



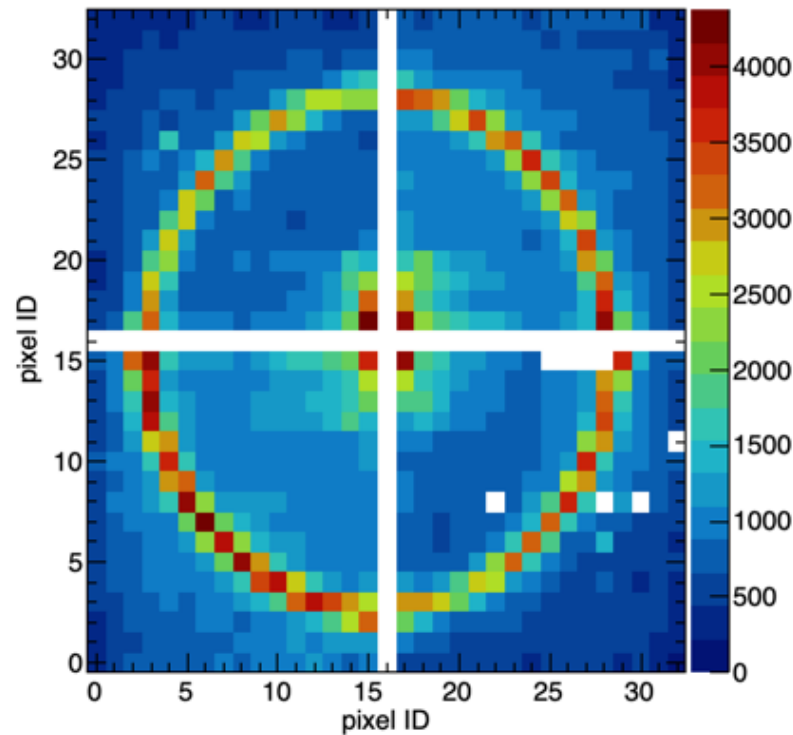
Test Beam Analysis Update — Ring Image

Xu Sun

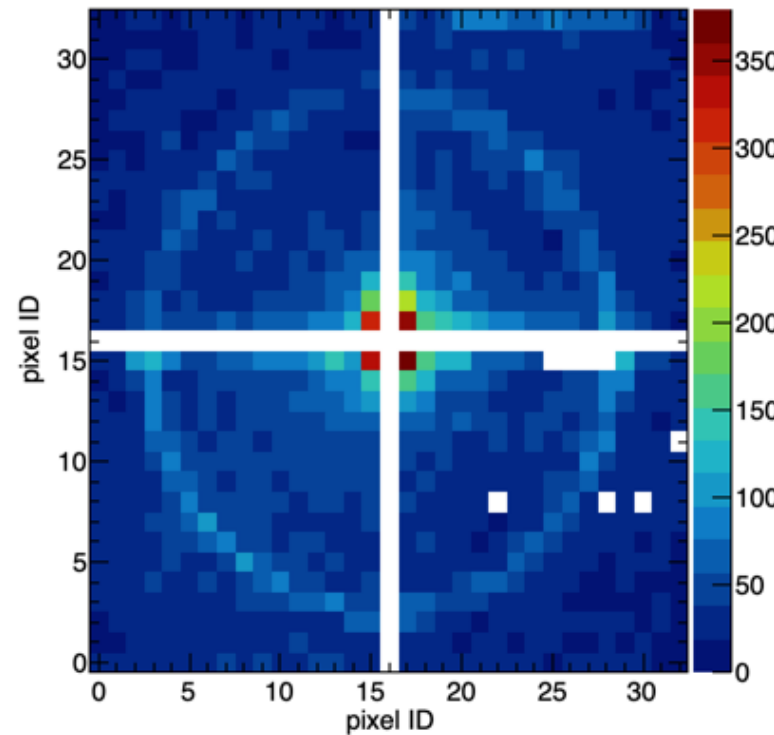
Signals with Different TDC Cuts



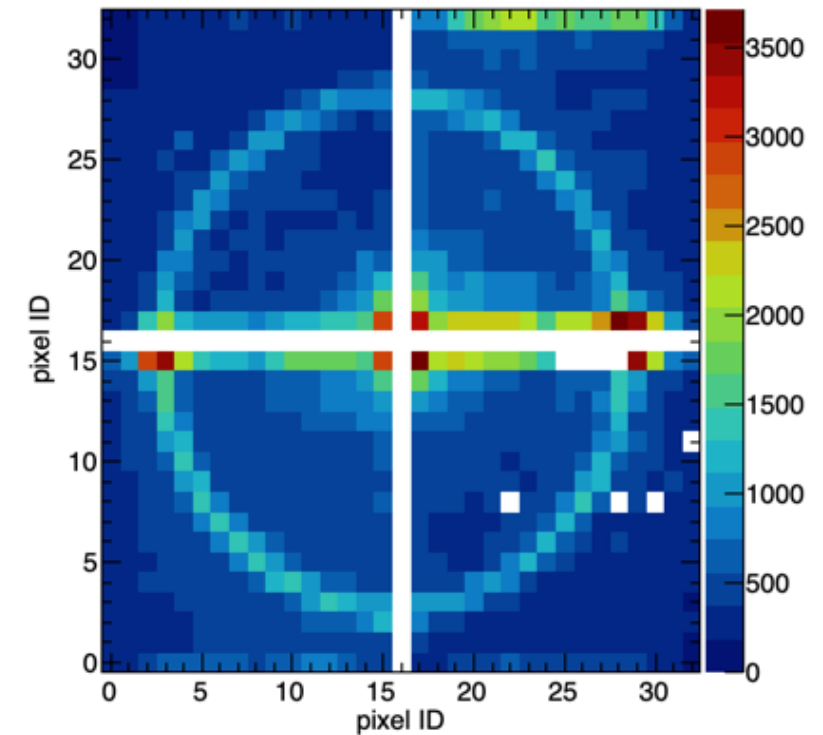
Calibration & $2000.0 < \text{tdc} < 2050.0$



