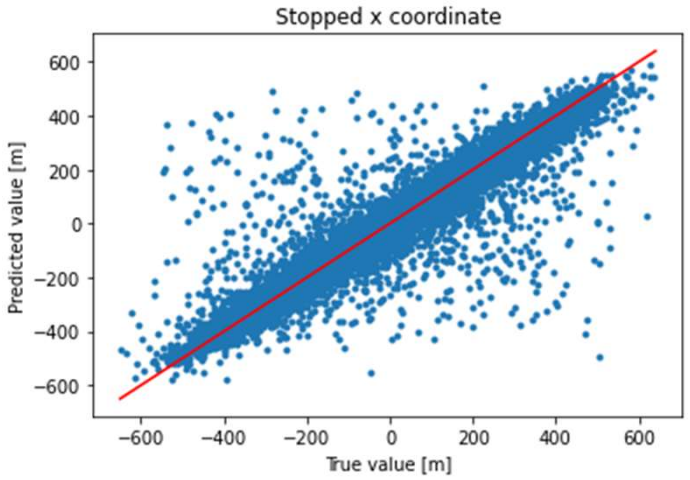
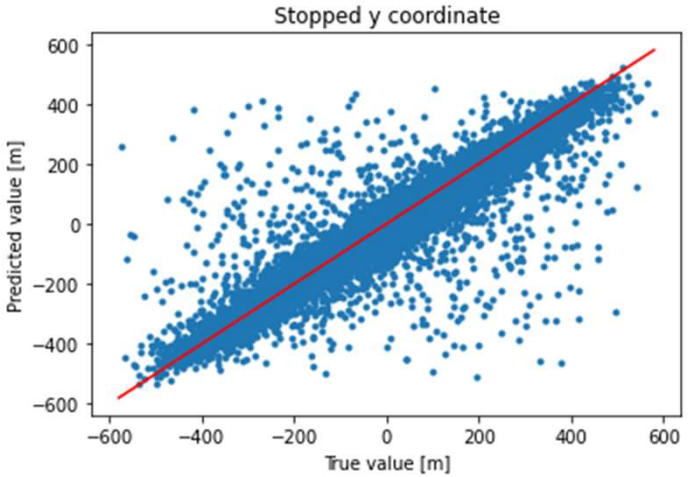
RIDE Update

