

MiniRun5 Spatial Offsets

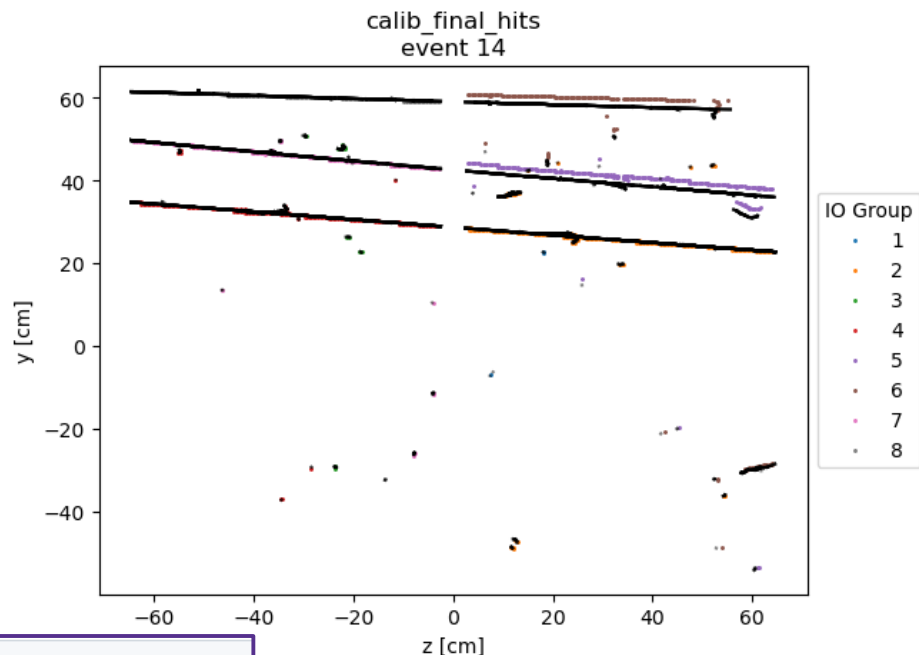
Brooke Russell

2x2 Simulation and Calibration Meeting

April 9, 2024

Unexpected Reco-Truth Spatial Offsets

- Observation made with **K. Wood hit backtracking example**
 - 3.8 m pixel pitch used in both `larndsim` and `ndlar_flow` for MiniRun 5 production
- J. Chakrani/K. Wood have proposed to **update** `ndlar_flow` Module-2 pixel pitch to mitigate `larndsim` - `ndlar_flow` inconsistencies
 - This change would **introduce** a pixel pitch inconsistency with `larndsim` develop
 - A corresponding PR to `larndsim` is planned



larndsim develop

```
19199      110063:
19200      - 76
19201      - 7
19202      multitile_layout_version: 2.5.16
19203      pixel_pitch: 3.8
19204      tile_chip_to_io:
19205      1:
19206      11: 1001
19207      12: 1001
```