Run182 & $\text{tdc} < 2000.0$

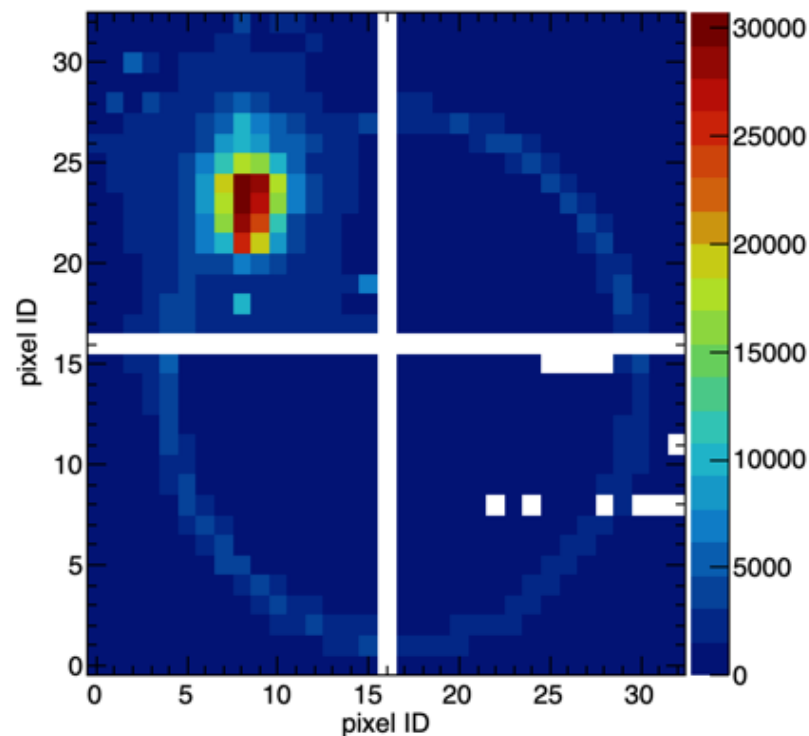


$\text{tdc} > 2050.0$

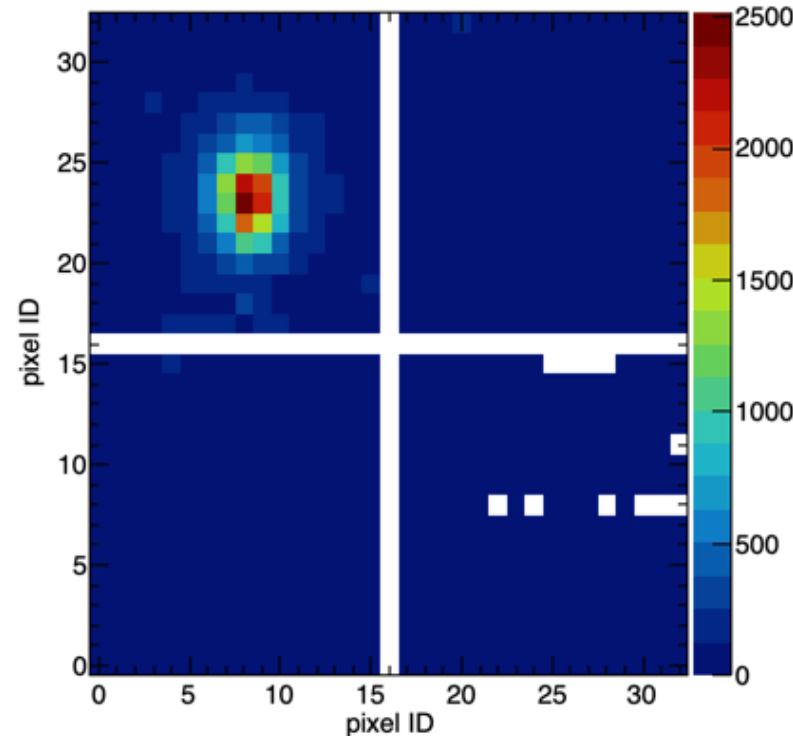


significant amount of photons after tdc cuts

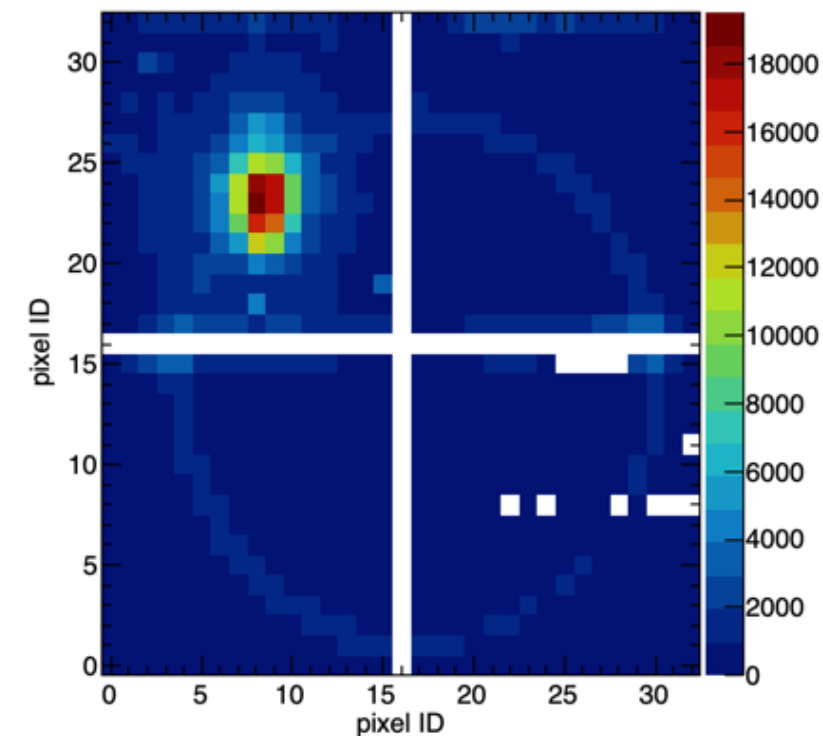
PositionScan & $2000.0 < \text{tdc} < 2050.0$



