Baseline Update

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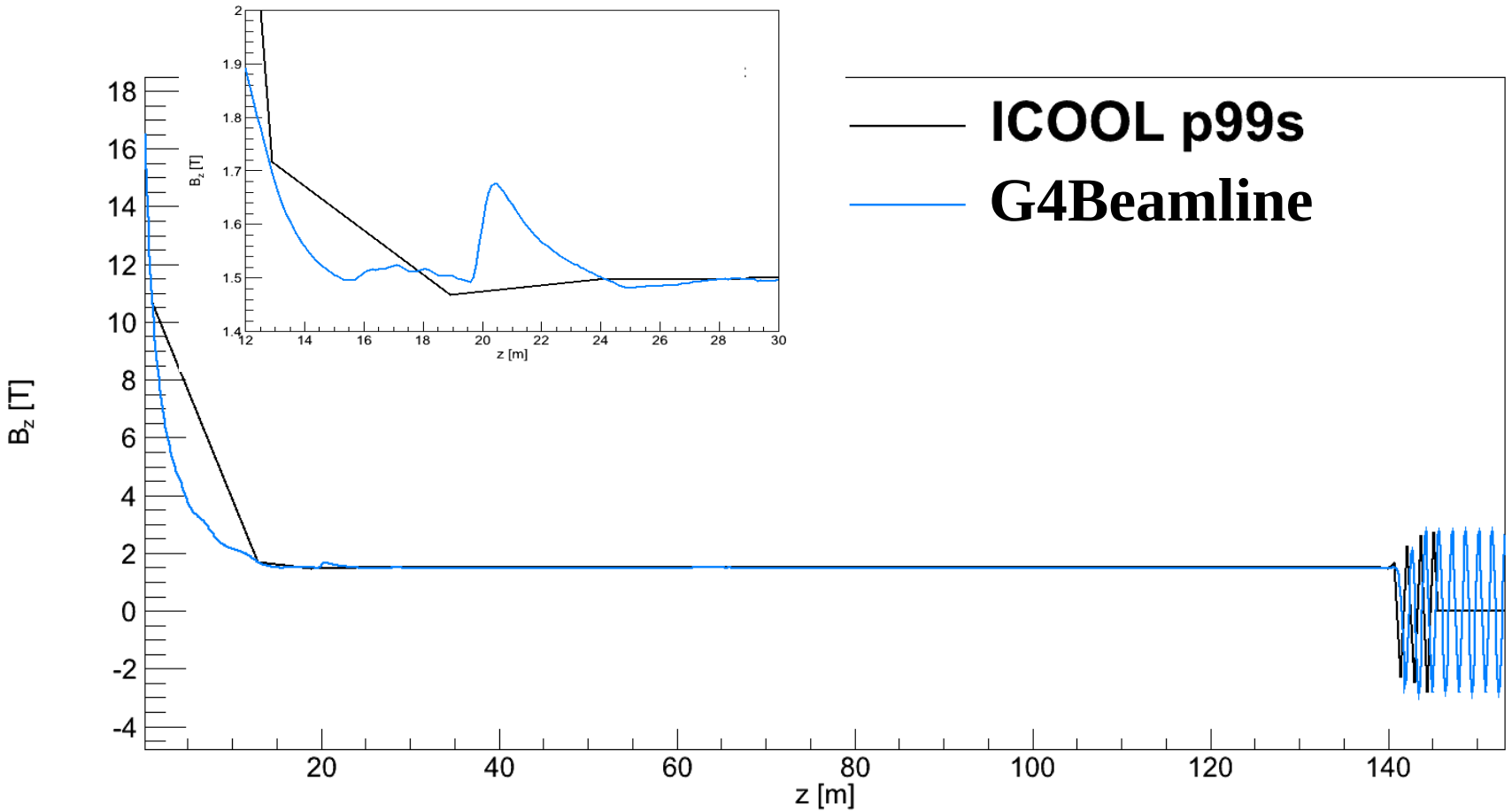
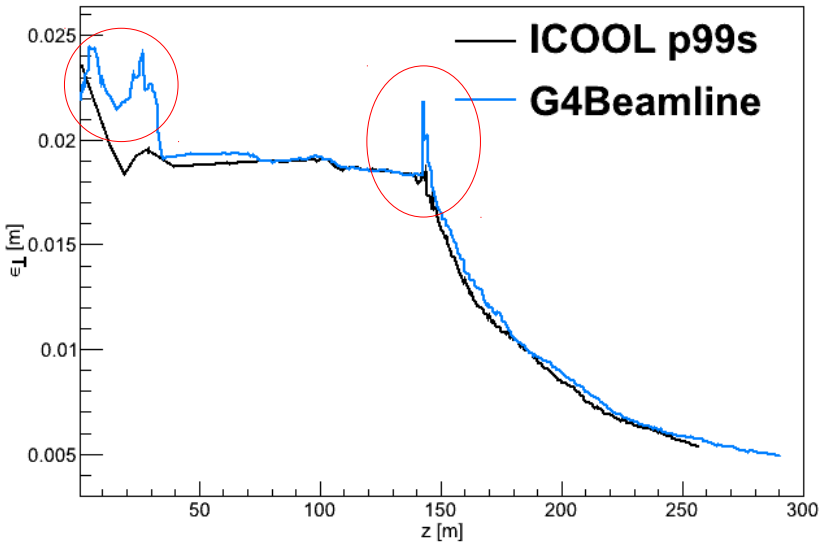
Status at IDS meeting

