



Numeric studies of a 'realistic' front-end for a Neutrino Factory

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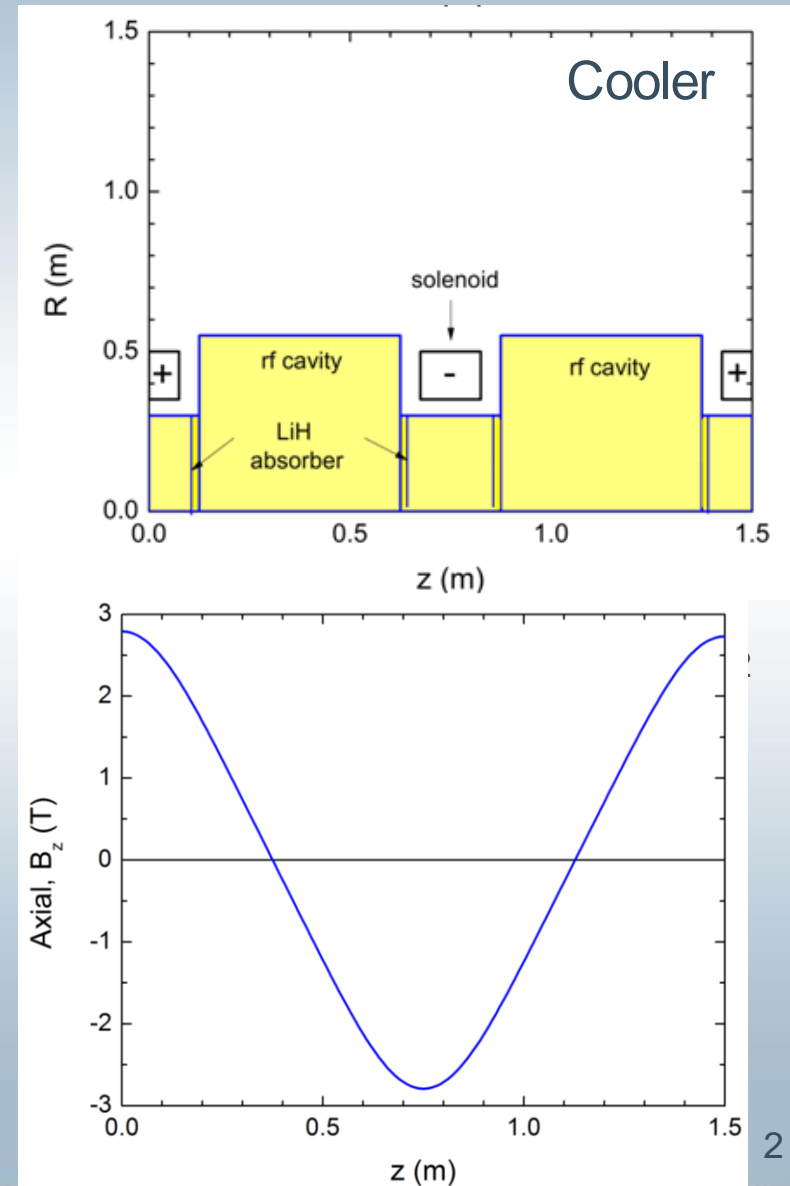
Brookhaven National Laboratory

