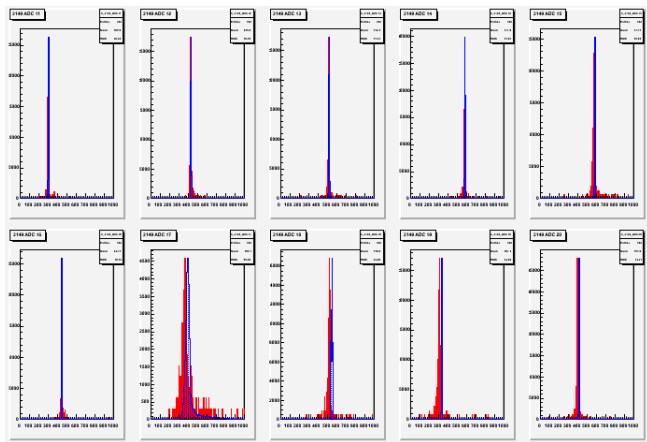


Figure 11: RHRS line ADC for  $12\mu\text{A}$  run 2149 (red) and LED run 1834 (blue).

## 1881 ADC Conclusion

- Only **beam line** side peds shifting with mid-full beam current. So...
  - High rates?
  - Amplifiers?
  - 1881 ADC module?

Now to check out some of the **v792** ADC

# Full Current vs Cosmic

Beam line  $v792$  ADC,  $\sim 10\mu A$  5-pass

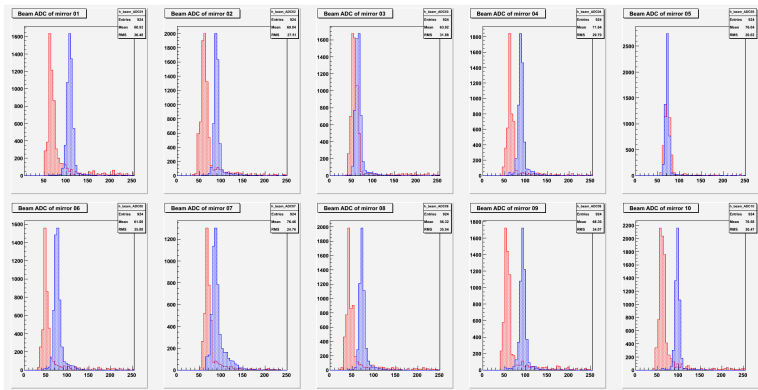


Figure 12: Beamline ADC for  $10\mu A$  run 1314 (red) and cosmic run 1300 (blue).

## RHRS line v792 ADC, $\sim 10\mu\text{A}$ 5-pass

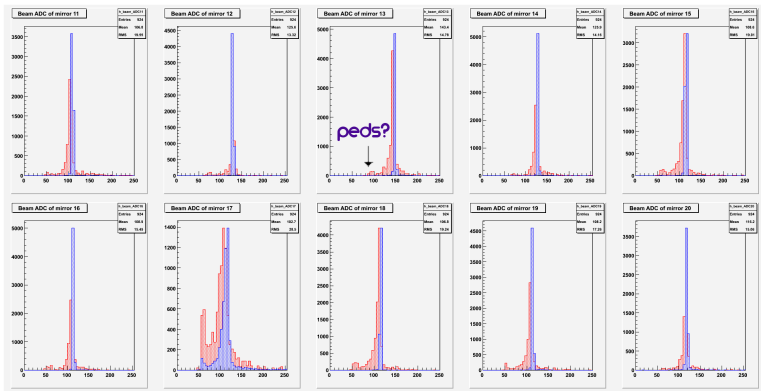


Figure 13: RHRS line ADC for  $10\mu\text{A}$  run 1314 (red) and cosmic run 1300 (blue).



- Only **beam line** side peds also seem to shift with **high current**
- If left most bump, not a ped then **RHRS** side does not seem to shift

So ped shift due to **high beamline rates**