Status on making GEMC compatible with LCSim

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Goals

The goal is to eventually be able to do tracking with gemc output. Why?

- provides an excellent test of software
- extends the functionality of gemc and makes it available as an alternative simulation
- gives me an oppertunity to familiarize myself with lcsim tracking

Filling up the SimTrackerHits

Right now I can fill everything in a SimTrackerHit except for an MCParticle.

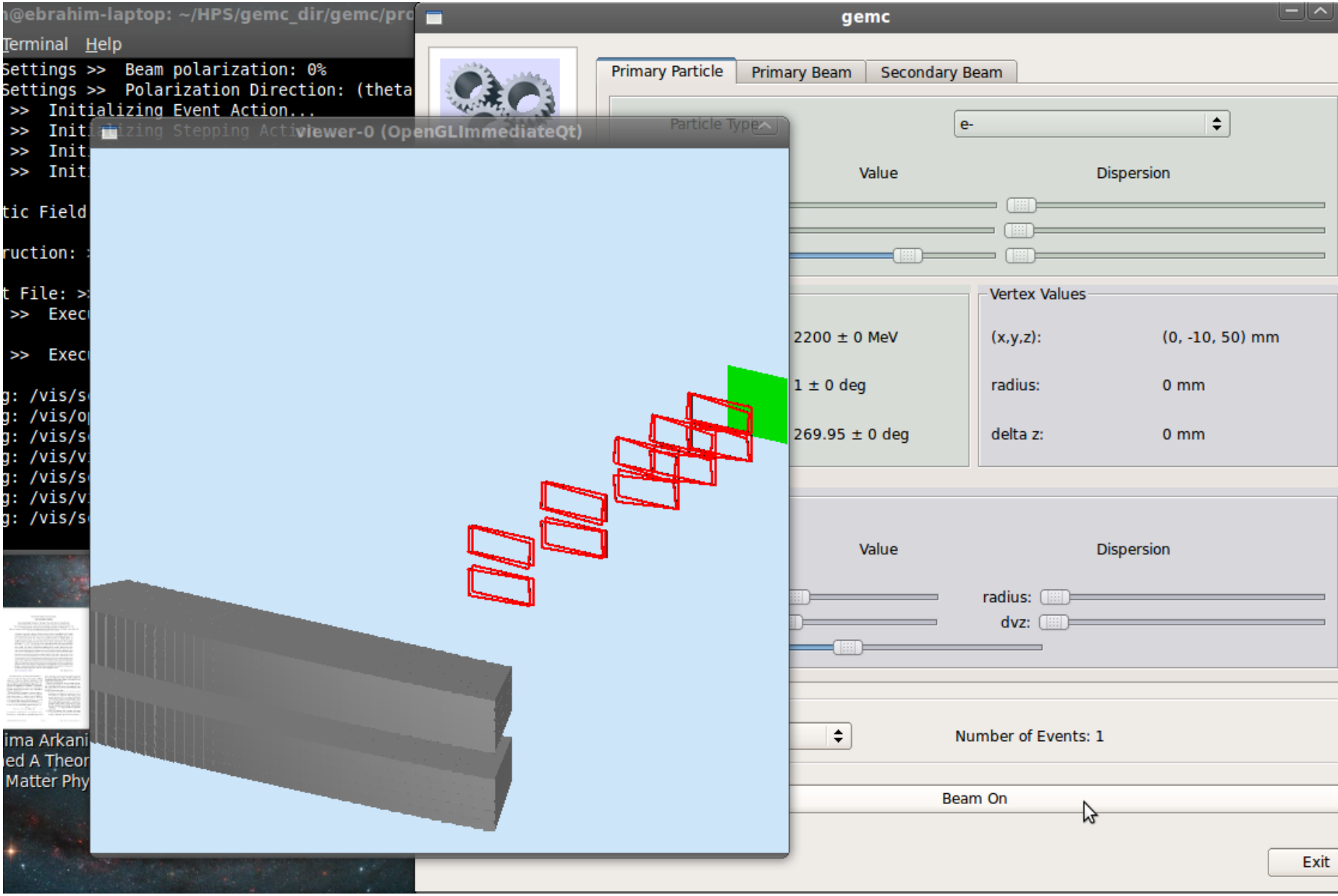
- Not straight-forward because the information gemc extracts from a G4Event is different from SLIC
- You can tell gemc how to behave each event by writing a custom hit_process class
- GEMC output for tracker hits now *identical* to SLIC output.

Importing Detector Geometry from LCSim

It's important to ensure that the detector geometry in gemc is identical to the one lcsim knows about.

- Wrote a script that reads an LCDD file and writes its contents to a gemc database table
- preserves all information except magnetic fields
- performs rotation to gemc coordinates
- *Now we can simulate with identical geometries*

Importing Detector Geometry from LCSim



Current status

Now that we have the same geometry and (almost) the same output, we can try to do tracking with gemc.

- We could try to work around using MCParticles in lcsim (seed tracking driver)
- Maybe it would be easier to get gemc to keep track of the MCParticle Tree.

Conclusion

- If it's worth moving forward with this project, I need to figure out in which direction I'm going to take it.
- If not, the LCDD-GEMC conversion will probably prove useful anyway.