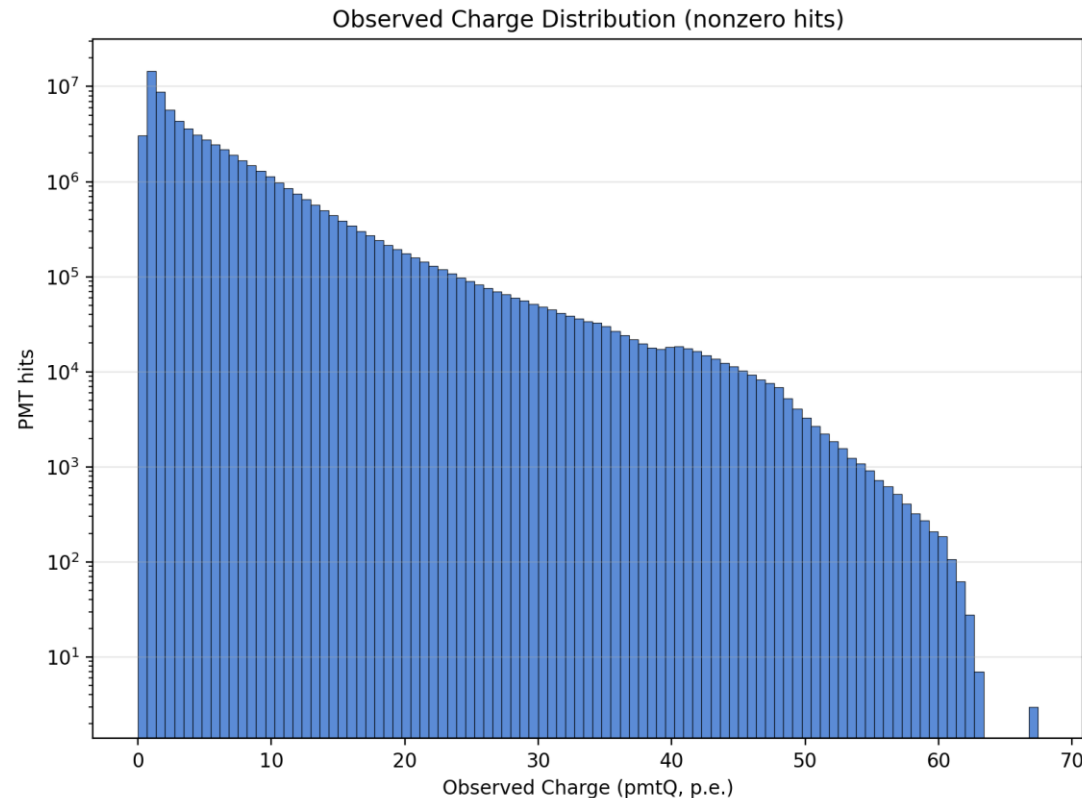


Cosmic calibration with WCTE data

Zhenxiong Xie

Status of the Siren pipeline

- The PMT saturation was set to 30 but it doesn't look like this in the data:



Have reset the PMT saturation to 70

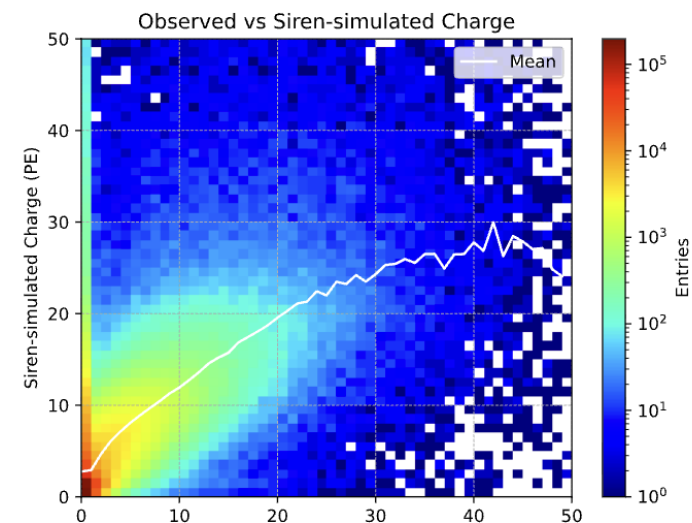
`optics/apps/SOptimizer_cosmics.py`

```
if self.saturation_limit > 0:
    mask = batch['pmtQ'] < self.saturation_limit
    if mask.sum() == 0:
        continue
    event_loss = self.criterion(pmtQ[mask], batch['pmtQ'][mask], dummy)
else:
    event_loss = self.criterion(pmtQ, batch['pmtQ'], dummy)
```

