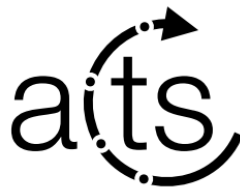


# Open Issues in tracc and detr

Beomki Yeo

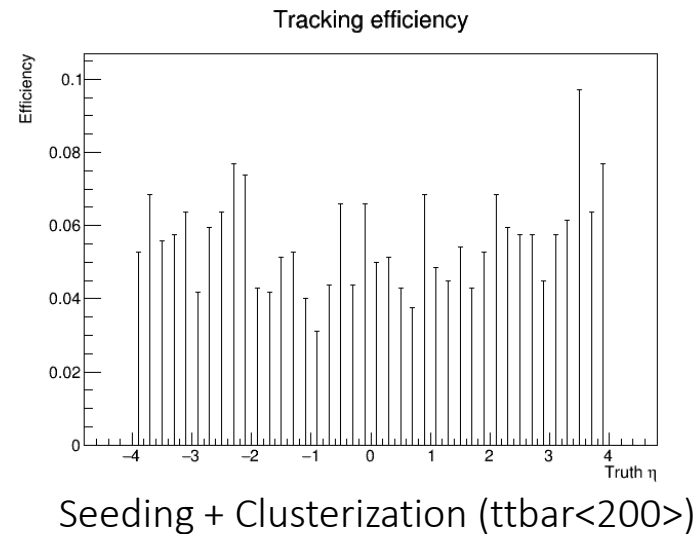
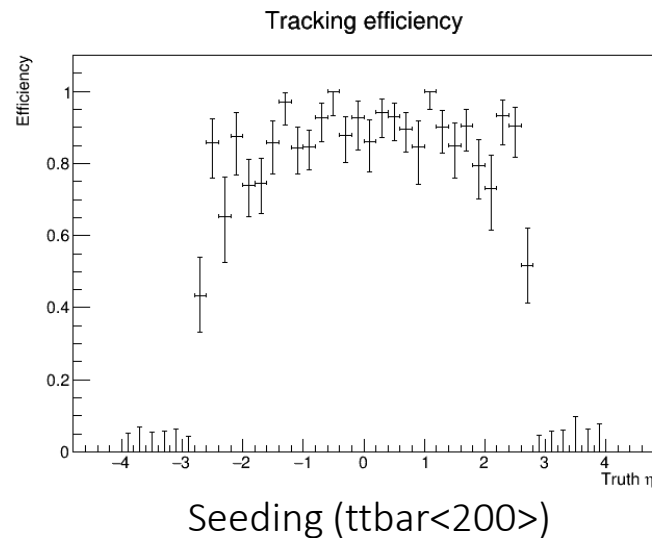


# Where we are right now

- algebra-plugins
  - Working on general matrix algebra
- detrax
  - Detector can be used in the GPU
  - Navigator, Stepper and Propagator works greatly
    - Neighbor surfaces lookup or local navigation is under the development
  - Currently adding more detector examples such as Telescope geometry
- tracc
  - Clusterization still waiting for GPU implementation
  - Clusterization and seeding need more physics performance validation
  - Kalman filtering needs matrix algebra

# Physics performance

- We should NOT forget physics performance validation as well as acceleration
  - Need more validation tools
- Seeding performance with hit files looks OK. However, (clulsterization + seeding) performance with cell files is horrible
  - Need to figure out whether the efficiency drop is from clulsterization or seeding



# Detray geometry for Kalman filtering

- *In principle*, we can start implementing Kalman filtering in tracc once the matrix algebra get in. But running it with the detray geometry is complicated because the simulation file is based on ACTS geometry
- Ideal approach is translating ACTS geometry into detray one and using it for the Kalman filtering. But the development on this will take some time
- Alternative is building the identical detray geometry from scratch.
  - Generic detector: full tracking chain demonstration
  - Telescope detector: Kalman filtering validation
- We also need to think about how to harmonize the detray geometry with tracc EDM.
  - tracc EDM contains ACTS geometry information