

# Inter-calibration dLY compare IC of May and June

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# IC factor from LED runs

## $dHG\_ADC/dLG\_ADC$

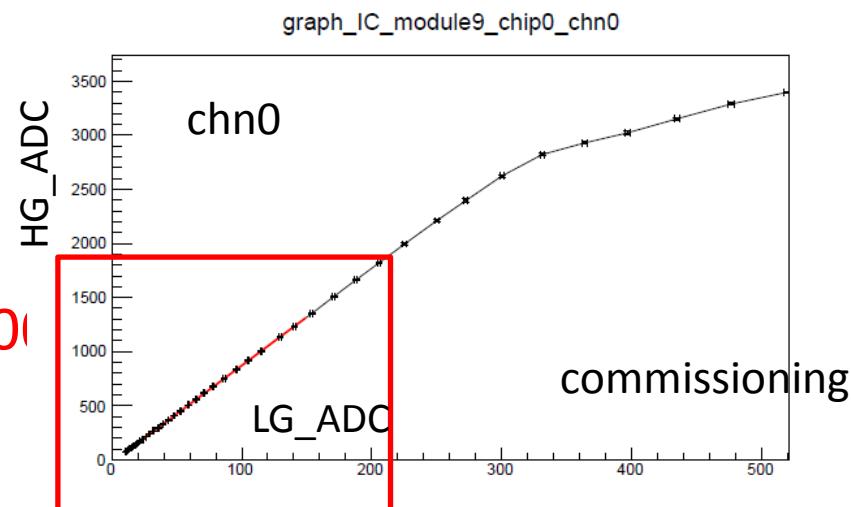
$$\Delta \text{Ligit yield} * \text{HG\_Gain} = (\text{HG\_ADC}_{i+1} - \text{HG\_ADC}_i)$$

$$\Delta \text{Ligit yield} * \text{LG\_Gain} = (\text{LG\_ADC}_{i+1} - \text{LG\_ADC}_i)$$

$$\text{IC} = \text{HG\_Gain/LG\_Gain} = (\text{HG\_ADC}_{i+1} - \text{HG\_ADC}_i) / (\text{LG\_ADC}_{i+1} - \text{LG\_ADC}_i)$$

constraints

- $\text{HG\_ADC}_i > \text{HG\_ADC}_0$
- $\text{HG\_ADC}_i$  and  $\text{LG\_ADC}_{i+1} > 10$
- $\text{HG\_ADC}_i$  and  $\text{HG\_ADC}_{i+1} < 1500$
- $30 < \text{LG\_ADC}_{i+1} - \text{LG\_ADC}_{\text{ped}} < 100$
- total amount of charge in a chip < 60000
- $\text{HG\_ADC}_{i+1} - \text{HG\_ADC}_i > 100$
- $\text{HG\_RMS}_{i+1} - \text{HG\_RMS}_i > 0$
- $\text{LG\_RMS}_{i+1} - \text{LG\_RMS}_i > 0$



# IC factor from LED runs

## $dHG\_ADC/dLG\_ADC$

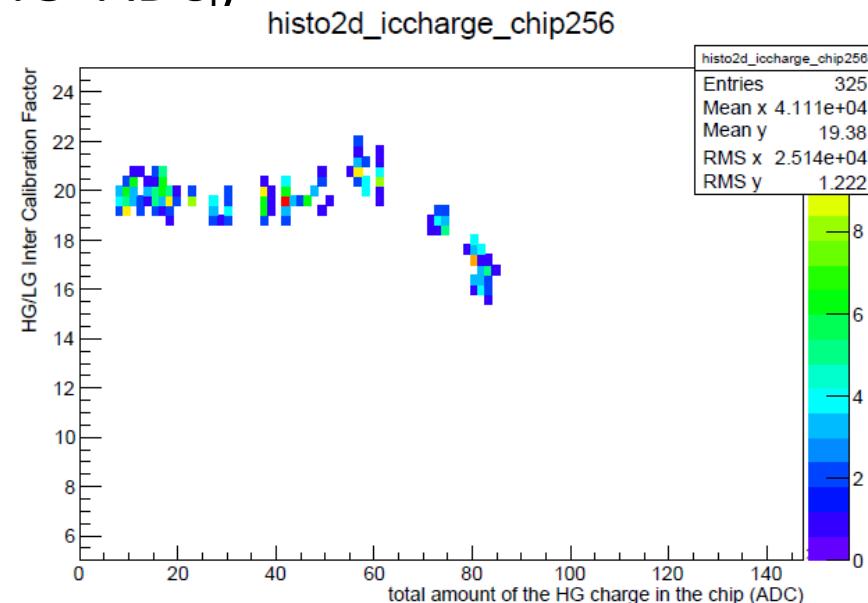
$$\Delta \text{Ligit yield} * \text{HG\_Gain} = (\text{HG\_ADC}_{i+1} - \text{HG\_ADC}_i)$$

$$\Delta \text{Ligit yield} * \text{LG\_Gain} = (\text{LG\_ADC}_{i+1} - \text{LG\_ADC}_i)$$

