

# Efforts towards SBND production

<https://github.com/WireCell/wire-cell-toolkit/pull/344>

- Apply Lynn Garren's patch to fix compiler error
  - <https://cdcv.s.fnal.gov/redmine/issues/29004>
  - tested using both e26 (gcc12) and c14 (clang14)
    - **no libtorch available for c14!**
- Do not save negative charge when running DNN-ROI.
  - **This is the default mode now!**
- **Add another switch to ignore MP for gauss even when MP enabled.**
- **Dead wire handling**
- `std::sqrt(std::norm(x))` is faster than `std::abs(x)` for complex number?
  - Discover and suggested by Nathaniel Rowe (UChicago)
  - Tested to be similar using gpvm, may need further investigation
  - delayed for next update

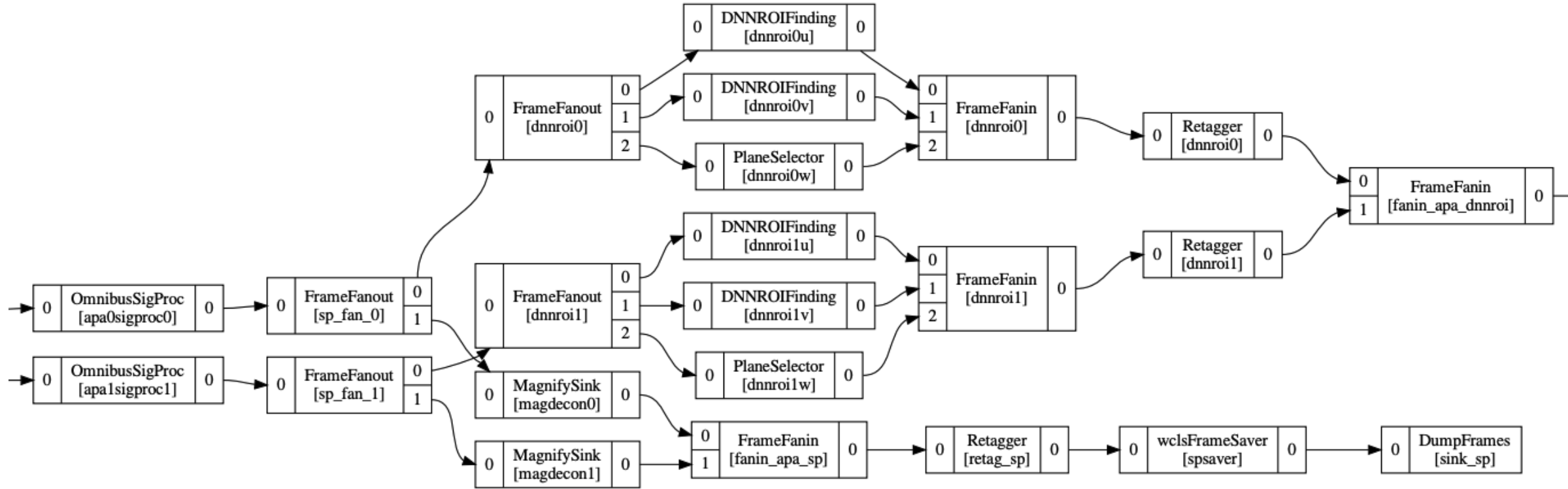
Configure for SBND to save both traditional and DNN:

