Week 2 - FCC Beam Background

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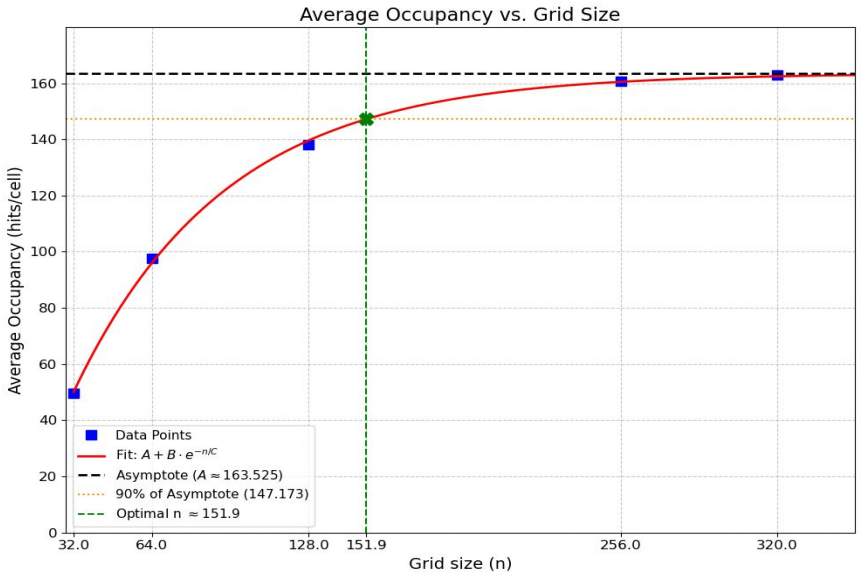
Finding acceptable grid size in Guinea Pig

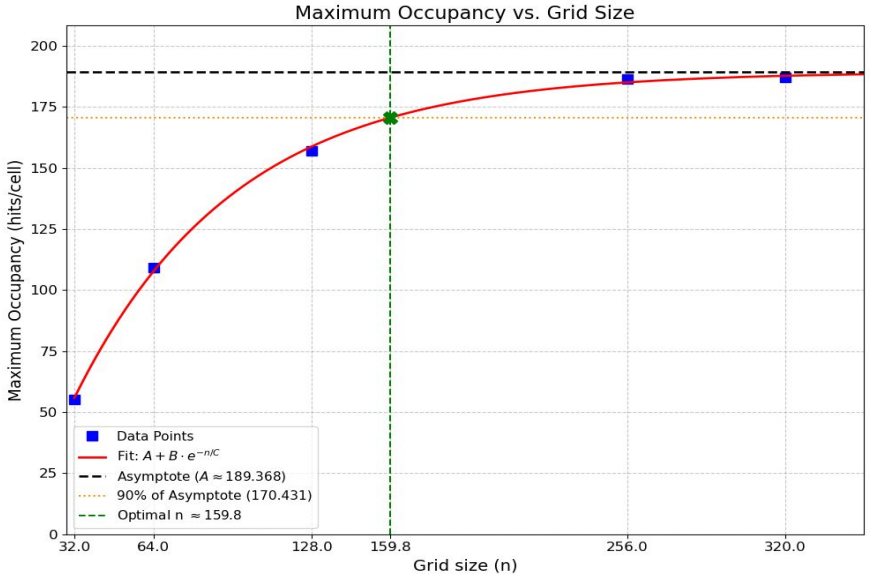
- Investigate relationship between mesh grid size and occupancy readouts for IPCs
- Determine a minimum grid size to obtain accuracy

Finding acceptable grid size in Guinea Pig

Mesh grid size	Max occupancy	Avg occupancy	Computing time
32	55.3	49.5	x
64	109.2	97.5	x
128	159.9	140.0	30 min
256	185.4	162.3	5.5 hours
320	189.1	165.7	7 hours

