# End to End Simulation Status


Chris Rogers,
ASTeC,
Rutherford Appleton Laboratory

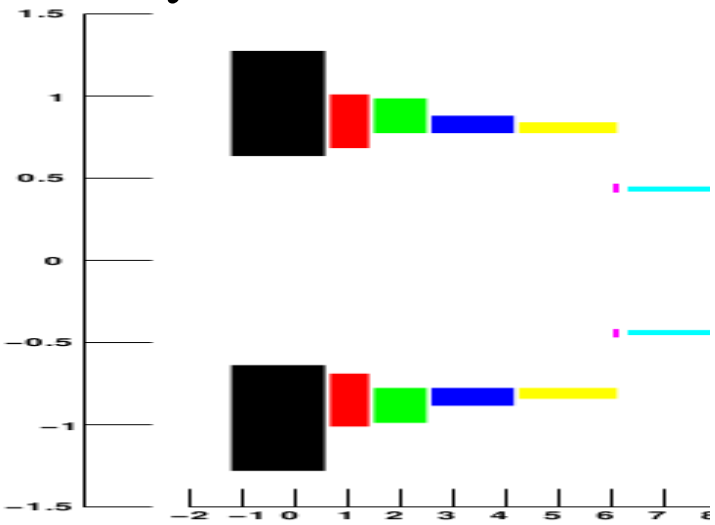
# Front End in the Context of E2E Sim

- Aim to build infrastructure for tracking from start to end of Neutrino Factory
  - Take a beam off target
  - Track through front end
  - Deliver a beam at the end of the cooling section
- Initially build a set of decks and assume matching
- Later design transfer lines etc

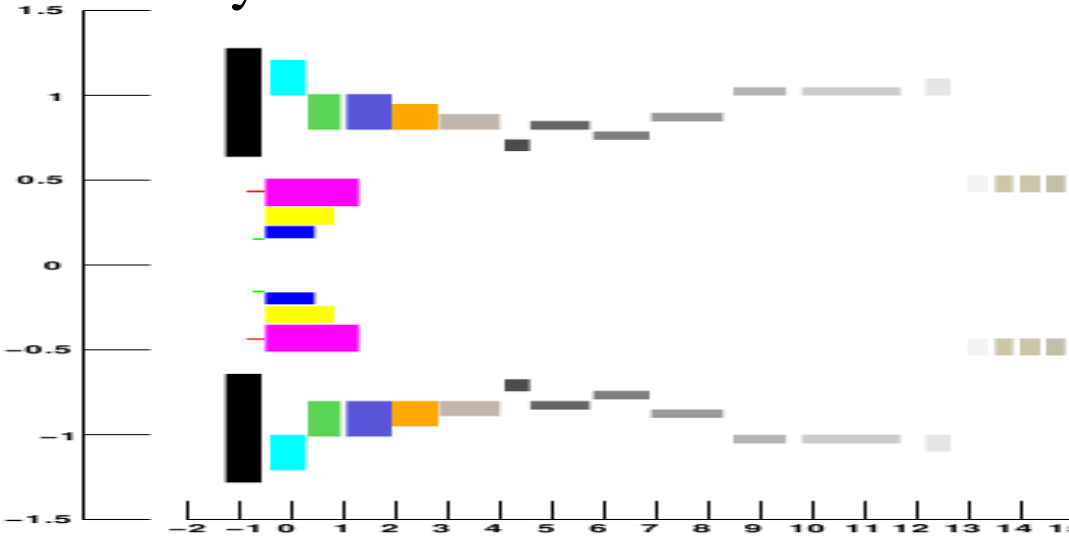
# Target Definition

- See Gersende's Talk?
- Coil geometry is from FS2 but field description is from FS2A (which is baseline)
- Not clear where the beam starts/poorly defined
  - “End of target material” -> beam dump effects? target window?
  - I haven't updated for results of discussion from last time (ongoing)
- MARS format added to python routines