<https://github.com/HaiwangYu/sbnd-dnn-roi>

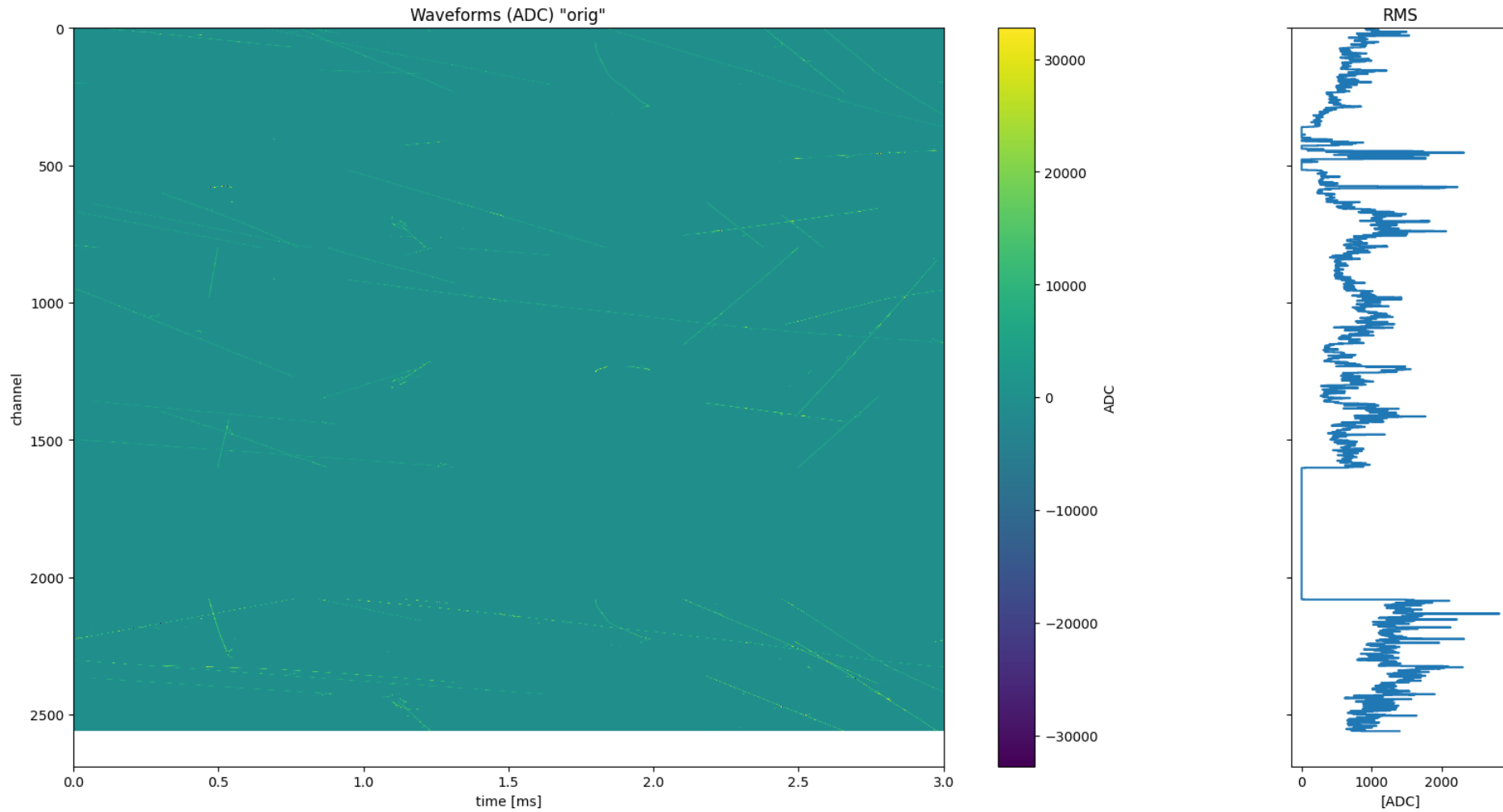
# \$/build/sigproc/test\_abs\_speed

```
$/build/sigproc/test_abs_speed
std::abs(x) duration: 866 milliseconds, sum = 5e+09
std::sqrt(std::norm(x)) duration: 863 milliseconds, sum = 5e+09
/exp/sbnd/app/users/yuhw/wire-cell-toolkit
$/build/sigproc/test_abs_speed
std::abs(x) duration: 868 milliseconds, sum = 5e+09
std::sqrt(std::norm(x)) duration: 867 milliseconds, sum = 5e+09
```

