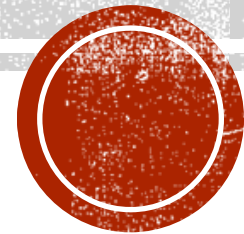


OpticSiren status

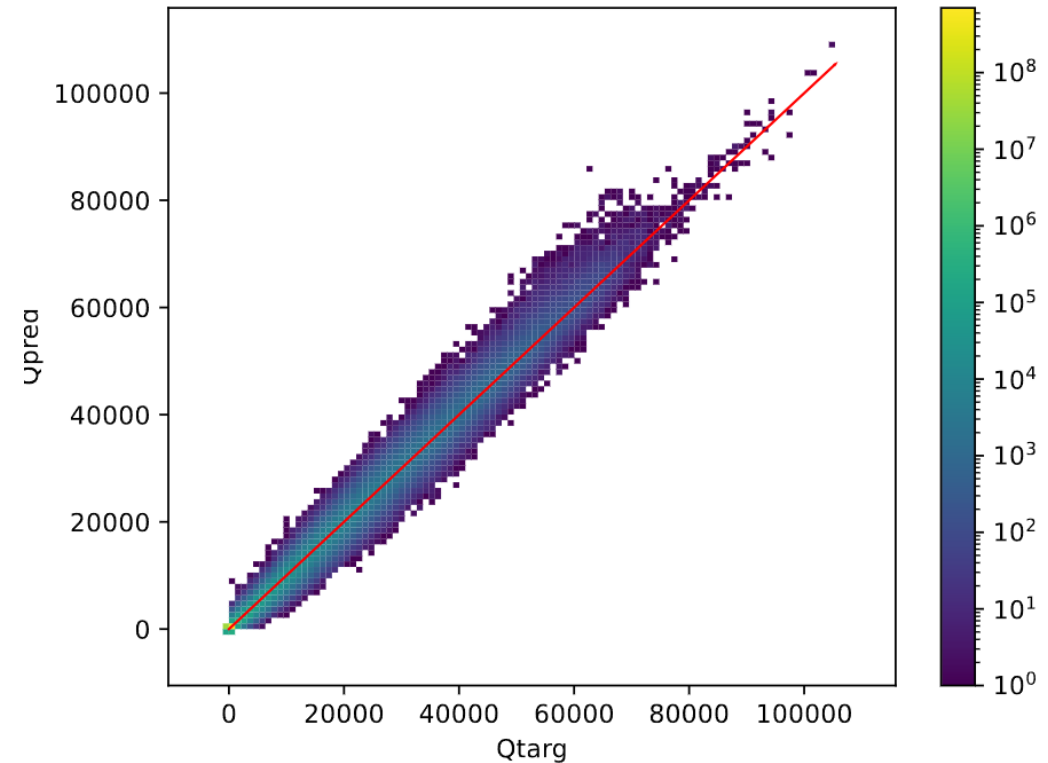
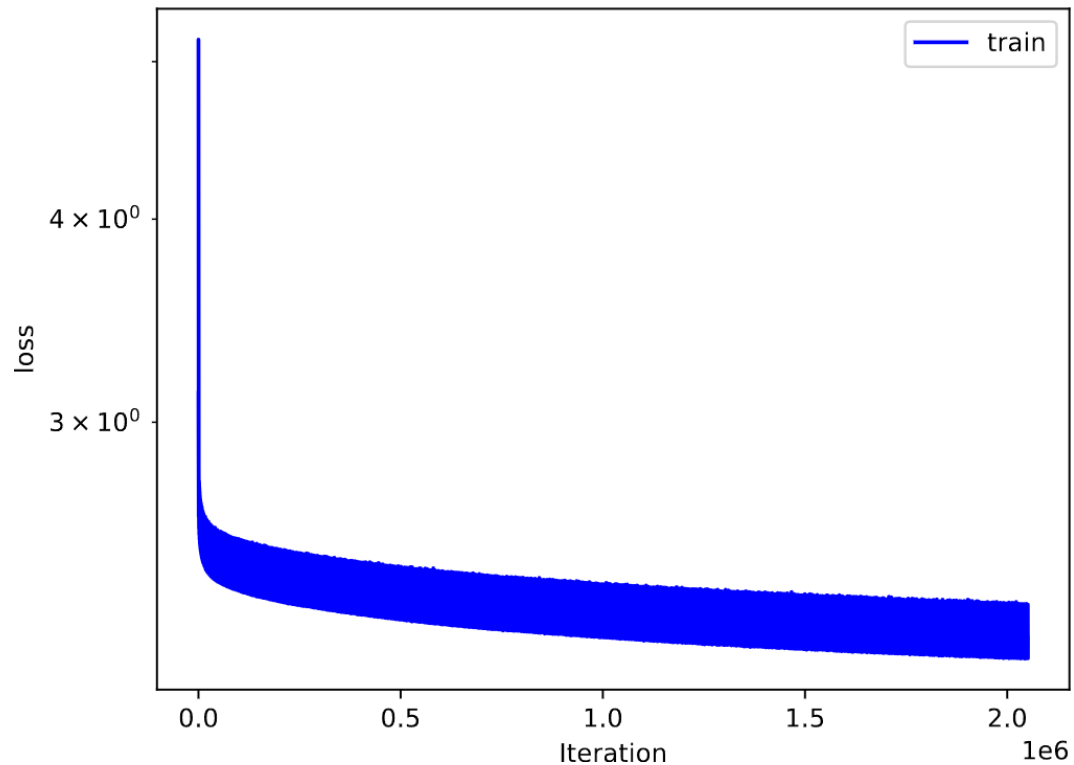
Ka Ming Tsui

