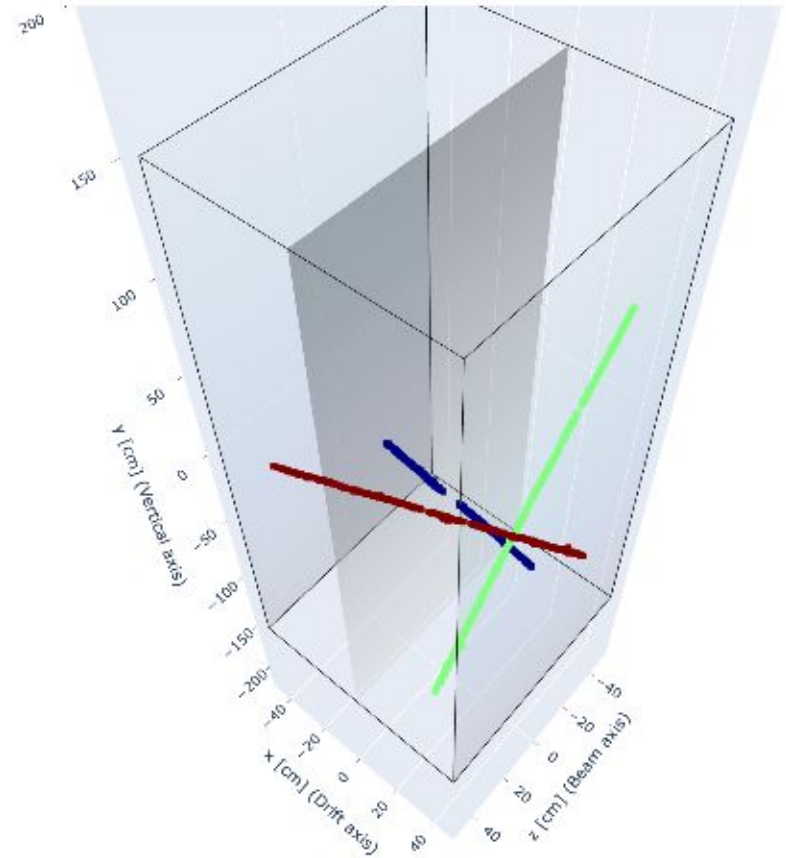
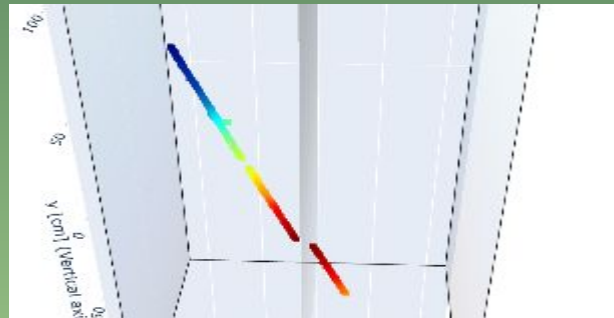


FSD Muon Selection and Electron Lifetime

DeMario Ross

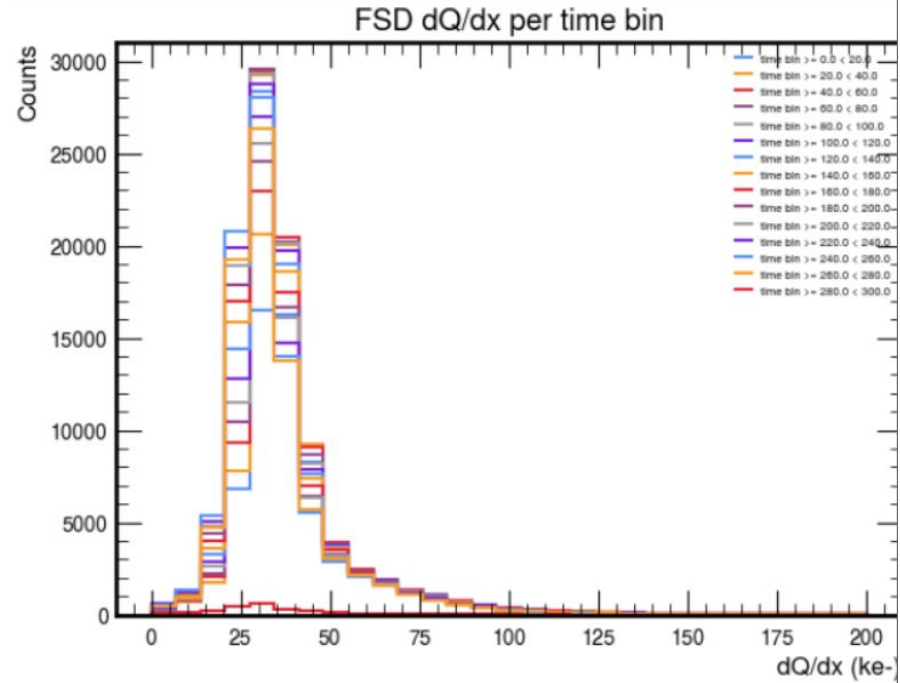
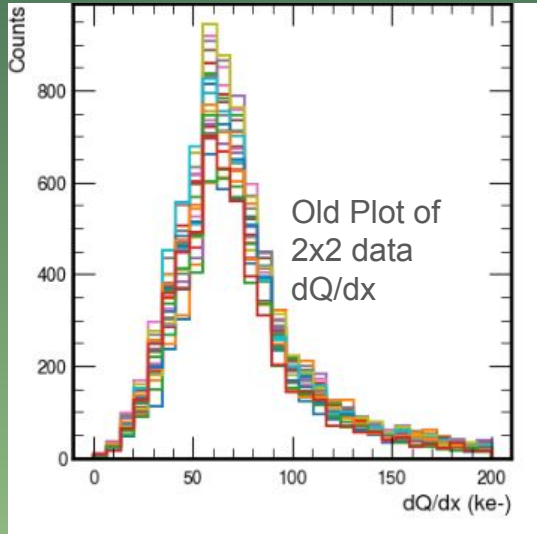
Muon Selection

