



BERKELEY LAB



2x2 Simulation Challenge

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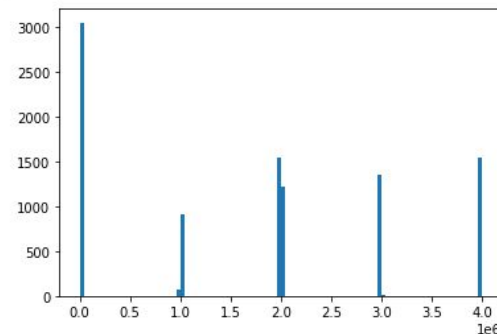
January 20, 2023

2x2 Analysis Workshop

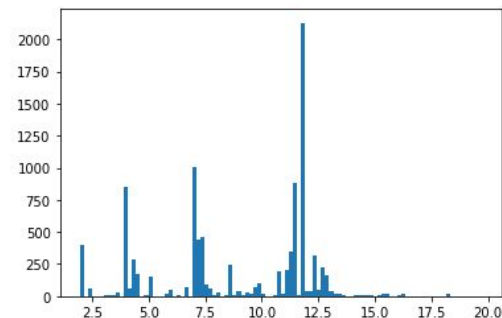
Simulation Challenge File

- https://portal.nersc.gov/project/dune/data/2x2/simulation/sim_challenge_2022/sim2x2_challenge_5xNuMIspills_ME_65E12POTperSpill_v2.larndsim.proto_nd_flow.h5
 - Hits only passed last weekend
 - Packets are the same as the previous file passed in November
- 5 NuMI ME spills
- Assumes 6.5E13 POT/spill
- Beam timing structure

```
plt.hist(edepsim_h5['segments']['t0_start'],bins=100)
plt.show()
```

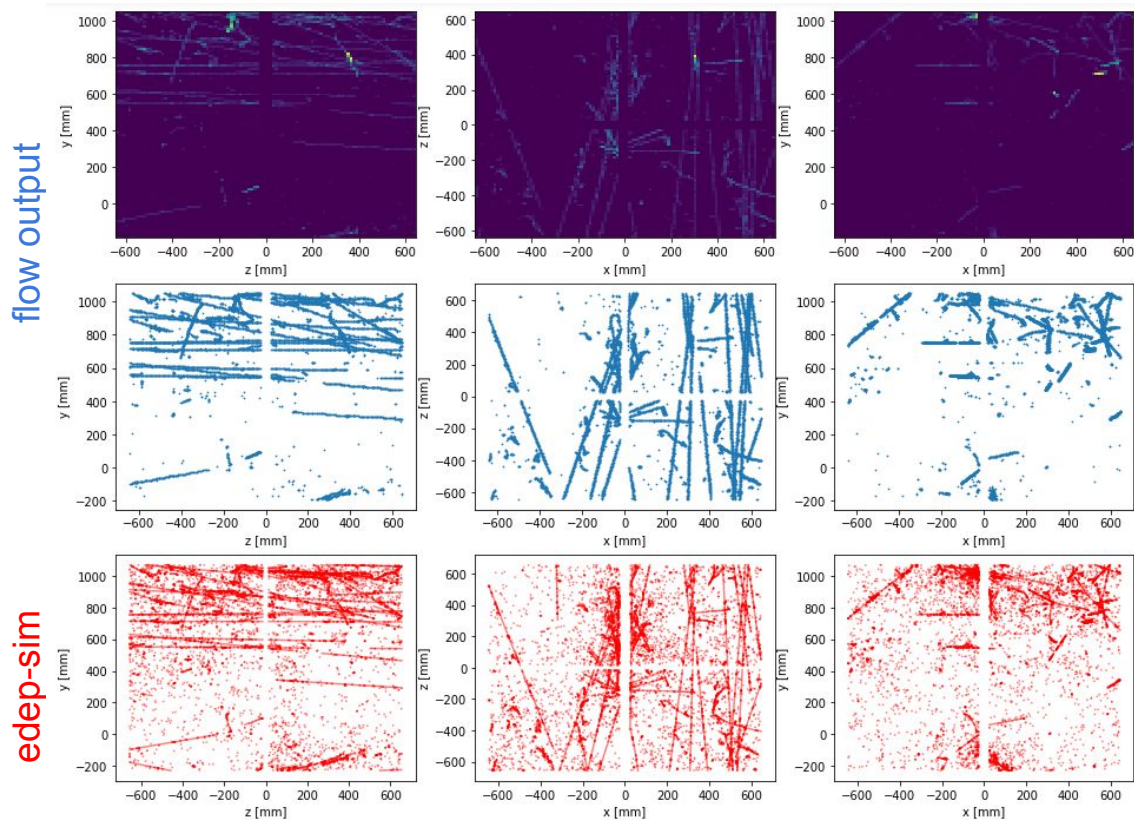


```
plt.hist(edepsim_h5['segments']['t0_start']%1e6,bins=100)
plt.show()
```



Quick and dirty event displays

- Low stat, but activity seems to be concentrated in the upper half of the detector
- The larnd-sim + proto_nd_flow part of the workflow seems to be doing reasonable things...
- Event builder finds 5 events (all 5 events/spills shown here)
- Do not observe significant ringing in the drift direction nor broken events reported by other low level reco efforts



Presentation Title

Next Steps

- Feedback from event reco groups
 - E.g. need some GENIE truth information in there
- Move to a higher stats version
- Would be good if timeline matched up with M. Kramer's more efficient spill simulation
- proto_nd_flow
 - Get a team together to start implementing/organizing/developing the data driven calibration modules
 - Documentation