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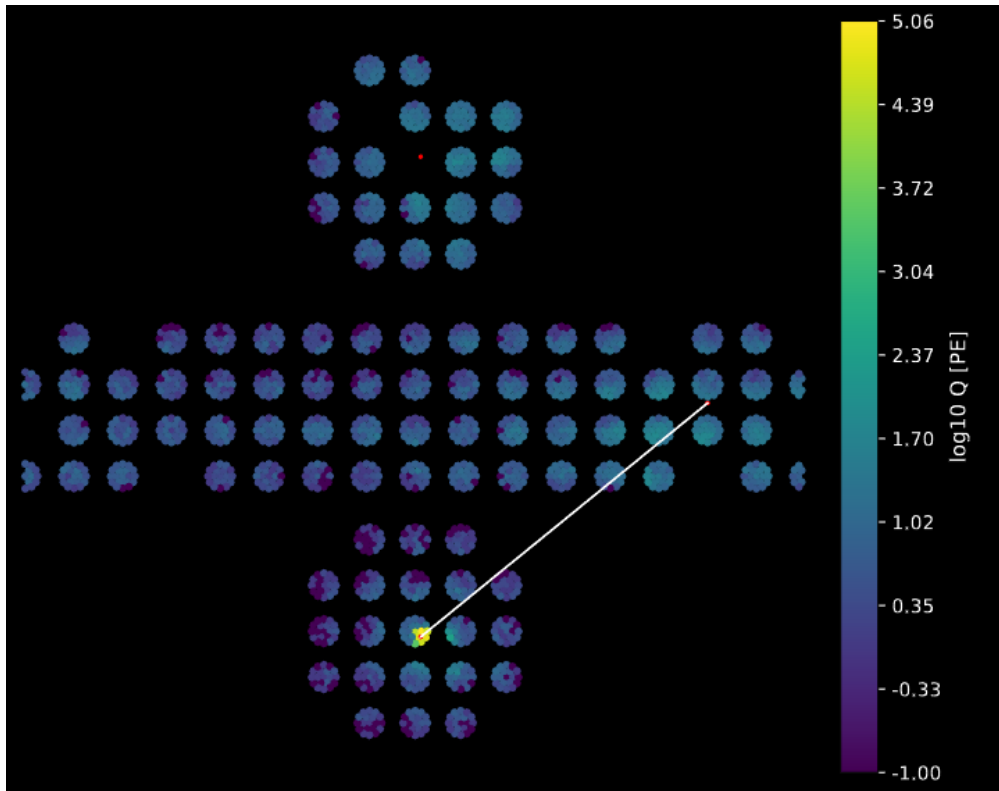
Reminder

- Starting from a trained model with weighed MSE loss, 512 features * 5 layers architecture, change to Poisson likelihood loss and train for 126000 epochs

