EIC Software Infrastructure Review

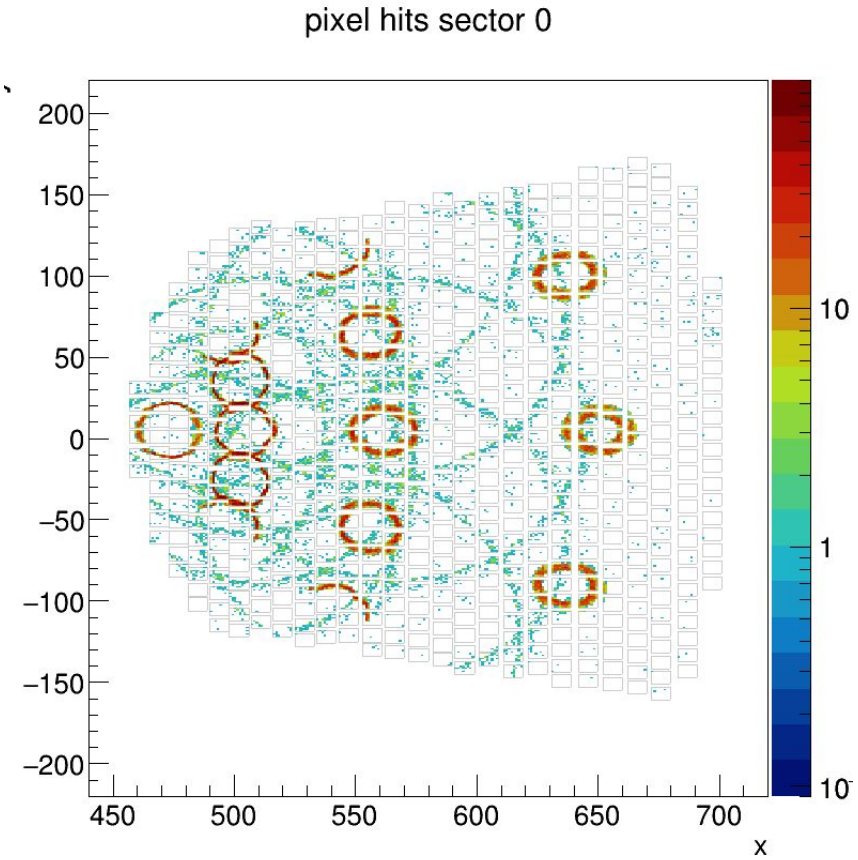
Additional Answers to Day 1 Questions

EPIC

We would like to thank the reviewers for their questions and input during today's meeting. The following slides cover few of the questions that we didn't fully address.

DD4hep/TGeo and Optical Properties

- ROOT v6.18: introduction of optical surfaces in TGeo, supported in DD4hep as of v1.11 (now v1.21)
- Example: demonstration of reflected dual Cherenkov rings on sensor surface in the EPIC geometry, with non-trivial skin surfaces on mirror and sensor
- Validated with standalone Geant4 simulations



DD4hep/TGeo and VecGeom

- VecGeom is included in Geant4 as a build option: when Geant4 is built with VecGeom, all geometry navigation is done with VecGeom
- Since the start of the proposal process, all simulations with DD4hep have been performed with VecGeom v1.2.0 enabled without any major issues
- This reflects our attempt to use software that is close to the leading edge of developments, after extensive validation in our continuous integration chains

Computing Model - Federated Approach

- Large scale international endeavor - requirements set by EPIC institutions in conjunction with laboratories
- Allows integration of HPC facilities for (e.g.) running ML workflows
- Increased resilience to changing operational demands
- Actual representation of activity during EIC detector proposal period
  - All data stored at both host labs to increase user visibility
  - Current programs make use of offsite facilities (NERSC, OSG, PSC, ALCF, INFN, …)