

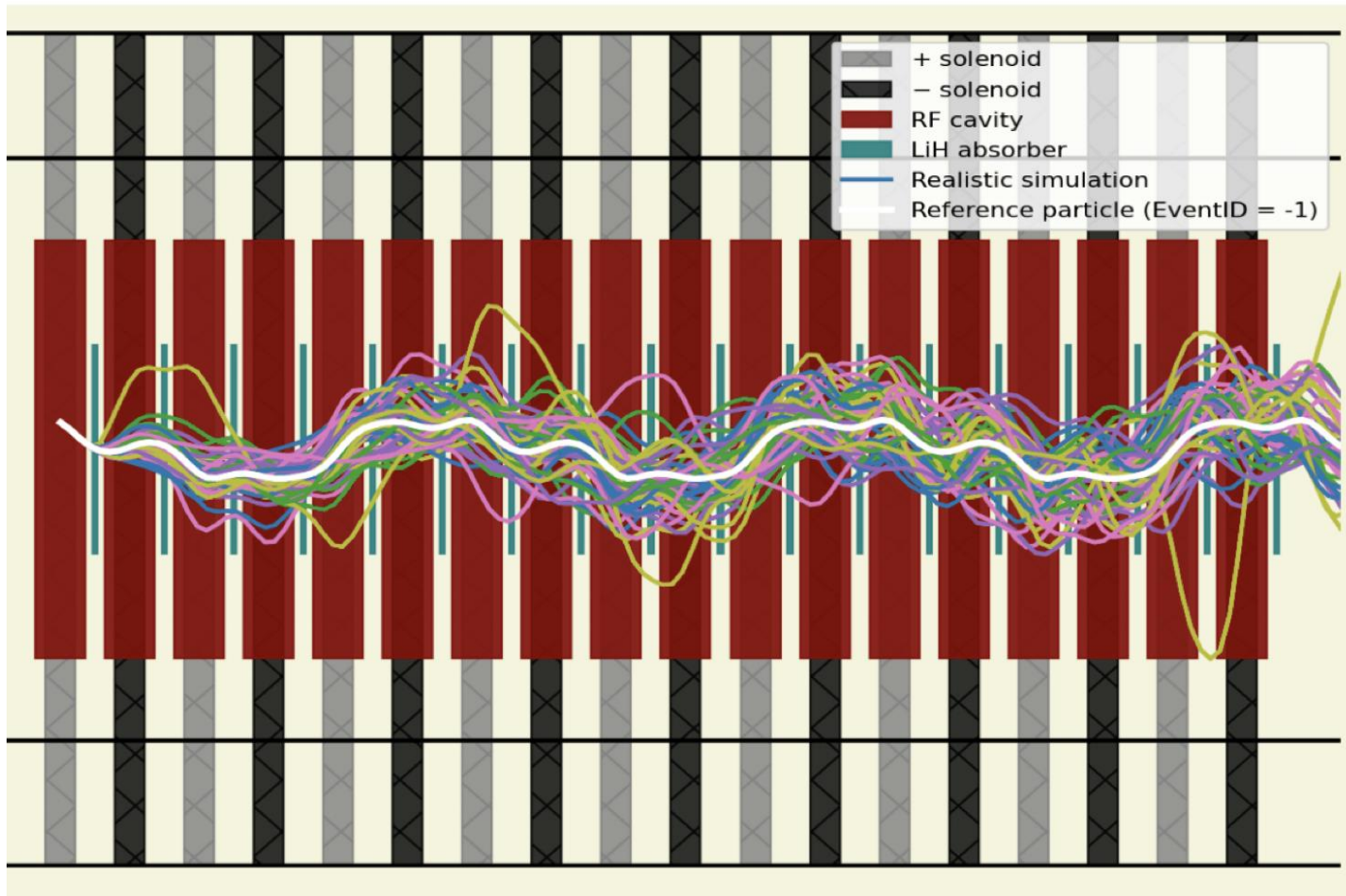
Status Update

Daisy Kalra

Simons Team Meeting, October 13, 2026

Muon Ionization Cooling – HFOFO

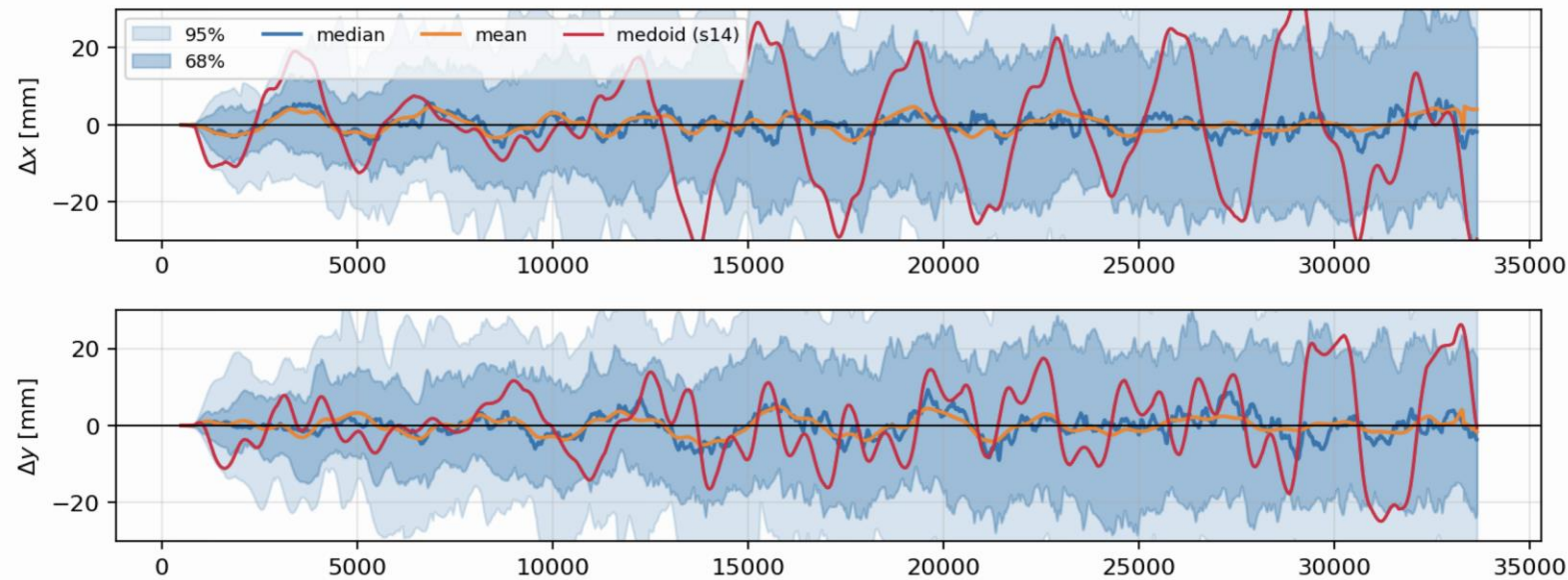
- Current focus: Optimize the cooling channel using reference particle with stochastics.



- Running multiple simulations
- Summarizing the ensemble statistically to find a representative particle trajectory.

Muon Ionization Cooling – HFOFO

- Current focus: Optimize the cooling channel using reference particle with stochastics.