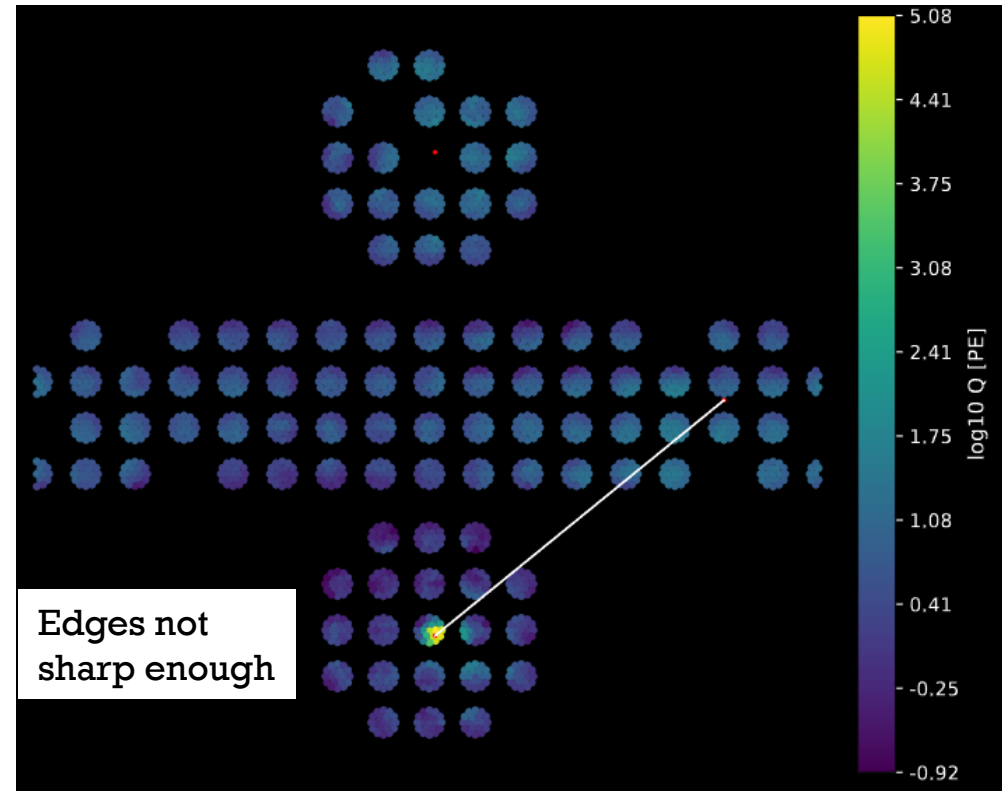


Event display

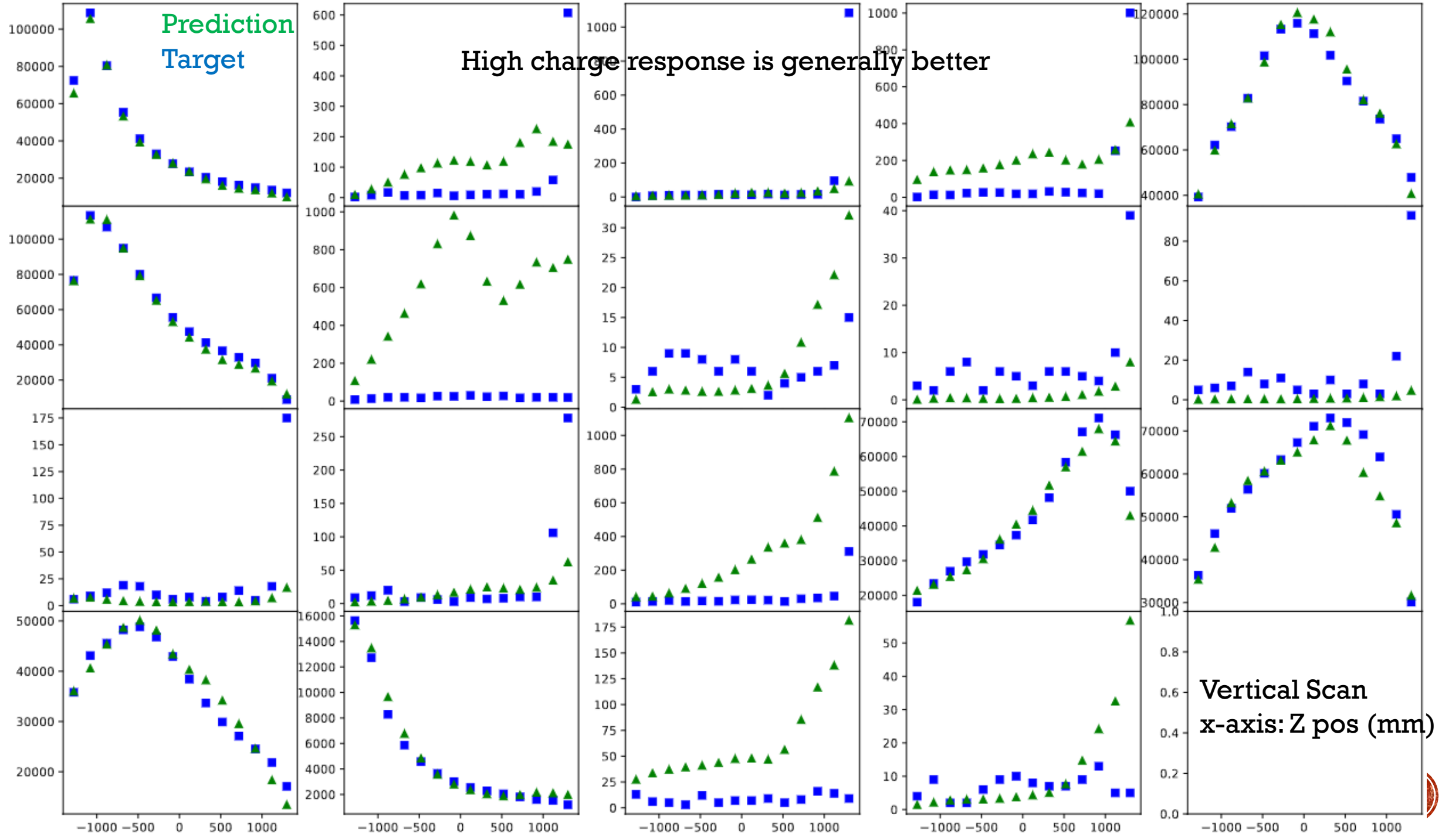
- Photons starting above of bottom central endcap mPMT, shooting downwards

