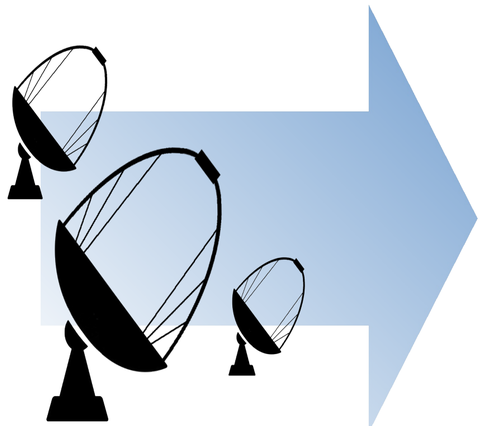
Testing a PSF event-type partitioning for CTA

By predicting events angular reconstruction via machine learning, we test the performance of PSF event-type IRFs

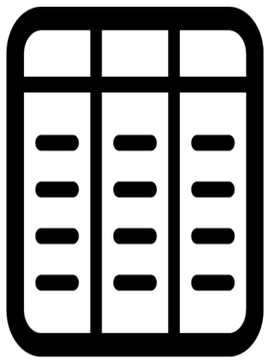
Simulation + Data analysis

Corsika[2] + simtel_array[3]



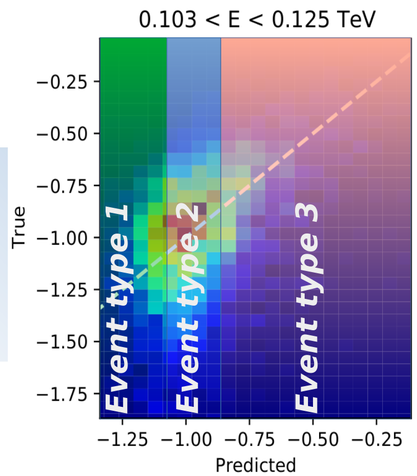
DL2 tables

eventDisplay[4]



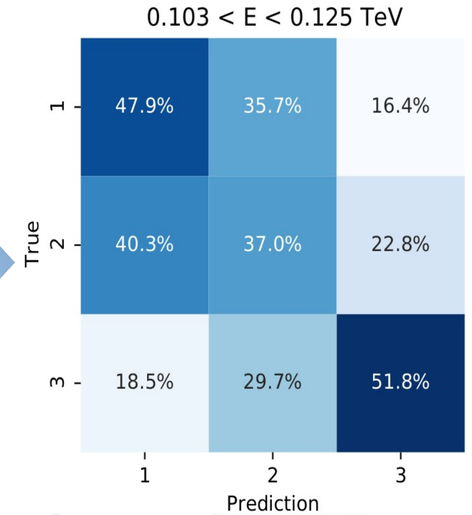
PSF prediction & partitioning

iact_event_types[5]

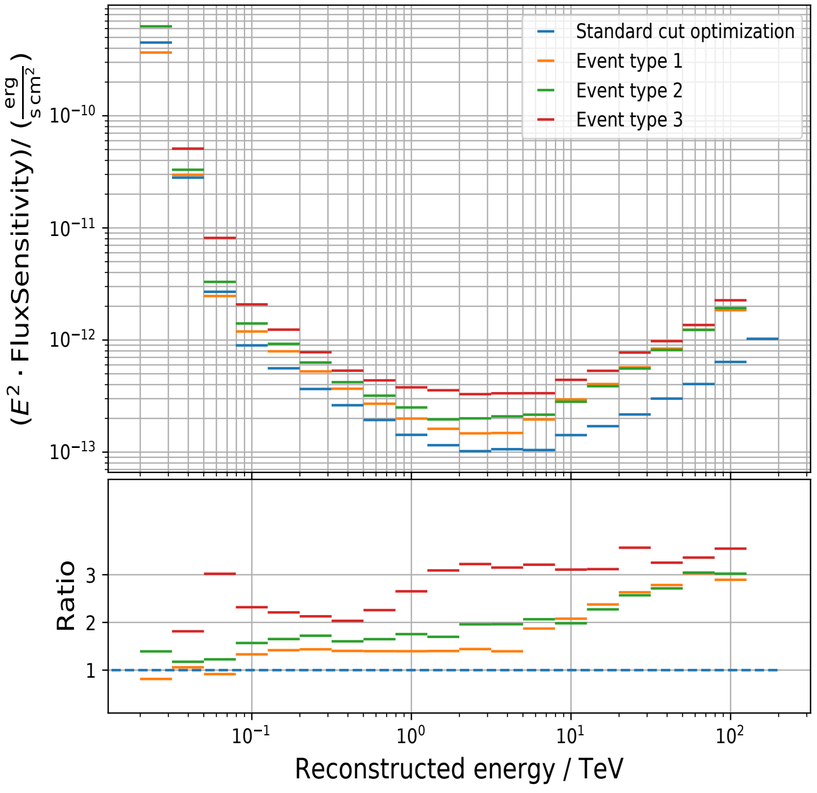


Event type evaluation

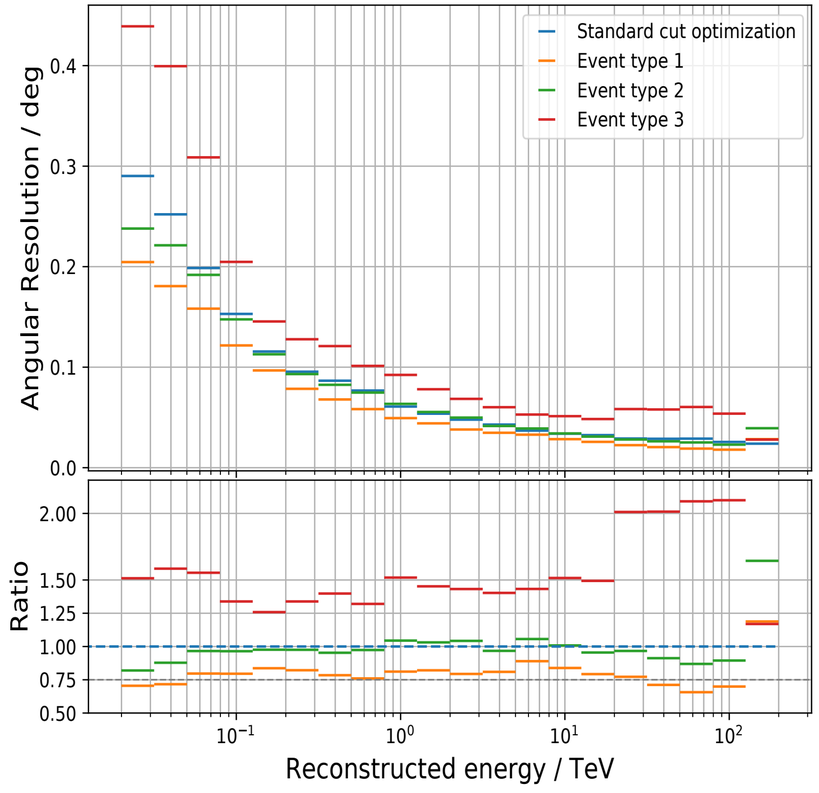
iact_event_types[5]



Minimal Flux Satisfying Requirements for 50 hours



Angular resolution achieved for 50 hours observation



pyirf[6]

Instead of bundling all events together and optimizing their performance, by applying an event-type partitioning via machine-learning predicting angular reconstruction performance, we are able to **significantly improve CTA resolution**