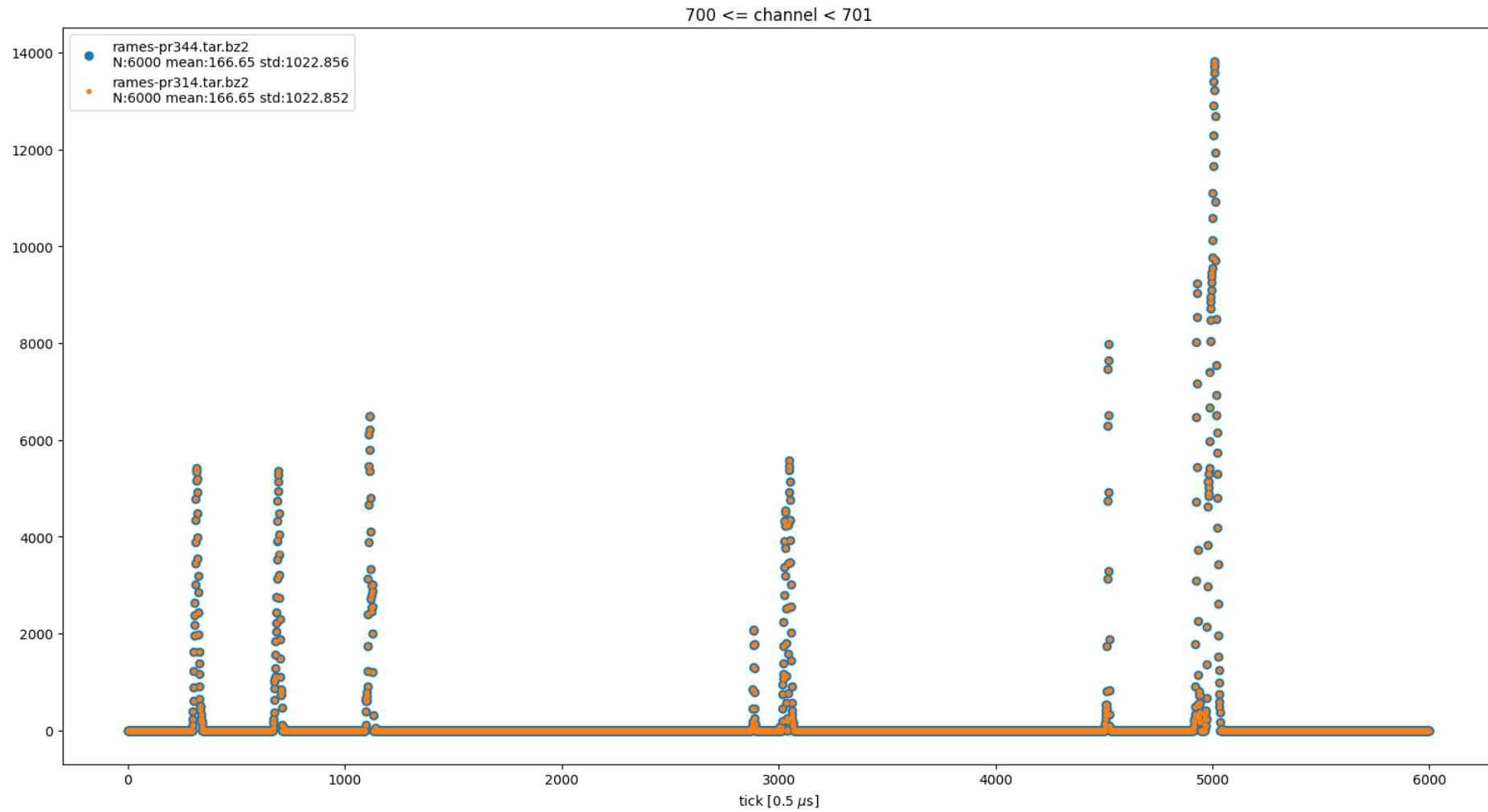
# Configure for SBND to save both traditional and DNN