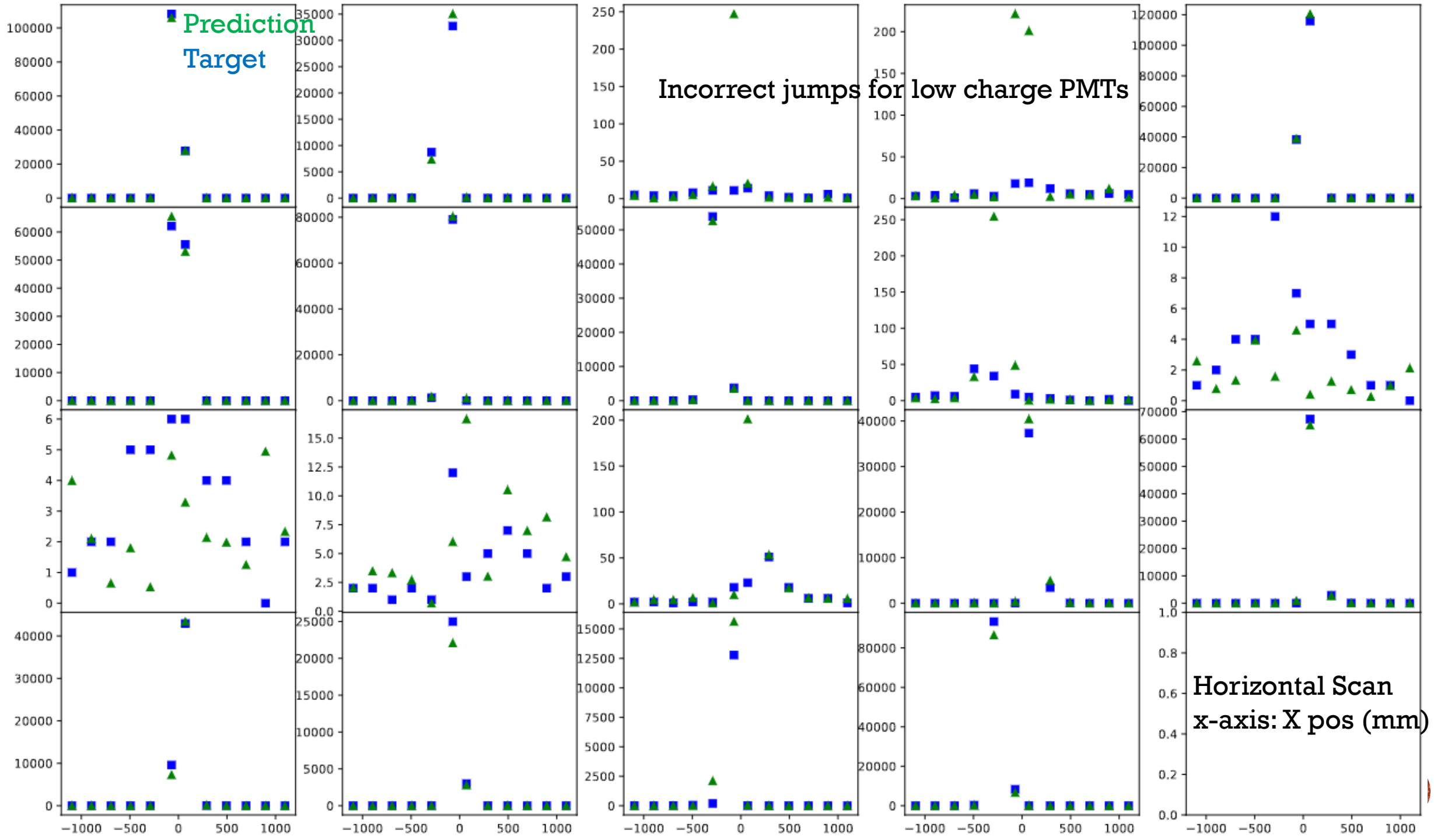


Target



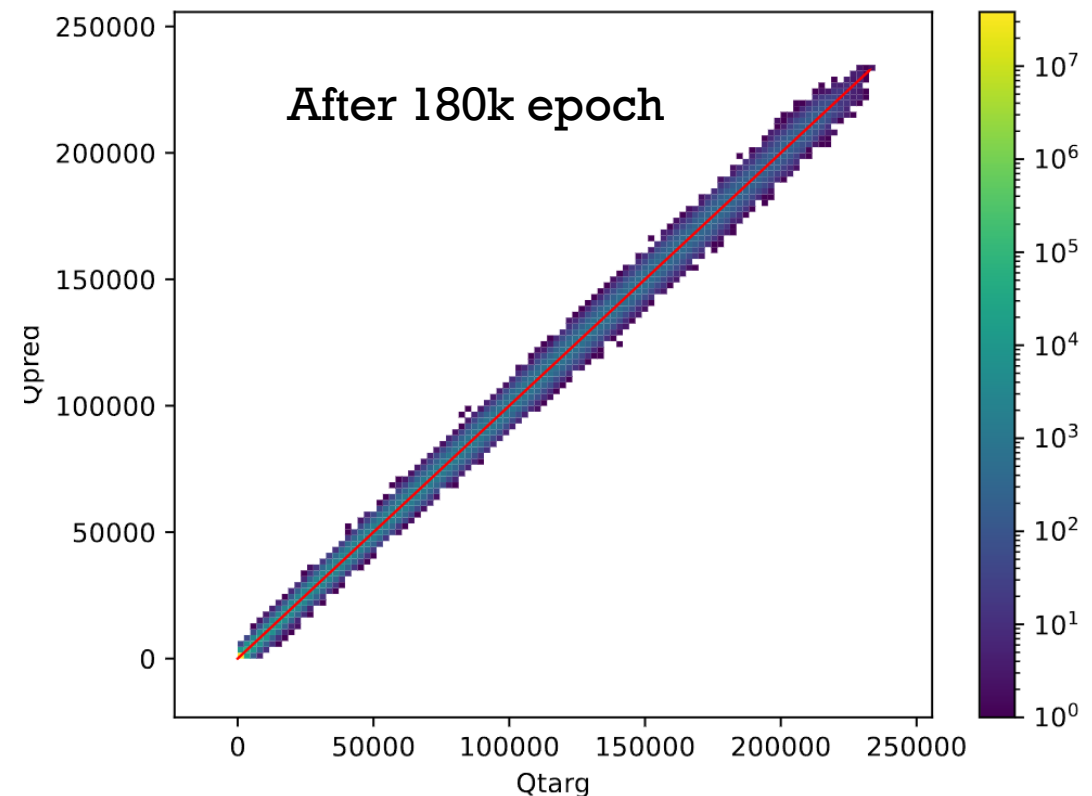