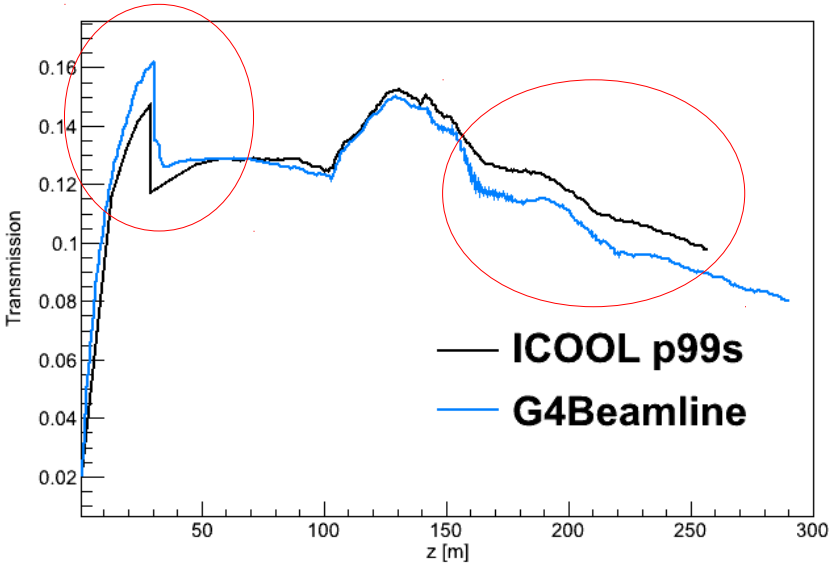
- G4BL/ICOOL chicane + capture had different performance
  - G4BL worse
- Review main differences in performance
- Address the changes to lattice
- Look at performance again

Magnetic Field



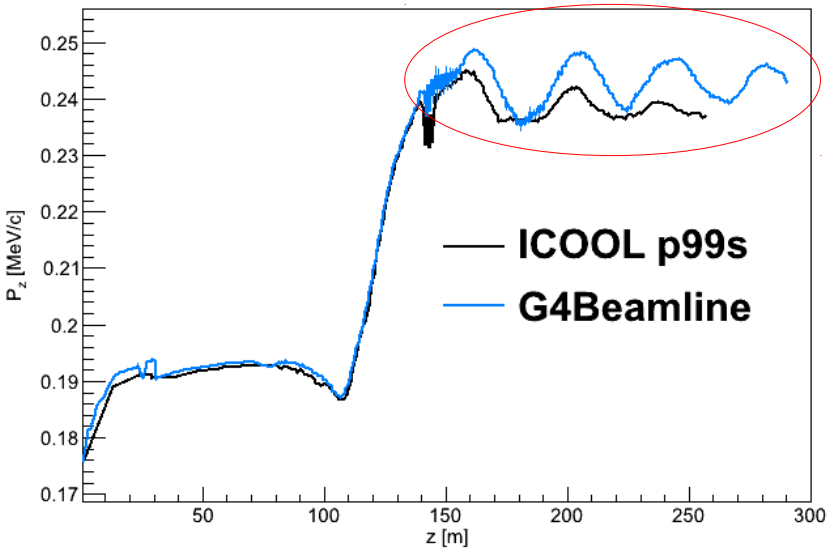
Transverse

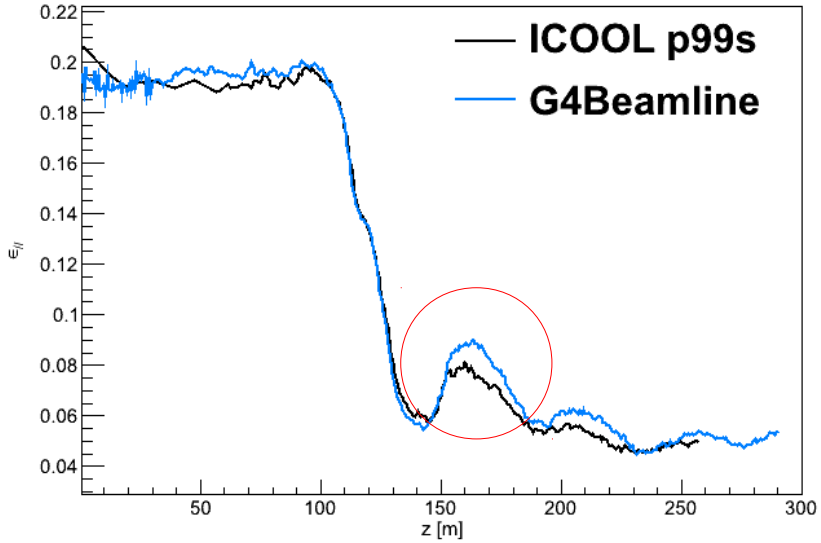




- Incorrect handling of chicane aperture
  - Just let particles hit coils
- Mismatch going into cooling section