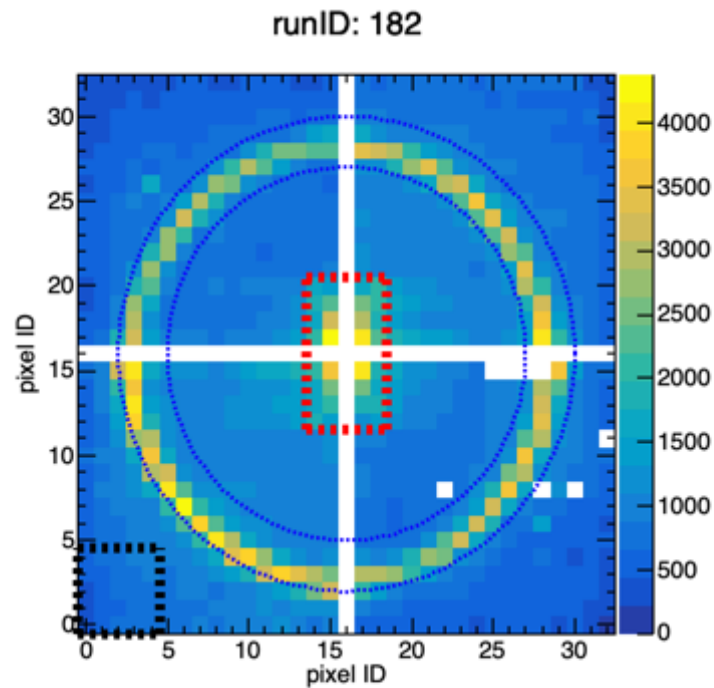
Run24 & $\text{tdc} < 2000.0$



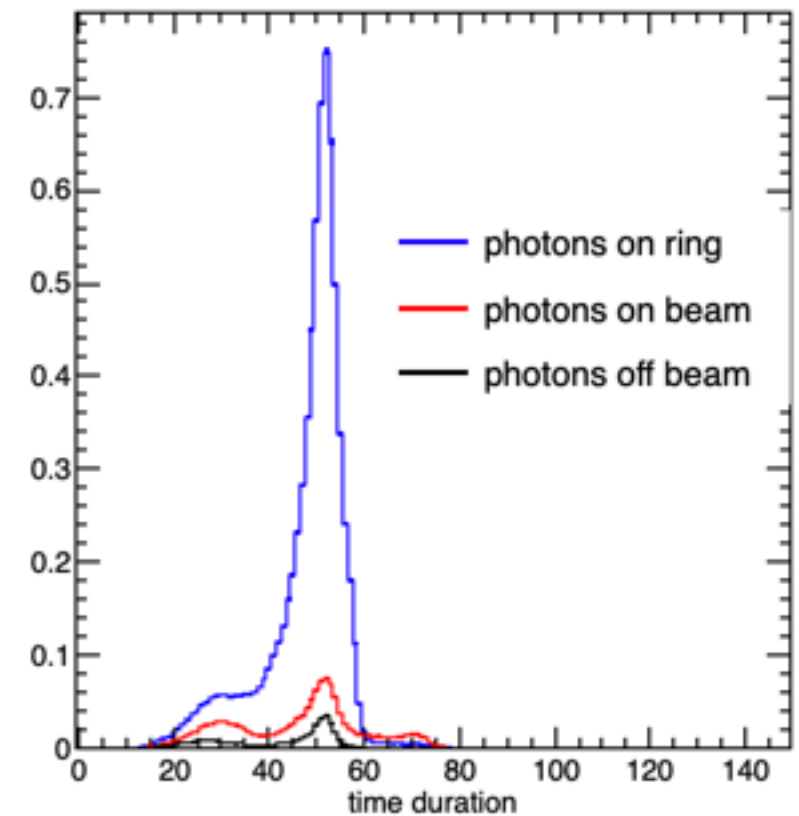
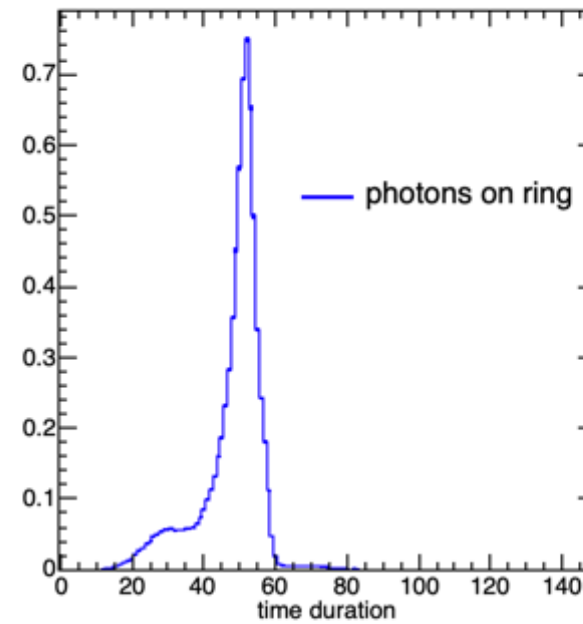
$\text{tdc} > 2050.0$



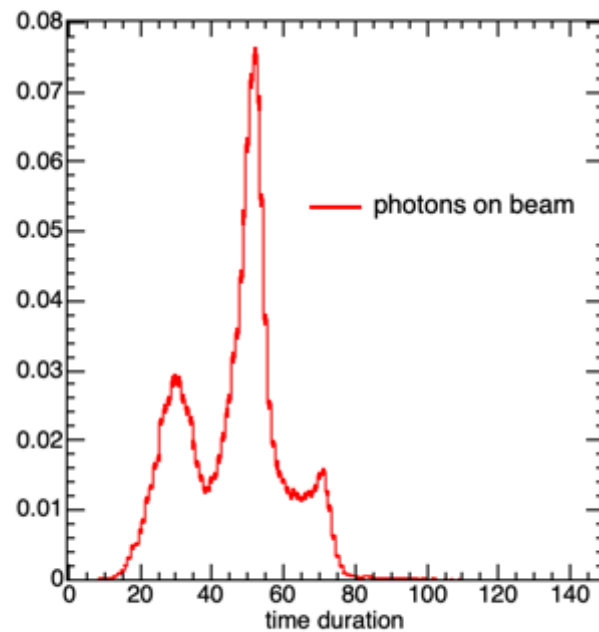
Time Duration for PMTs



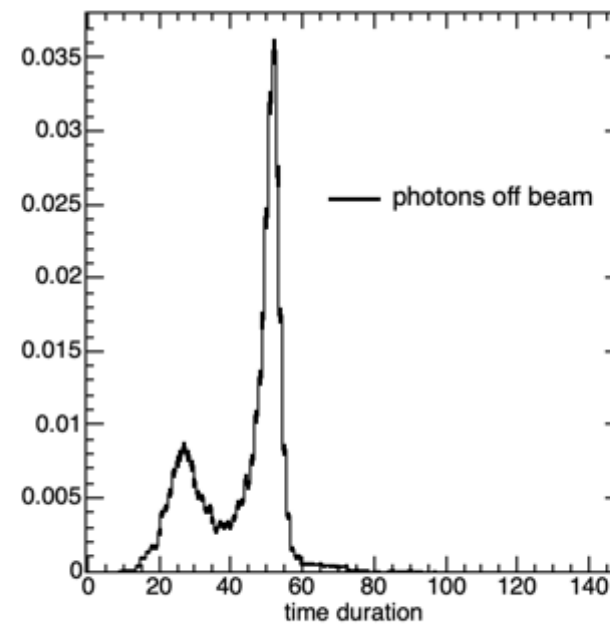
Time Duration On Ring



Time Duration On Beam

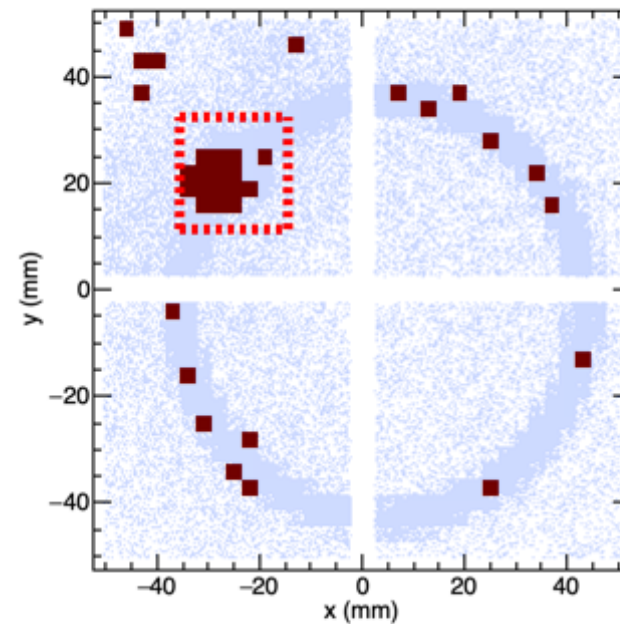
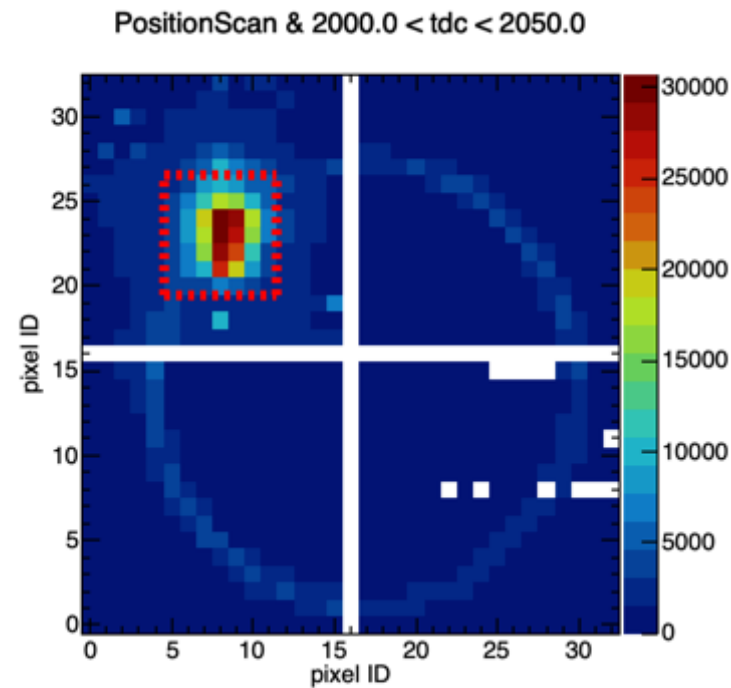


