Numerical study of lattice modifications from engineering constraints for a NF

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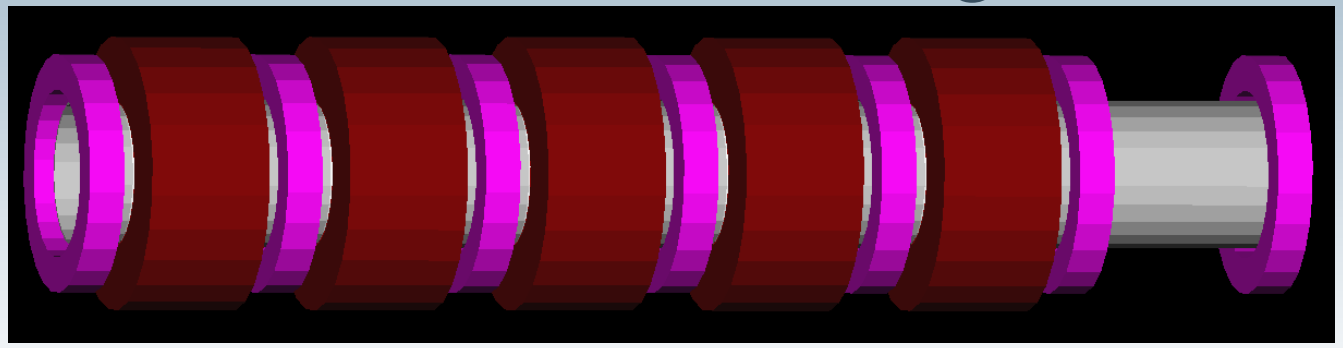
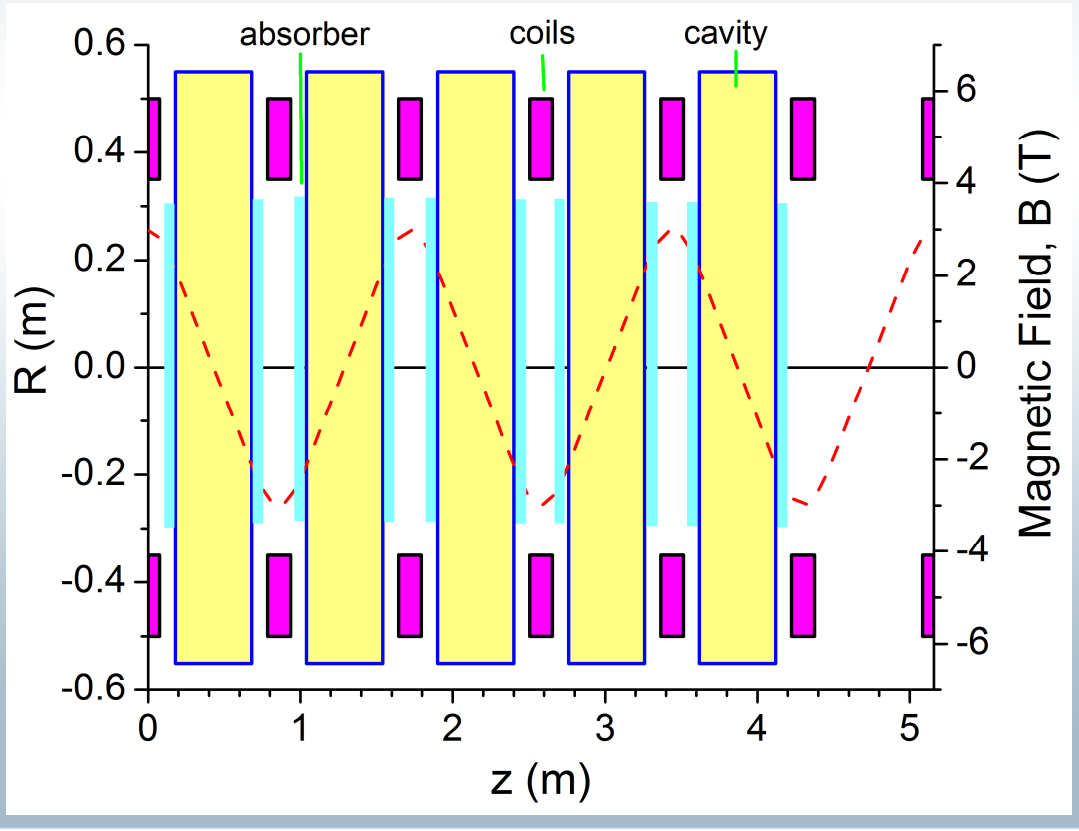
Motivation