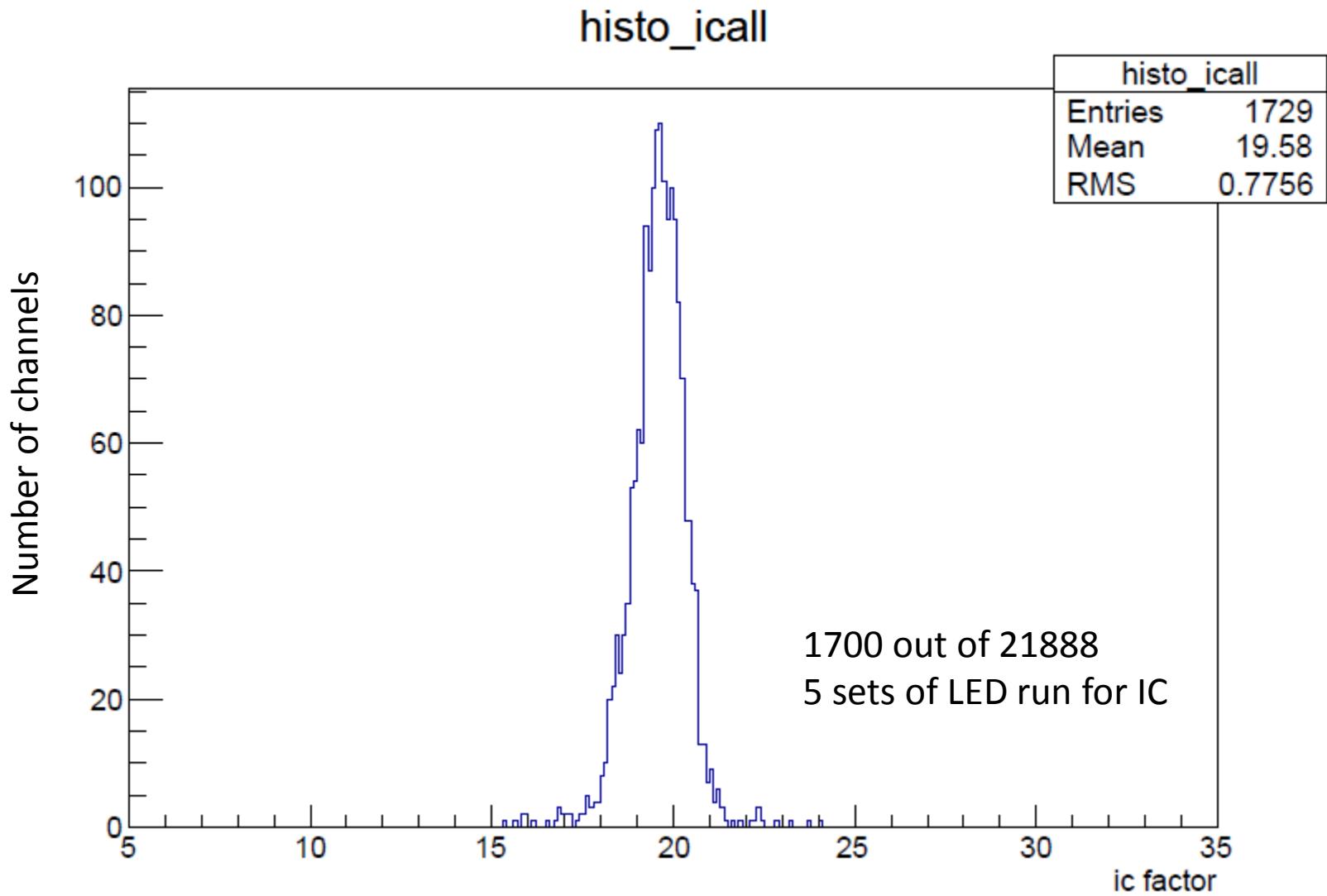
$$IC = \text{HG\_Gain/LG\_Gain} = (\text{HG\_ADC}_{i+1} - \text{HG\_ADC}_i) / (\text{LG\_ADC}_{i+1} - \text{LG\_ADC}_i)$$