Time Duration Off Beam

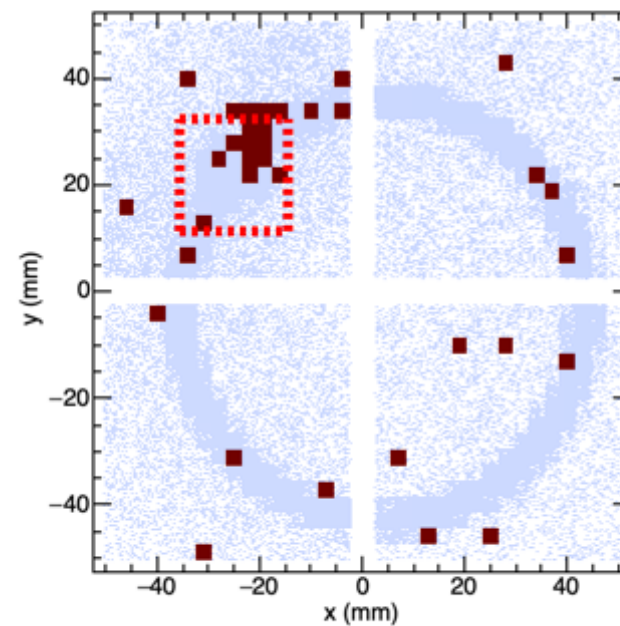
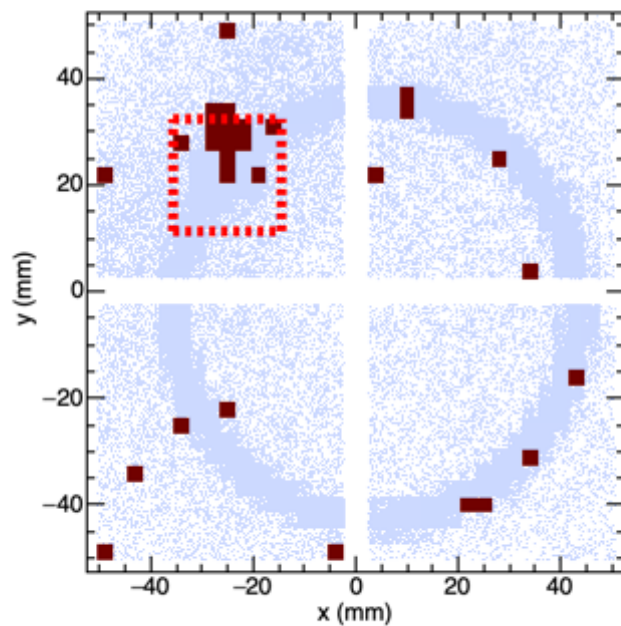


- time duration signal shows different patterns
- but hard to select on event level

Event by Event Ring Image



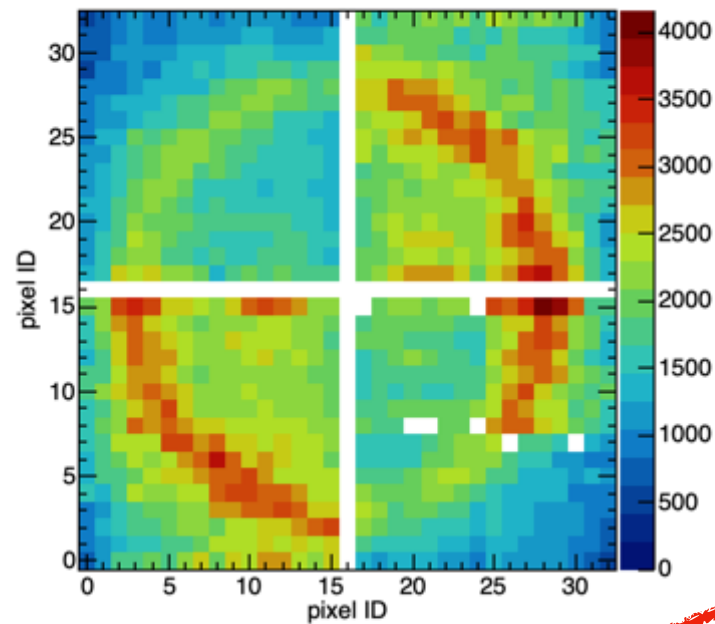
- beam spot can be identified with a group of fired pixels
- GEMC simulation matches data very well