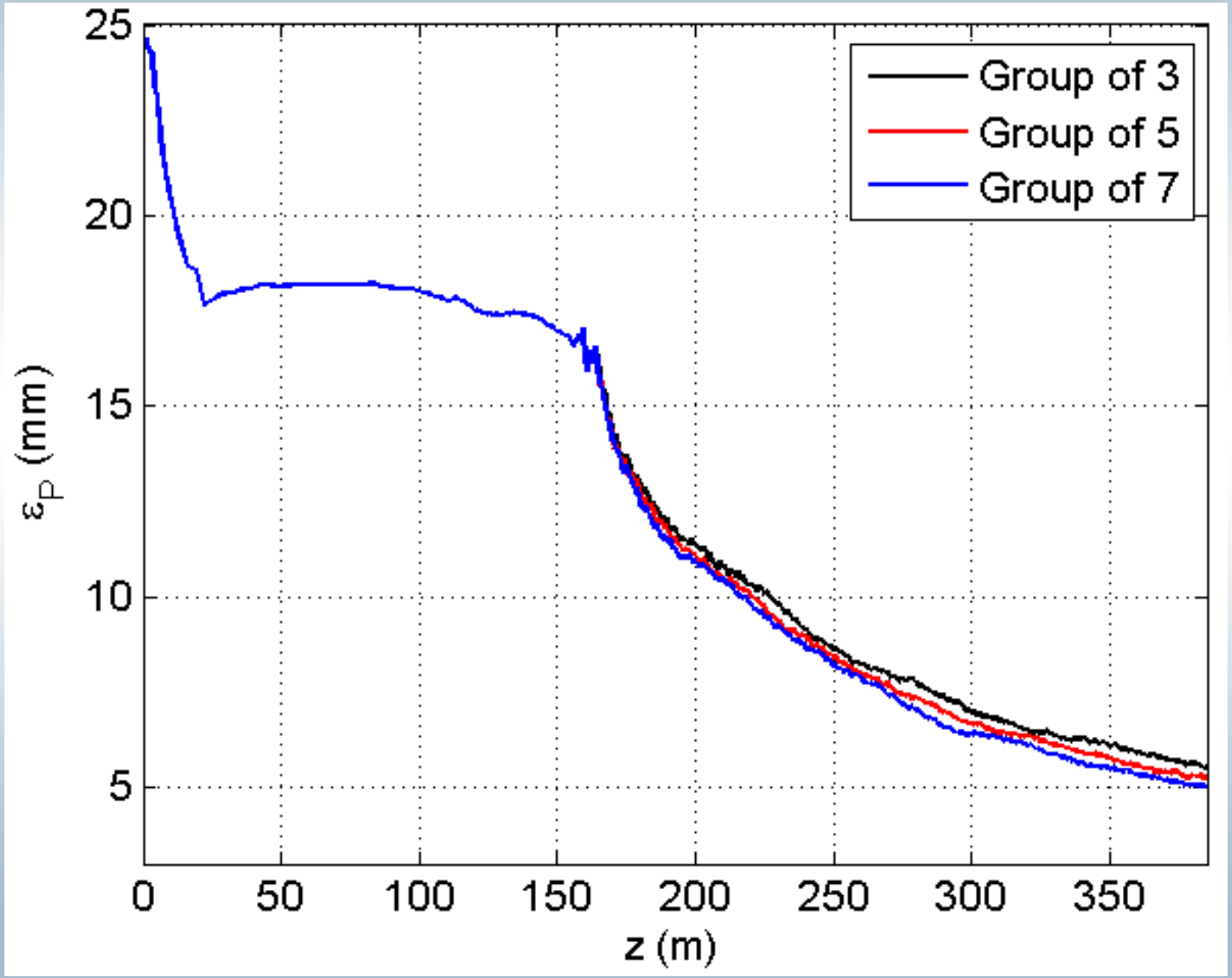
- Engineering studies require an “empty cell” after a certain number of cavities in the cooler
- So far the empty cell was placed after 5 cavities
- At the last IDS it was proposed to increase this number to 7
- Here I will show you the results of this simulation
- Discuss the outline of our proposed PRST-AB paper

