Chicane simulation update

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Front end phone meeting

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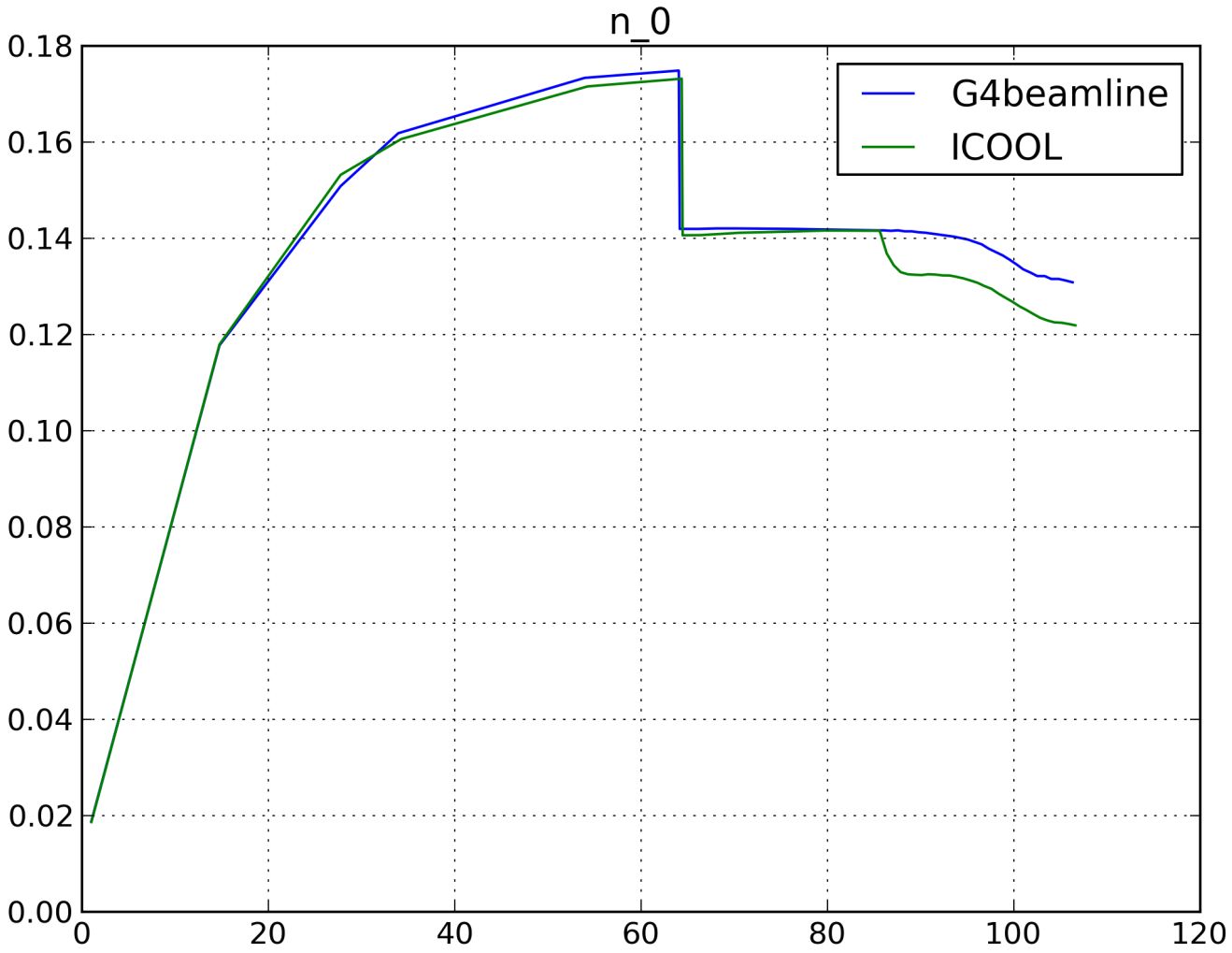
Buncher working