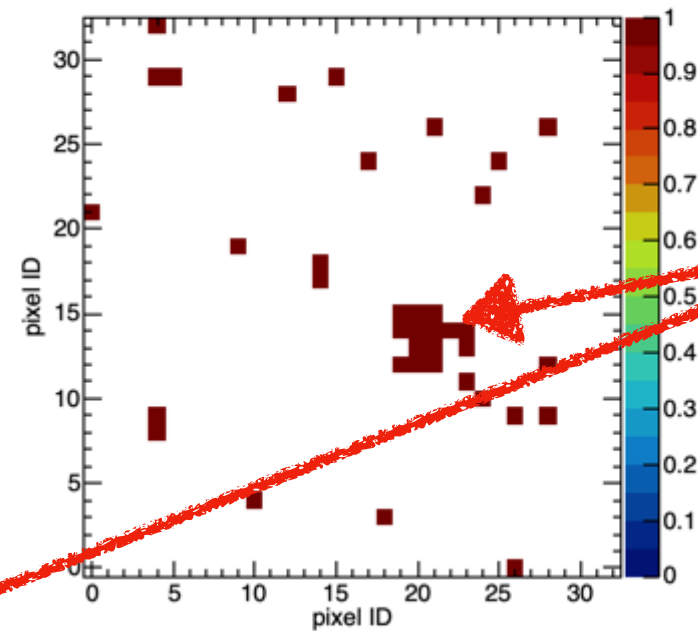
Ring Image for Meson Run



MesonRun & $490.0 < \text{tdc} < 590.0$

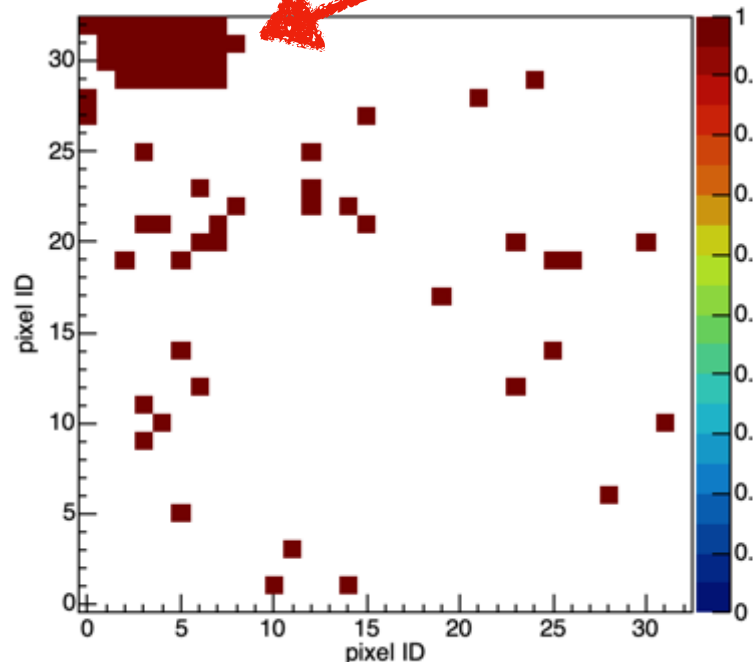


Single Event

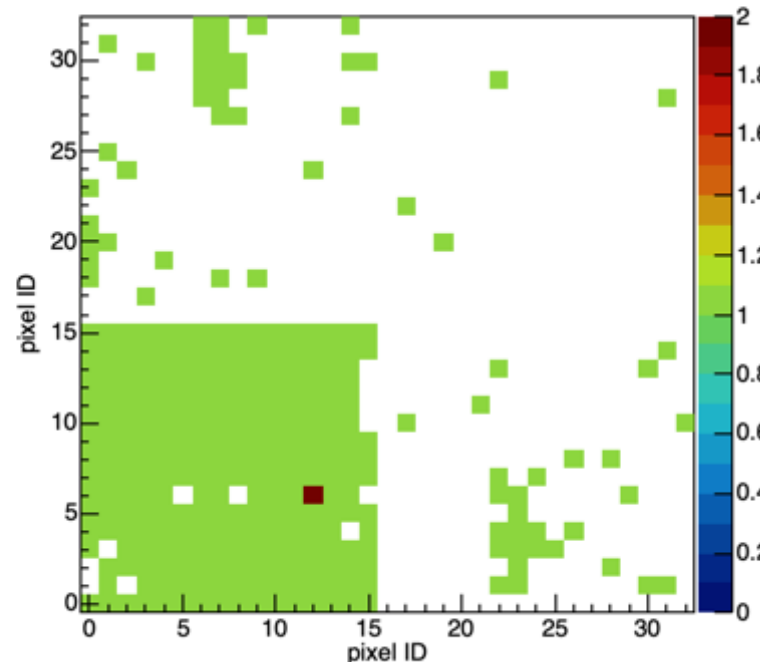


seems like beam?

Single Event



Single Event

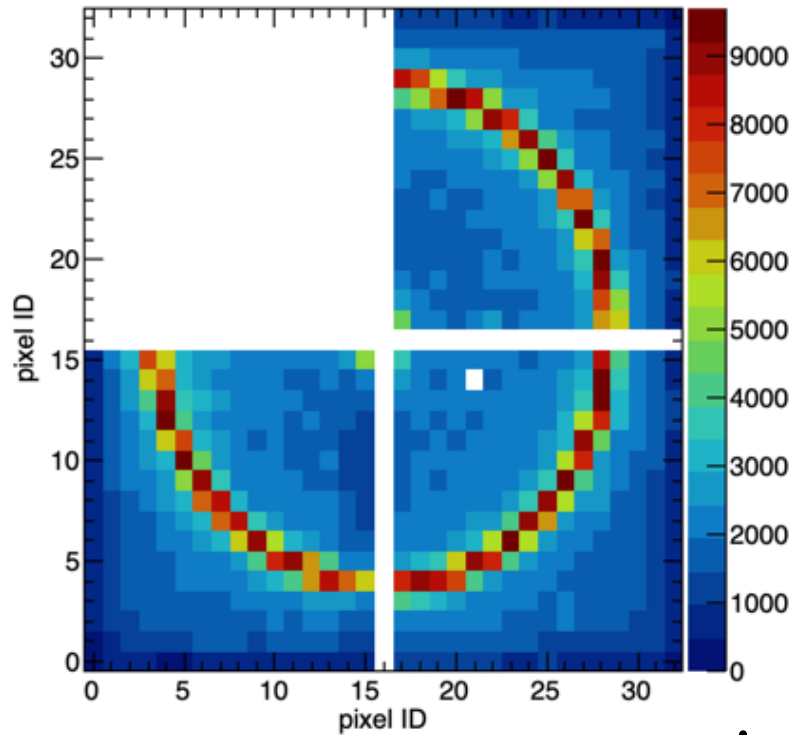


- hard to tell where beam hits

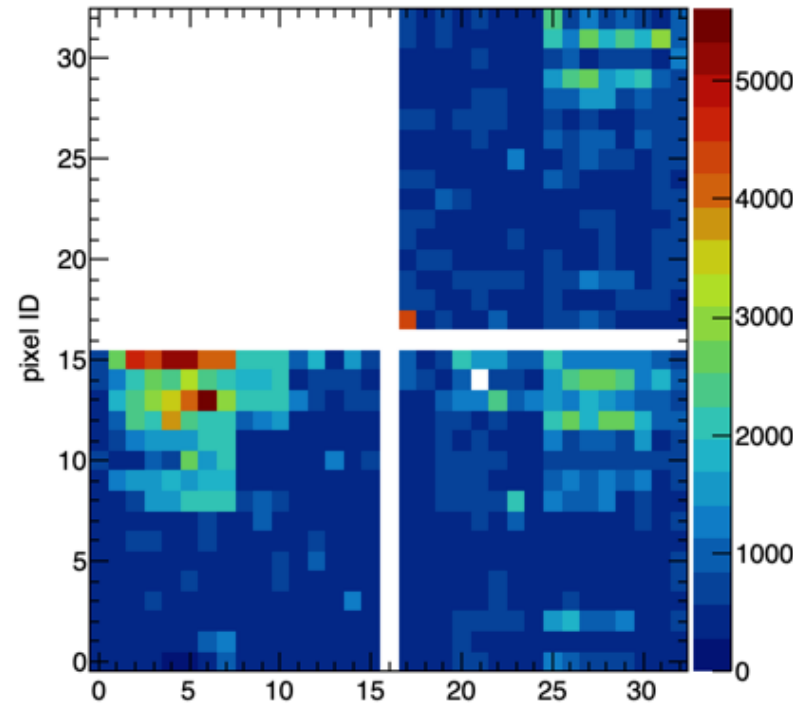
Signals with Different TDC Cuts



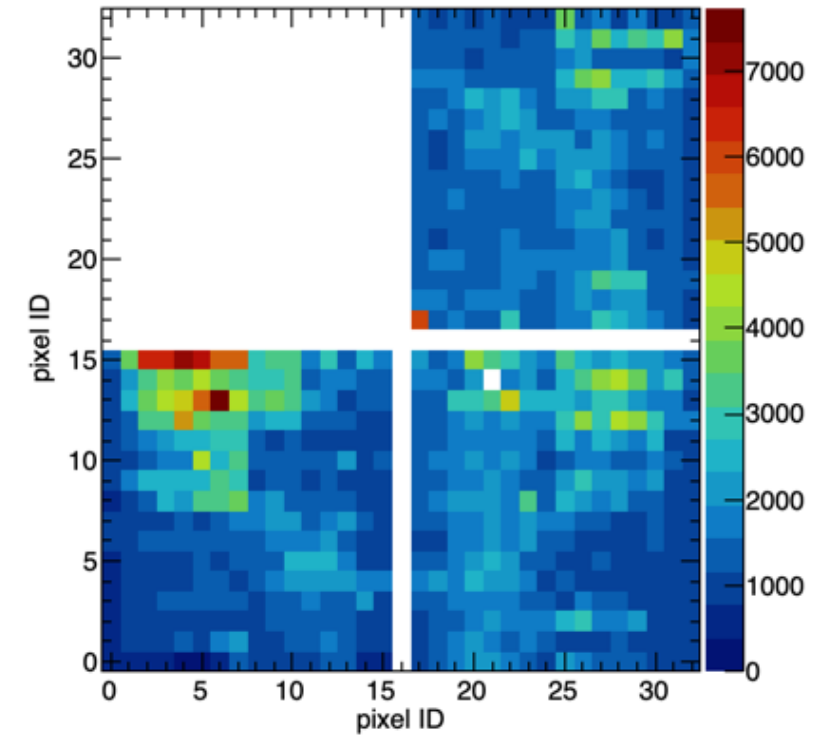
Calibration & $490.0 < \text{tdc} < 590.0$