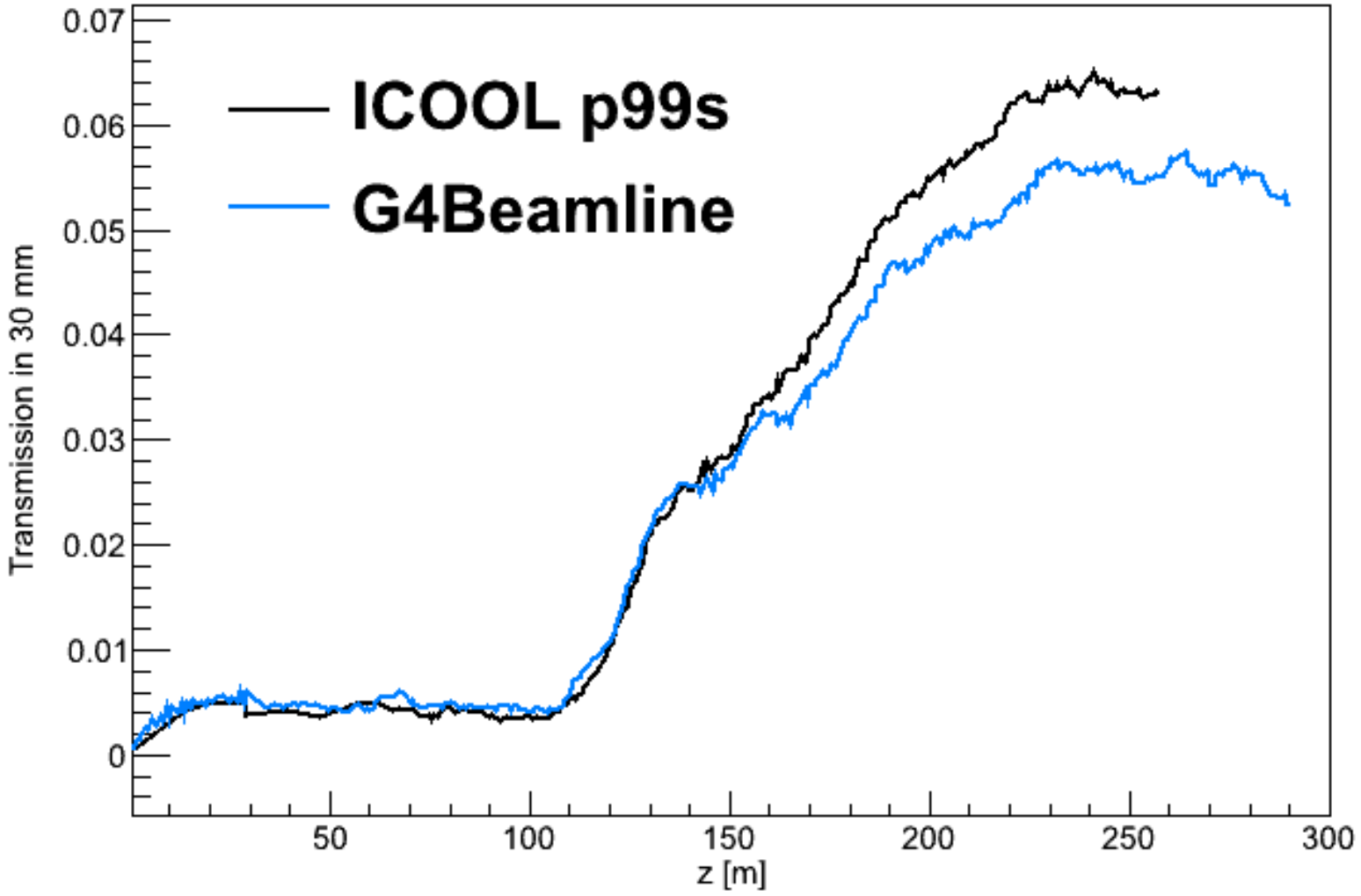
Longitudinal





- Slight longitudinal mismatch
  - In both ICOOL and G4BL
  - Worse in G4BL

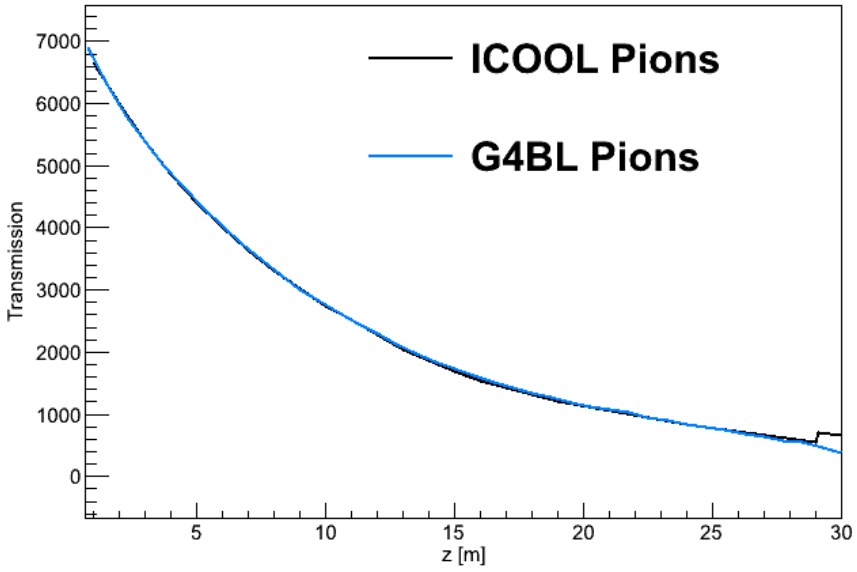
Cooling - Capture Performance

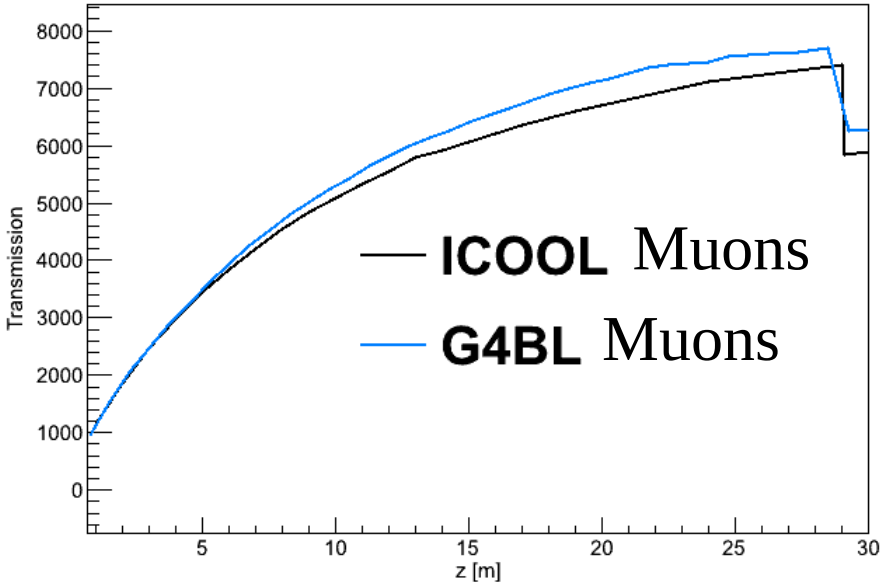


Revised Lattice

- Update…
  - Improved matching coming from field taper
  - Drift uses analytical Bz=1.5T
    - Terminate chicane field using field map of solenoid fringe fields and setting current to -1
    - Then use ICOOL field maps etc to do the matching into cooling channel
  - Same reference particle for G4BL/ICOOL (but see below) for calculating RF cavity phases
  - Fixed drift length in G4BL
  - Corrected chicane bending radius factor -1
  - Correct apertures
- I believe the only difference now is field maps in chicane

