

3D-imaging with 2-views in PD-HD

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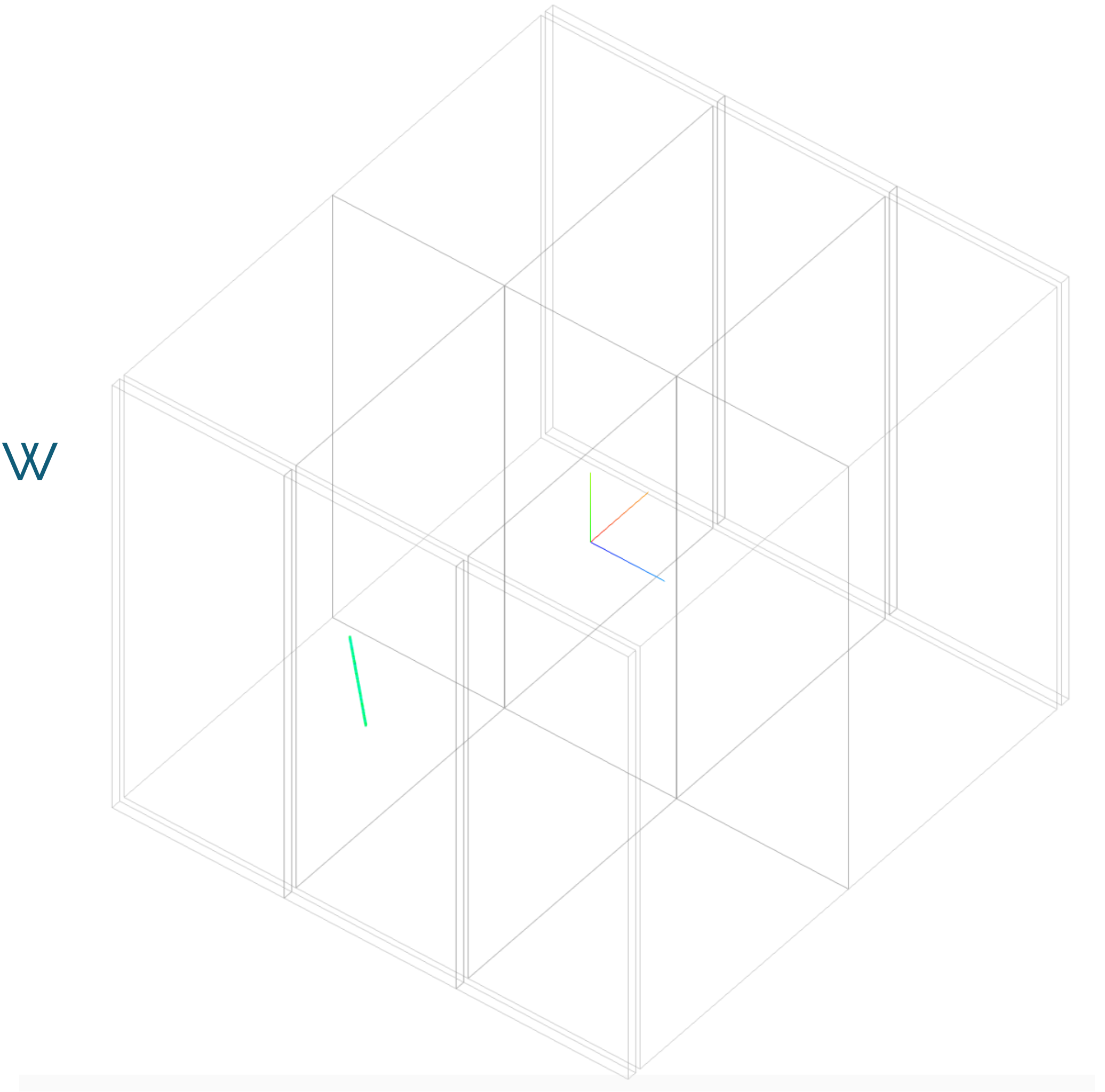
Wire-Cell meeting
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Quick workflow test with PD-HD

- PD-HD configurations are missing a few WC jsonnet files
- copied over from PD-VD for most parts
- running WC ideal tracks, on APA1 region

3D imaging result

- ideal track, still 3-views
- using PD-SP geometry for BEE display for now
- <https://www.phy.bnl.gov/twister/bee/set/92a3ad2a-3ce3-4495-bef6-2e4c7ccf7e13/event/o/>



How to deal with 2-view in APA1 in the imaging?

