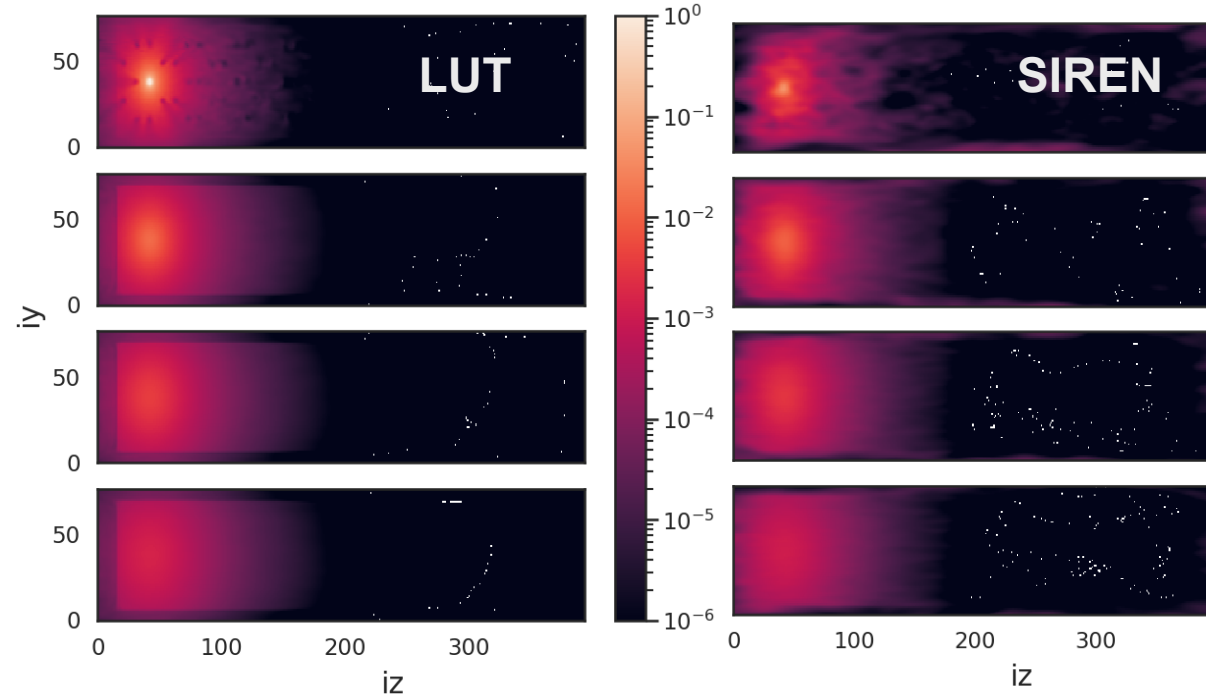
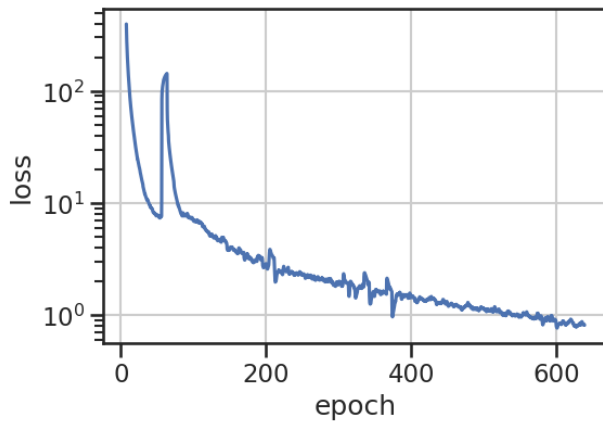


CIDeR-ML Summary

Patrick “Ka Vang” TSANG (SLAC)