constraints

- $\text{HG\_ADC}_i > \text{HG\_ADC}_0$
- $\text{HG\_ADC}_i$  and  $\text{LG\_ADC}_{i+1} > 10$
- $\text{HG\_ADC}_i$  and  $\text{HG\_ADC}_{i+1} < 1500$
- $30 < \text{LG\_ADC}_{i+1} - \text{LG\_ADC}_{\text{ped}} < 100$
- total amount of charge in a chip  $< 60000$
- $\text{HG\_ADC}_{i+1} - \text{HG\_ADC}_i > 100$
- $\text{HG\_RMS}_{i+1} - \text{HG\_RMS}_i > 0$
- $\text{LG\_RMS}_{i+1} - \text{LG\_RMS}_i > 0$

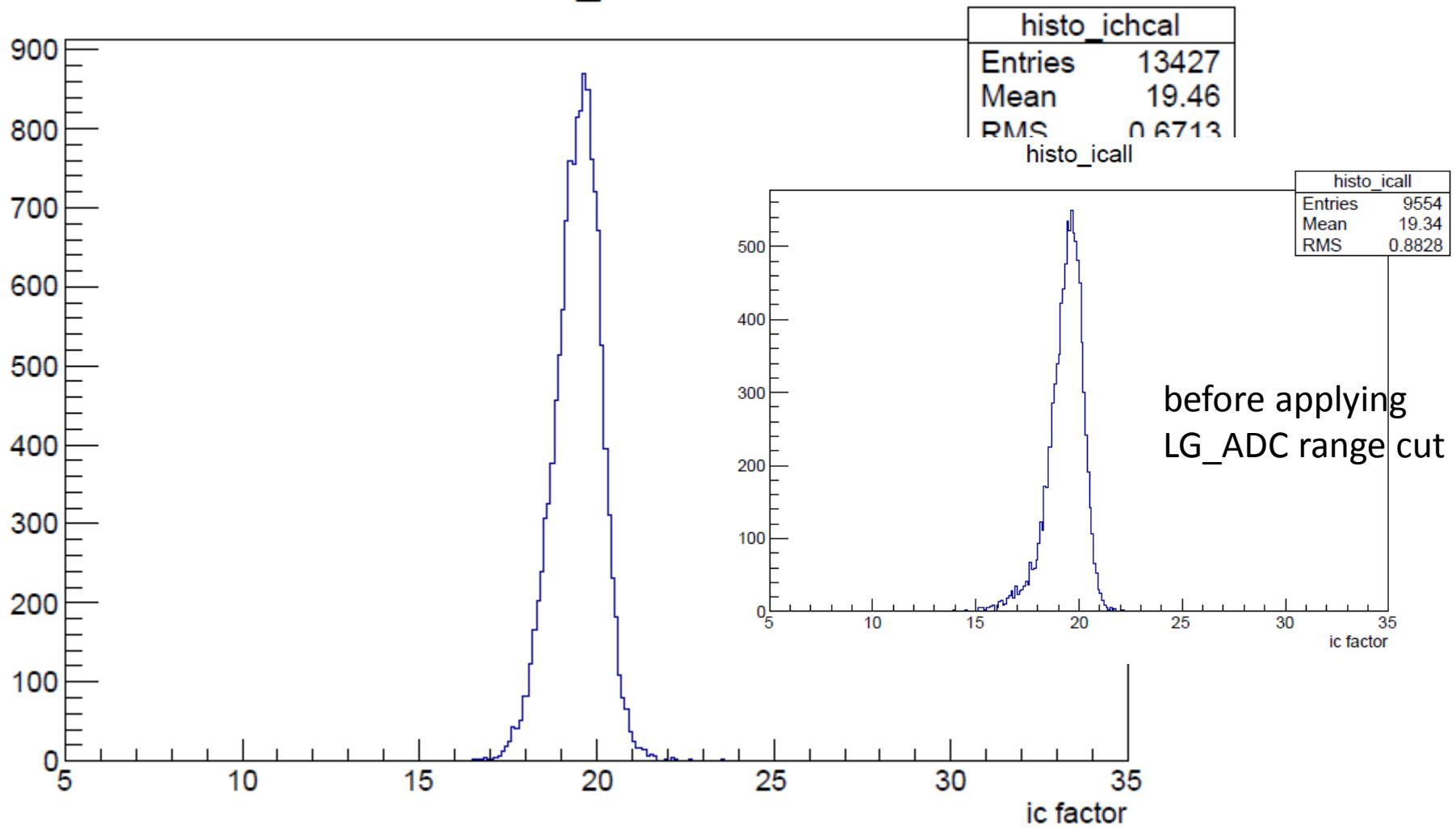


# LED Run 20180521\_LG1200



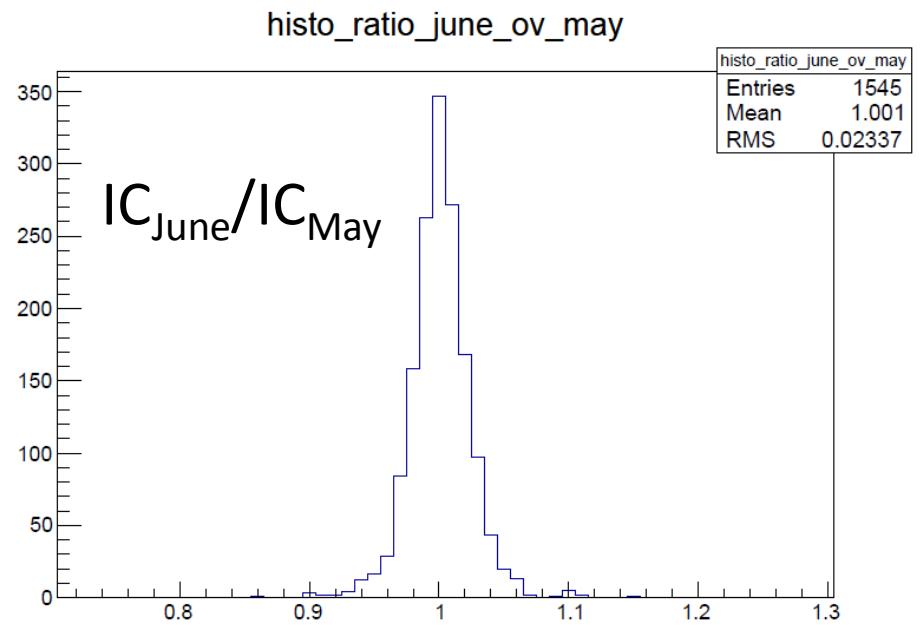
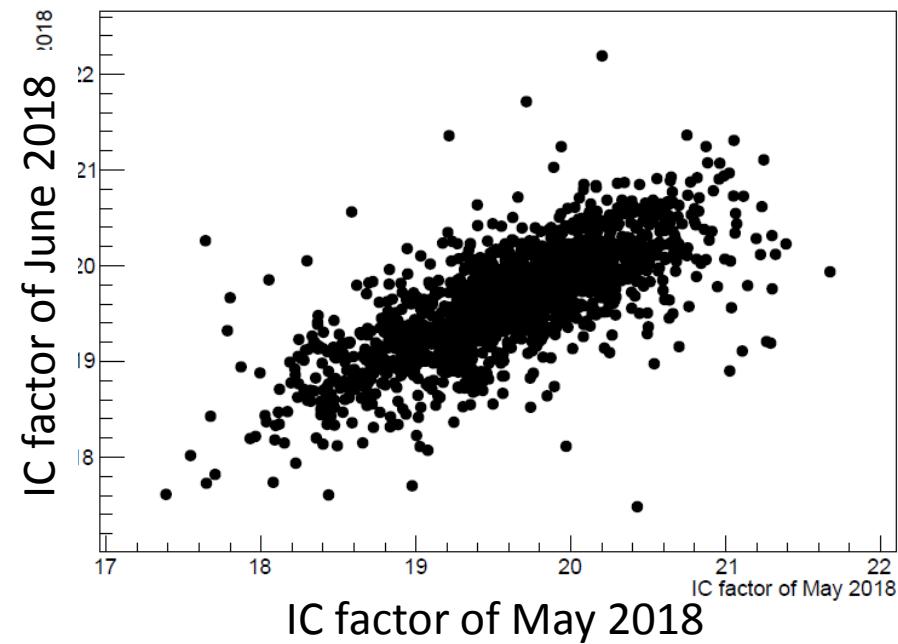
# LED Run 20180625\_Long

histo\_ichcal



# Comparing IC factor of June and May 2018

after reject outliers: range of plots is mean  $\pm 3 \times \text{RMS}$  of IC histogram



RMS of IC<sub>June</sub>/IC<sub>May</sub> is 2.3%