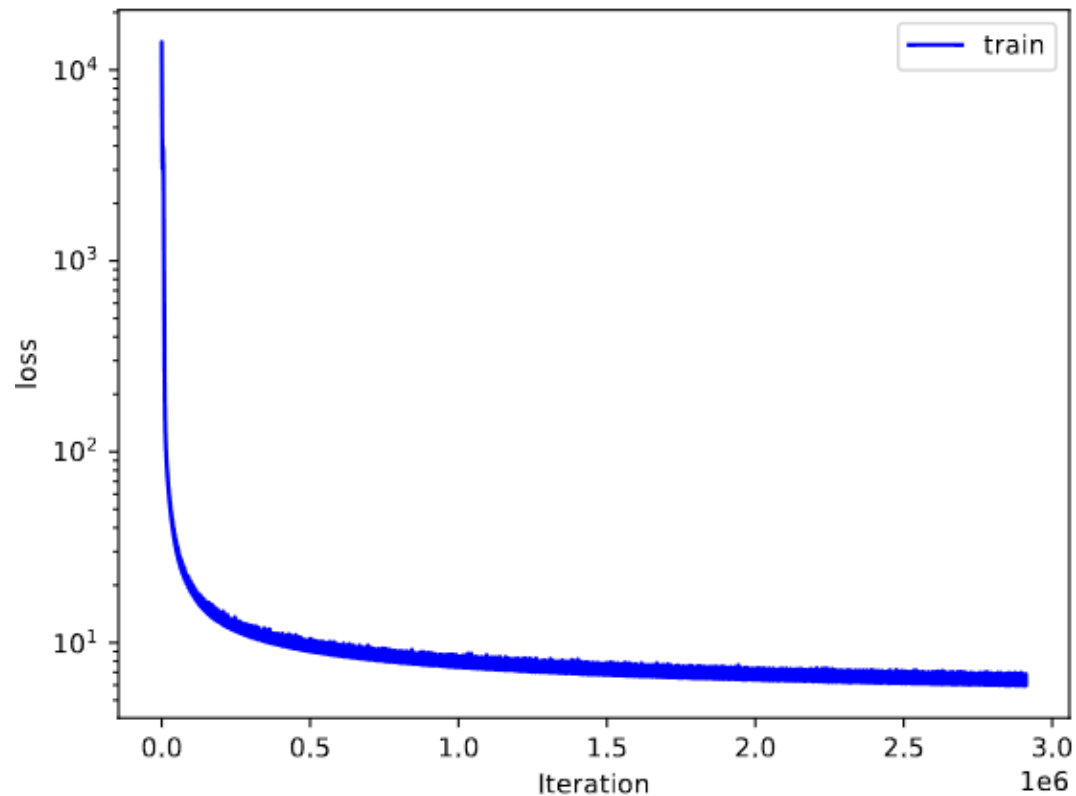
Prediction





