

Tracking validation plots

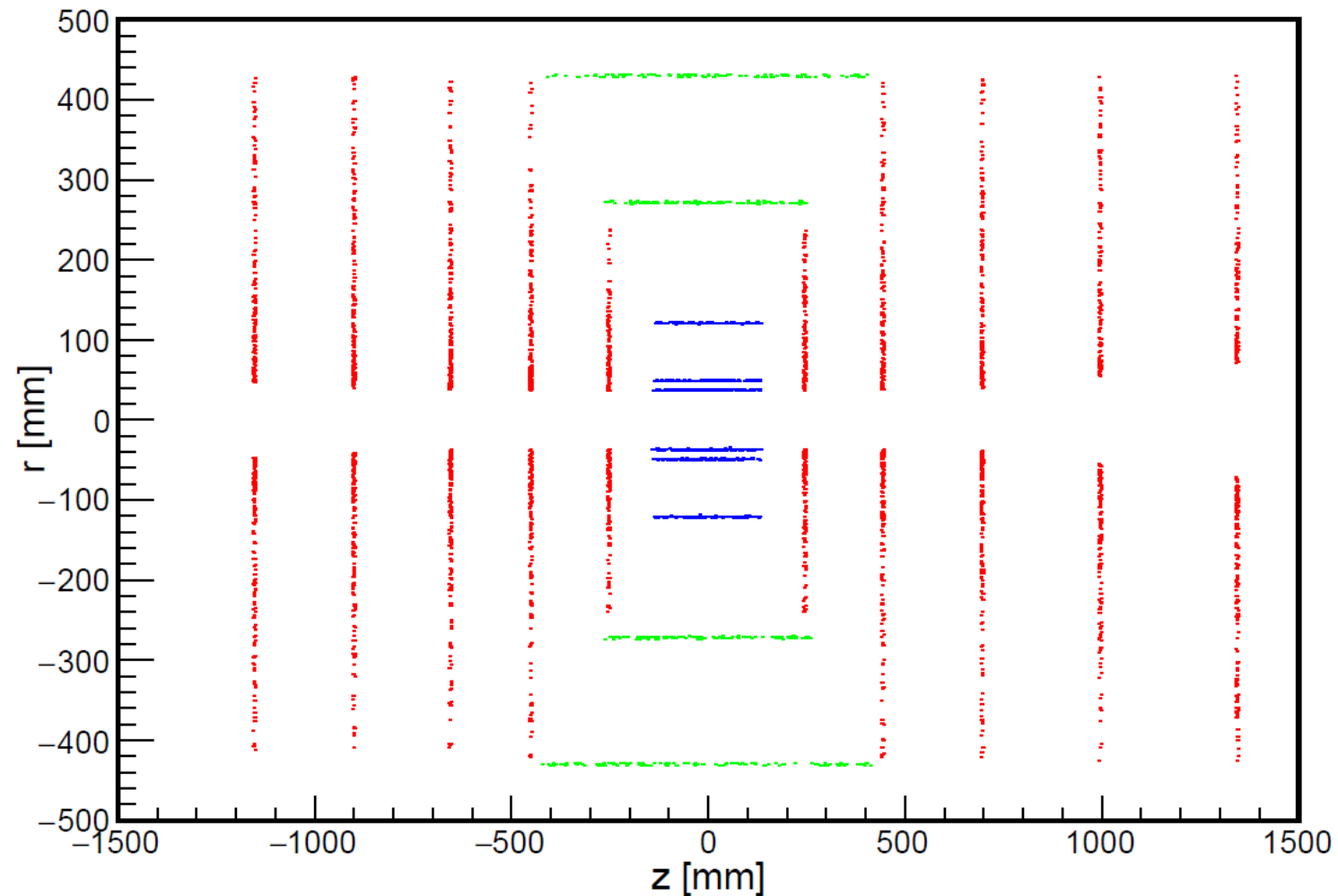
Barak Schmookler

Proposed plots

- Since the DD4HEP and ACTS versions which the collaboration uses will need to be occasionally updated, we need a set of validation plots which we can run to test those updates.
- These plots can be of 3 types, using single-particle events:
 1. Digitized (or Geant-level) tracker hits before any seeding or track finding/fitting.
 2. Seed reconstruction and efficiency plots.
 3. Track reconstruction and efficiency plots, using both truth and realistic seeding.