Apr 18, 2025

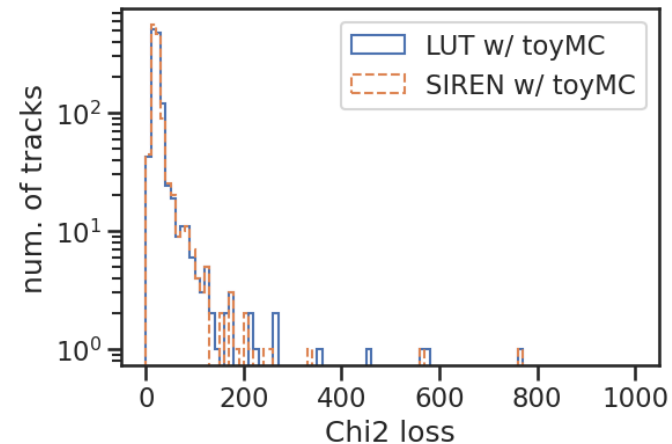
Study with ToyMC



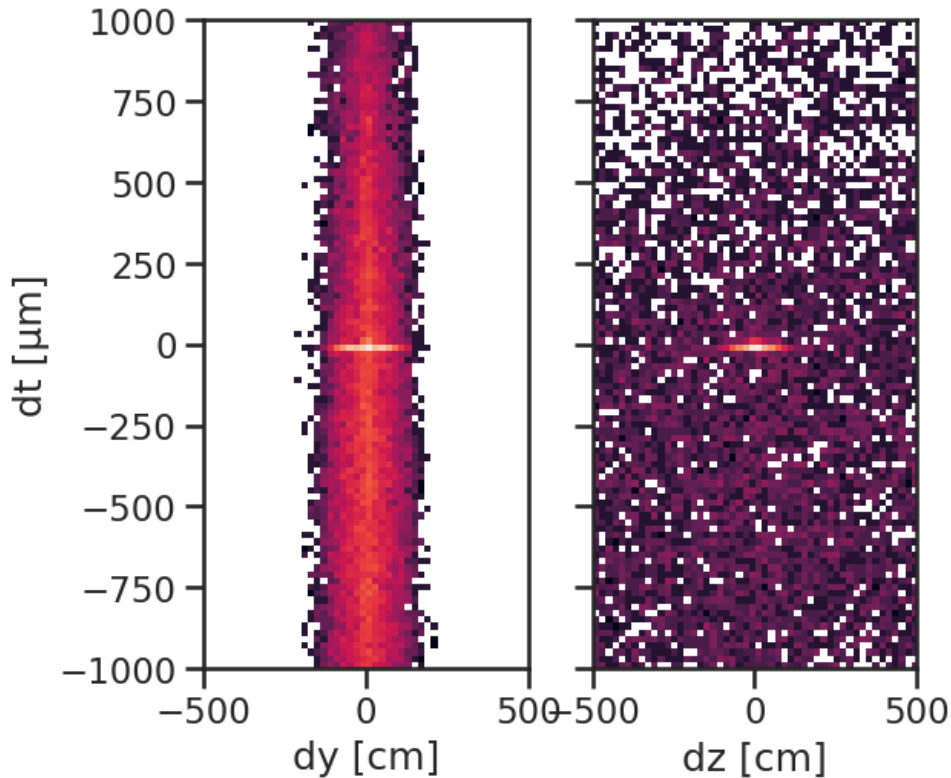
started with ToyMC dataset

- use real data tracks as input
- generate optical flashes with LUT (from simulation)
- build SIREN from track-flash pairs

Optimization method works

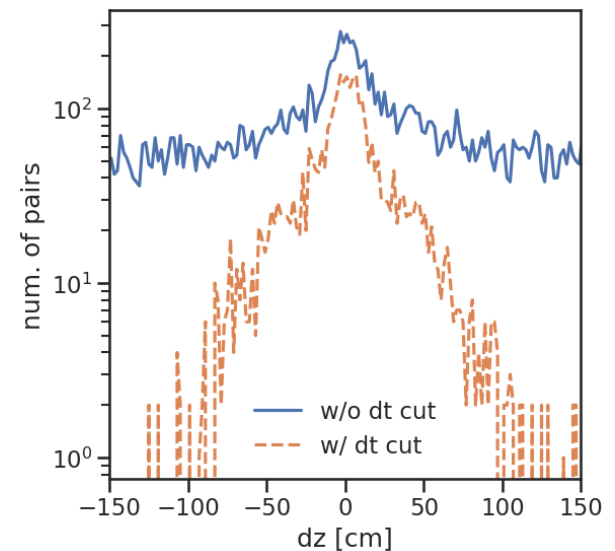
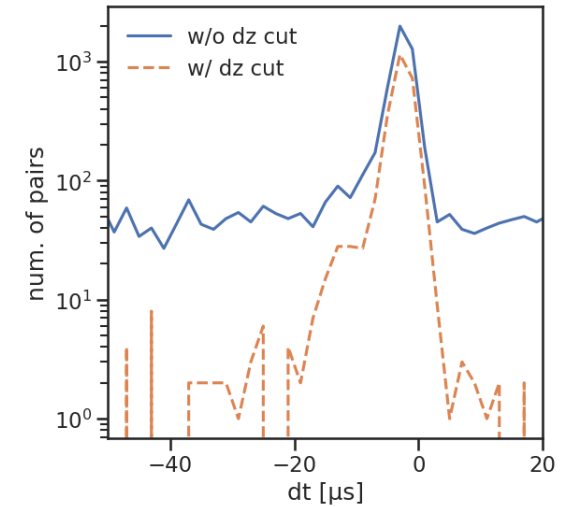


