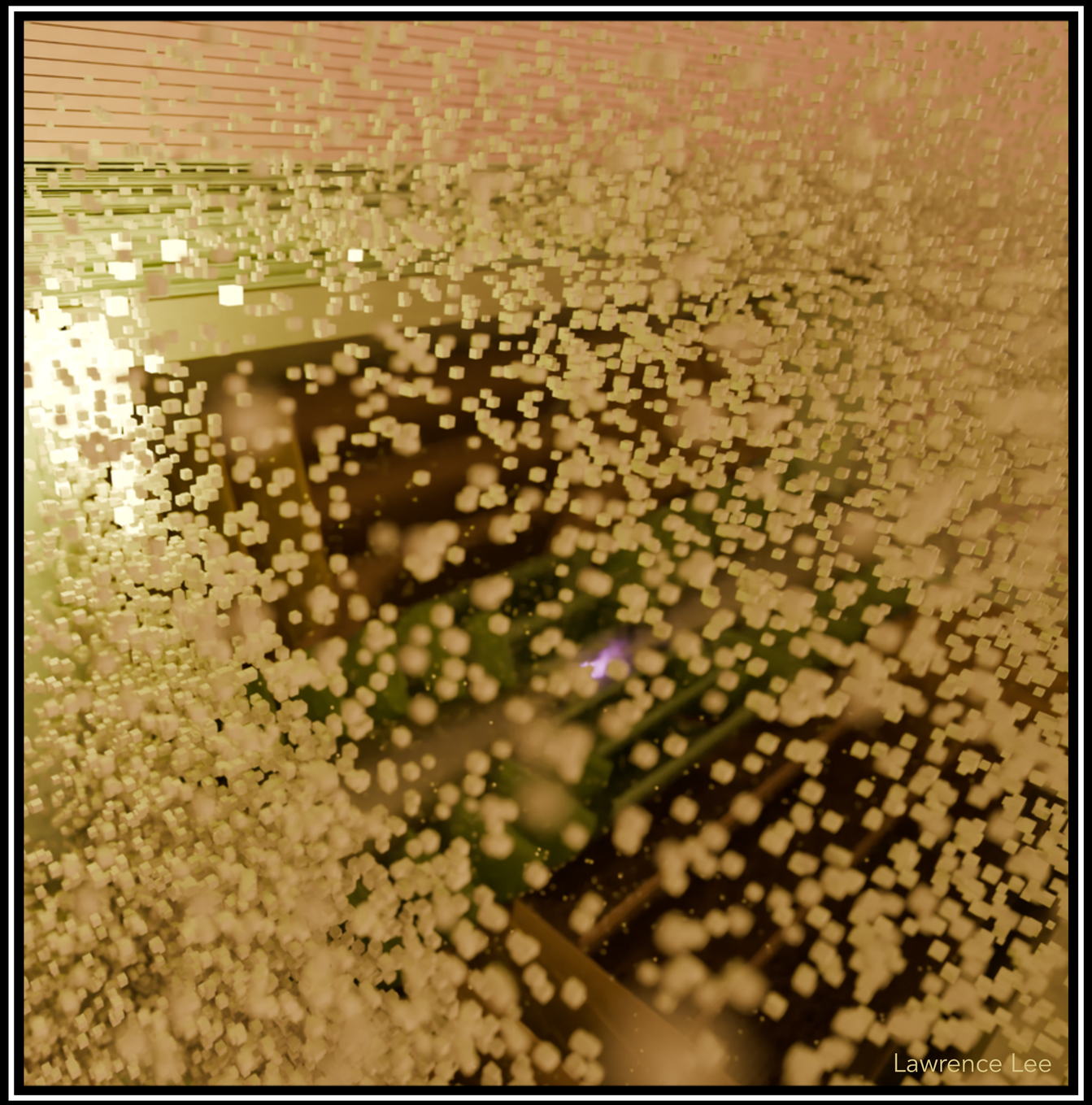



updates on

# BIB SLICING

Tova Holmes
University of Tennessee, Knoxville

USMCC

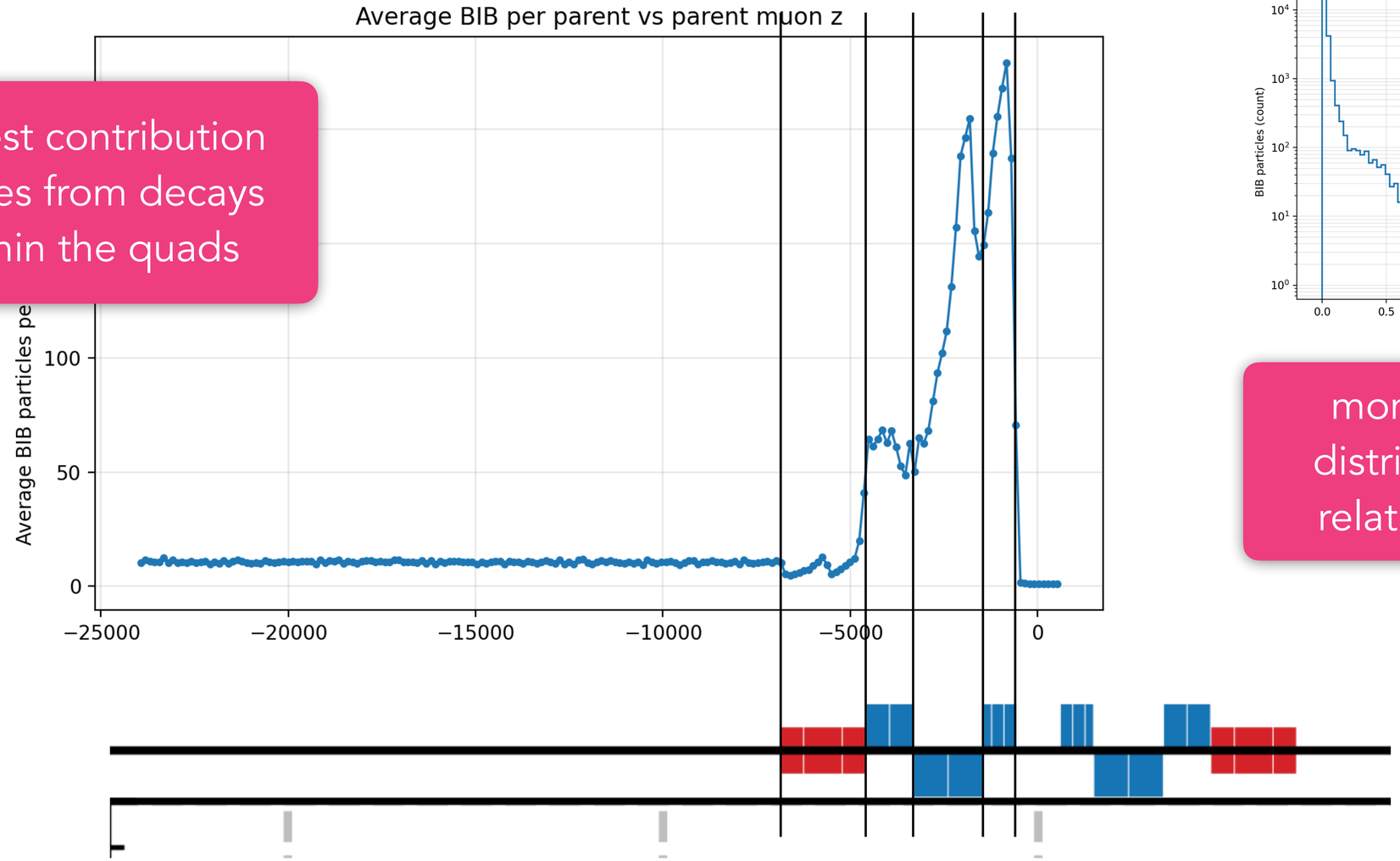
Simons Meeting
March 27, 2025

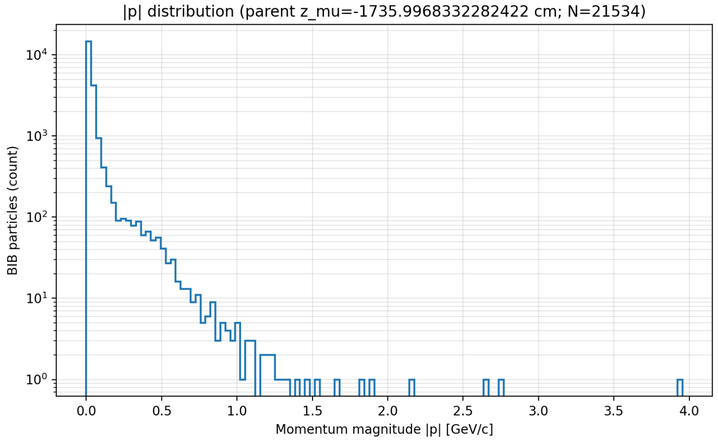
# TWO MAJOR SOURCES OF TAILS IDENTIFIED

- Muon decays resulting in large number of particles
- Muon decays resulting in muon production