1. Muon Selection ran on a few data files from Oct 31, 2024
 - a. Selection will run on 2x2 and FSD without changing code.
 - b. Updated code will be added to github today,
 - c. ~18,000 muons [with length \geq 100cm] found per data file
 - d. Weird shift between hits when track crosses cathode plan



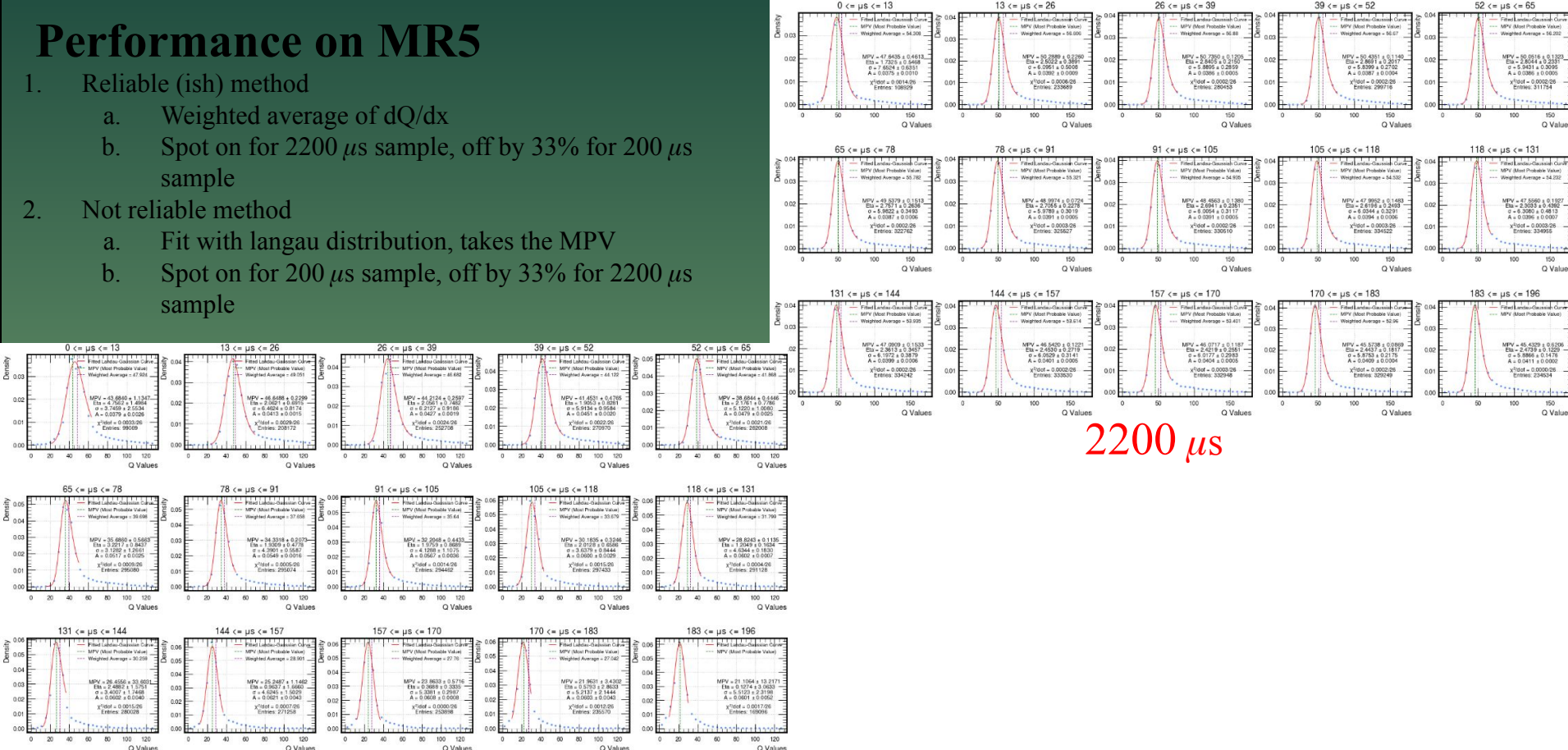
dQ/dx distribution

1. Comparison between FSD & 2x2
 - a. MPV (or weighted average) is lower for FSD
 - b. Less spread in the dQ/dx



Recall Electron Lifetime Performance on MR5

1. Reliable (ish) method
 - a. Weighted average of dQ/dx
 - b. Spot on for 2200 μs sample, off by 33% for 200 μs sample