Run649 & $\text{tdc} < 490.0$

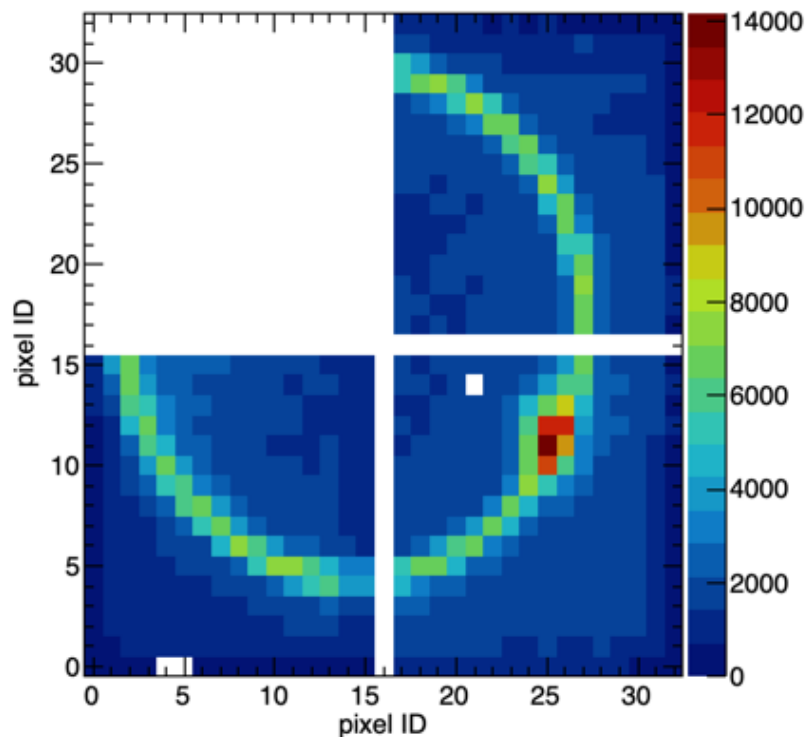


$\text{tdc} > 590.0$

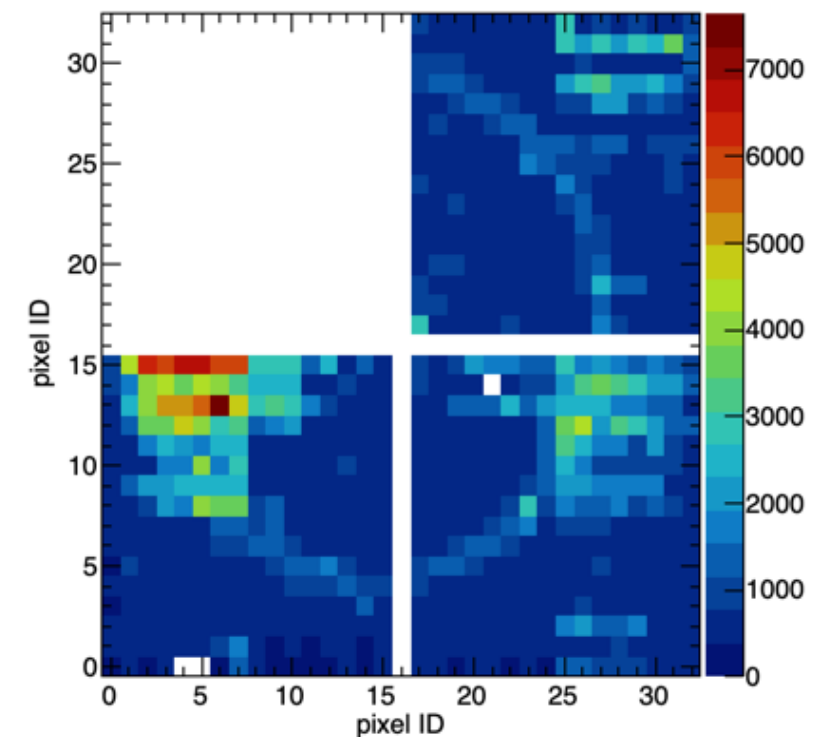
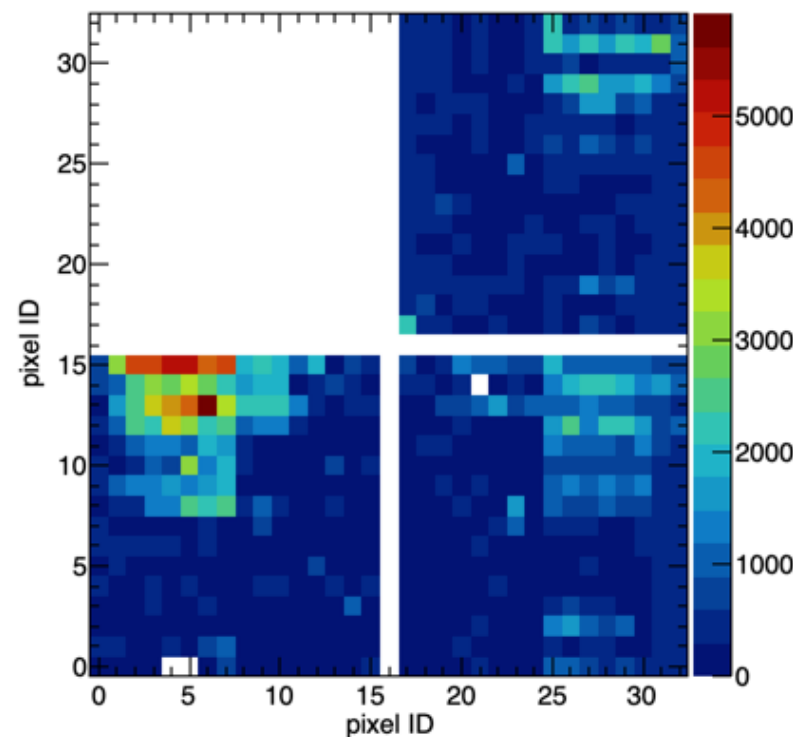


- significant amount of photons after tdc cuts
- some hot spots?