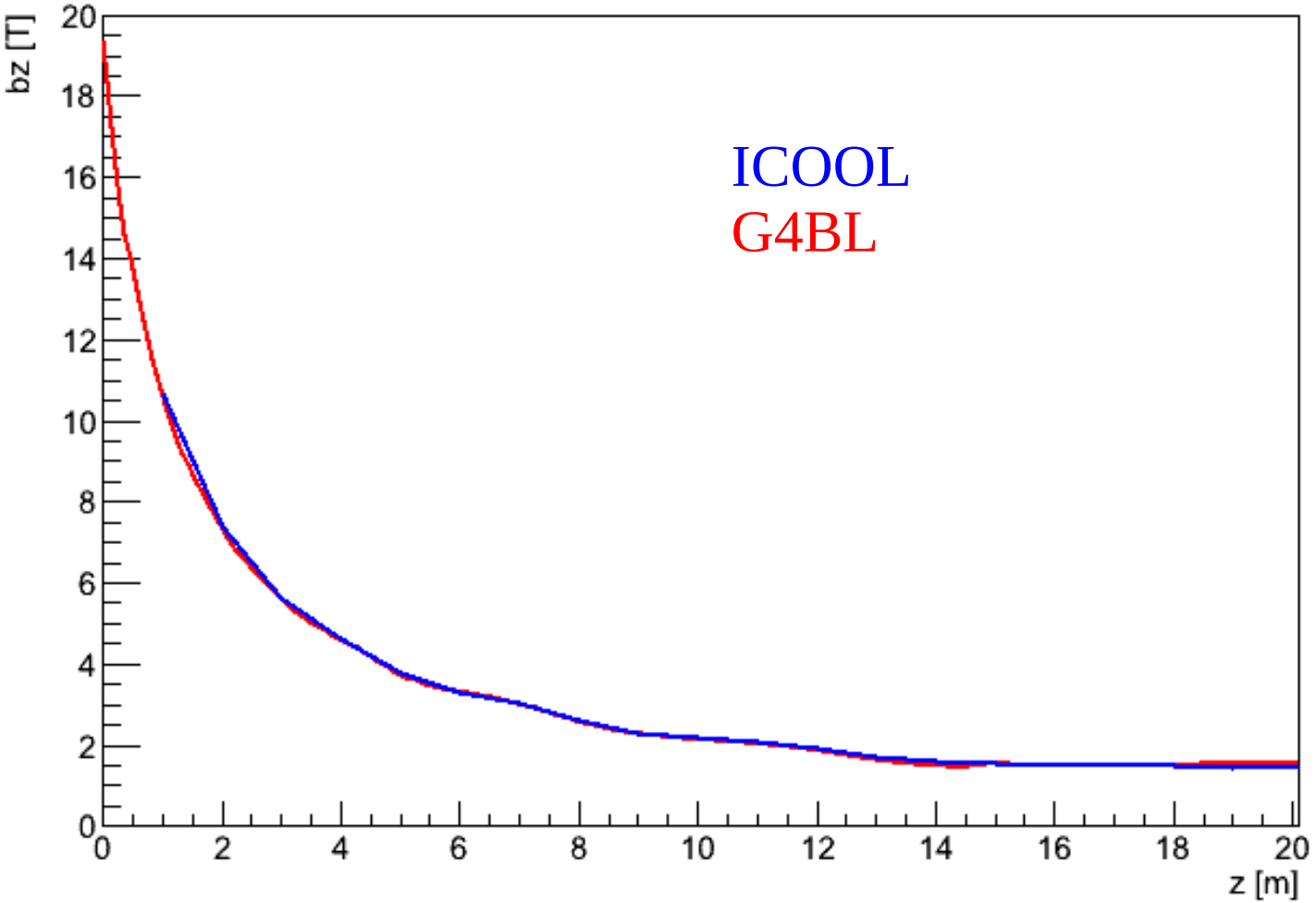
Solenoid Capture



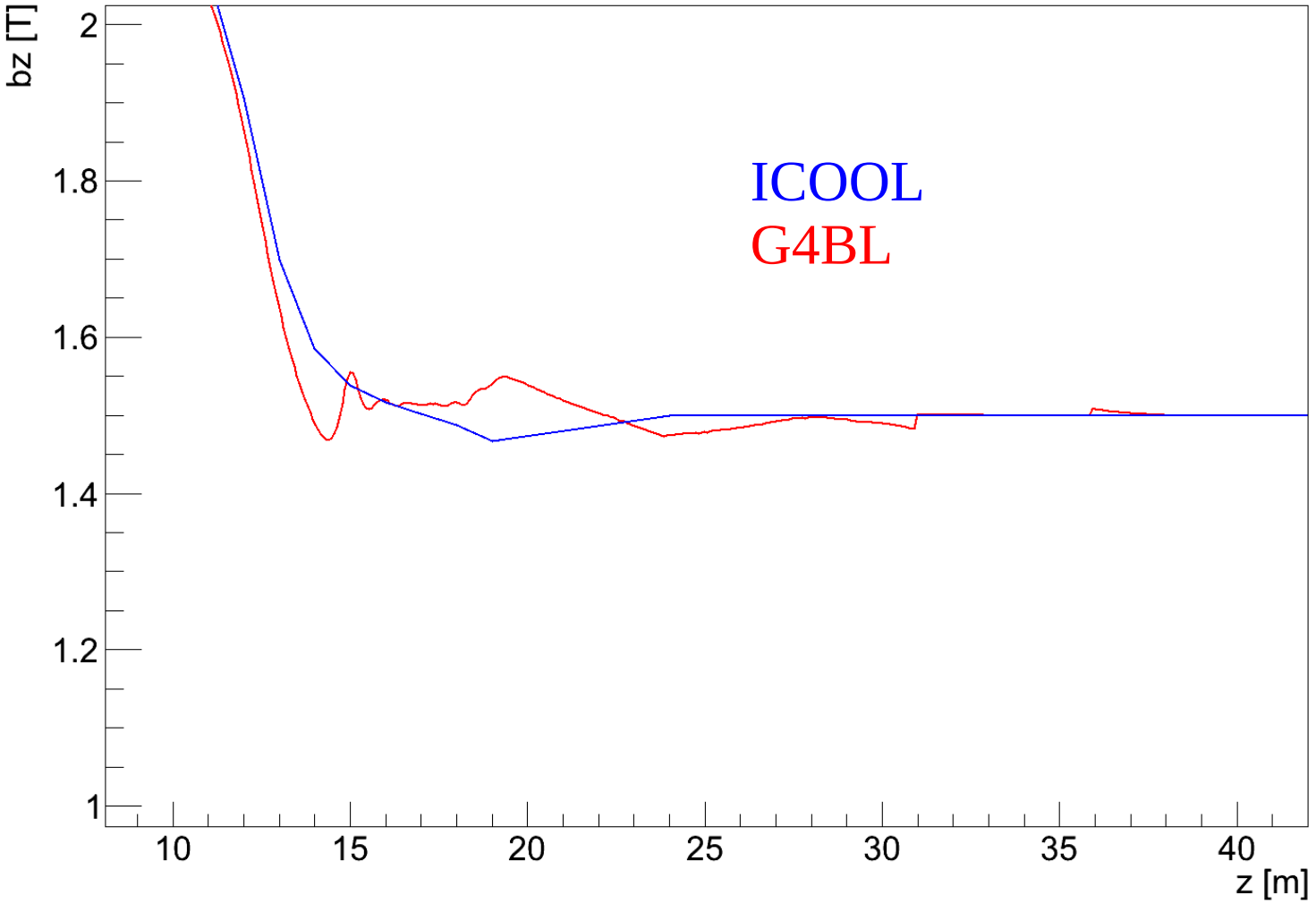


- Discrepancy in muon number here is 5%
- Number of pions is same
- I believe aperture and field map is the same