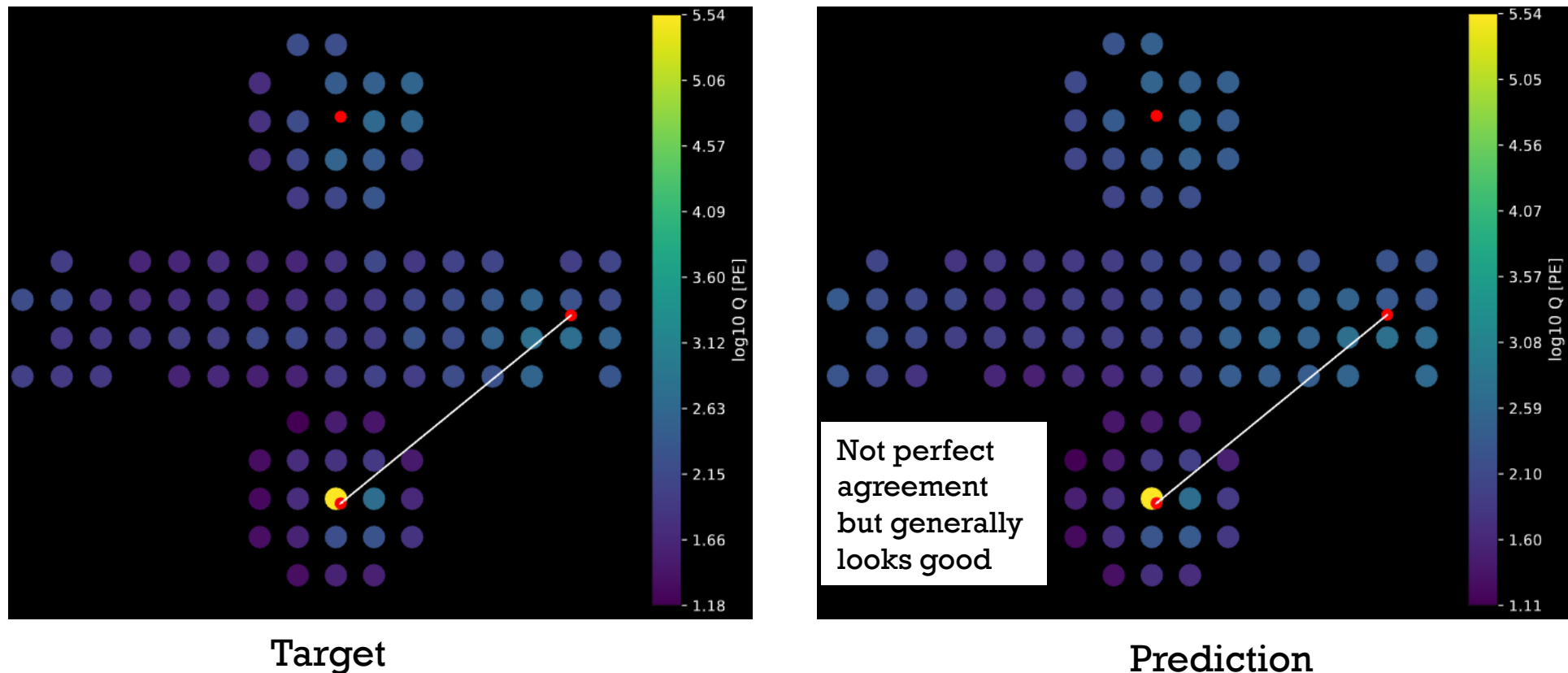
Training with per_mPMT data

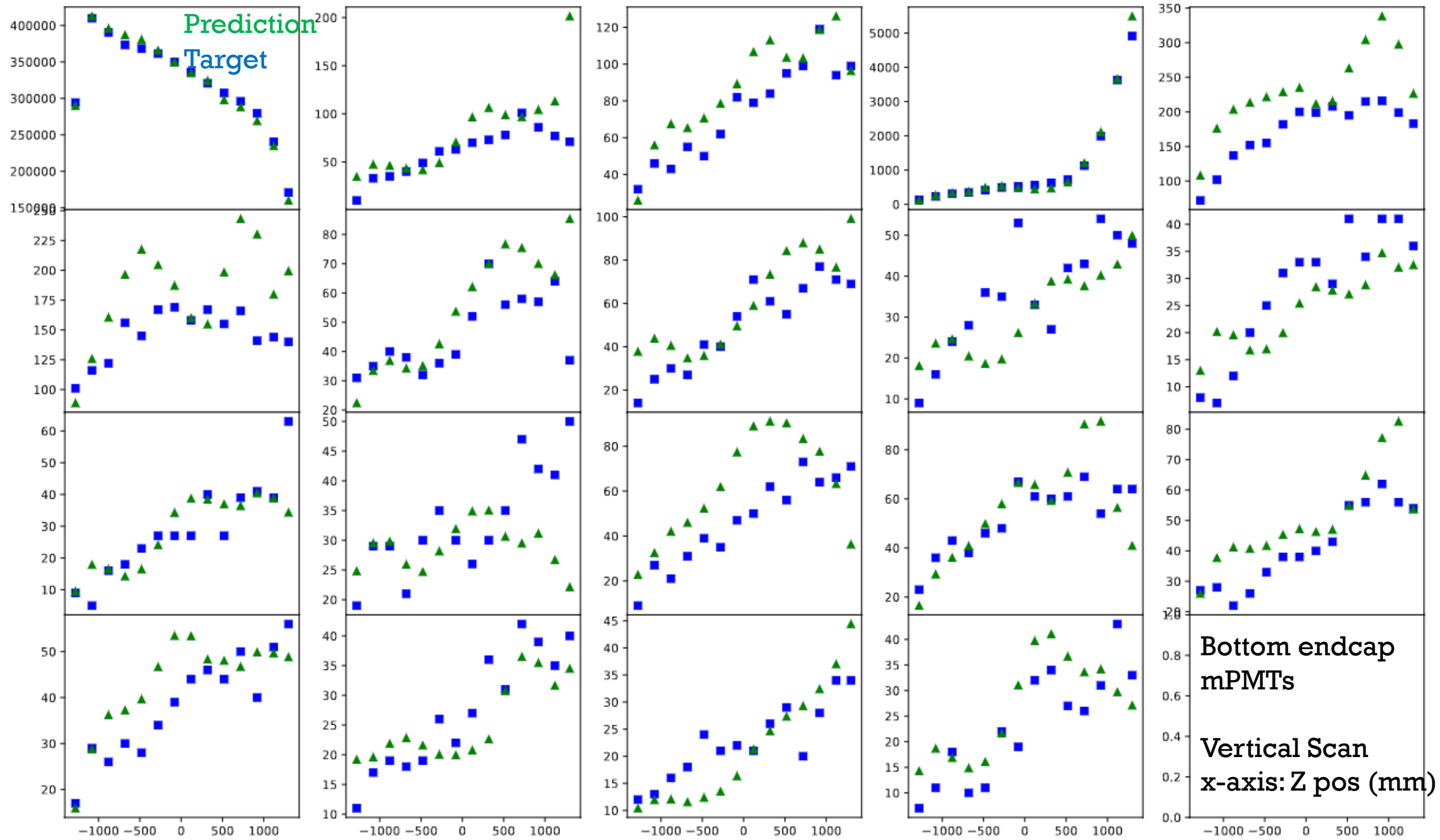
- Combine the 19 PMTs in each mPMT into a single data point per mPMT
→ reduce output feature space to investigate complexity dependence