Study 2



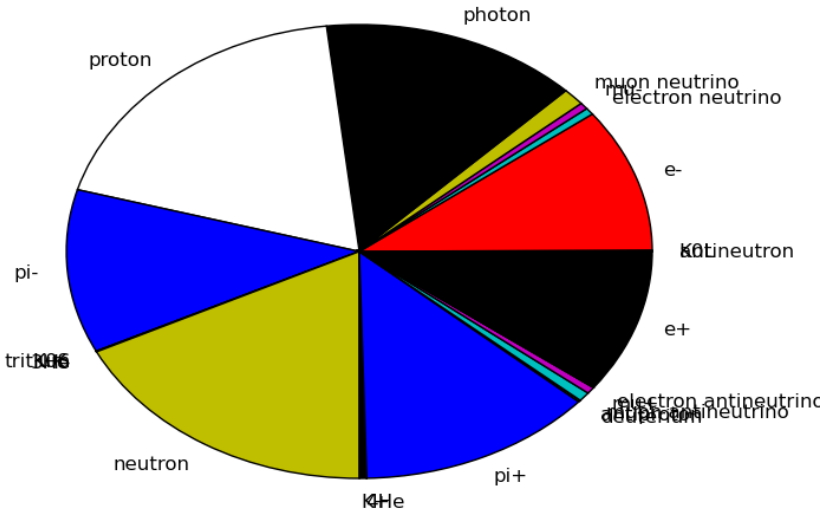

Study 2A



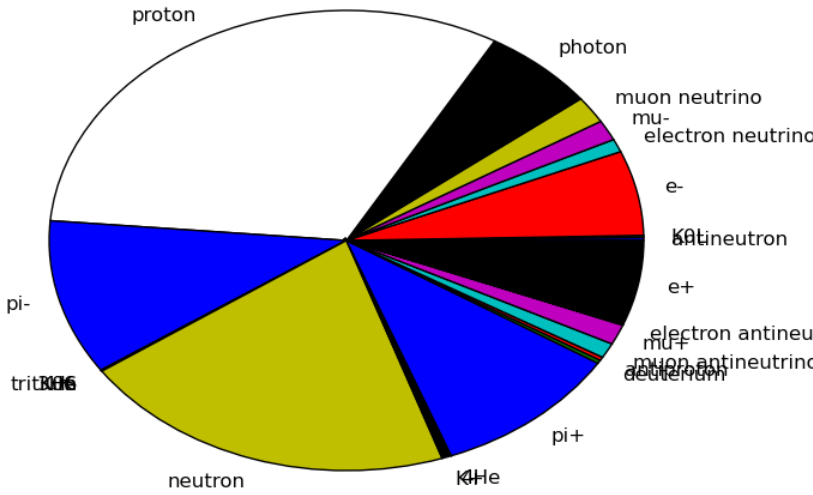
# Transport Through Front End

- 8 GeV beam
- 2 ns square time distribution for protons
  - Realistic?
- Caveat - icool does not propagate statistical weights
  - How was this done in the past?
- Minor caveat - icool does not propagate K0
  - (~1% effect)