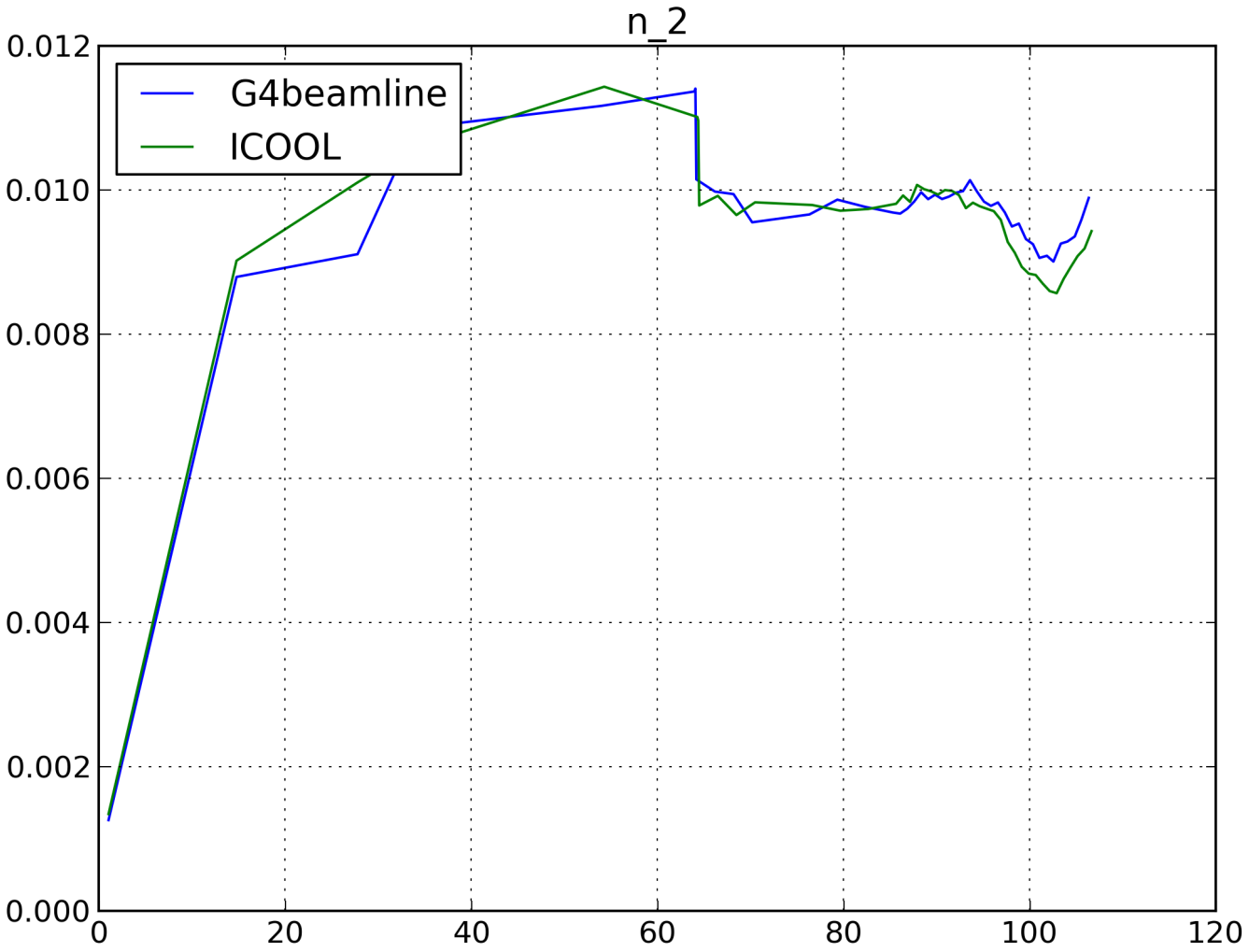
- Agreement with ICOOL to 1.5% (53326 particles in G4beamline vs 54170 in ICOOL)…
- …with a caveat: right now reference time/ momentum are hardcoded;
- eventually will be turned into a separate very short G4beamline run to get those values.
- No point in calculating: chicane and absorber width/material may change significantly.

