

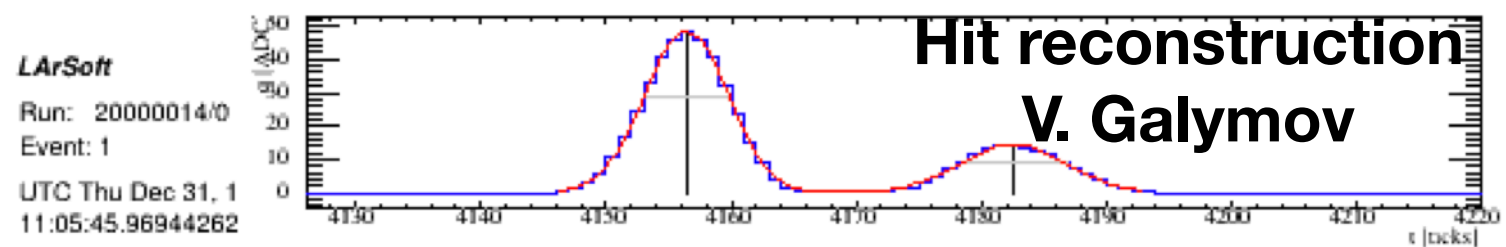
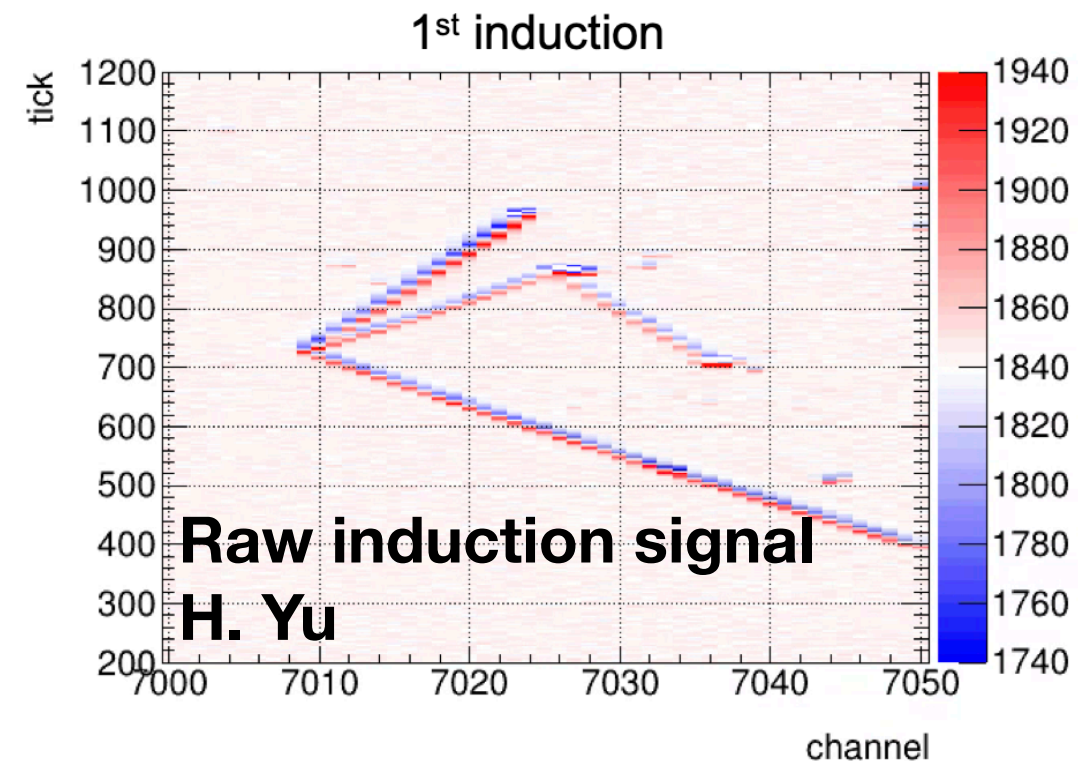
Pandora for the vertical drift detector