Improved Data Selection

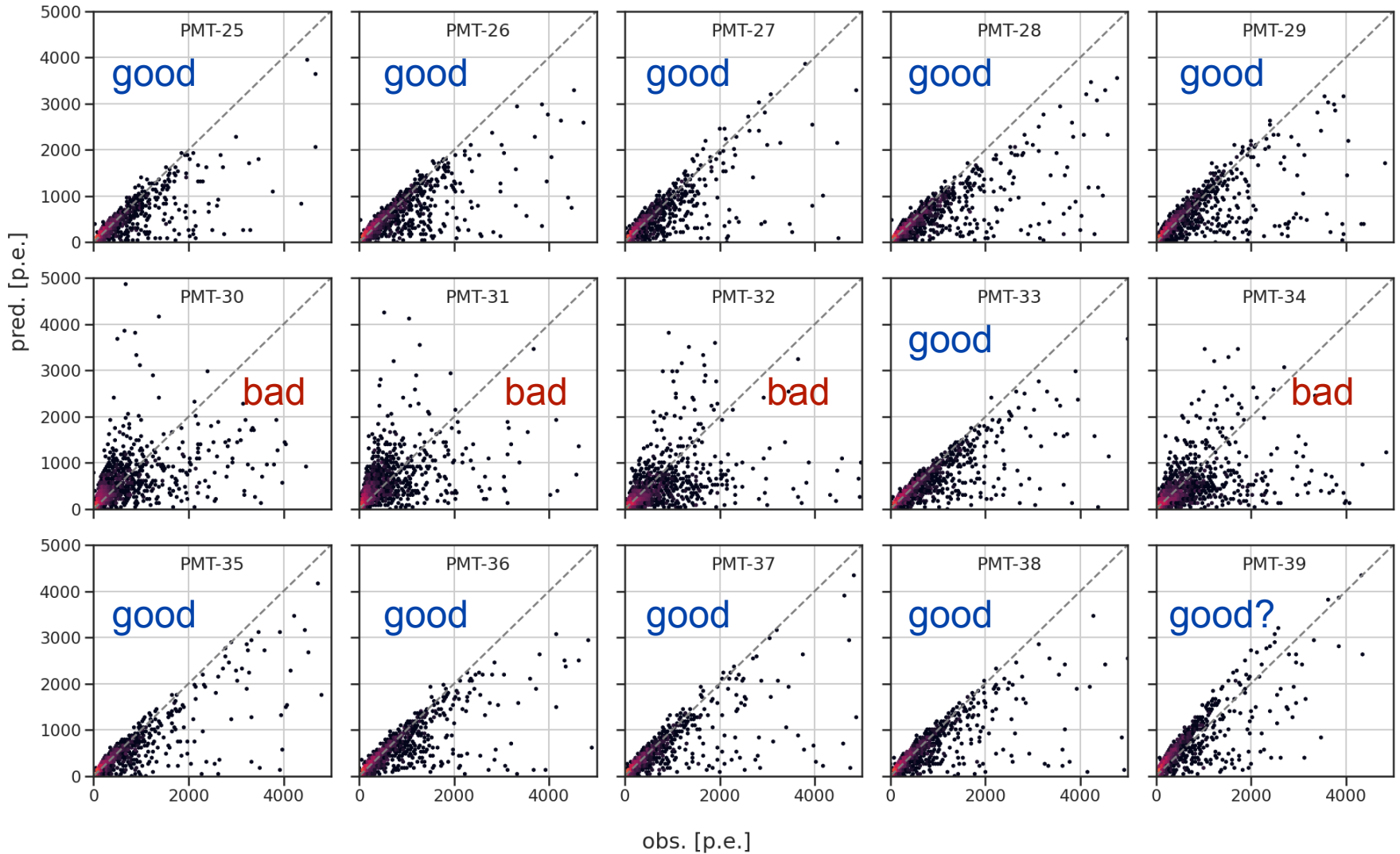


- previously only dt cut (between track and flash)
- include geometric cut, i.e. barycenters of tracks and flashes