# this is actually gauss



# Looks OK



# what is the output here?

SP -> gauss, wiener

Fanin:

```
local outtags = ['orig%d' % n for n in anode_iota];
```

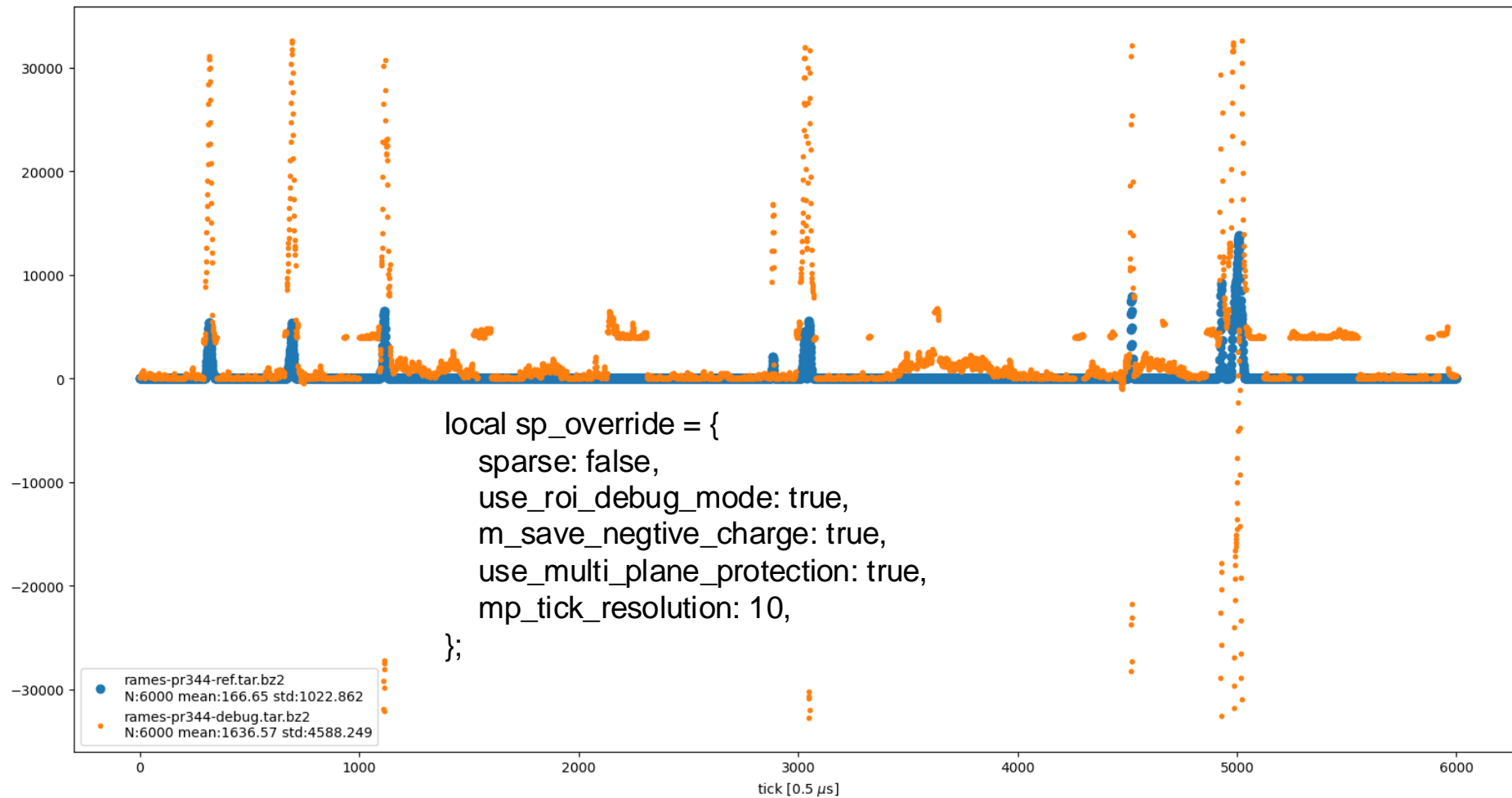
Retagger:

```
local retagger = g.pnode({
  type: 'Retagger',
  data: {
    // Note: retagger keeps tag_rules an array to be like frame fanin/fanout.
    tag_rules: [{
      // Retagger also handles "frame" and "trace" like fanin/fanout
      // merge separately all traces like gaussN to gauss.
      frame: {
        '.*': 'orig',
      },
      merge: {
        'orig\\d': 'daq',
      },
    }],
  },
  nin=1, nout=1);
```