Finding acceptable grid size in Guinea Pig



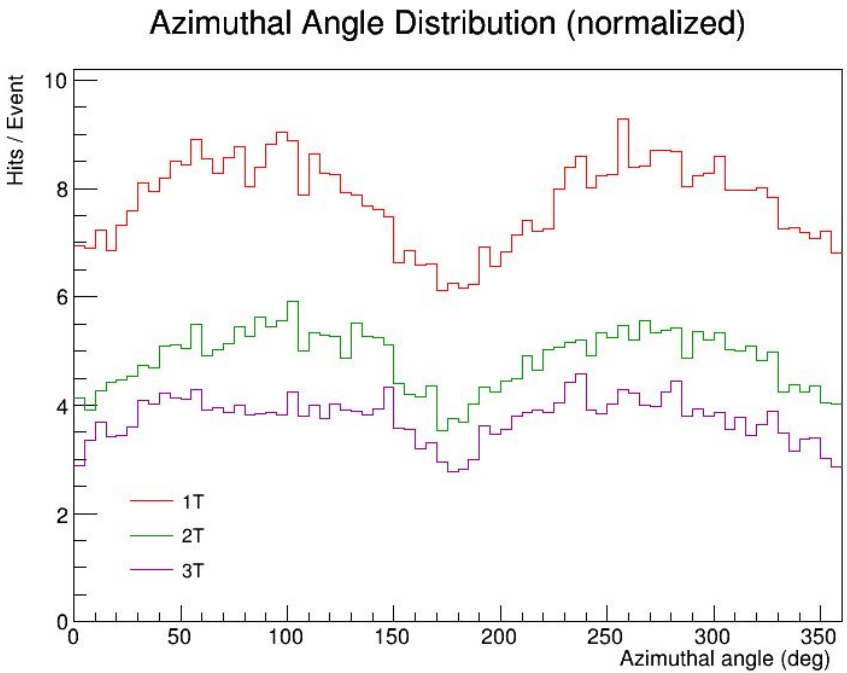


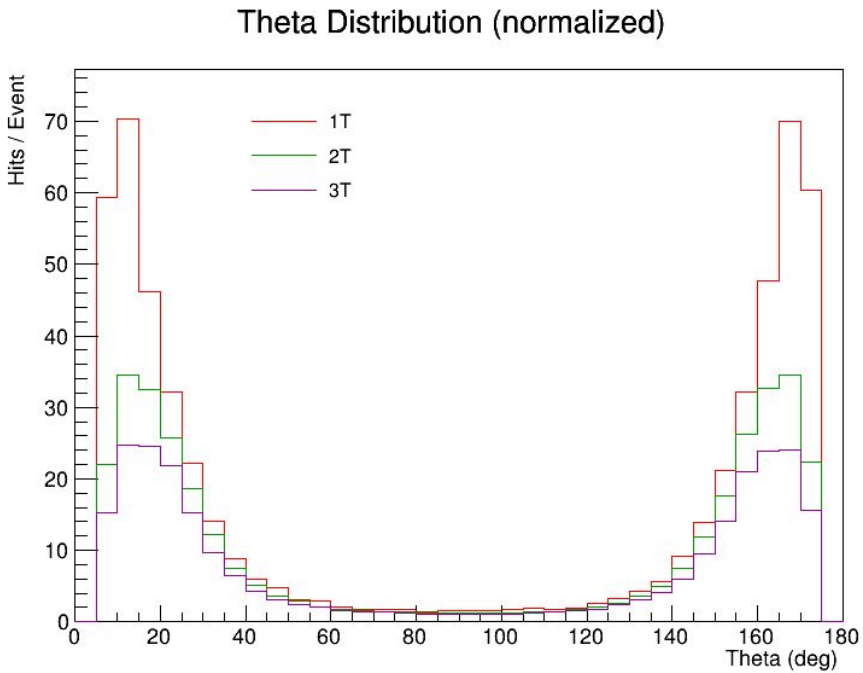
Choose n > 160 for more accurate occupancy readouts