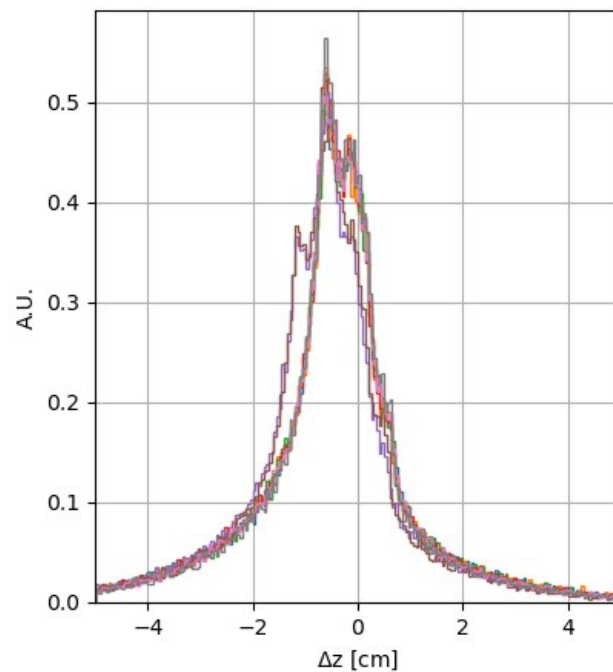
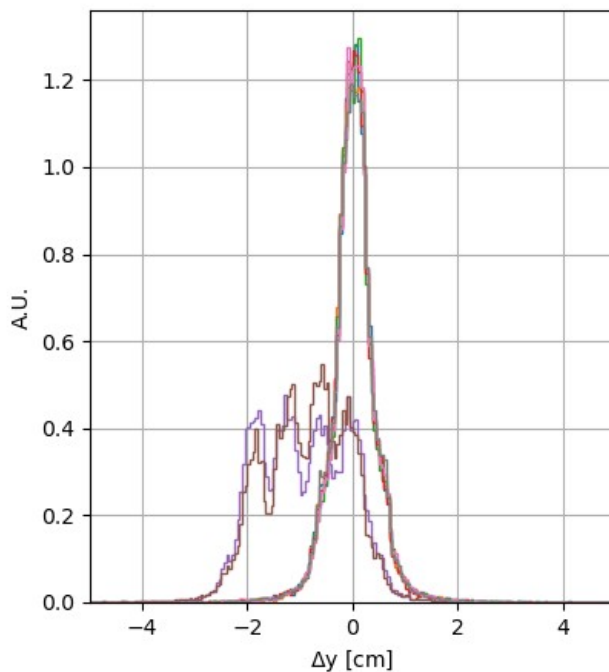
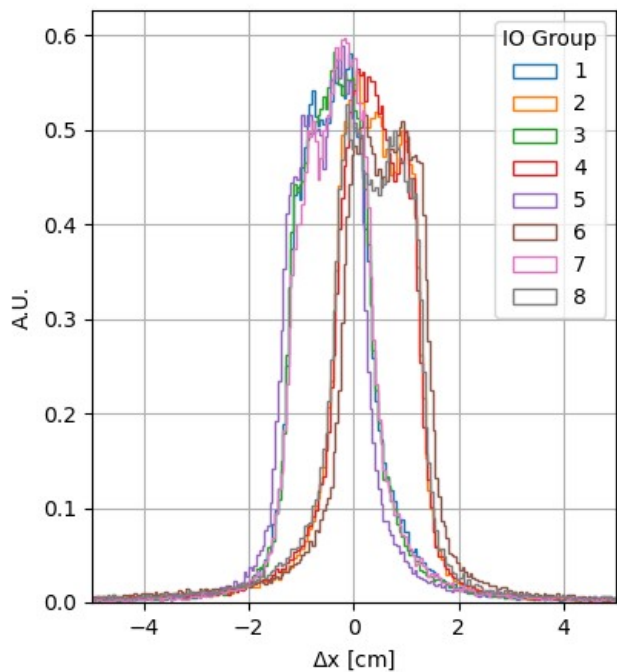
ndlar_flow PR #116

```
data/proto_nd_flow/multi_tile_layout-2.5.16.yaml
↑
@@ -19200,7 +19200,7 @@ chip_channel_to_position:
19200 19200      - 76
19201 19201      - 7
19202 19202      multitile_layout_version: 2.5.16
19203      - pixel_pitch: 3.8
+ 19203      + pixel_pitch: 3.87975
19204 19204      tile_chip_to_io:
19205 19205      1:
19206 19206      11: 1001
```