# HIGH N PARTICLES

largest contribution comes from decays within the quads



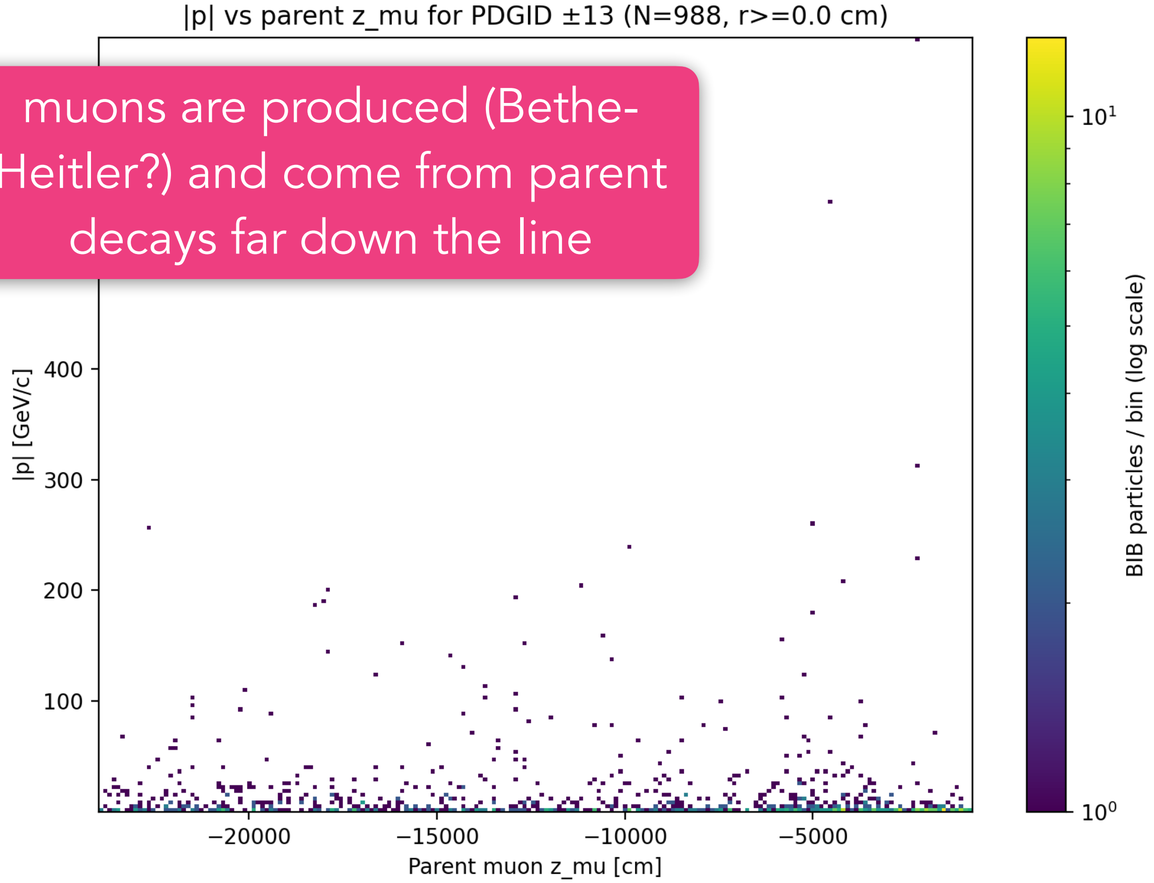




momentum distribution is relatively low

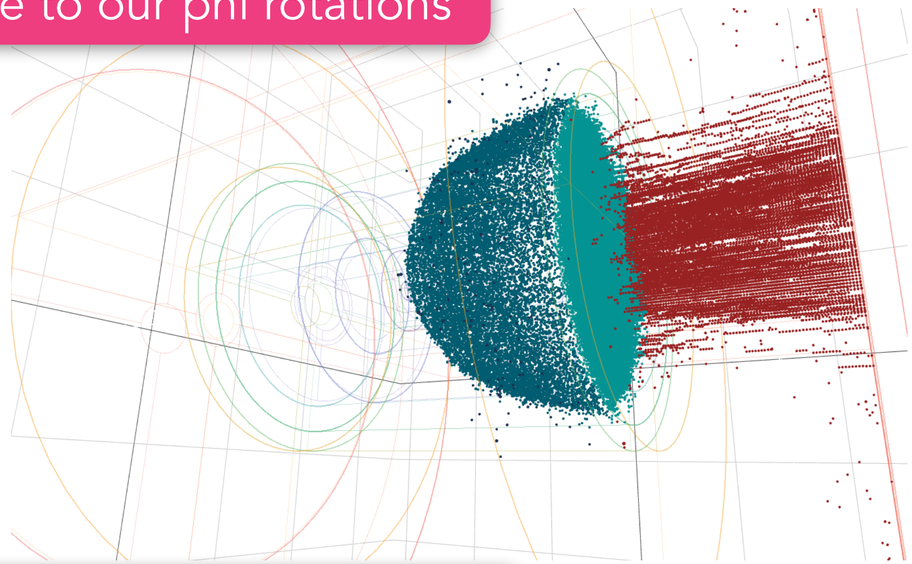
can improve by oversampling decays in this region

# MUON PRODUCTION

muons are produced (Bethe-Heitler?) and come from parent decays far down the line




these produce streaks in our HCAL, which currently have ring features due to our phi rotations



need to overweight this process in order to get a good statistical sample

# NEXT STEPS

- Have source code from Daniele to replicate his FLUKA set-up then add overweighting
  - Access to this is code is restricted — need permission from Anton and Daniele to share.
- JP is taking the lead on this! (I propose he takes over this topic.)
- Will also need implementation of weighting factors when we apply BIB to events
  - Could do a limited version of this simply by limiting replications (up to a factor of 42)