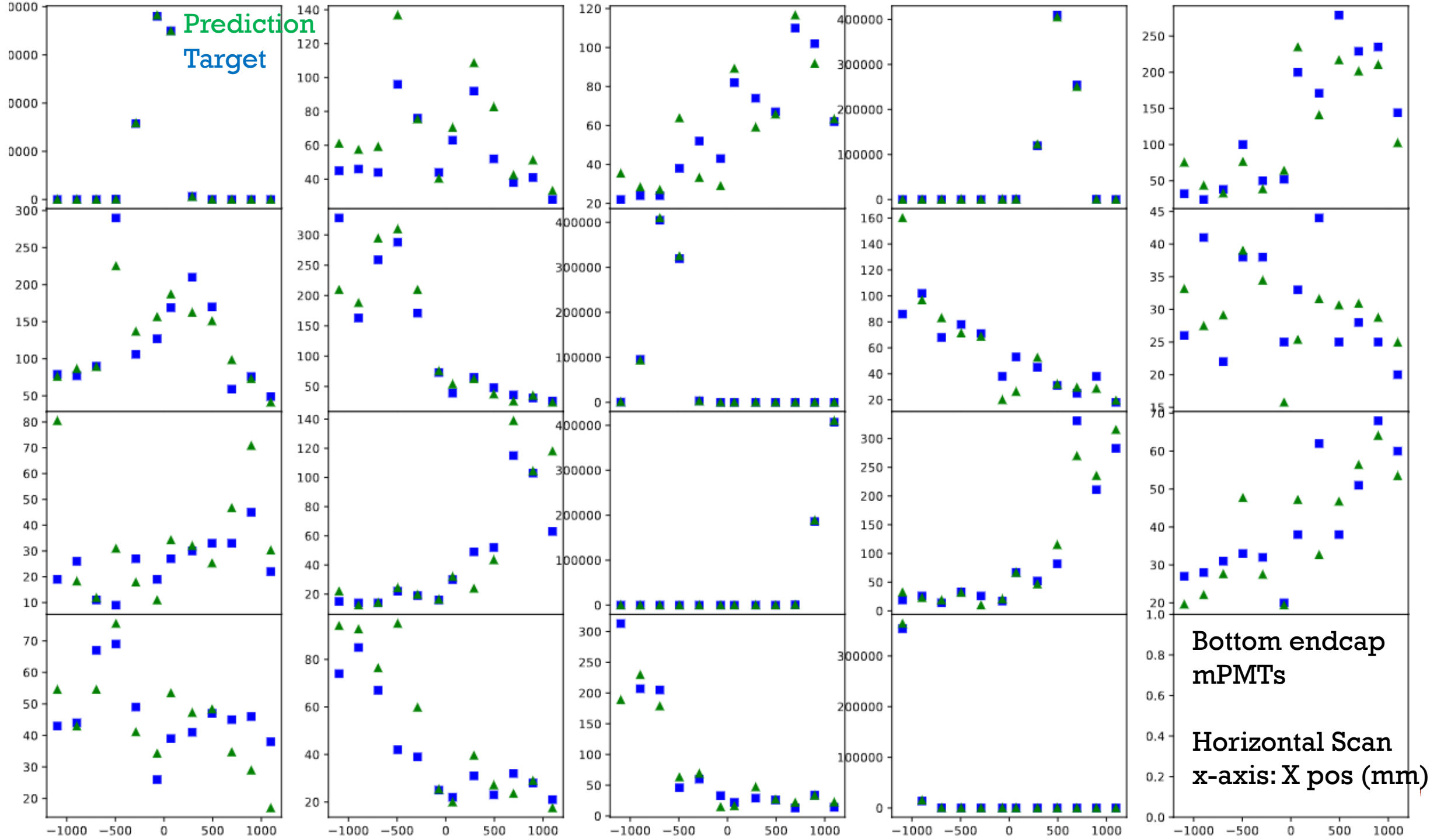


Training with per_mPMT data

- Combine the 19 PMTs in each mPMT into a single data point per mPMT
→ reduce output feature space to investigate complexity dependence