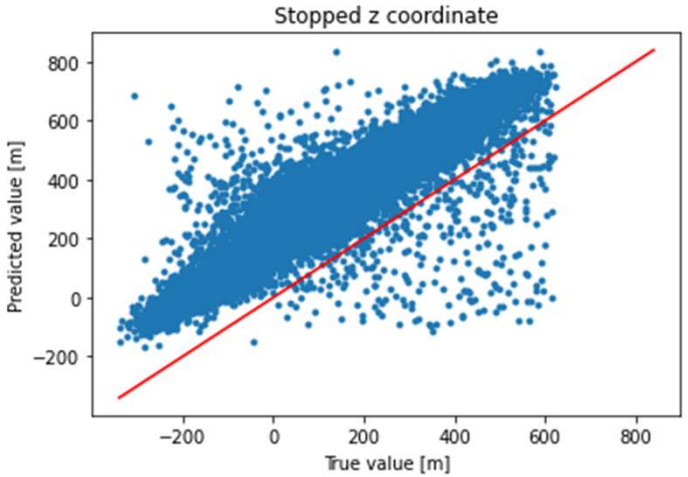
Sofus Stray

TCN Position Update

- Only train on stopped muons
- Much better result
- Z-position still janky



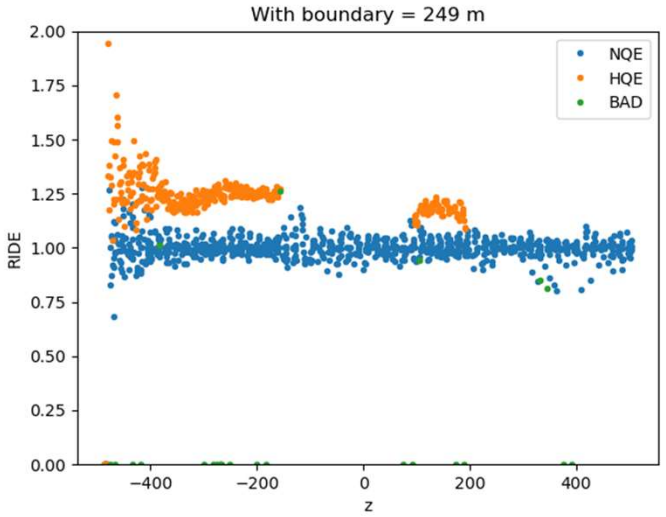


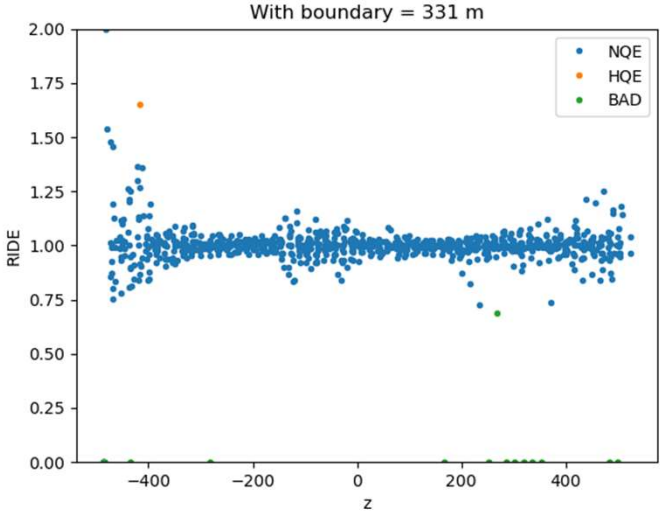


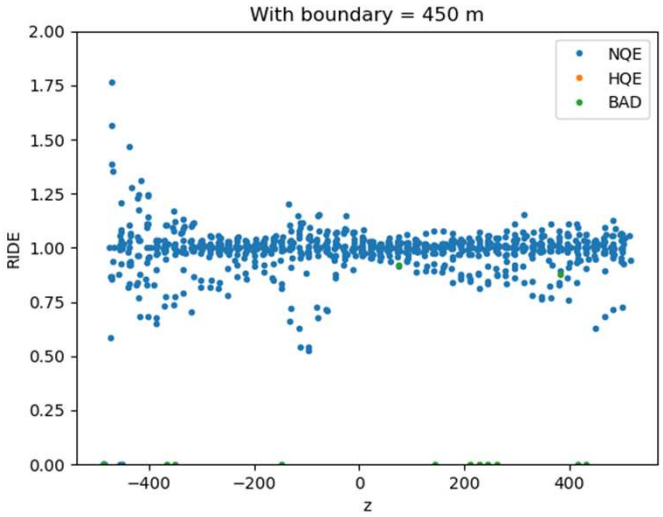
Test RIDE as a function of r and z

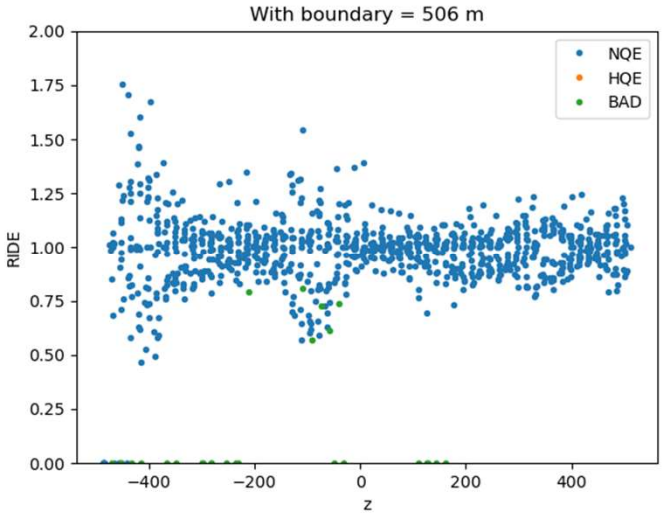
- Previously assumed uniformity in distance from detector center
- Split data up into equal radius-boundaries
- Calculate RIDE for each boundary