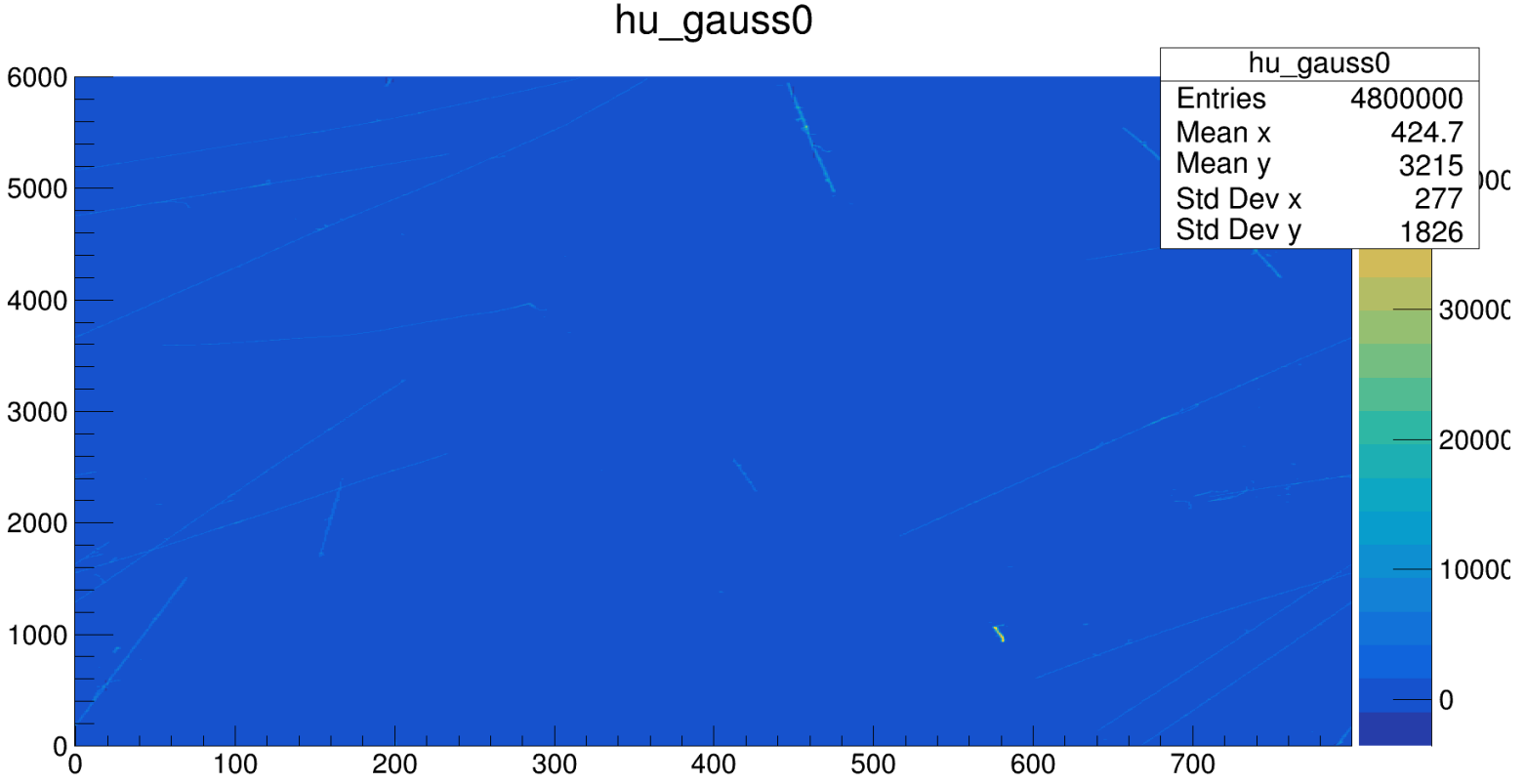
```
local sio_sinks = g.pnode({
  type: "FrameFileSink",
  data: {
    outname: output, // "frames.tar.bz2",
    tags: ["orig", "gauss"],
    digitize: false,
  },
}, nin=1, nout=0);
```

```
226 [23:42:09.369] D [ glue ] <FrameFanin:sn_mag_nf> call=0 input 0: frame: ident=100 time=-249898 tick=500 with 5120 traces. frame tags: [ "sigproc" ] 2 tagged trace sets: [ "gauss0":2560 [0] "wiener0":2560 [2560] ] cmm: [ ] output: frame: ident=100 time=-249898 tick=500 with 5120 traces. frame tags: [ ] 1 tagged trace sets: [ "orig0":5120 [0] ] cmm: [ ]
227 Retagger: tagging trace set: daq with 5120 traces, 0 summary
228 [23:42:09.369] D [ io ] <FrameFileSink:> input frame: frame: ident=100 time=-249898 tick=500 with 5120 traces. frame tags: [ "orig" ] 1 tagged trace sets: [ "daq":5120 [0] ] cmm: [ ]
229 [23:42:09.369] D [ io ] <FrameFileSink:> call=0 frame=100 ntraces=5120 tag="orig"
230 [23:42:09.959] W [ io ] <FrameFileSink:> call=0 frame=100 ntraces=0 tag="gauss" zero traces
231 [23:42:09.959] D [ io ] <FrameFileSink:> no channel mask maps at call 0
232 [23:42:09.961] D [ io ] <DepoFileSource:> call=1, read1 depo stream EOF with file=depos.tar.bz2
```

