

Geometry bug in larnd-sim

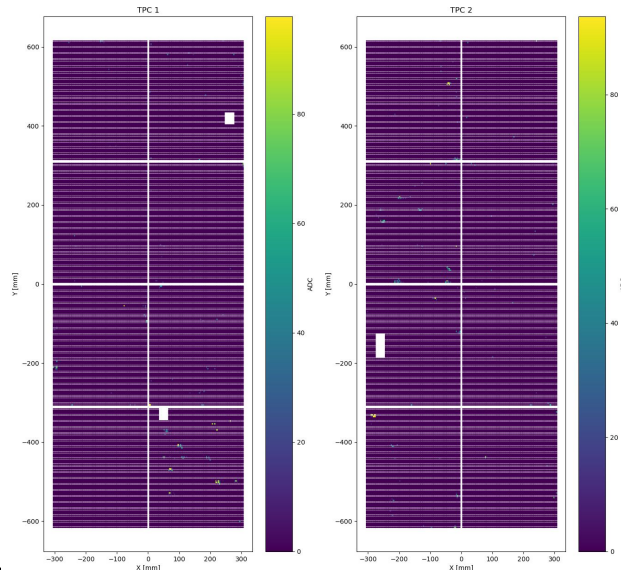
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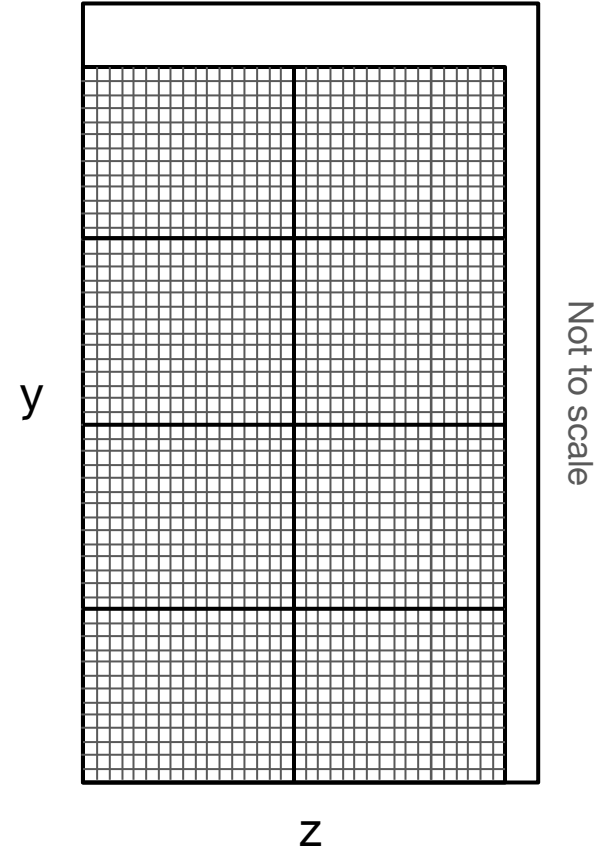
- Brooke found a discrepancy between the edep-sim tracks and the corresponding reconstructed tracks specific to Module 2
- The issue comes from a bug in the geometry file, where the pixel pitch is too small:
 - Along the z-axis: $8 \times 10 \times 2 \times \text{pixel_pitch} < \text{anode width}$
 - Along the y-axis: $8 \times 10 \times 4 \times \text{pixel_pitch} < \text{anode height}$
- This causes gaps like this:



Module 2 plots from Bern runs

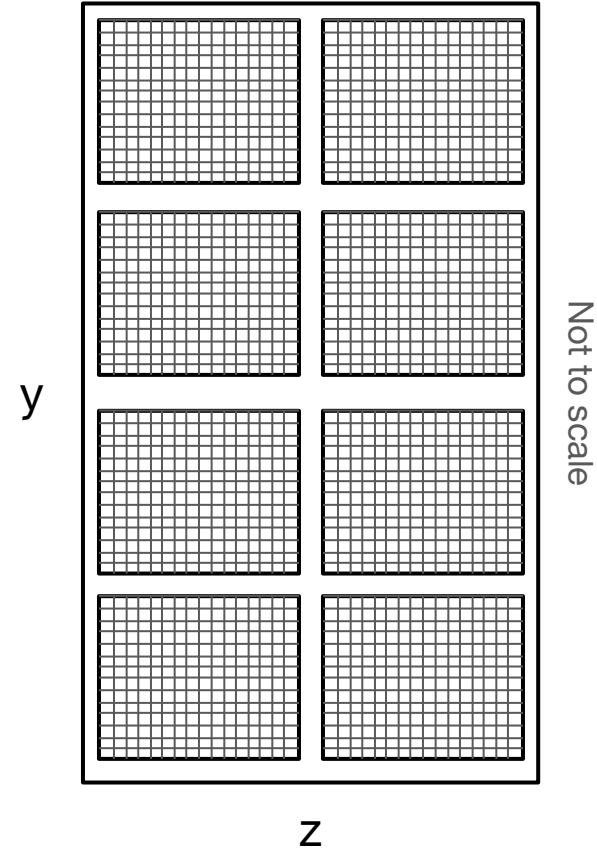
Problem

- The [function](#) in larnd-sim that converts a segment position to the corresponding pixel ID assumes that:
 - Anode width = $\text{pixel_pitch} \times \text{Npixels_z}$
 - Anode height = $\text{pixel_pitch} \times \text{Npixels_y}$



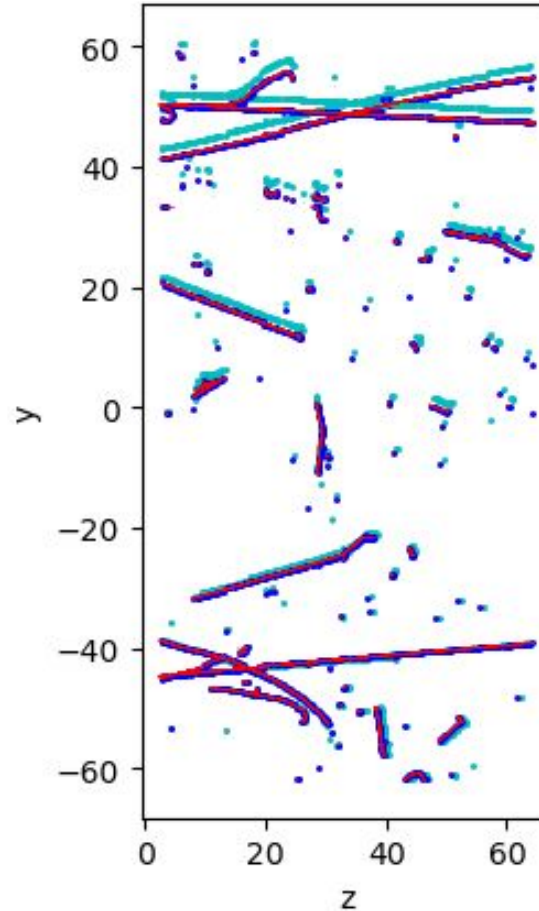
Problem

- The [function](#) in larnd-sim that converts a segment position to the corresponding pixel ID assumes that:
 - Anode width = $\text{pixel_pitch} \times \text{Npixels_z}$
 - Anode height = $\text{pixel_pitch} \times \text{Npixels_y}$
- At ndlar_flow level, the geometry gives z,y position with offset/gaps



Fix

- The fix: use the right pixel_pitch in the geometry configuration **both** at [larnd-sim](#) and [ndlar_flow](#)



Module 2

edep-sim

Old geometry

Updated geometry