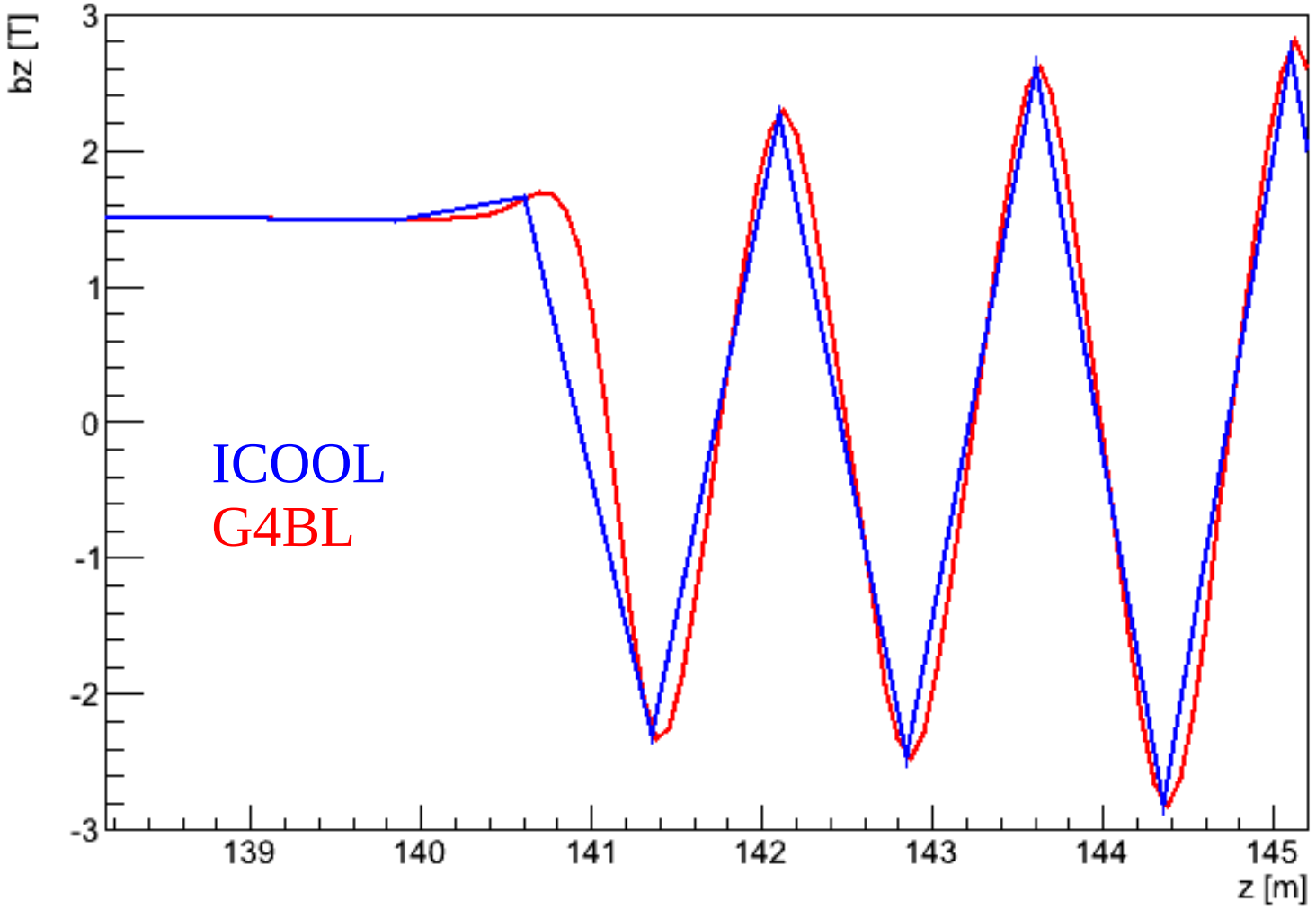
Field – Taper



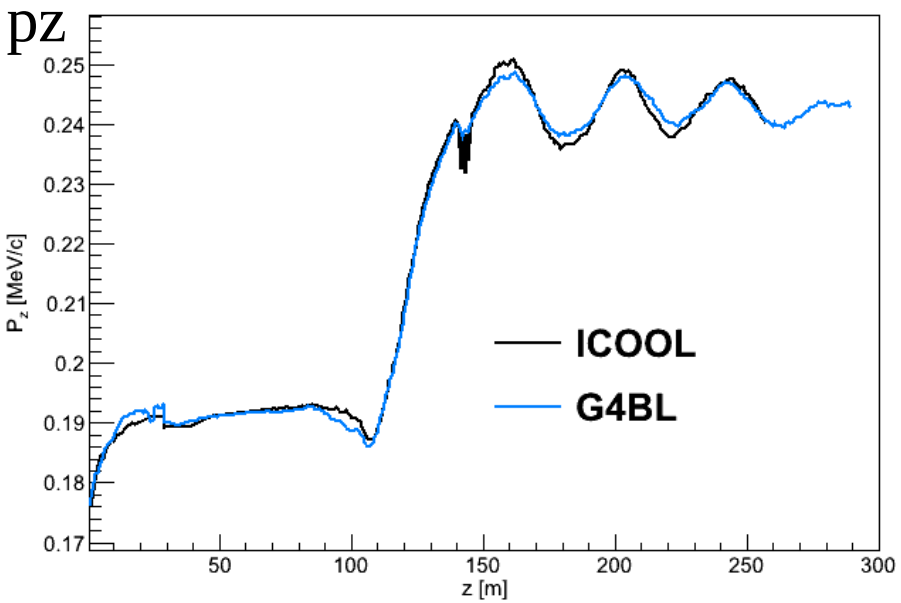
Field – Chicane

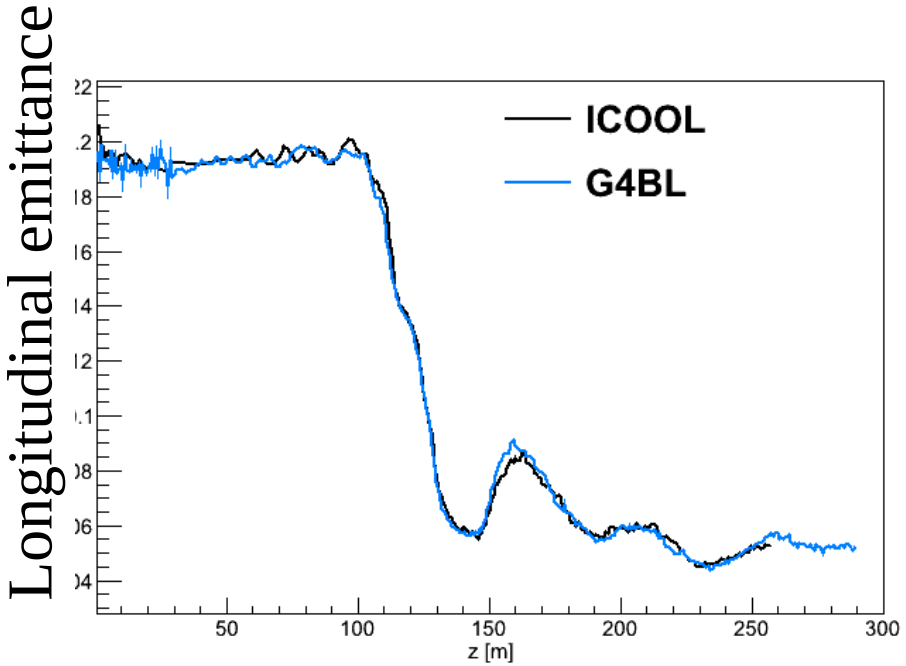


Field – Matching



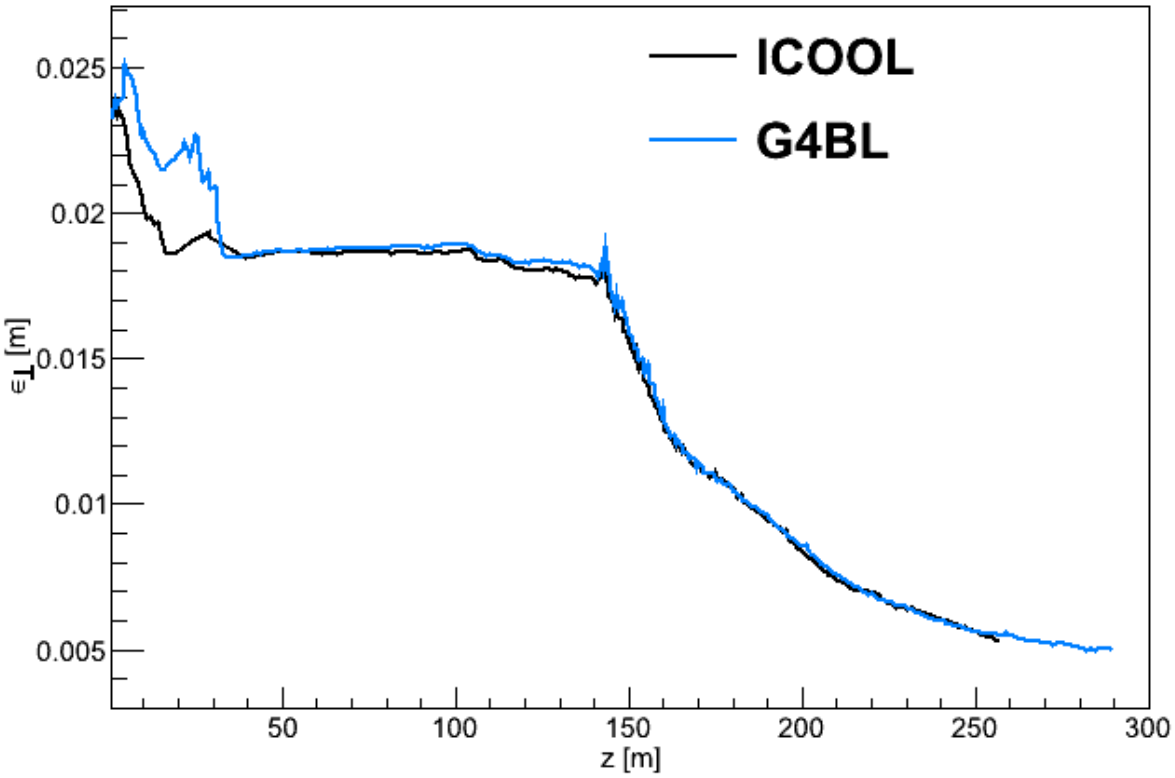