- Method 1: mask-off entire APA1 collection plane channels in “CMM” function, run the rest as is
 - careful with the field response!
- Method 2: do not mask any channels, but instead modify tiling/solving/deghosting stage to take care of the 2-view
 - active_planes=[0,1], dummy_planes=[2]

<https://github.com/HaiwangYu/dunereco/blob/develop/dunereco/DUNEWireCell/pdhd/img.jsonnet#L310-L318>

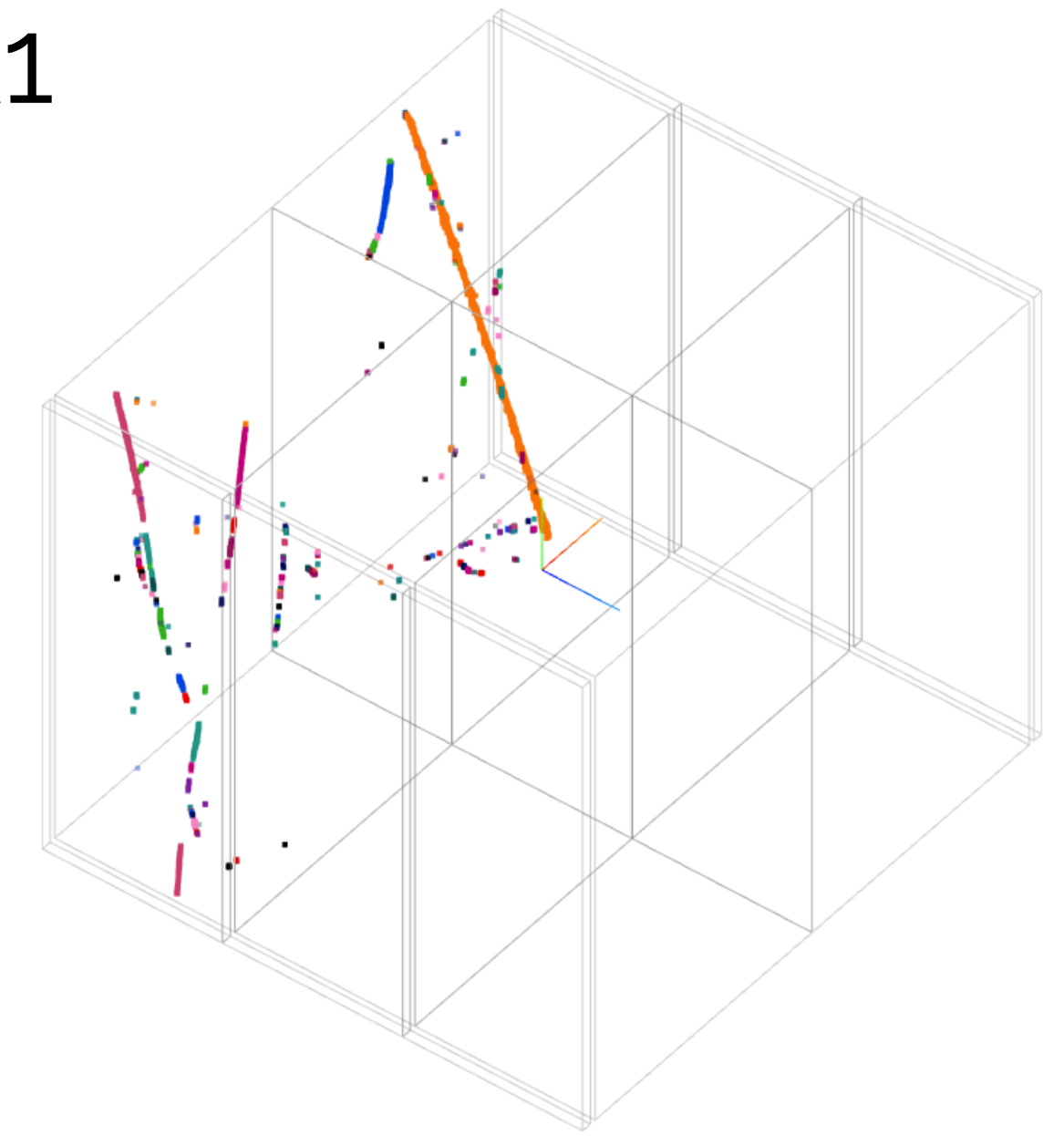
```
else if multi_slicing == "pdhd1"
then g.pipeline([
  // img.slicing(anode, anode.name, 109, active_planes=[0,1,2], masked_planes=[], dummy_planes=[]), // 109*22*4
  // img.slicing(anode, anode.name, 1916, active_planes=[], masked_planes=[0,1], dummy_planes=[2]), // 109*22*4
  img.slicing(anode, anode.name, 4, active_planes=[0,1], masked_planes=[], dummy_planes=[2]), // 109*22*4
  img.tiling(anode, anode.name),
  img.solving(anode, anode.name, "full"),
  // img.clustering(anode, anode.name),
  img.dump(anode, anode.name, params.lar.drift_speed),])
```

```
//local img_pipes = [img_maker.per_anode(a) for a in tools.anodes]; // original
local img_pipes = [
  // Haiwang's fix for 2view tiling
  if a.data.ident == 1
  then img_maker.per_anode(a, "pdhd1") // 2view tiling, full solving
  else img_maker.per_anode(a, "single") // 3view tiling, simple solving
  for a in tools.anodes];
```

To Do

- practice Haiwang's 2-view tiling with APA1
- test a use of CMM function
- try 3-view imaging with PD-HD cosmic data, where X view still available
 - without NF, only APA1: BEE link
 - without NF, only APA2: BEE link
- PD-HD geometry for BEE display

APA1



APA2