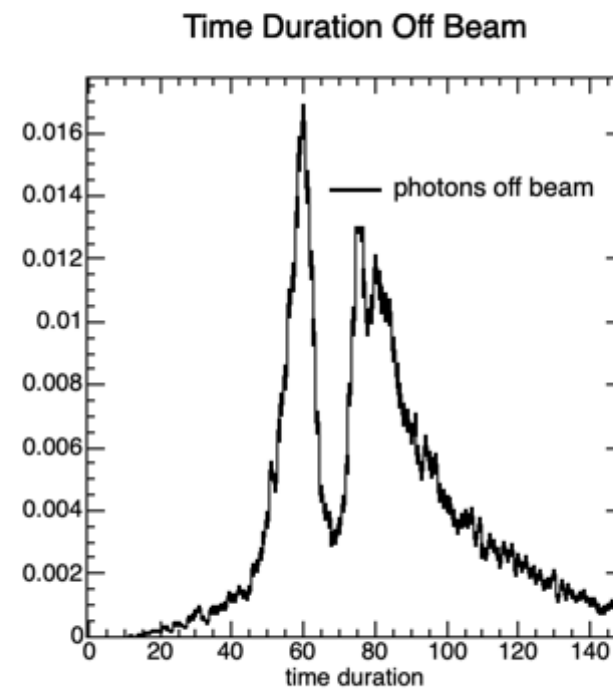
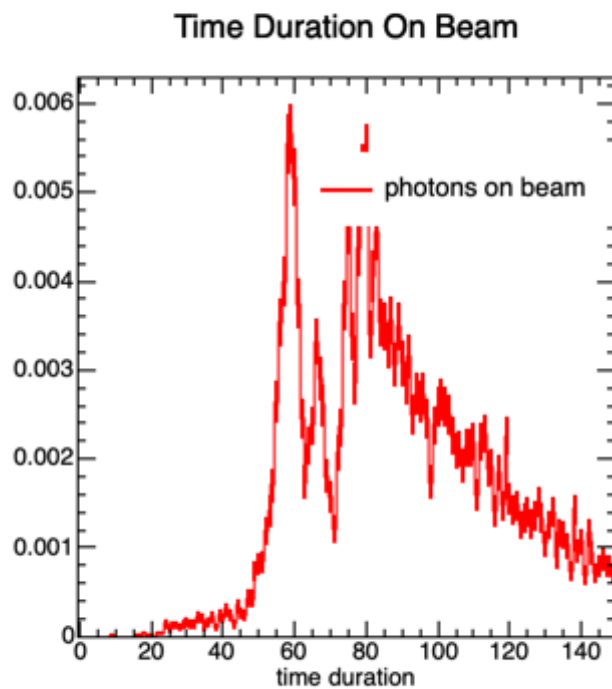
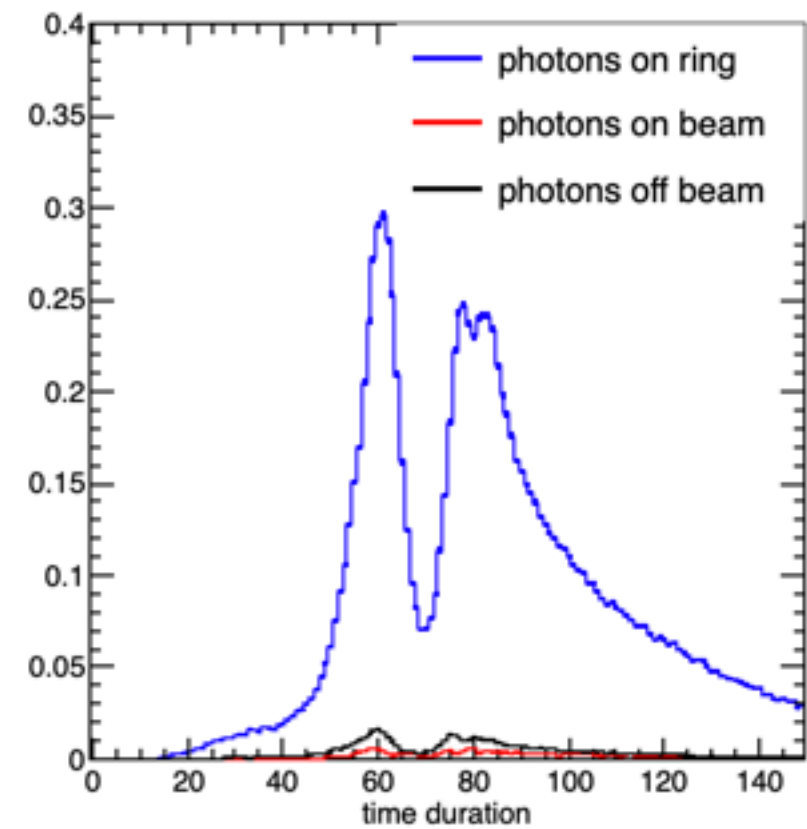
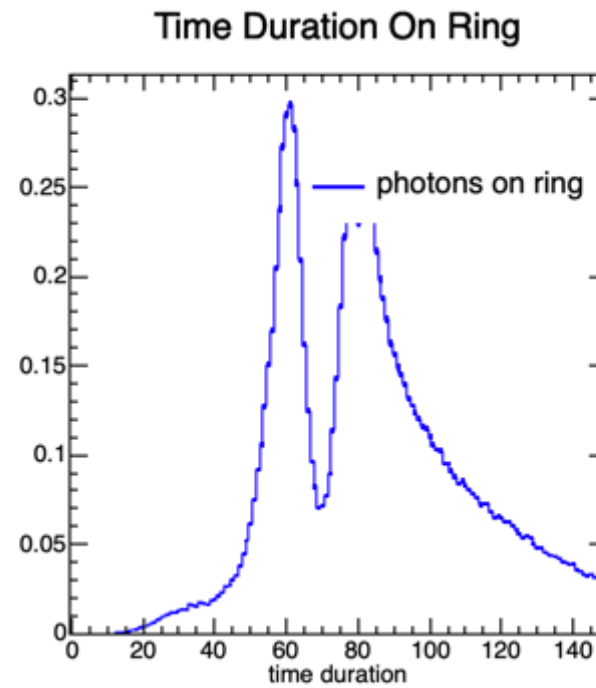
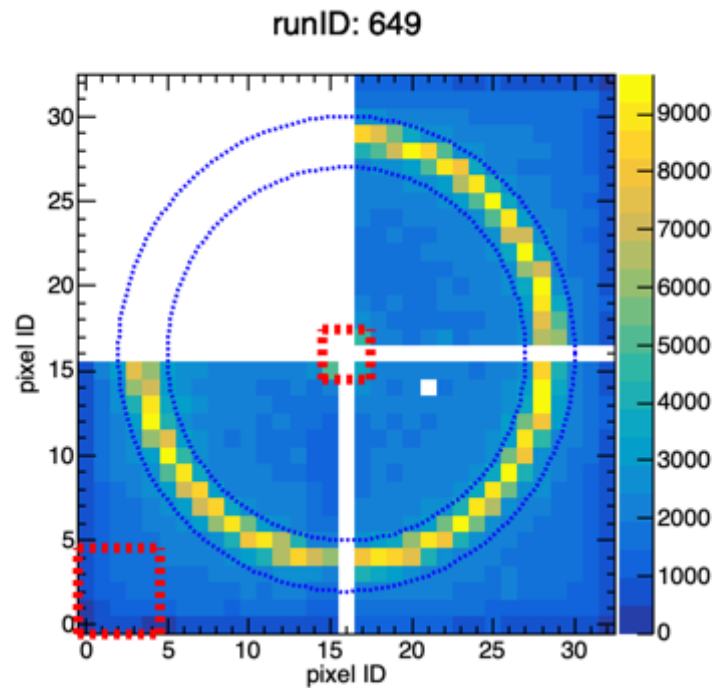
PositionScan & $490.0 < \text{tdc} < 590.0$