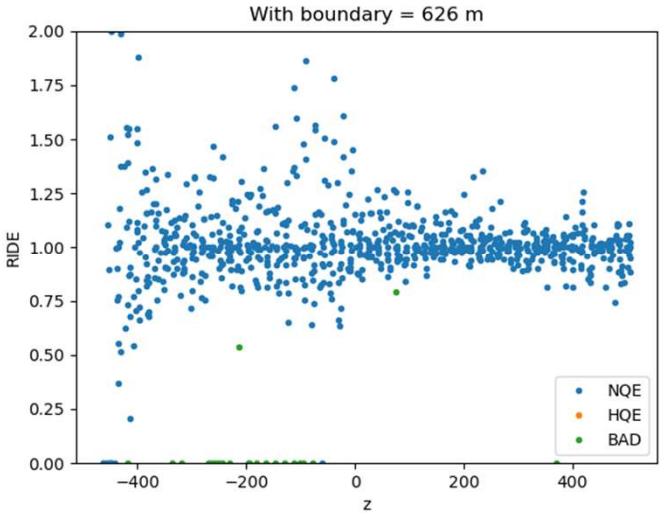
RIDE at various boundaries, truth



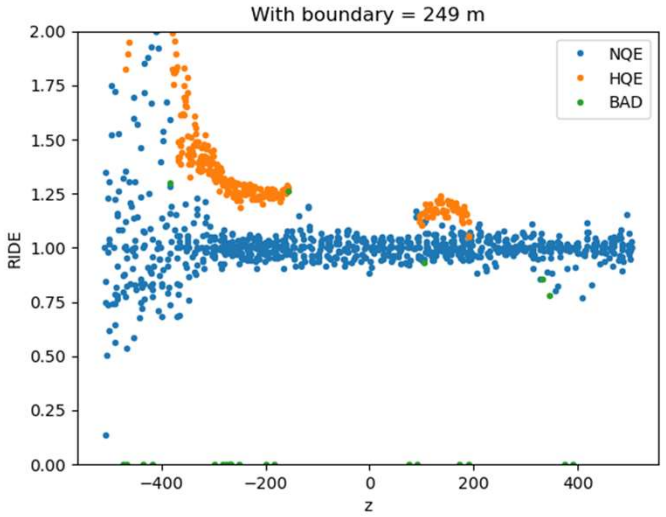


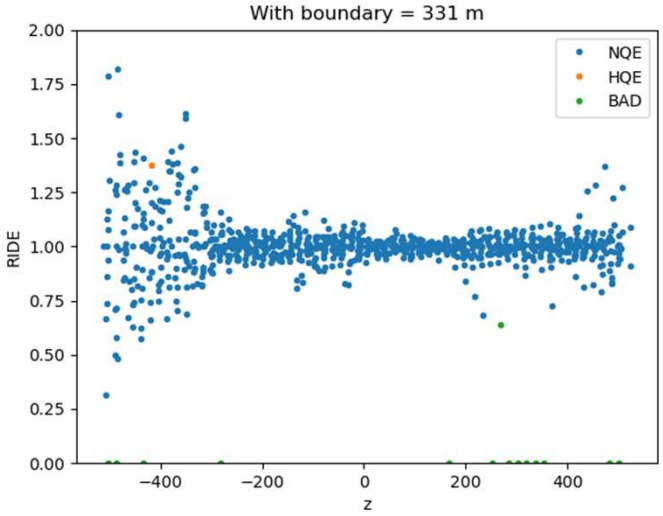


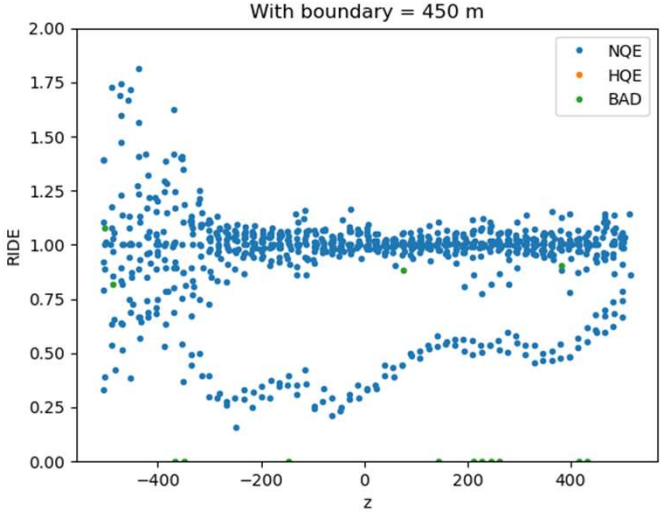


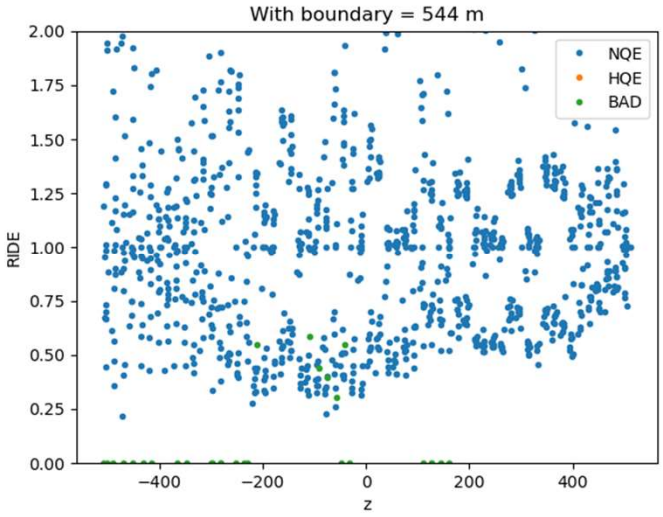


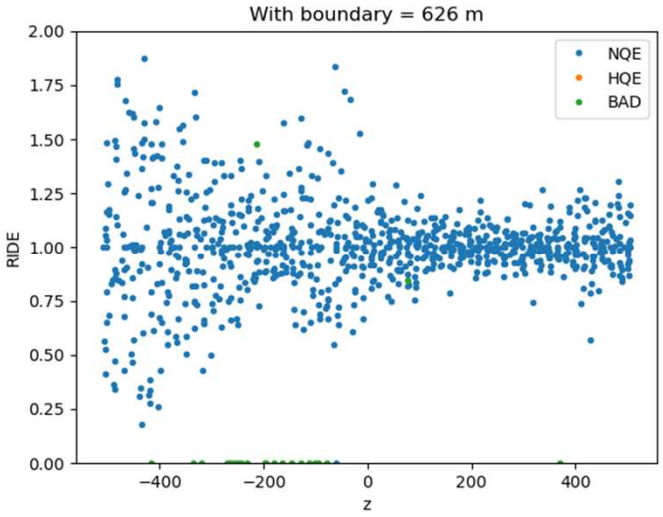
RIDE at various boundaries, TCN > 0.9



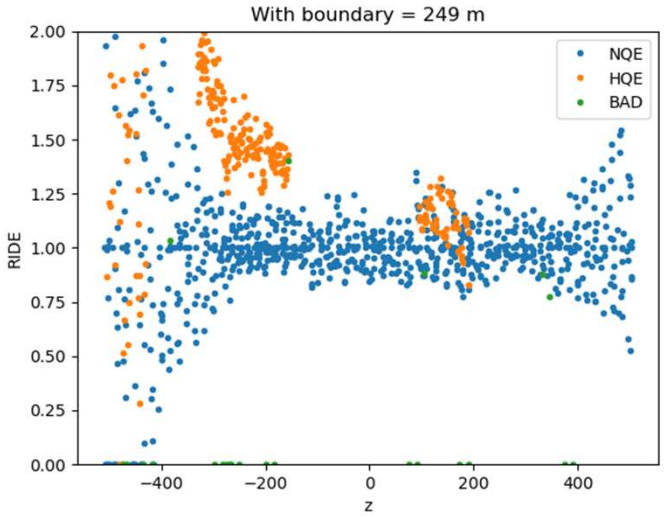