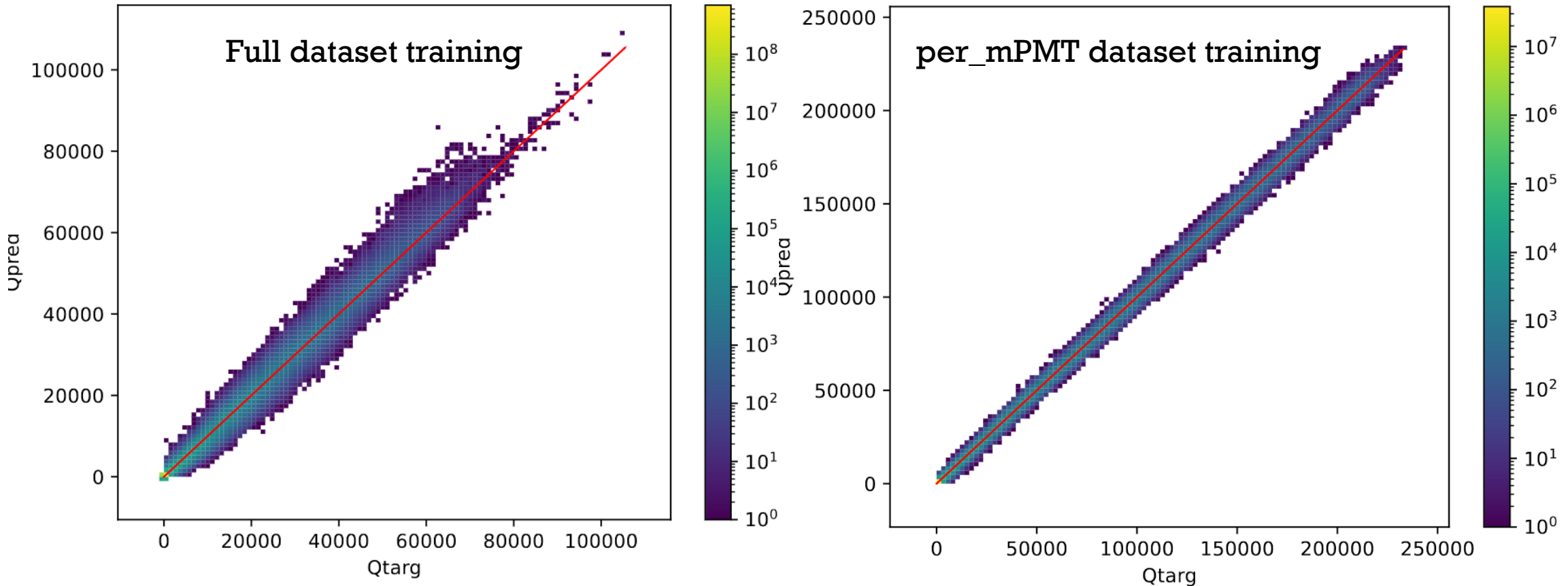






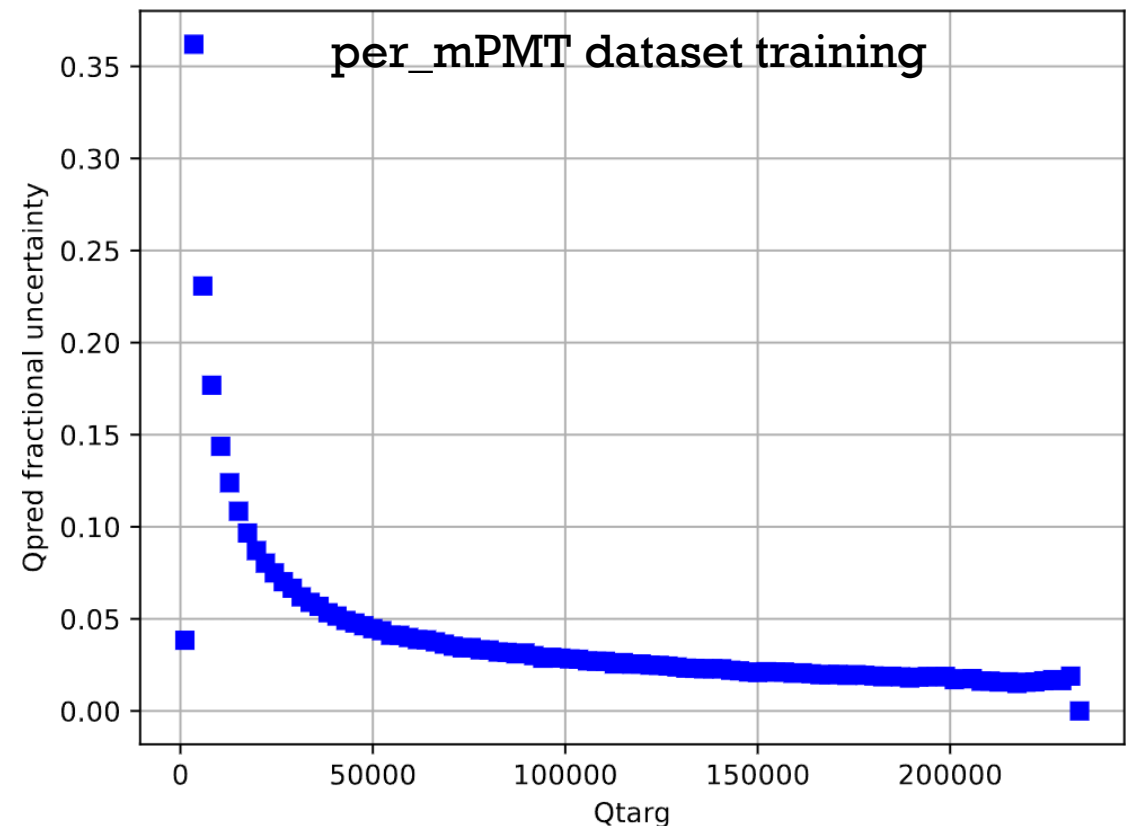
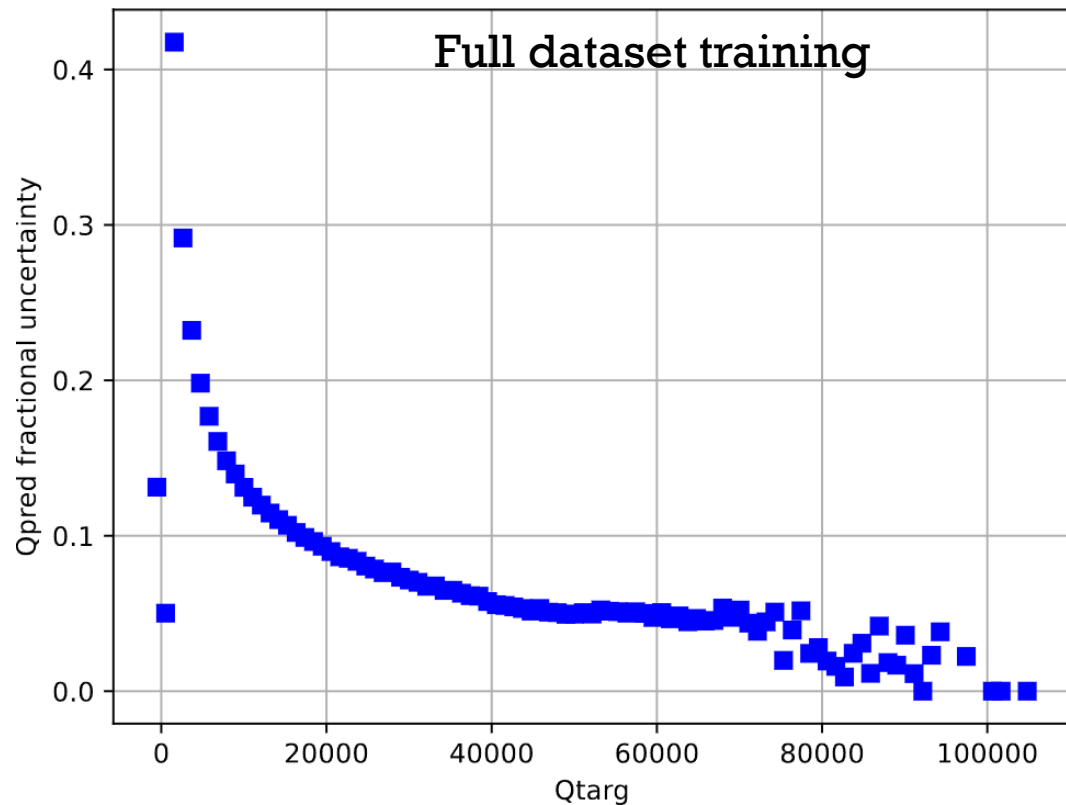
Side by side comparison

- Better correlation in per_mPMT training?



Side by side comparison

- For each slice in x-axis (Q_{targ}), calculate the mean and SD of the Q_{pred} distributions \rightarrow Fractional uncertainty = SD/mean



Summary

- Overall prediction performance becomes better with reduced features (per_mPMT data), that means the current architecture (512 features * 5 layers) is not big enough for the full dataset? Or it's more related to photon statistics?