# Beam Composition

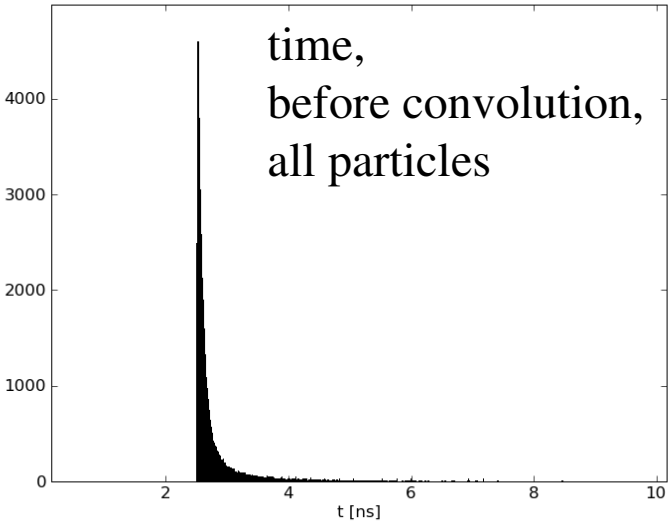


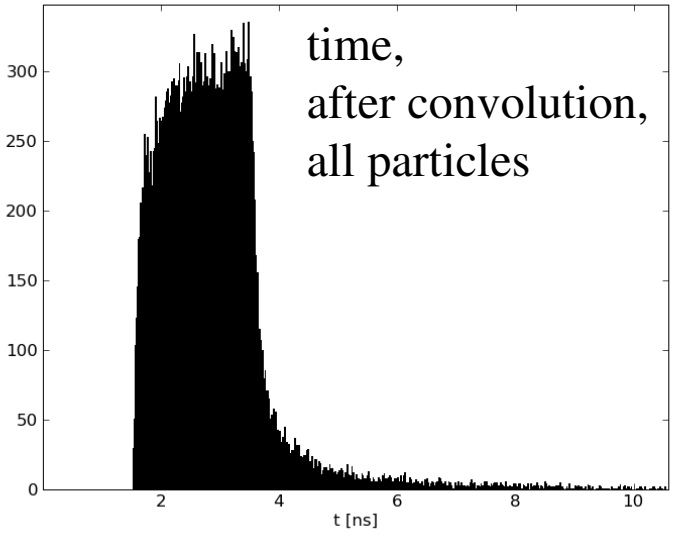

Weight

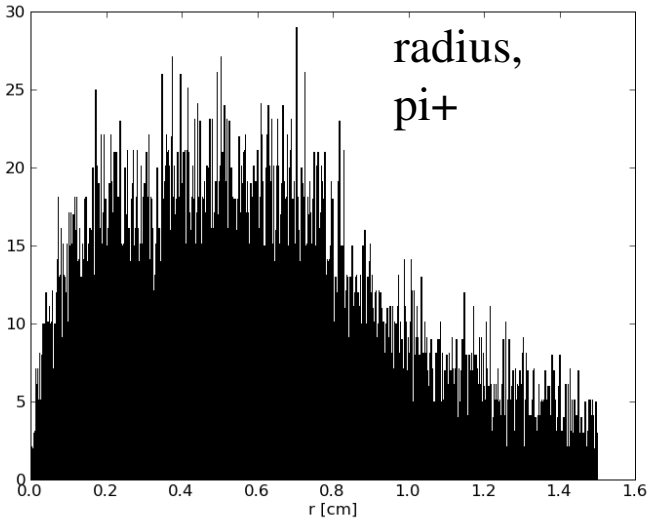


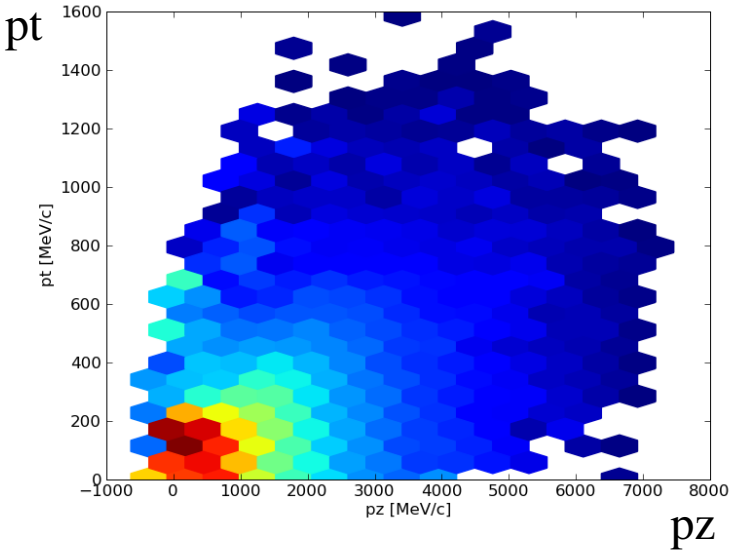

Number

# Beam Distribution



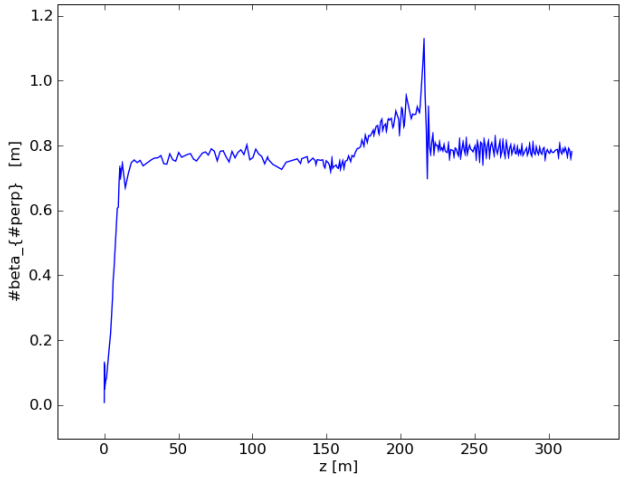