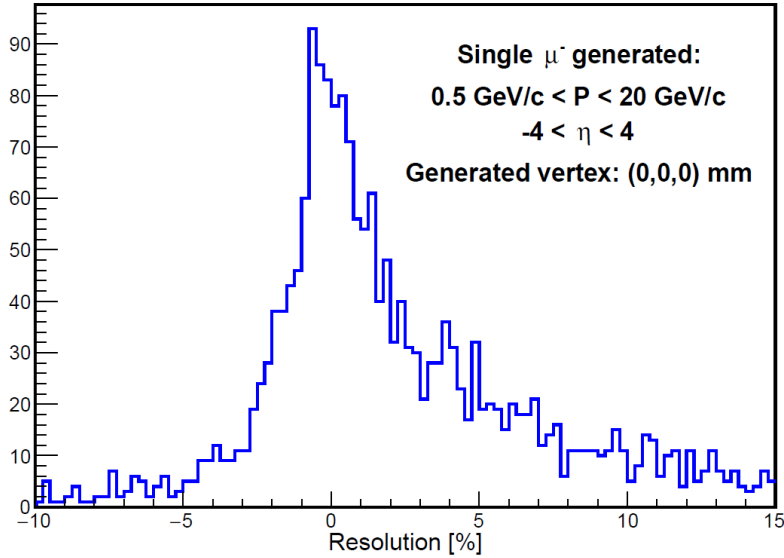
Digitized tracker hits in silicon detectors

Digitized tracker hits

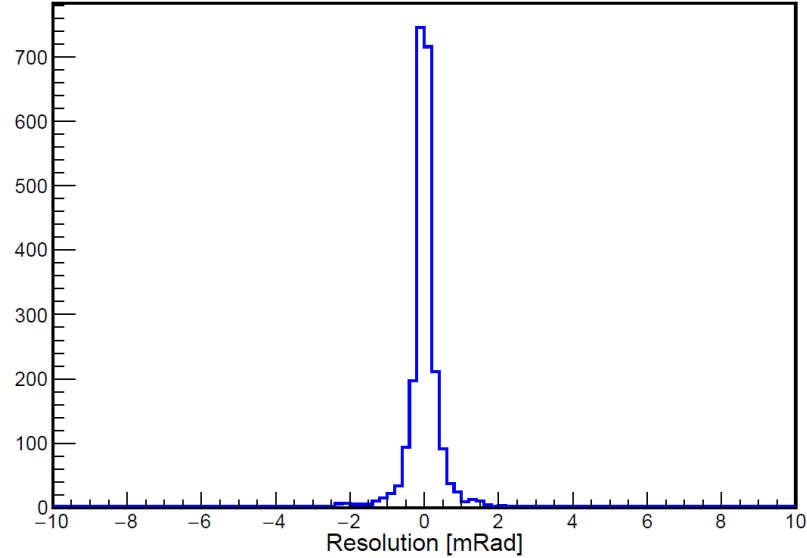


Seed Reconstruction

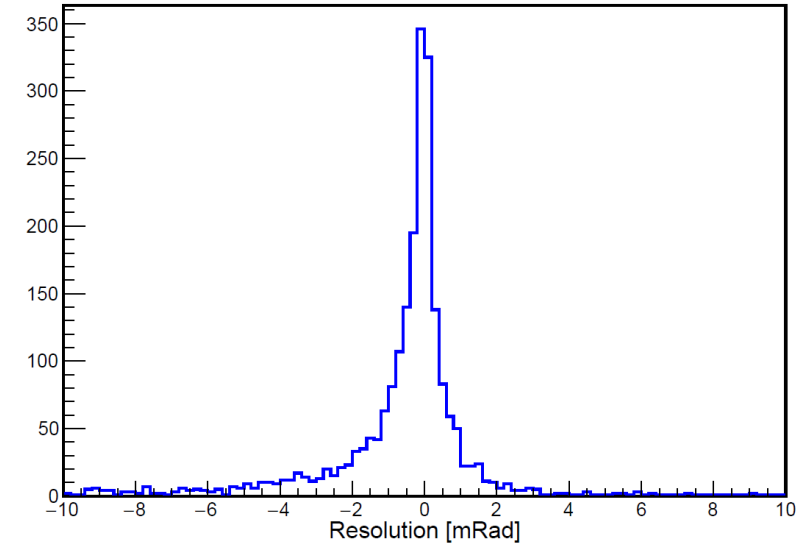
Seed Momentum Resolution: $(\text{seed} - \text{true})/\text{true}$