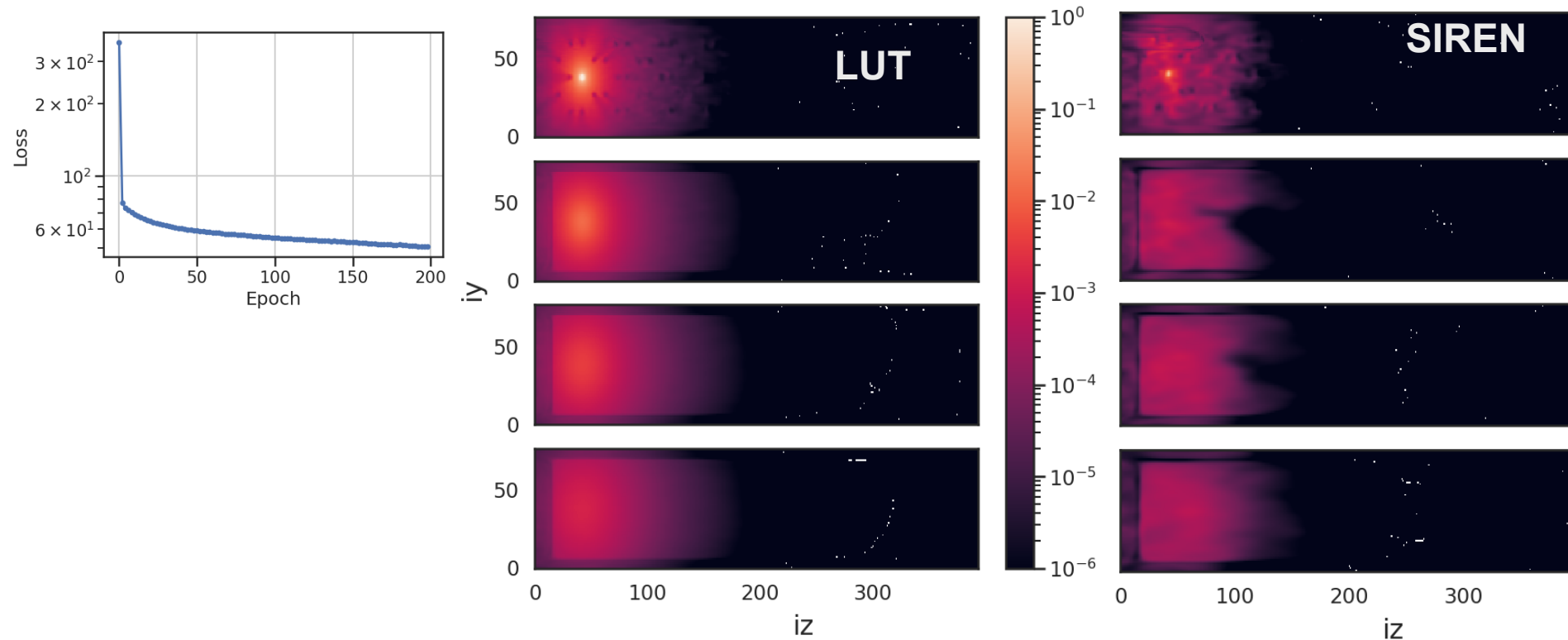
Cleaner samples



PMT Masking

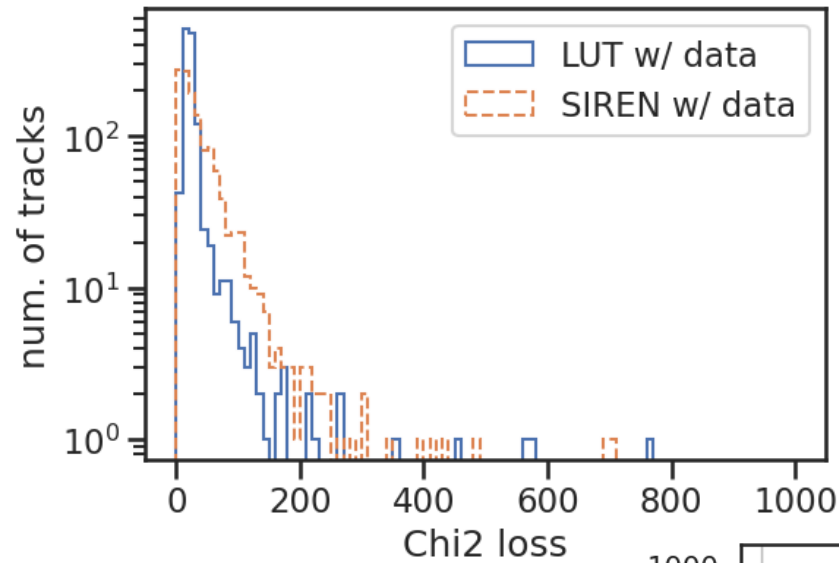


Latest Results



optimized SIREN with read track-flash data
- fine-tune from a pre-trained model (LUT)

Remaining Issues



- mean (peak) of chi2 distribution for SIREN is smaller
- however, bigger spread
- LUT agrees at higher p.e., but systematically bias at low p.e.
- after optimization, SIREN matches better at small p.e., but fails at large p.e.