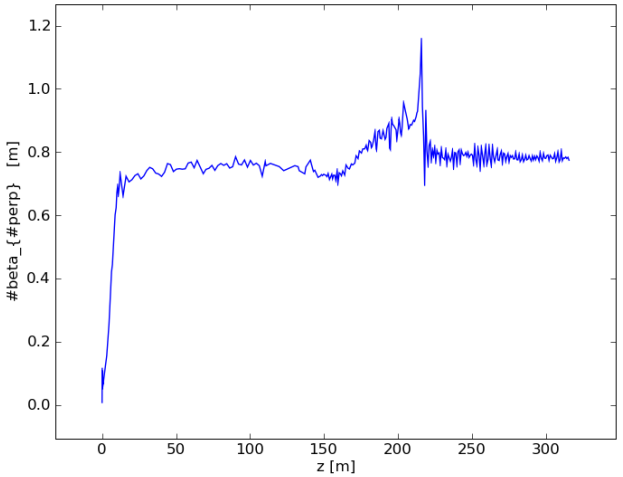



# Transport through Front End

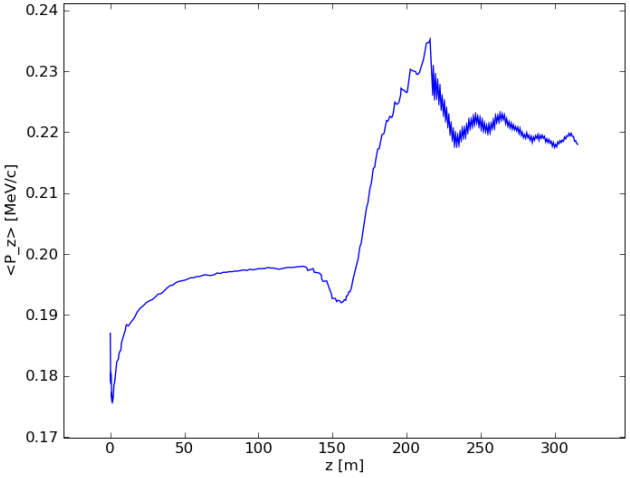
mu+, beta perp



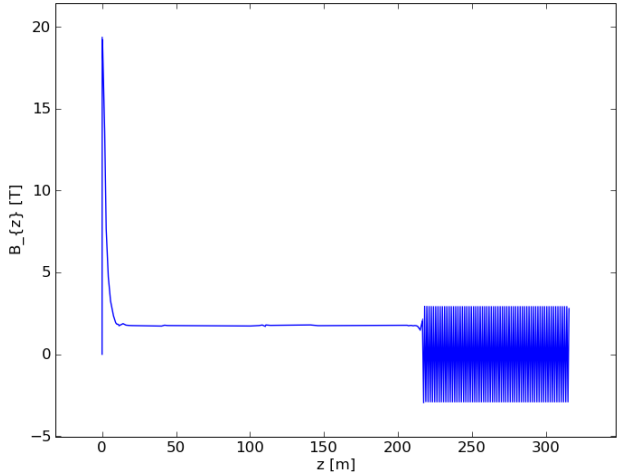

mu-, beta perp




mu+, <pz>

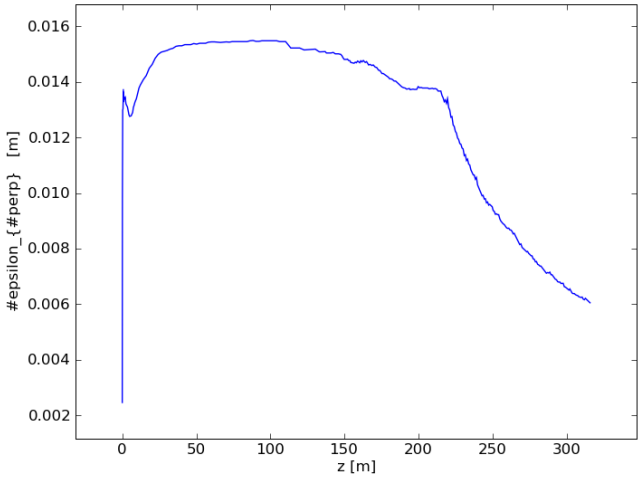



Bz(r=0)