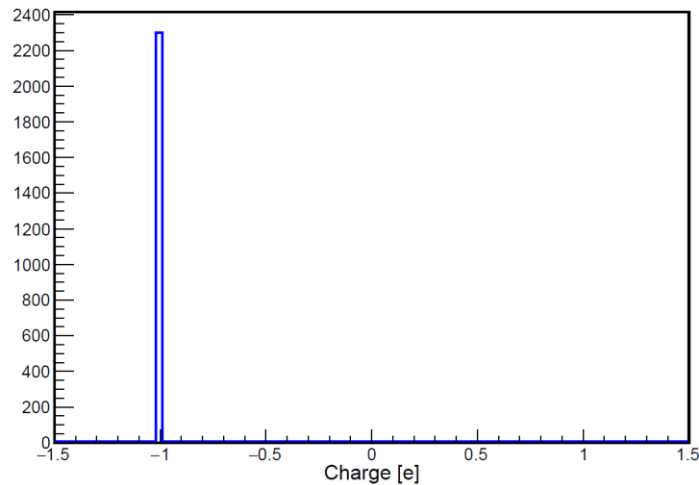
Seed Theta Resolution: $(\text{seed} - \text{true})$



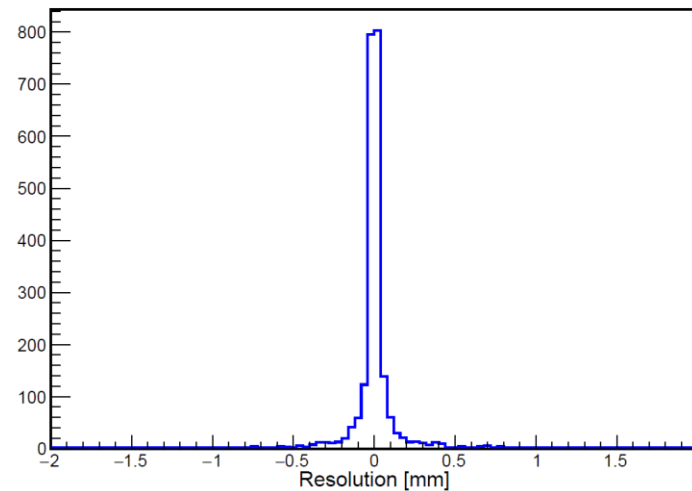
Seed Phi Resolution: $(\text{seed} - \text{true})$