Reconstructed Hit – to – Backtracked Hit Spatial Offsets

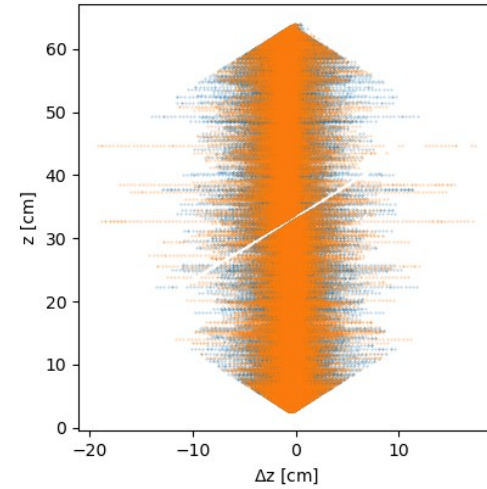
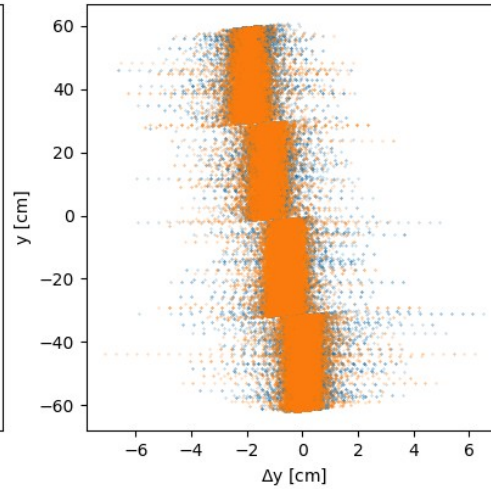
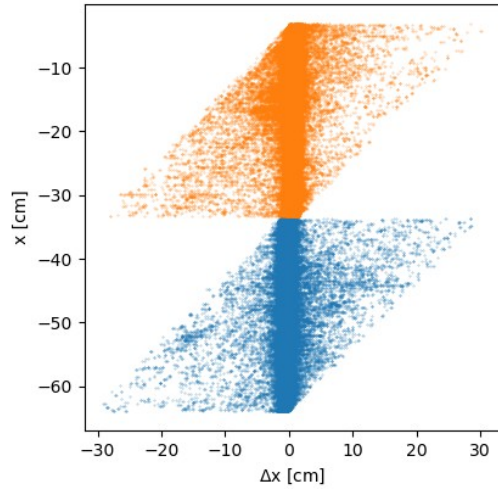
10 nd1ar_flow MiniRun5 files processed

Δ =segment mid-point to 'calib_final_hits'

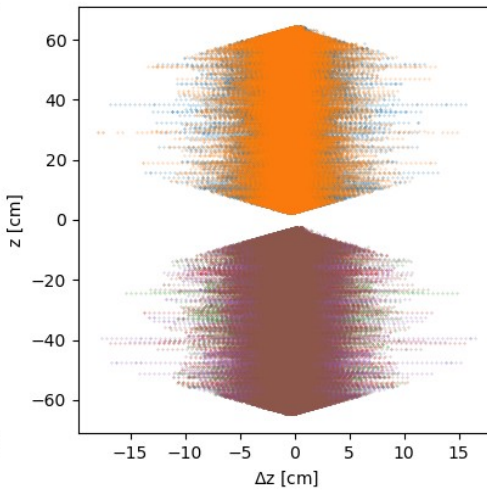
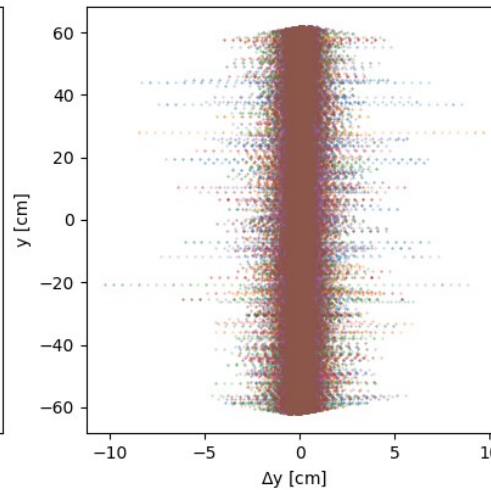
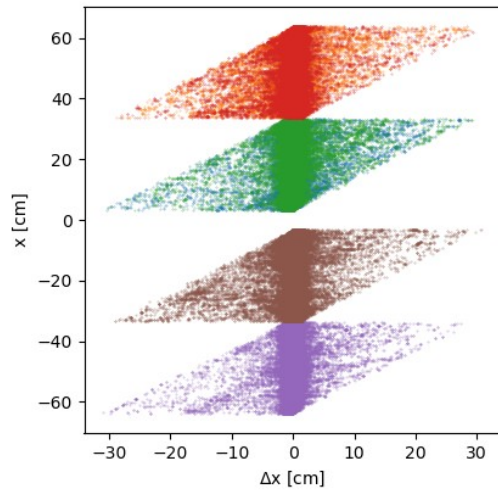


Module-2 offsets in all spatial dimensions, most prominent in y-dimension

Reconstructed Hit – to – Backtracked Hit Spatial Offsets



Module 2



Modules 0,1,3