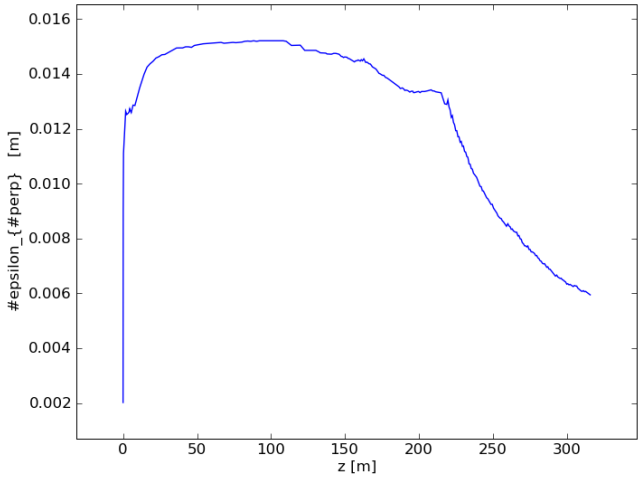


# Transport through Front End

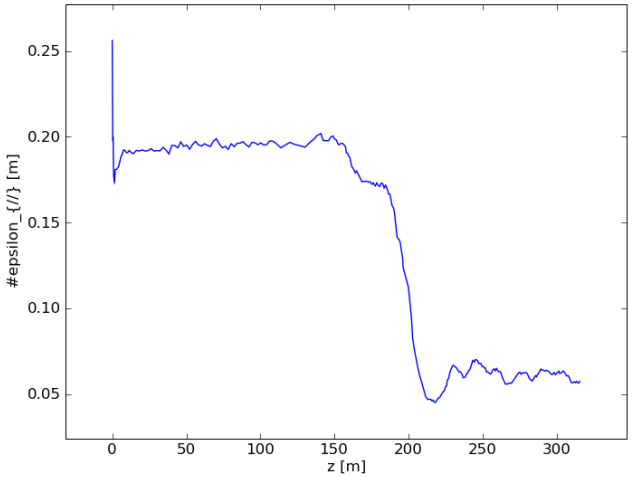
mu+, emittance perp



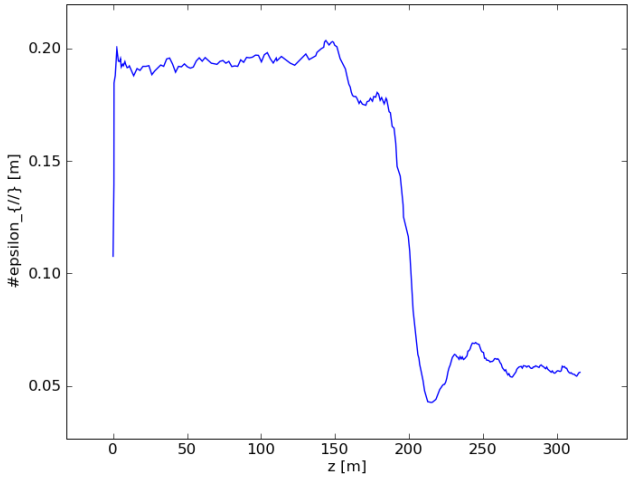

mu-, emittance perp




mu+, emittance long