$\text{tdc} > 590.0$

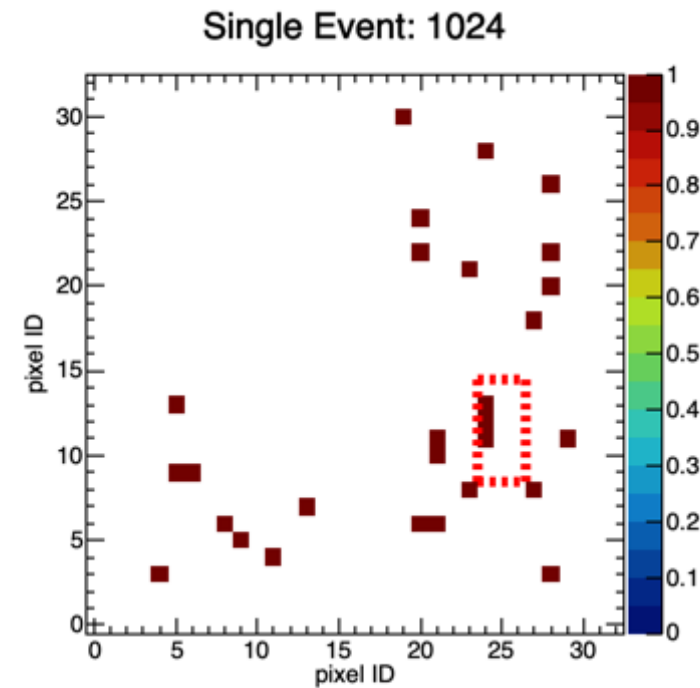
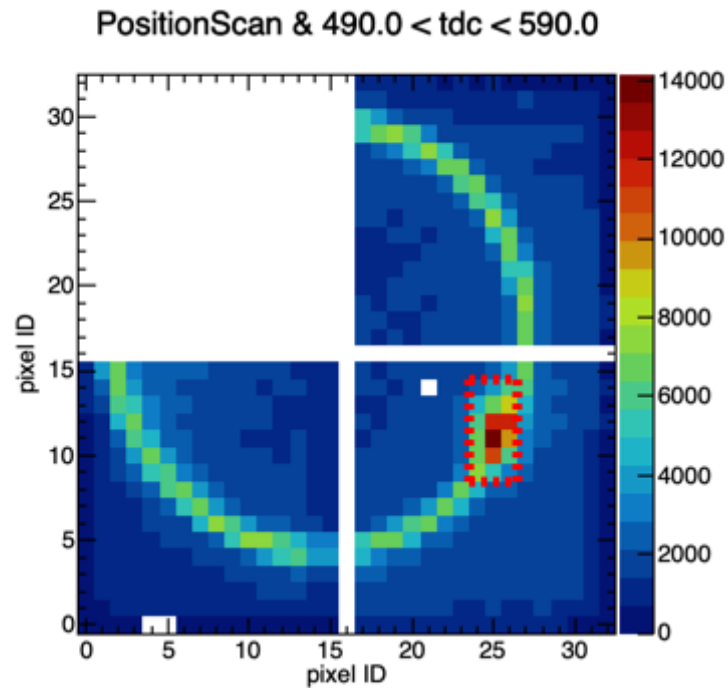


Time Duration for SiPMs

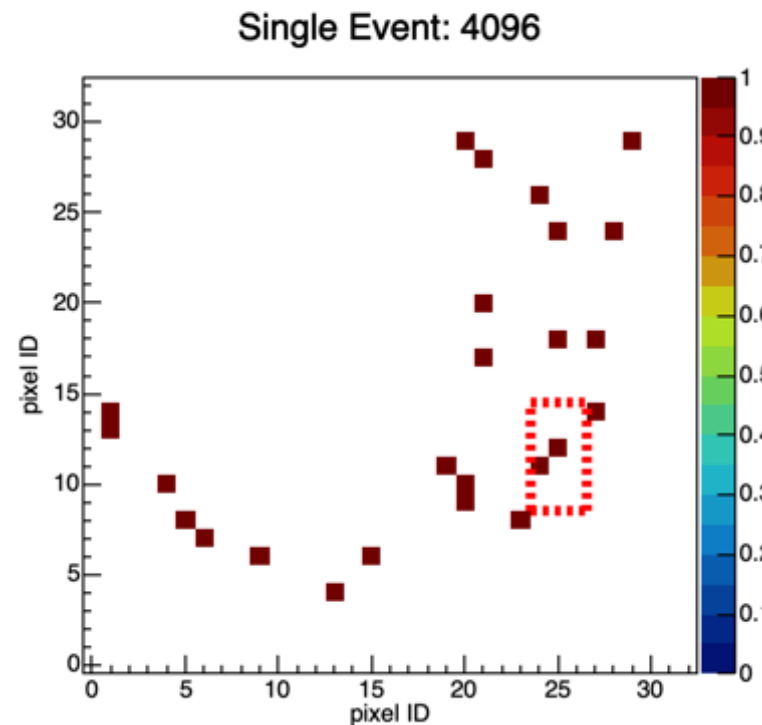
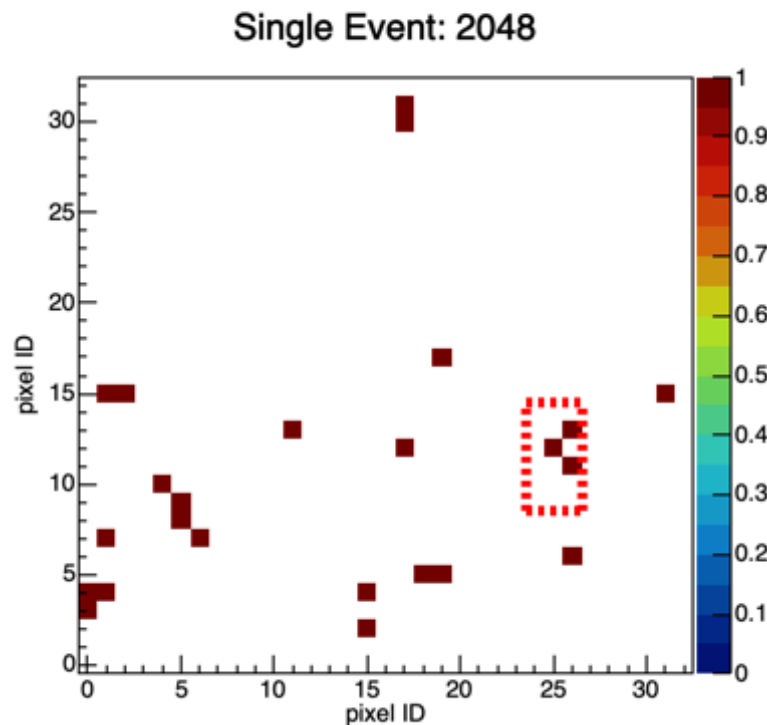


- time duration signal shows different patterns
- but hard to select on event level

Event by Event Ring Image



- beam spot is less significant than PMTs
- not sure how to identify with data



Summary and Outlook



- good understanding of PMTs & proton runs
- need more investigation on meson runs
- tdc cuts need to be tuned?