Impact of magnetic field on occupancy

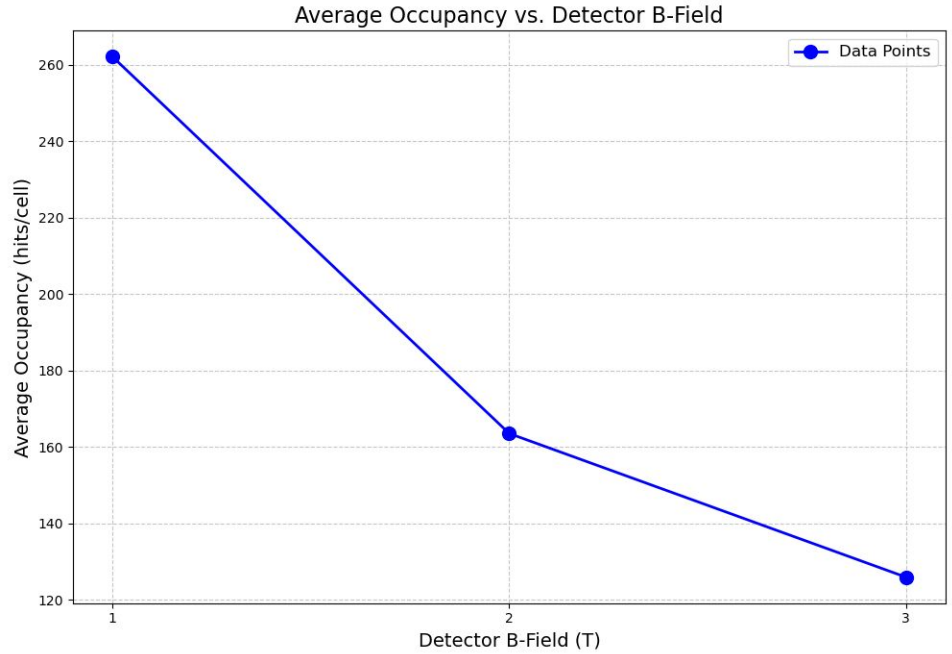
- Guinea Pig creates the IPCs in bunch collisions
- ddsim propagates these particles to the detector
- What if we add the B-field in ddsim?

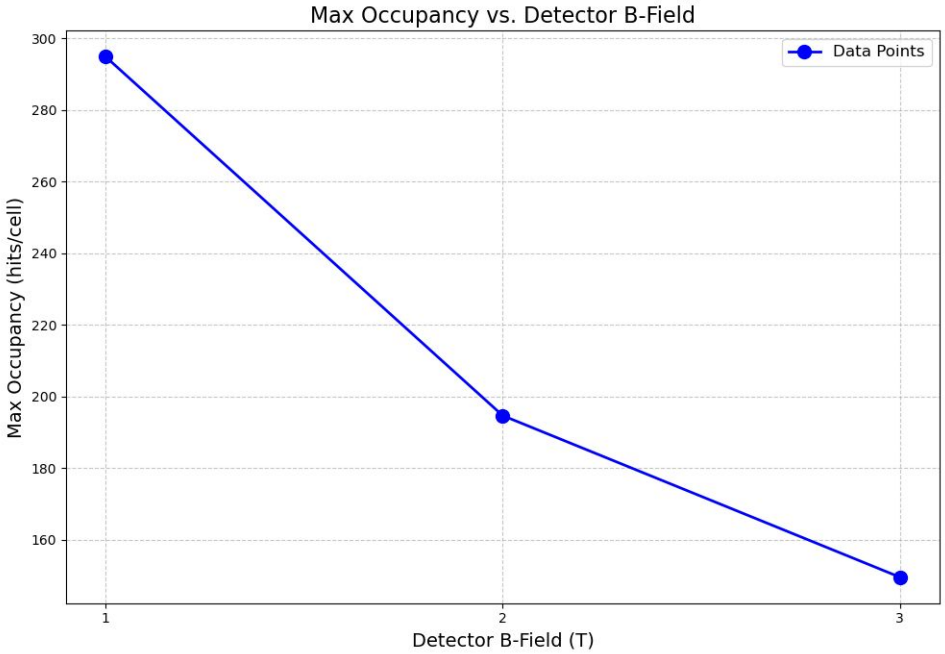
Impact of magnetic field on occupancy





Impact of magnetic field on occupancy





TODO

- Further investigate detector B-field effects on occupancy
- Defining occupancy