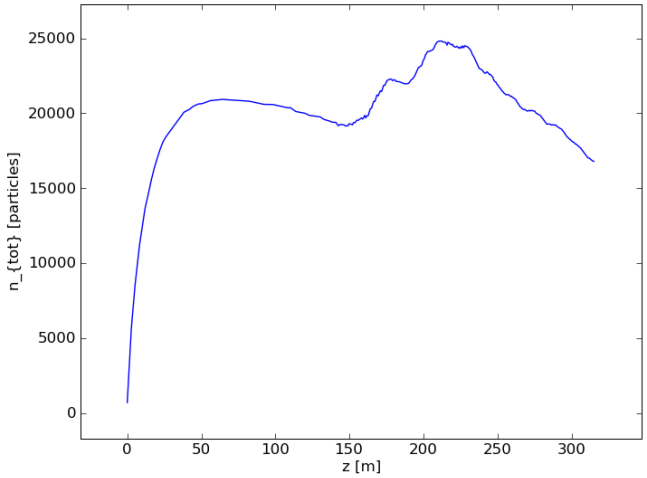



mu-, emittance long

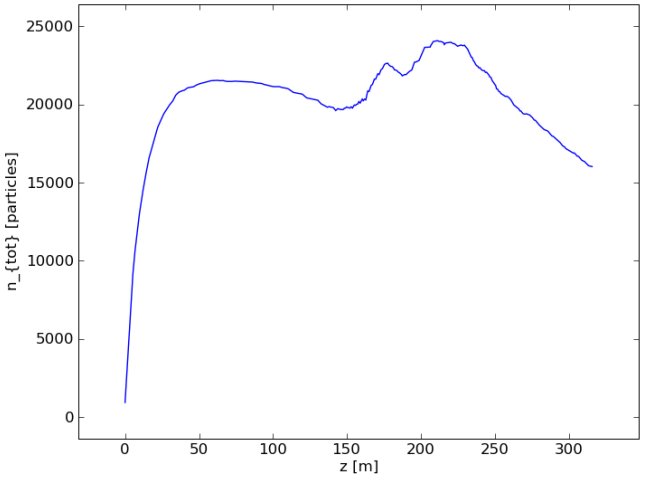


# Transport through Front End

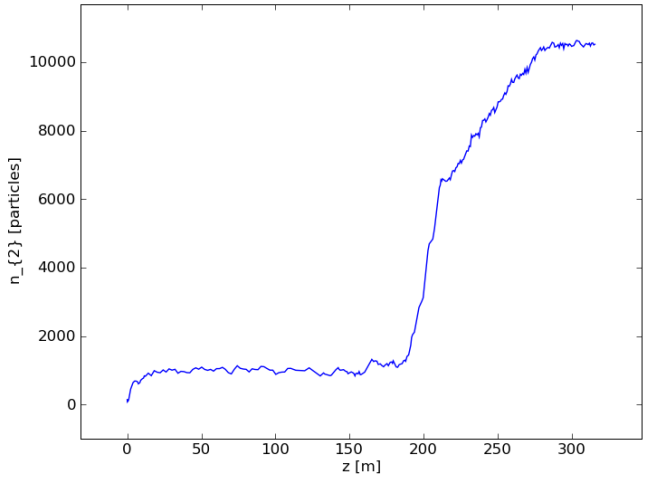
mu+, $n_{tot}$




mu-, $n_{tot}$




mu+, n(30 mm)




mu-, n(30 mm)