700 <= channel < 701

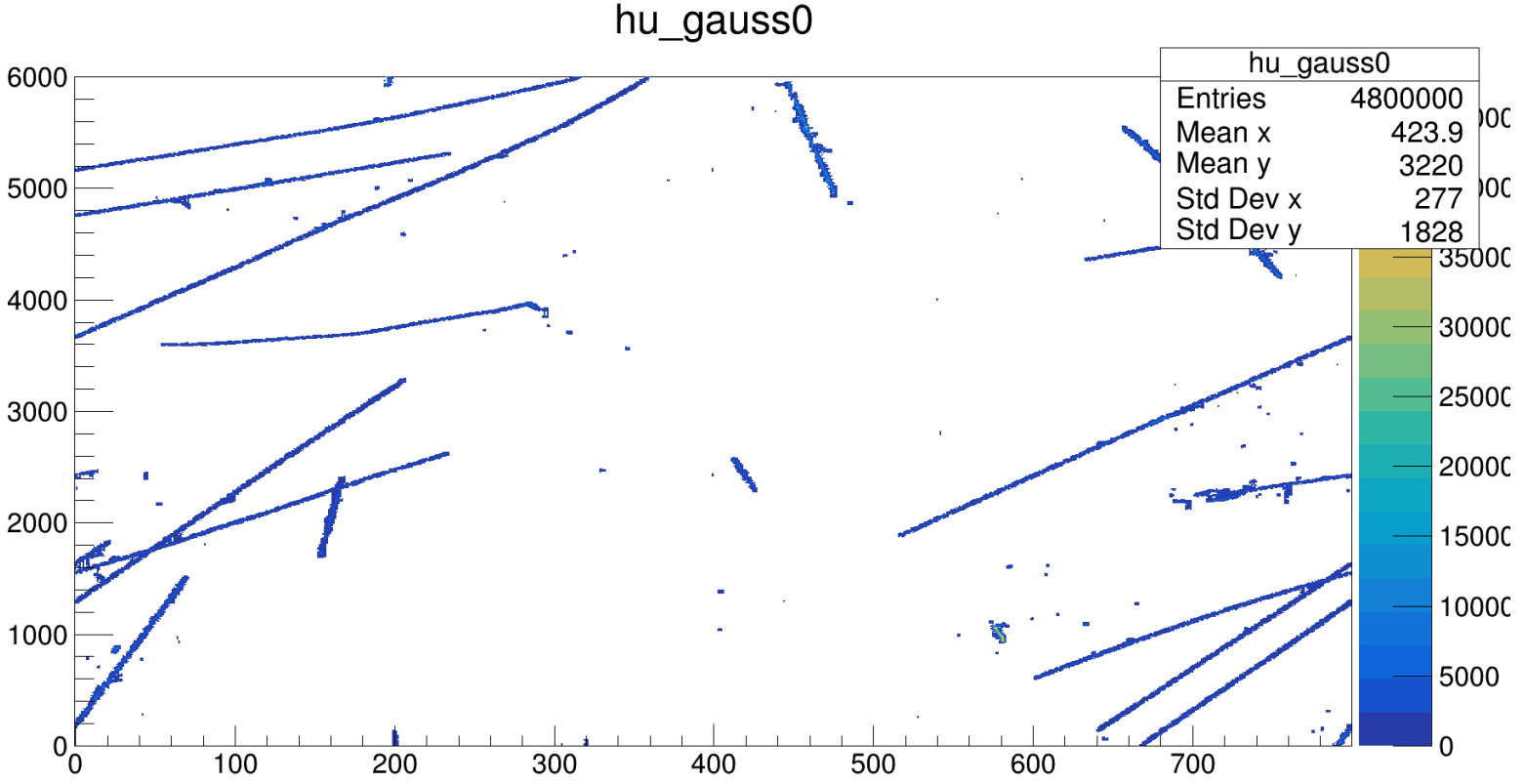


# debug





# debug-no-neg



truth = Sum all > threshold

true(ienergy) = Mean\_{event} Sum\_{pixel} (true > th)

diff(ienergy) = Mean\_{event} Sum\_{pixel} (reco) - Sum\_{pixel} (true > th)