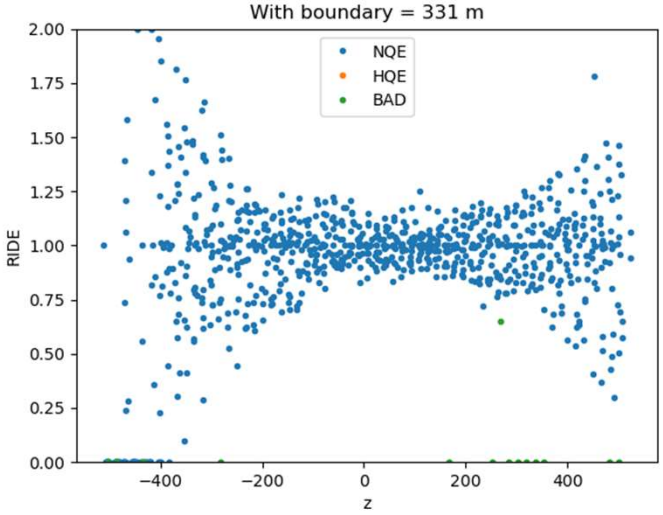


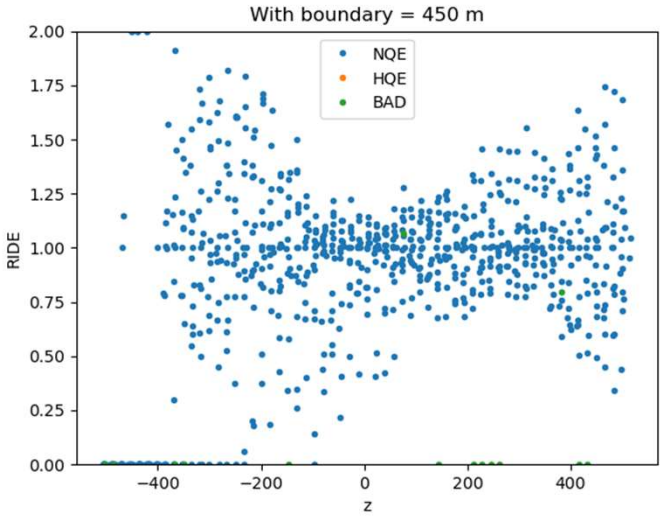


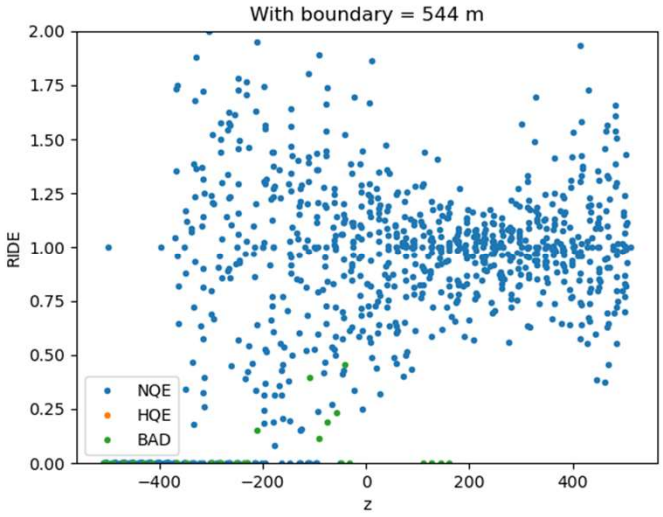


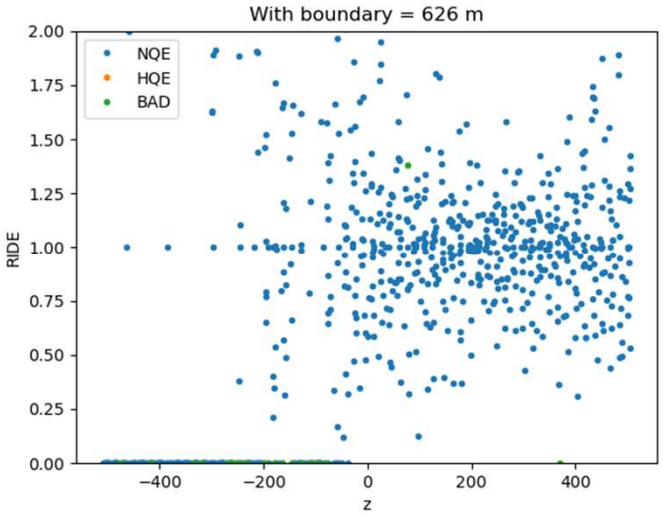
RIDE at various boundaries, TCN > 0.99





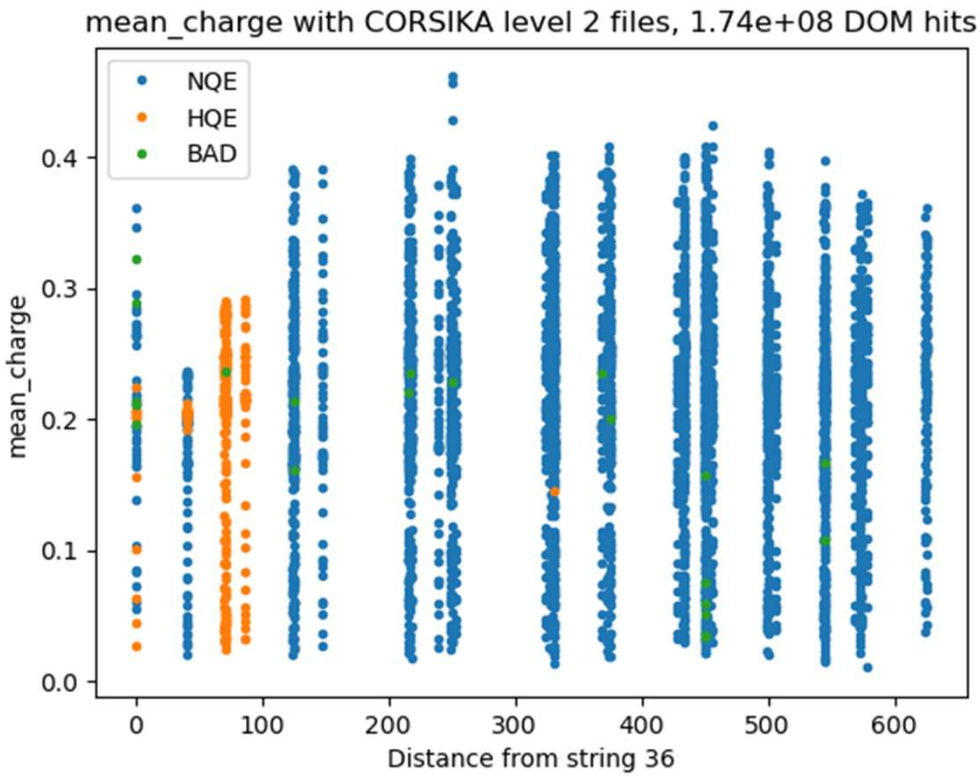






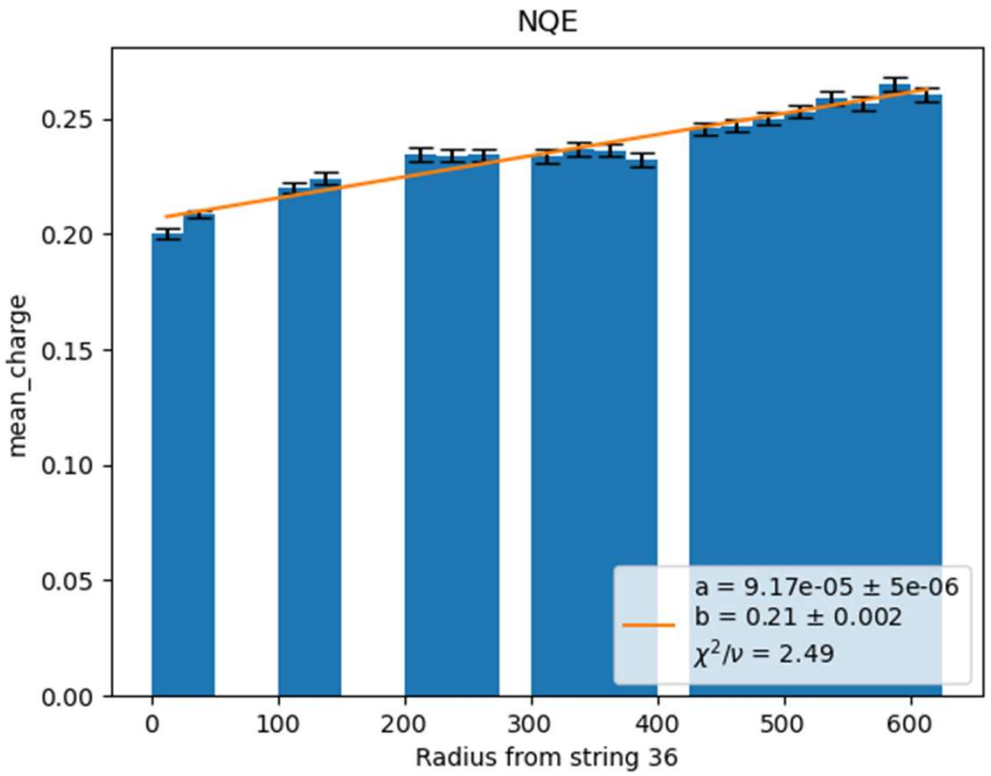
Is the mean charge constant in r?

- Check if the mean charge is uniform as you go out in radius
- Bin the DOM mean charges into rough groups of radius
- Average out the depth effect
- Assume uncertainty of each DOM scales with $\frac{1}{\sqrt{N}}$, N = number of DOM hits
- Bin uncertainty = mean DOM uncertainty of binned DOMs



Is the mean charge constant in r?

- Tried linear and constant fit
- Linear fit is not consistent with a = 0
- Mean charge somewhat depends on radius
- Was this obvious in hindsight?



Is each group normal distributed?

- Check if the RIDE value of each group has a normal distribution
- Fit a Gaussian function to histogram of group
- Plot mean and width of Gaussian

- A lot of misfitted Gaussians
- Those that do fit are centered, but have a fairly large width
- Does it even make sense to do this?