2. Not reliable method
 - a. Fit with langau distribution, takes the MPV
 - b. Spot on for 200 μs sample, off by 33% for 2200 μs sample

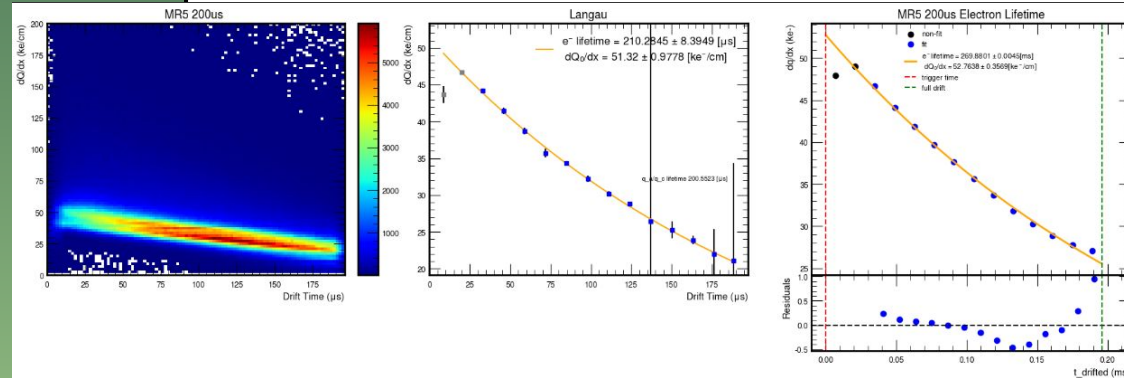
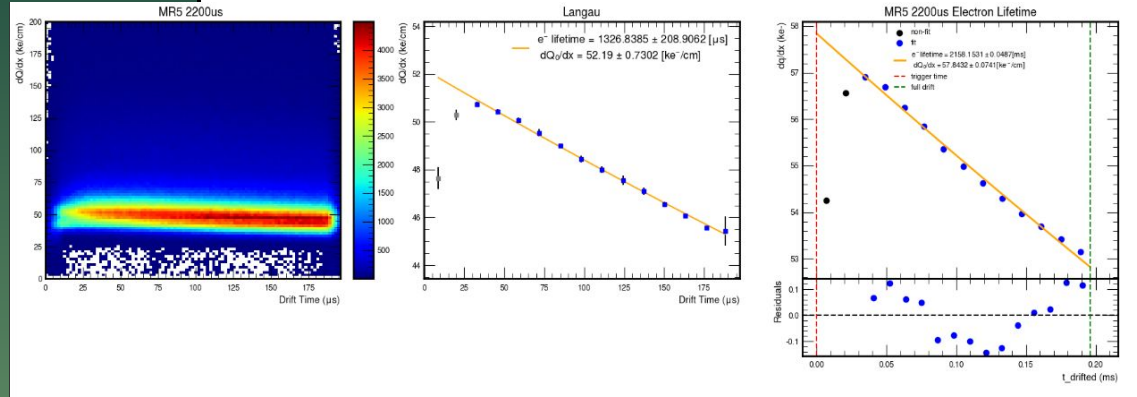


2200 μs

200 μs

Recall Electron Lifetime Performance on MR5

1. Reliable (ish) method
 - a. Weighted average of dQ/dx
 - b. Spot on for 2200 μs sample, for 200 μs sample
2. Not reliable method
 - a. Fit with langau distribution, takes the MPV
 - b. Spot on for 200 μs sample, off for 2200 μs sample



2200 μs on top
200 μs on bottom

Electron Lifetime on FSD

1. Electron Lifetime on FSD data from Oct 31, 2024