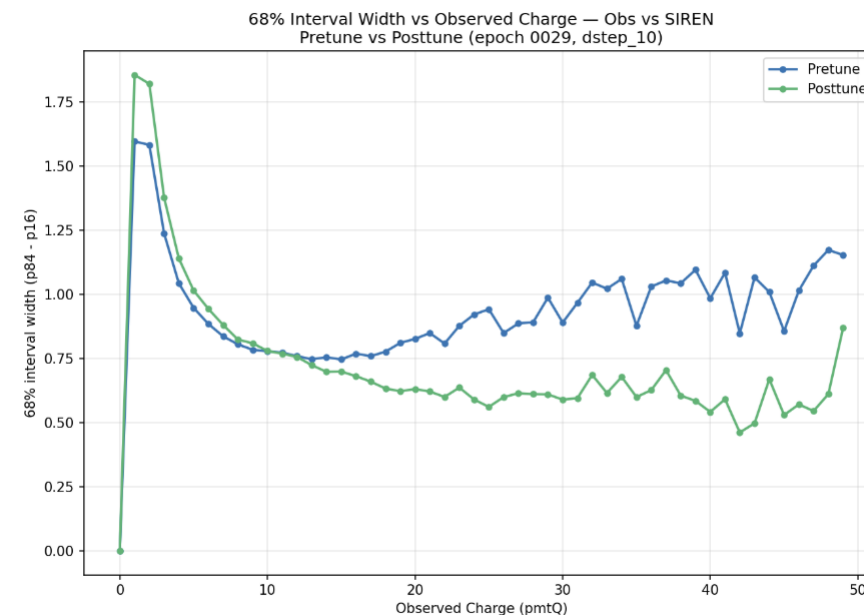
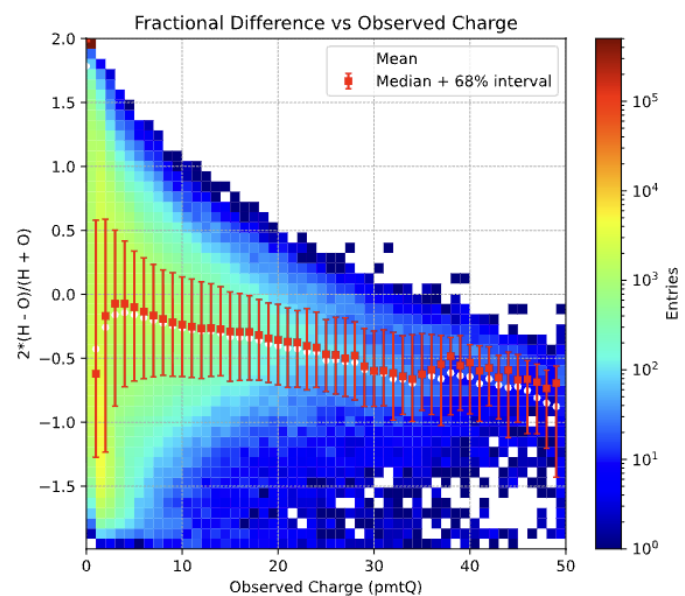
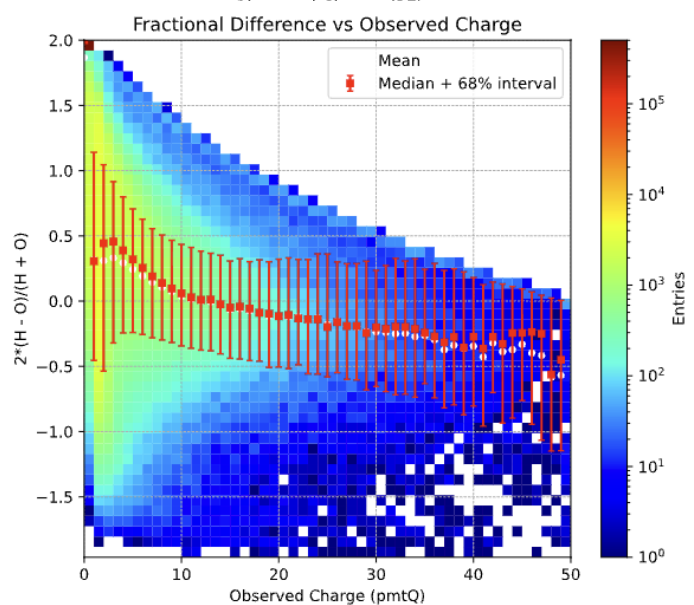
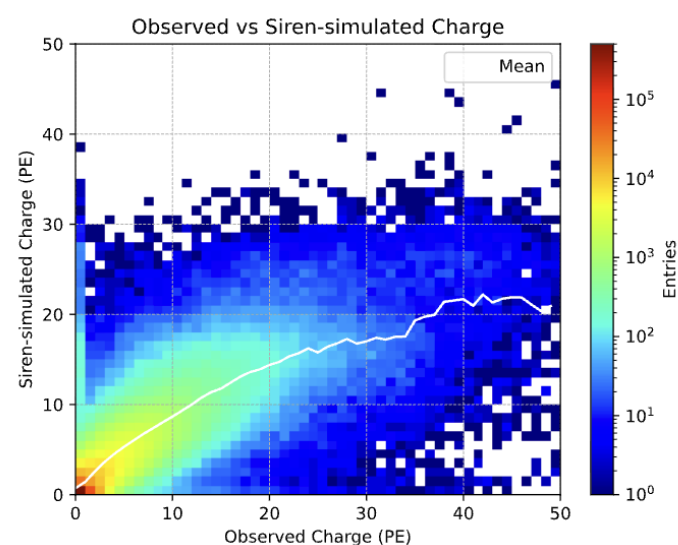
Any PMT whose **true/observed** charge for that event is at or above the threshold is treated as saturated and **excluded entirely** from the Poisson-match loss for that step

Observed Charge vs Siren simulated Charge (WCTE real data)

Pretune



Posttune



Reconstruction results (compare with fiTQun)