New cooler design

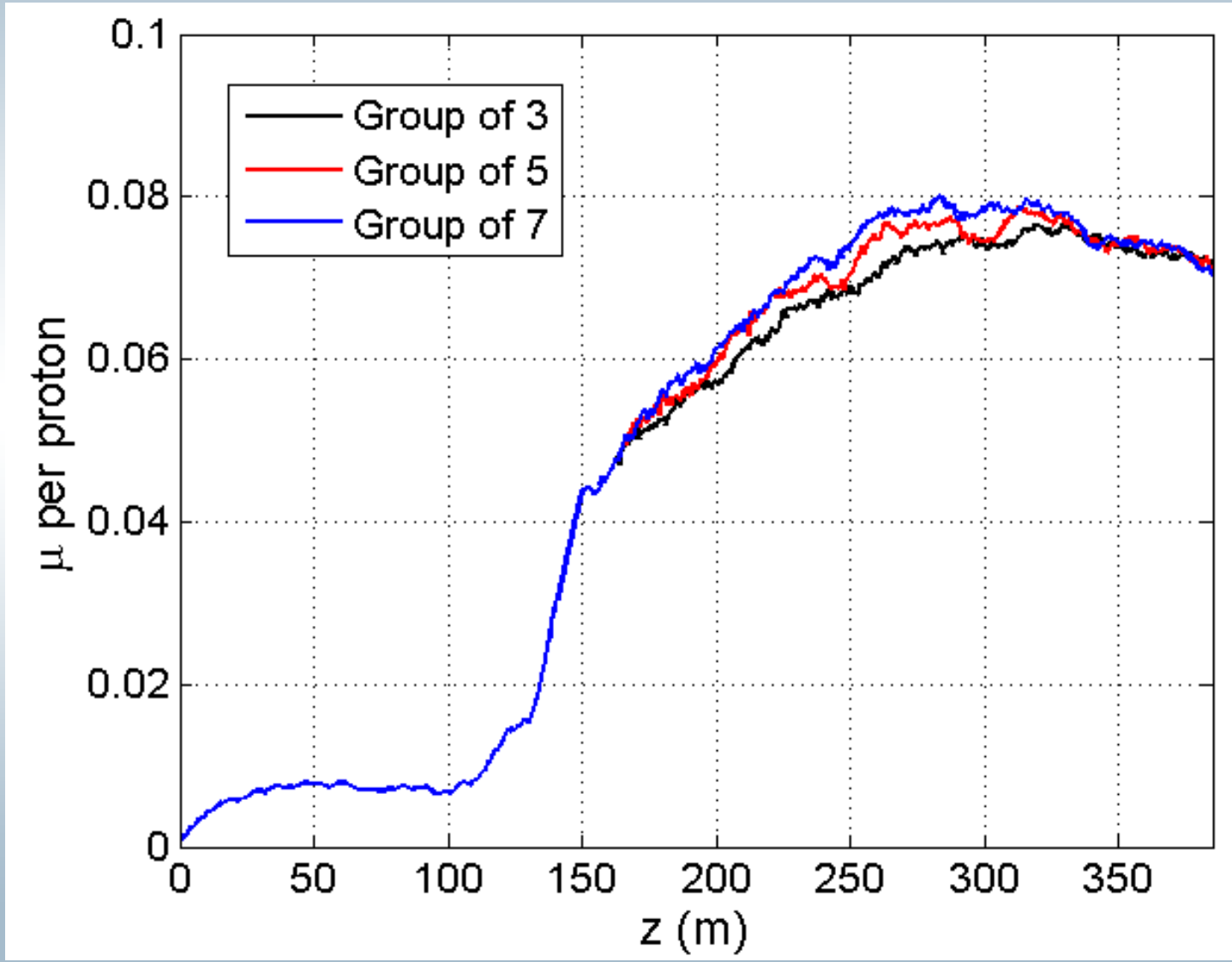




Simulation Results (1)



Simulation Results (2)



PRST-AB Paper

- Main focus of the paper is the cooler section
  - We have a number of novel ideas
  - They have applications for a NF or MC design
  - But also are useful for designing systems for nuclear detection
- Compare alternative cooling systems:
  - New baseline with engineering constraints (All)
  - Magnetic Shielded Lattice (Rogers)
  - Bucked Coils (Alekou, Pasternak, Stratakis)
- Benchmark lattices with two codes (G4BL and ICOOL)