Advanced Accelerator Group Meeting

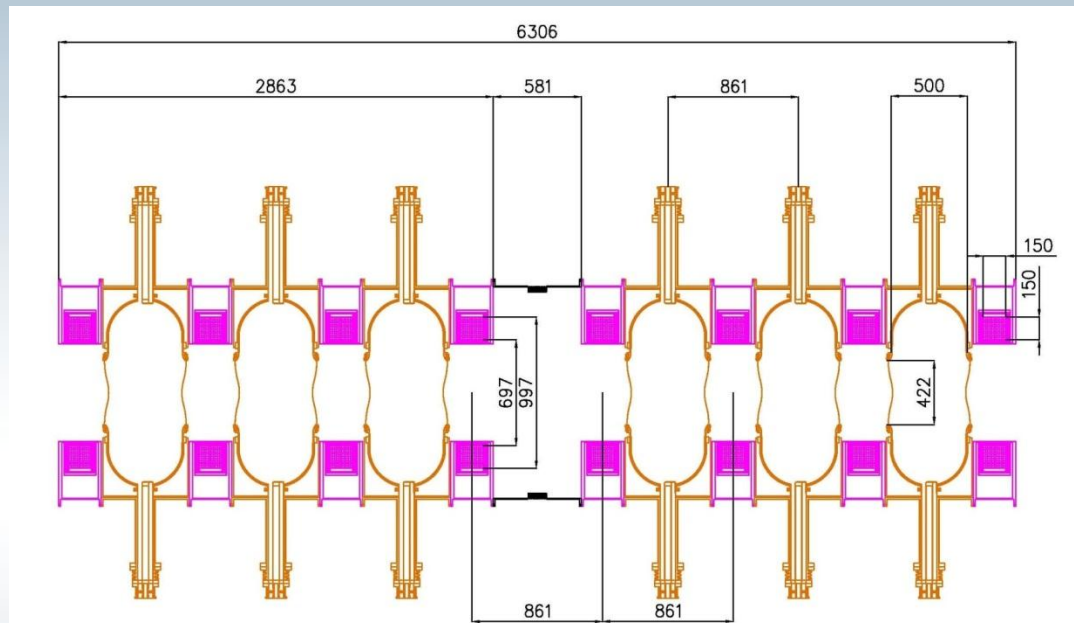
May 16, 2012

Introduction

- Cooler - ~105 m
 - 1.1 cm LiH,
 - 201 MHz rf cavity
 - Alternating $B \pm 2.8$ T
 - 201 MHz rf at 16 MV/m in 2 T



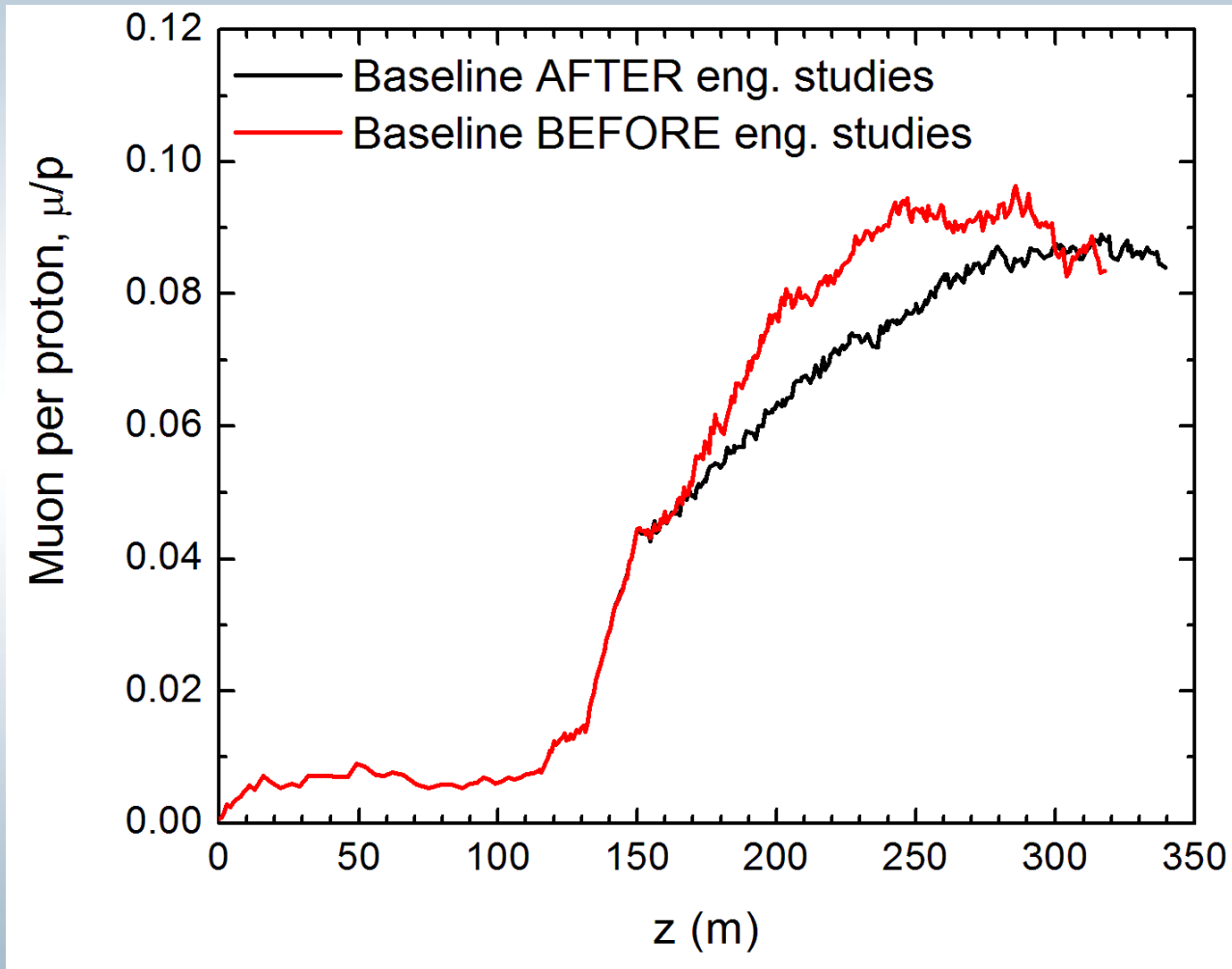
Motivation



Alan Grant, Presentation at NF phone meeting (May 8, 2012)

