

Dark noise SPE vs Low intensity LED SPE

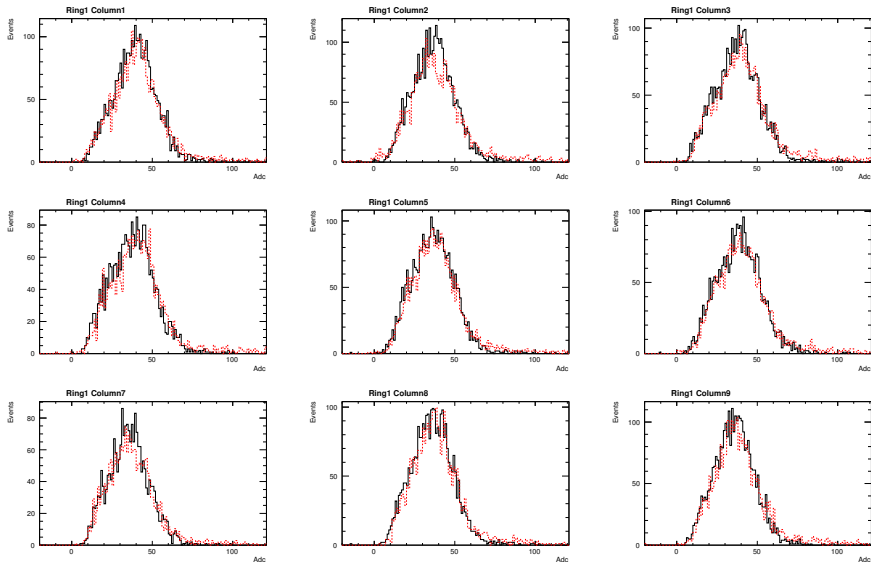
Qing He

Princeton University

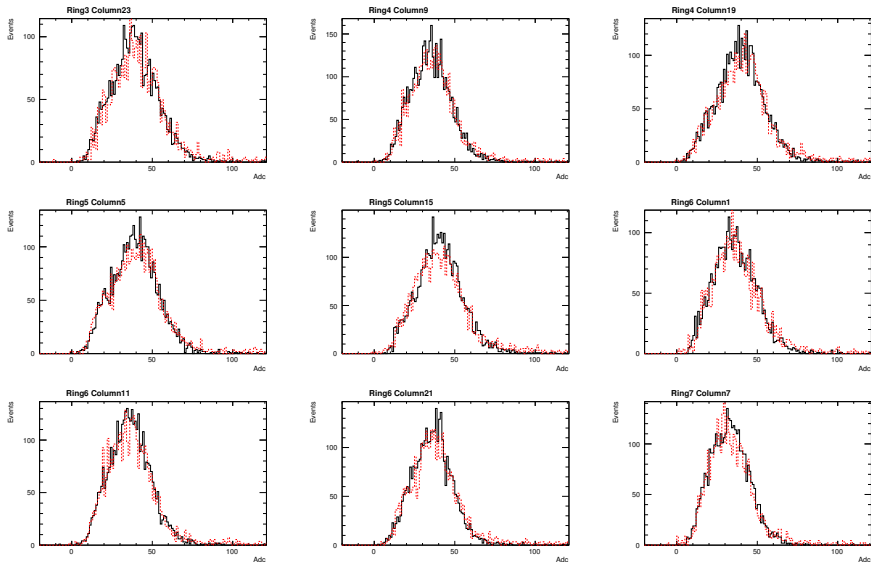
Dayabay Collaboration

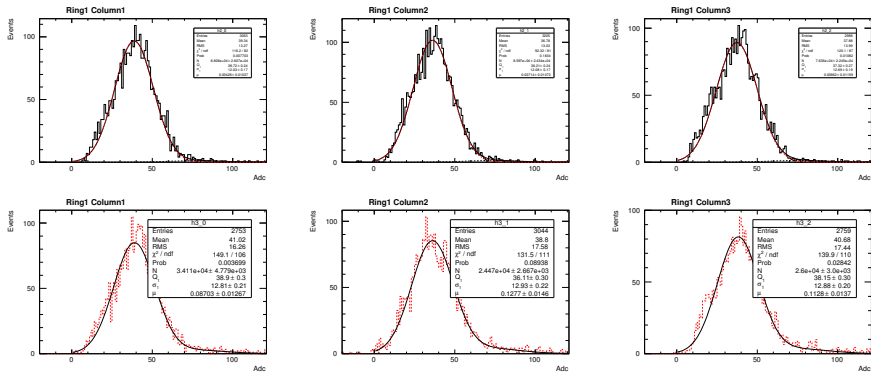
- An similar study has been done for AD1 in Doc5361. Here check AD2 with new electronics.
- Low intensity LED run 5647, external trigger, LED driven voltage: -6.8V.
- In order to accumulate dark hit statistics, we used run 5647–5651
- Low intensity LED signal selection: $950 < T_{dc} < 1050$
- Dark hit selection: $T_{dc} > 1050$ or the first hit with $T_{dc} < 800$

Dark noise (red) & LED low intensity run stack together



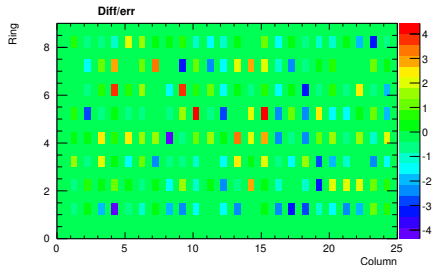
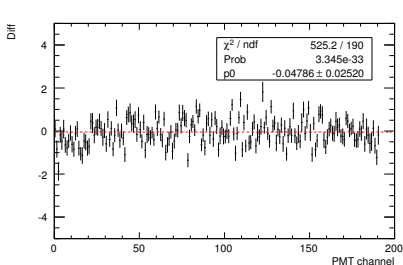
Dark noise (red) & LED low intensity run stack together





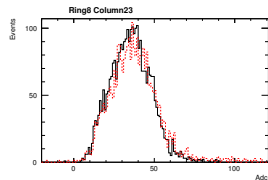
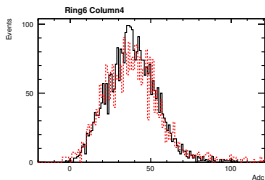
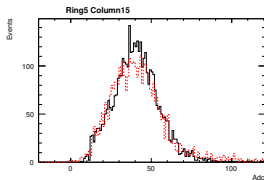
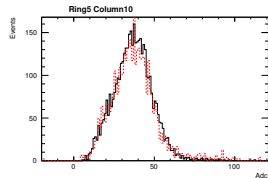
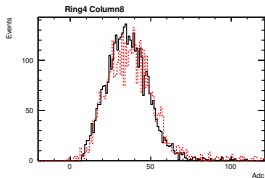
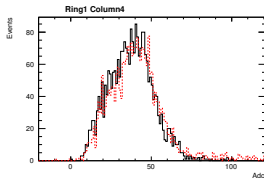
- Fit with full model (see Doc5361)
- First row: fit to low intensity LED hit
- Second row: fit to dark noise

Dark noise & LED low intensity run SPE comparison



- $\text{Gain}_{LED} - \text{Gain}_{Darknoise}$ in units of Adc channel
- Only statistic uncertainty considered.

Stack plots for the largest discrepancy channels



Reproduce the results

- source code:

<http://dayabay.ihep.ac.cn/svn/dybsvn/people/qinghe/MyProc/>

- root script:

<http://dayabay.ihep.ac.cn/svn/dybsvn/people/qinghe/rootscript/>