Longitudinal Emittance





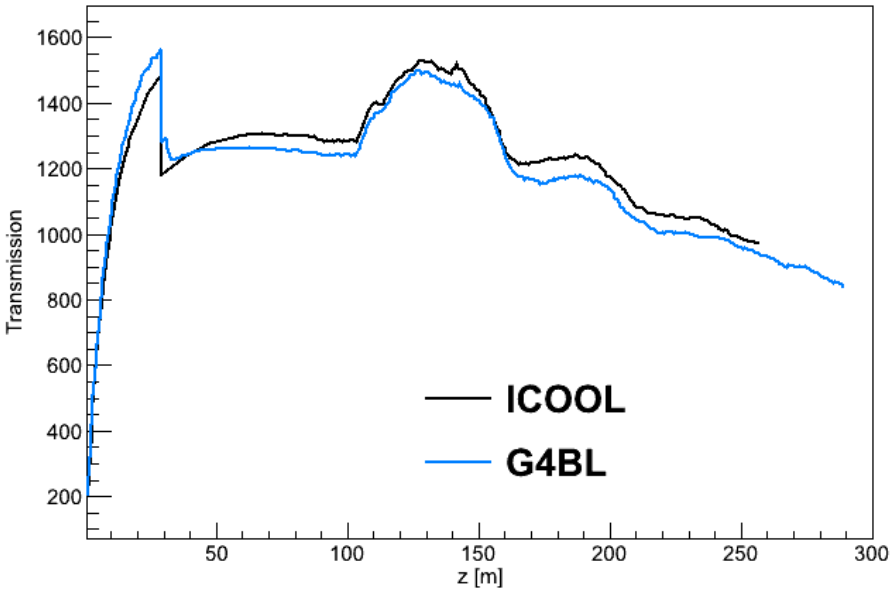
- Much better longitudinal agreement

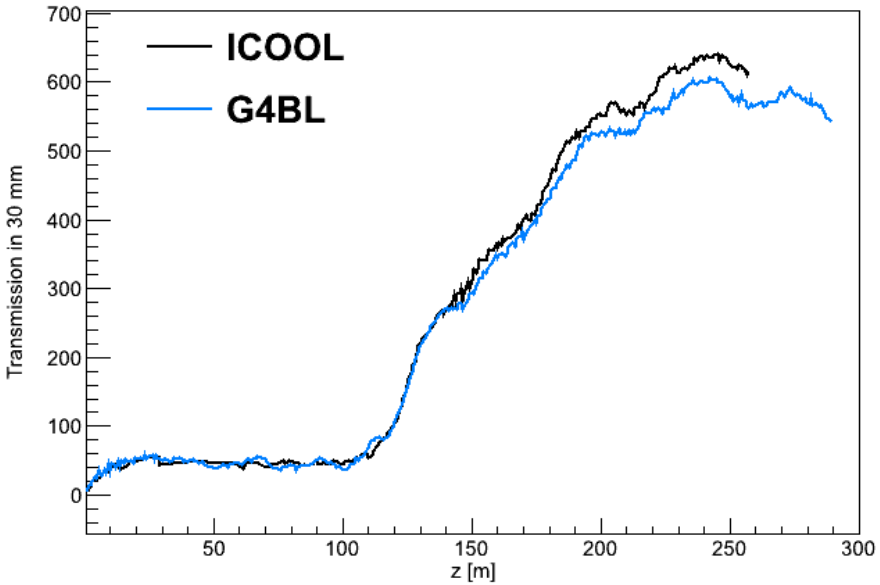
Transverse Emittance



- Better transverse agreement (some noise around chicane in G4BL)

Transmission (in cuts)





- Better rate agreeement
  - Still some lower performance in G4BL, presumably due to chicane?

Conclusions

- Tidier, better agreement between codes
- Still some fiddling to do