Status and plans for track reconstruction with embedded background

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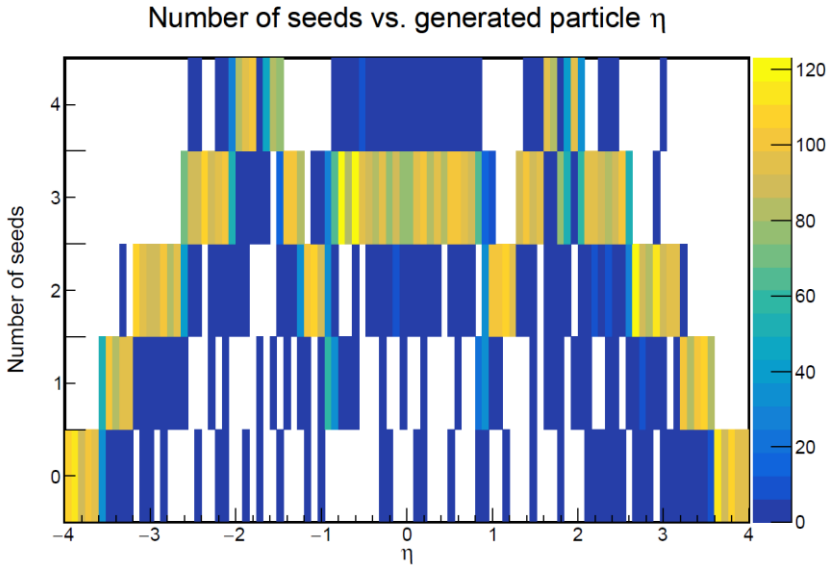
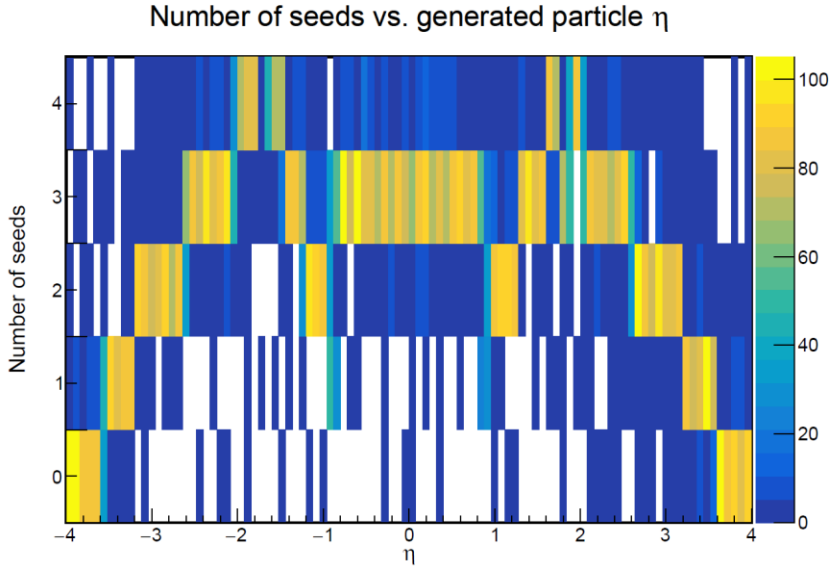
What we have done so far

- We have embedded background into single-particle (muon) events at the generator level. These events have been run through the default ePIC *Craterlake* simulation + EICRecon.
- We have studied the effect on the output of the ACTS seeder. More details can be found here.

Single muon only



Single muon + background

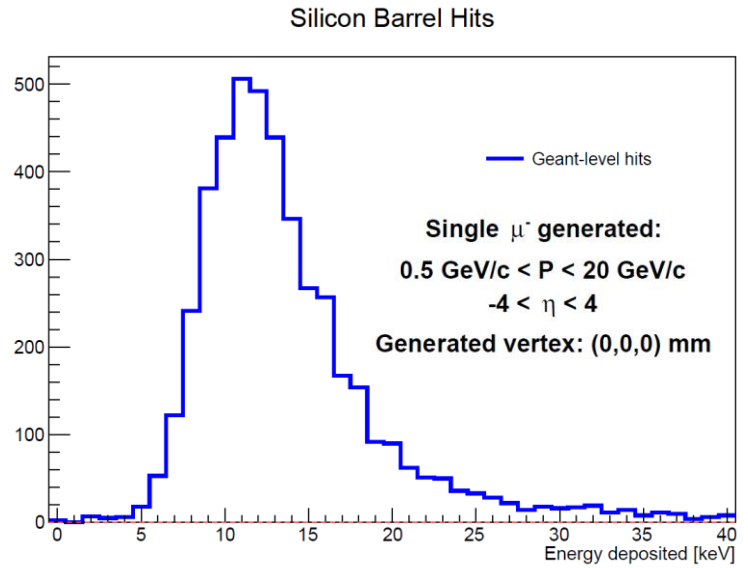
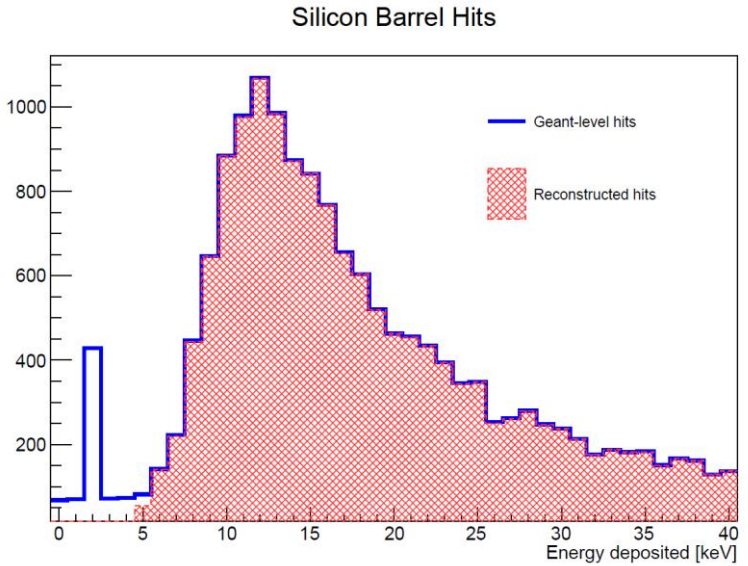


Note: a threshold of 5 KeV was applied in EICRecon for the silicon tracker hits

Next steps

- The first seeding results at the single-particle level look robust to the inclusion of background.
- We have simulation job submission scripts and analysis code ready to repeat these studies as various settings (e.g. physics lists, background lower limits, digitization thresholds) are changed.
- DIS + background tracking studies with real seeding will come later this month, following the DIS signal only studies.

Single muon only



Single muon + background