Dom Brailsford
Maria Brigida Brunetti

FD sim/reco meeting
13th September 2021

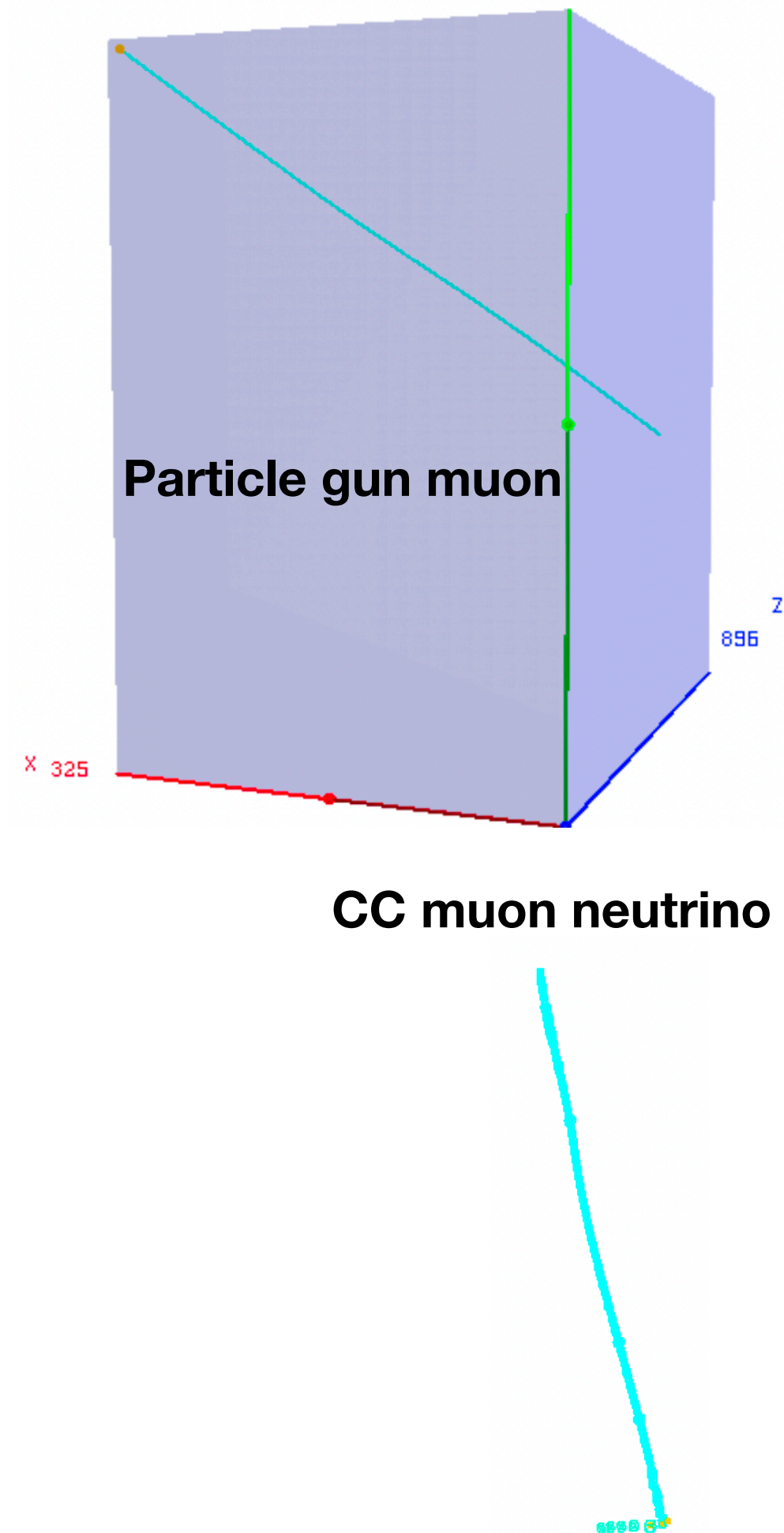
Vertical drift sim/ reco workflow

1. Neutrino generation ✓
2. Charged particle tracking (**V. Galymov**) ✓
3. Charge drift/signal simulation (**H. Yu**) ✓
4. Signal processing (**H. Yu**) ✓
5. Hit Reconstruction (**V. Galymov**) ✓
6. Pandora
7. High level reconstruction



Running pandora in the vertical drift detector

- An upstream bug in the view assignment of the recob::Wires caused larosft/larpandora to trip over
 - Bug fixed by N. Nayak in this PR: <https://github.com/LArSoft/larwirecell/pull/12#>
- Hacking larpandora (the interface between larsoft and pandora) to interpret the vertical drift's view structuring, and pandora then runs out of the box on vertical drift events



Writing a non-hacked input interface for pandora/vertical drift



- Larpandora is the `art::producer` bridge between LArSoft and pandora
- Amongst other things, it parses the geometry and `reco::hits` into a form that pandora understands
- The parsing interface was written before I was a postdoc (I started in 2015) in a time when the main customer was a MicroBooNE/DUNE horizontal drift FD-style LArTPC
- Tacking an extra detector format, such as dual-phase ProtoDUNE, does not affect robustness of the interface
- Tacking on more extra detector formats, such as vertical drift, becomes difficult, motivating re-writing the interface
- This new interface is now being investigated

Summary

- The sim/reco vertical drift developments are continuing
- Hacking the larpandora interface shows that a vertical drift interface is the only needed step to make pandora run on vertical drift events
- A new larpandora interface that includes the vertical drift is now being investigated