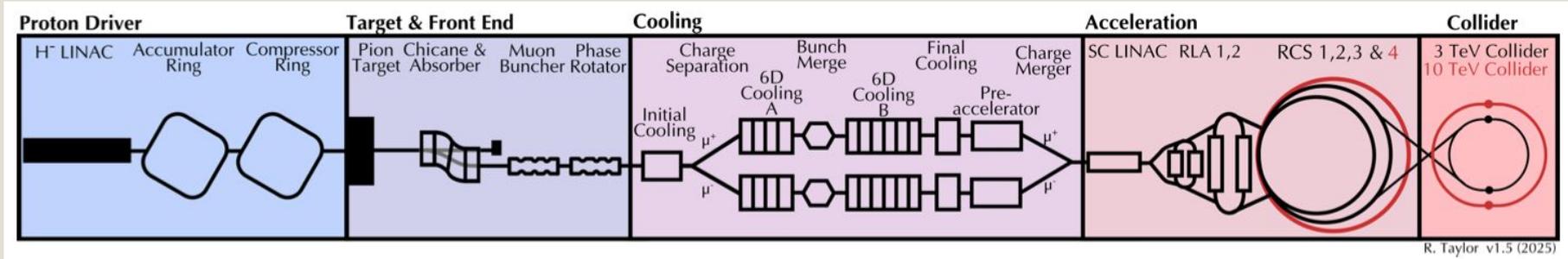


Tova Holmes
University of Tennessee, Knoxville
Simons Kick-Off

Accelerator Focus

Projects from our initial grant proposal
+ some amendments

How to accelerate muons



For a little more detail: [Tova's DPF Talk](#)
For a lot more detail: [Mark's NLSG Talk](#)

Focus 1: Muon Cooling

Existing Group(+) Expertise

This team has worked on HFOFO (Rithika, Daisy) and Rectilinear+Final Cooling (Inci)

Strong collaborations with Larry Lee's group (Caroline) and Fermilab folks (Diktys, Katsuya, Dave)

All working in G4Beamlines to optimize individual sections

Opportunities for the Future

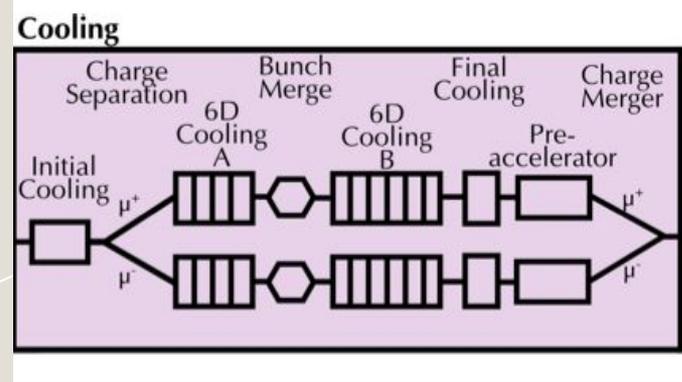
Continued work on individual channels

Co-optimization in a single framework

Interest from Rithika into diving into ML-driven matching between sections

Outside context

Work beginning from MIT+Fermilab to work on differentiable simulation of the lattice



Focus 2: Neutrino Beams

Work done so far

Early work on neutrino slice done by Matheus and co. being expanded by UTK group (incl. Daisy)

Theory initiative started at Good vs workshop to think more extensively about neutrino beam opportunities

CERN efforts towards characterizing radiation from neutrino beams

Our goals:

Investigate FNAL siting constraints
To ensure neutrino radiation is negligible

Build basic detector concepts
For standalone neutrino experiments at different energy scales

Characterize detector interactions
Including more accurate beam parameters and full interaction sim