- Engineering studies suggest:
 - Increase cooler cell length from 0.75 m to 0.86 m
 - Have one “empty” cell after every third cavity

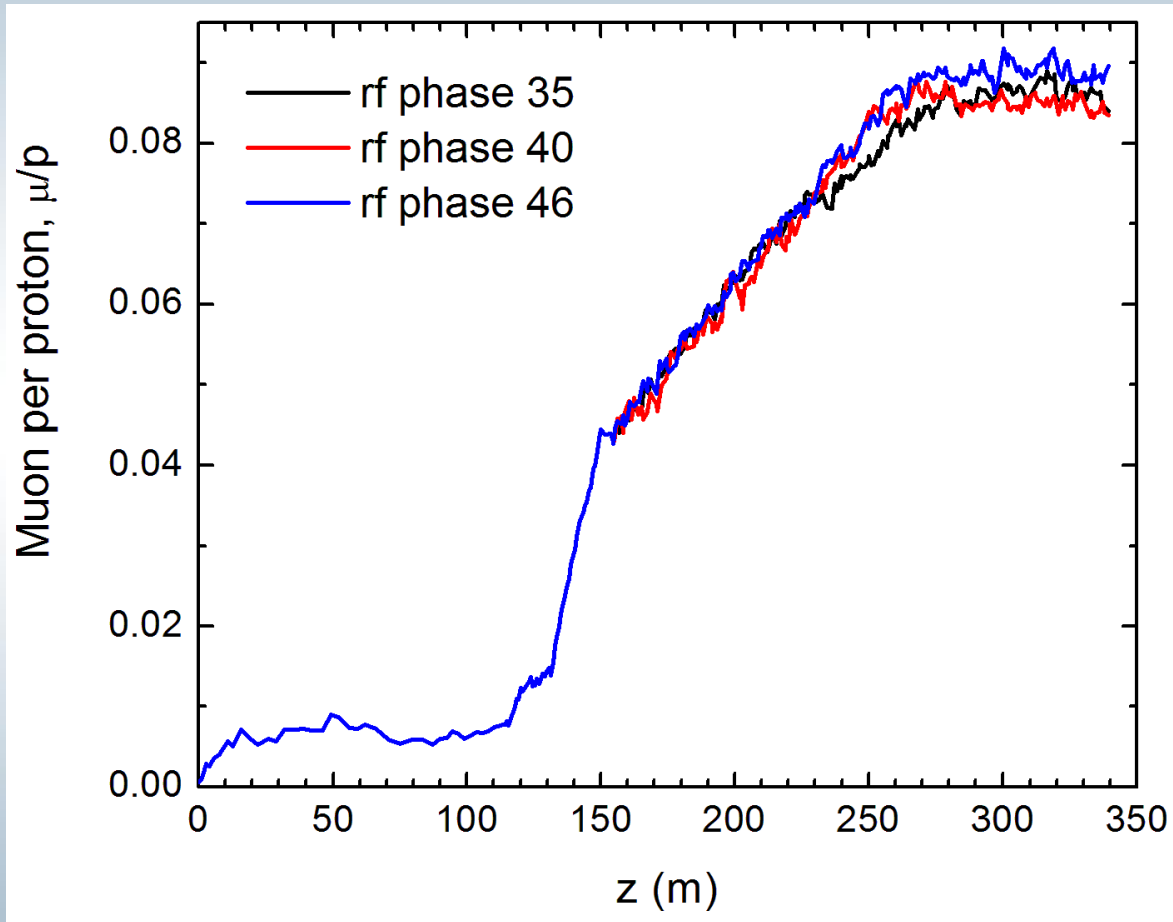
ICOOOL simulation (1)



Simulation details (2)

- I simulated this new lattice with ICOOL v3.20 with 10,000 particles
- An absorber scan from (0.7 cm to 1.3 cm) did not improve the lattice performance
- Multiplying the magnetic field by a factor of 0.8 to 1.3 did not improved results either
- Some improvement with rf phase (next slide)

rf phase scan



Summary

- New scheme shows 5-10% less performance
- Most likely needs to be longer
- Its performance matches now the bucked-coil lattice