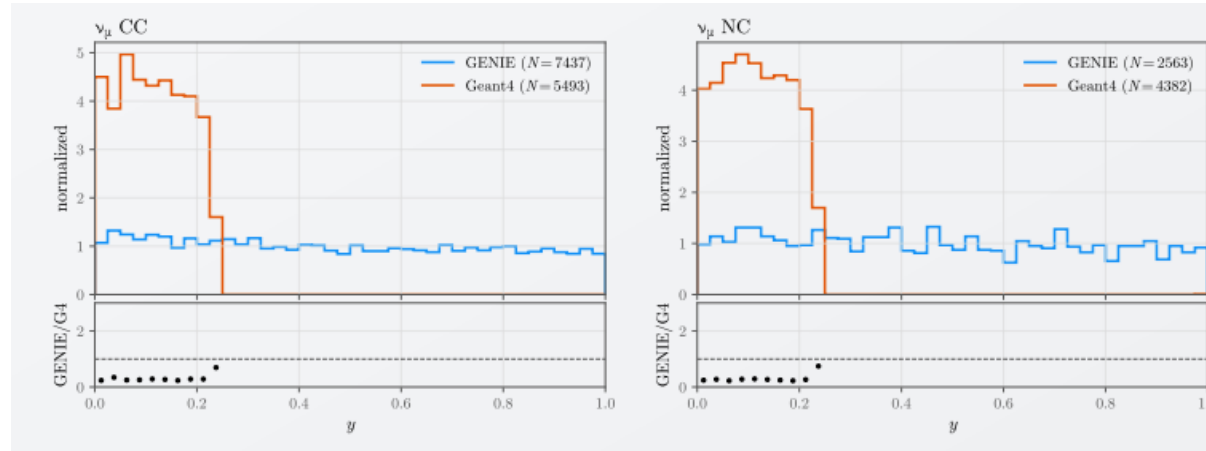
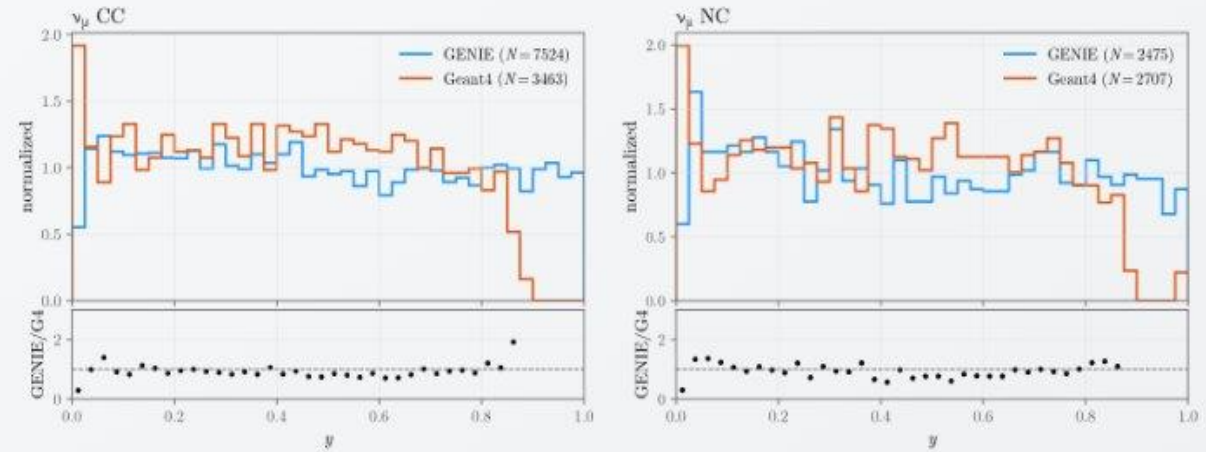
- Mean of the ensemble is chosen to be the representative particle trajectory.
- Ongoing: Implementation of this new state within G4bl.

https://indico.phys.utk.edu/event/505/contributions/1708/attachments/337/524/HFOFO_sep17.pdf

Neutrino

- GENIE vs GEANT4 for neutrino interactions
- Current focus: Neutrino Slice at the Muon Collider Detector
 - Use GENIE for neutrino interaction modeling.
 - High energy splines are available, tested and implemented within a new version of GDMLTP (Jon R.)
 - Weakly meeting with Matheus H. (Tuesdays@2pm CT)

Inelasticity y : GENIE vs Geant4, 100 GeV, graphite (C-12)



Plots by Micah