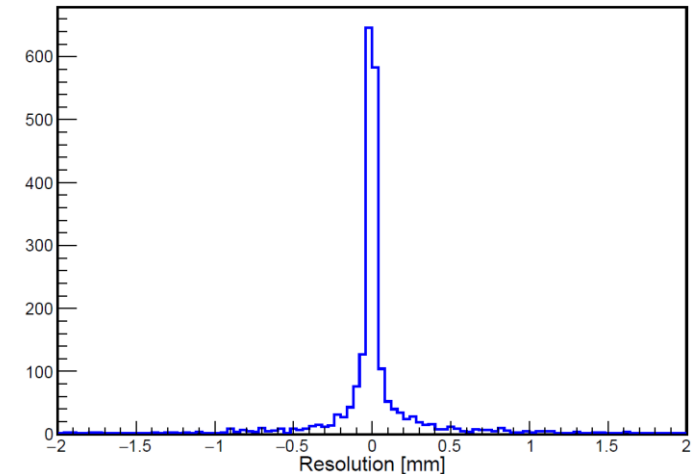
Seed Charge



Seed ACTS loc-a Resolution: $(\text{seed} - \text{true})$

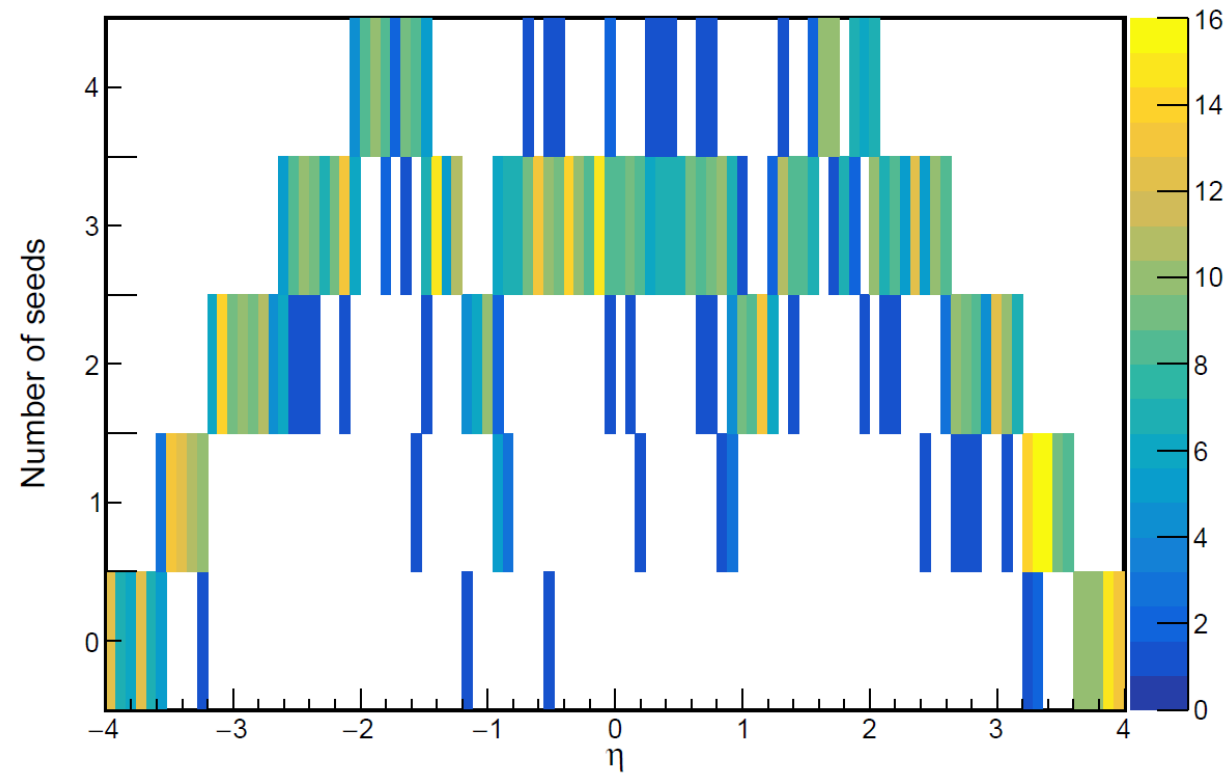


Seed ACTS loc-b Resolution: $(\text{seed} - \text{true})$

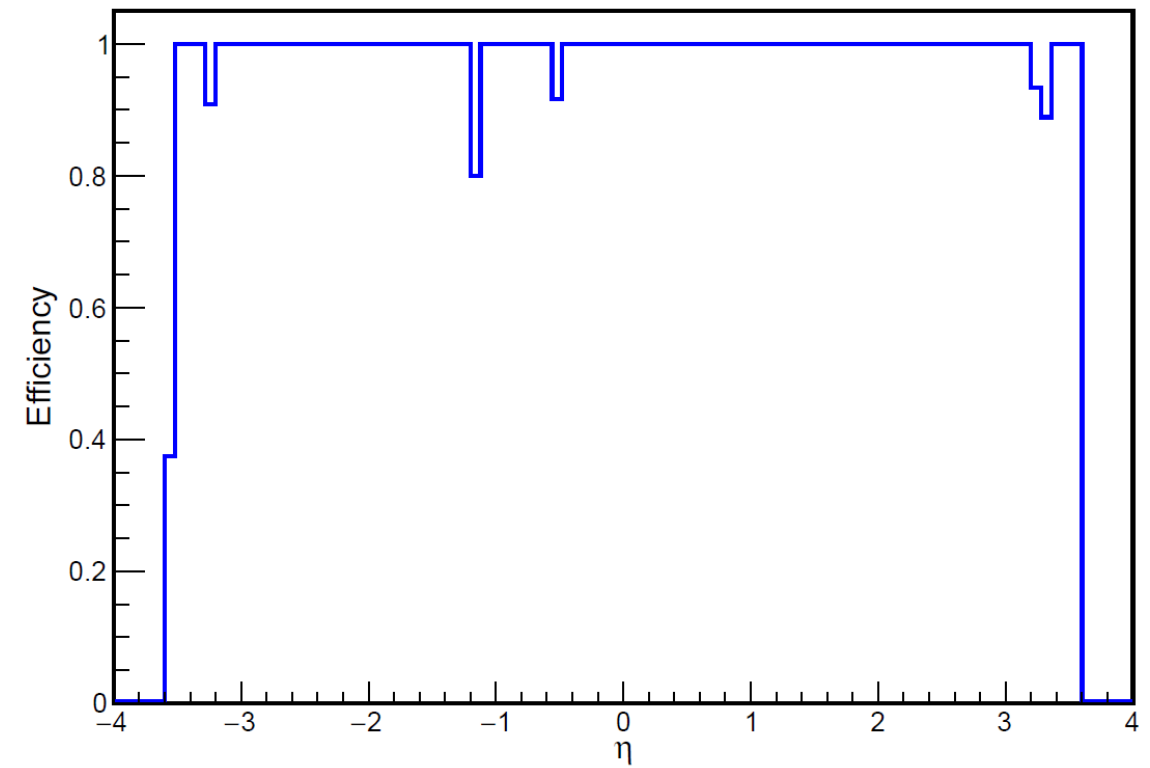


Seed multiplicity/efficiency

Number of seeds vs. generated particle η



Seeder Efficiency vs. generated particle η



Track (CKF output) multiplicity – truth seeding