All muons (n_0, no cuts)

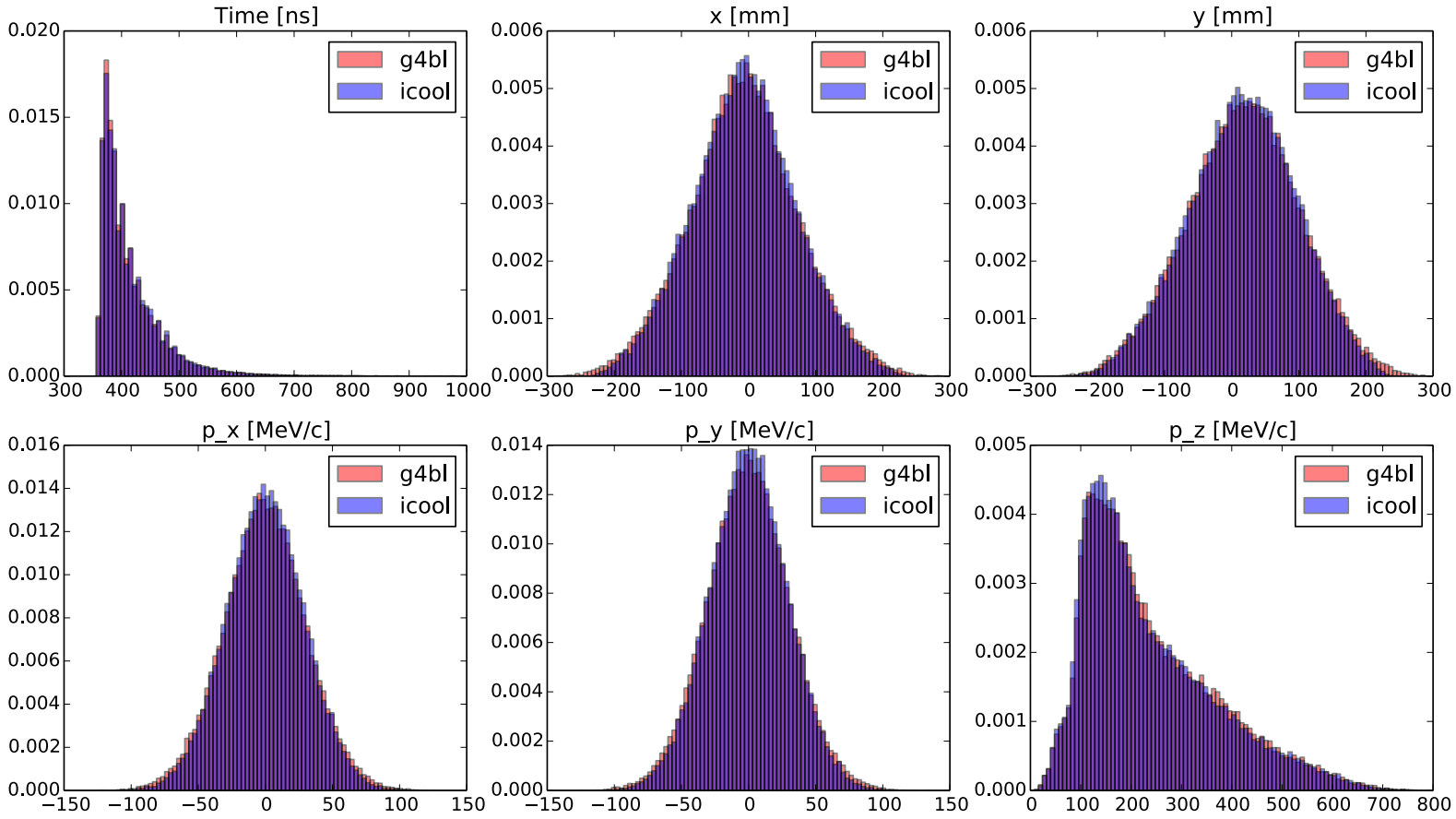


Weird particle loss at the beginning of buncher in ICOOL. Not resolved yet.

Useful muons (n_2, typical cuts)



After buncher, muons only



Implementing the rotator

- Reference particles are kept the same as in the buncher, for benchmarking against ICOOL.
- Rotator will not require reference particles at all (all RF parameters are set manually).
- Gradient is prescribed (20 MV/m).
- High energy ref particle loses 0.2 MeV/m, low energy ref particle gains 5.1 MeV/m, loss/gain is linear.
- RF frequency is calculated based on ToF difference. For ToF I use average of the velocities before and after RF.
- Phase is set based on the average ToF:
  tmean = 0.5 * (trefmean + t2refmean).
- Once this part is in place, cooler should not be an issue.