FLUKA Simulation Status

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Process

Experiment setup constructed in GEANT4

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GEANT4 (.gdml) file converted for use in FLUKA/FLAIR (.inp/.flair)

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Flair file edited for compatibility with FLUKA
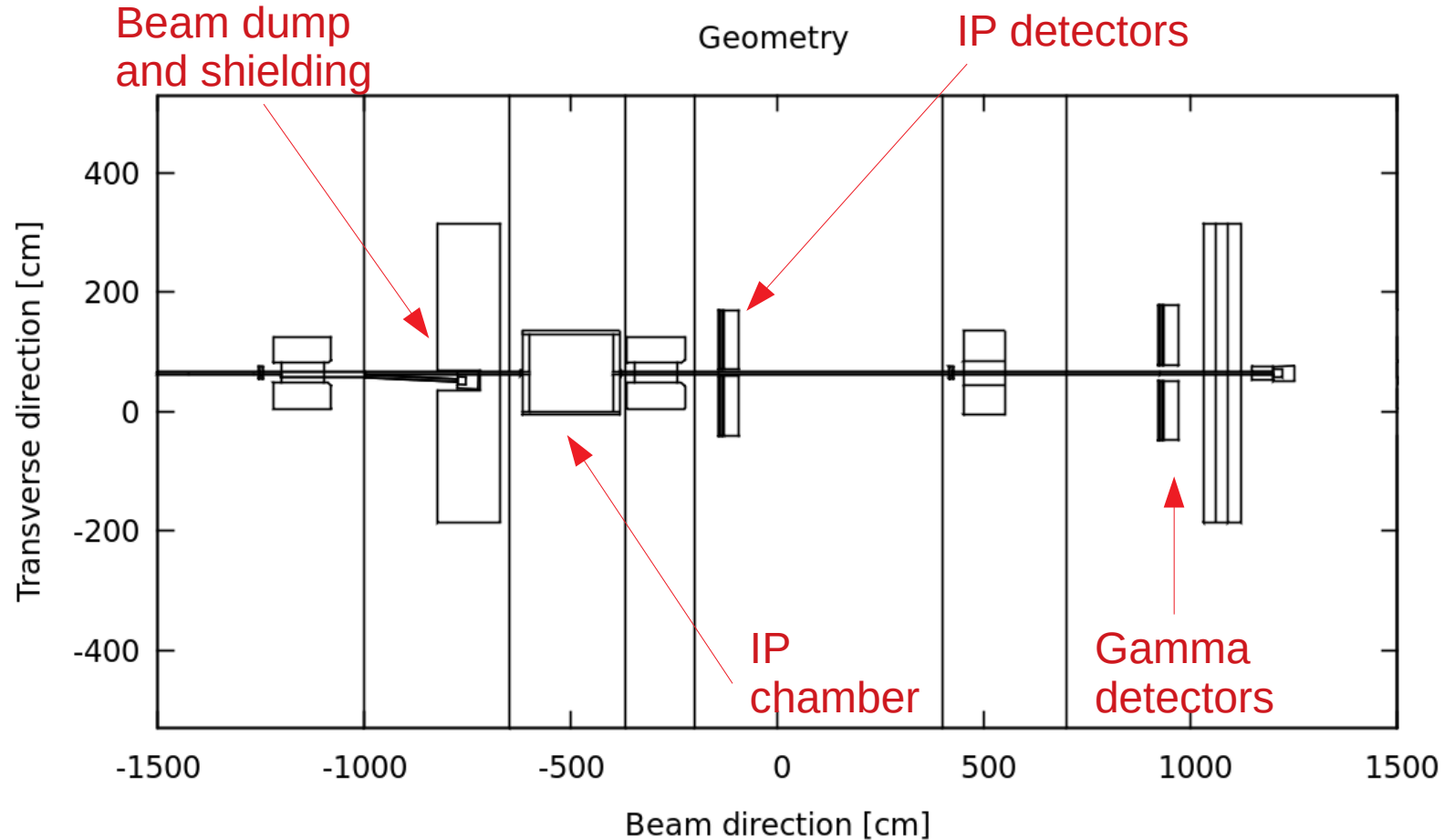
↓

Run simulations
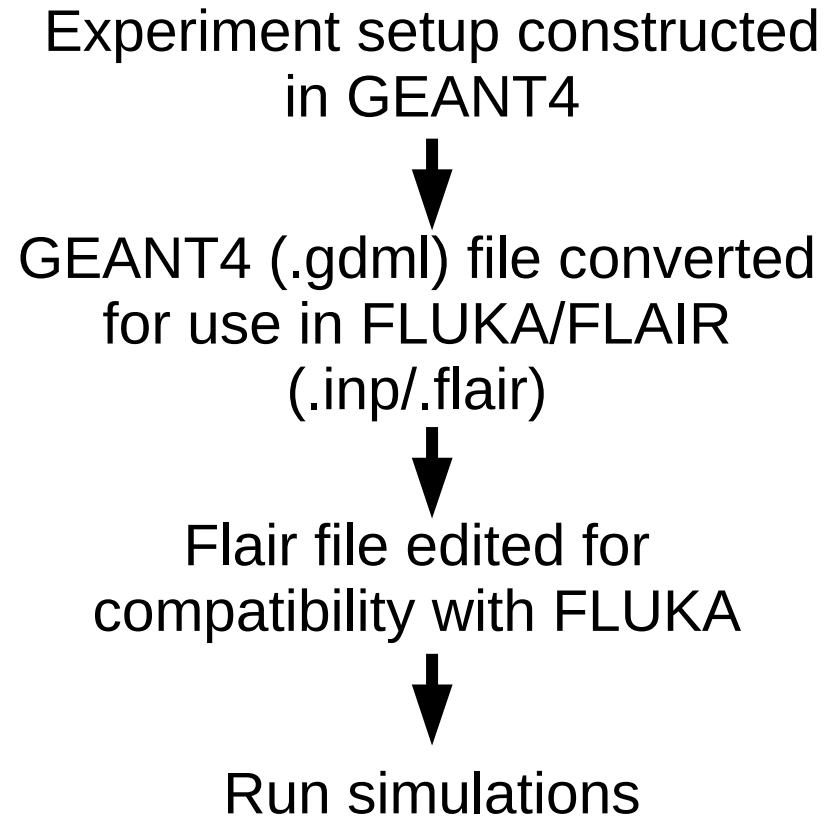
Previous Problems

- FLAIR and GEANT4 have different ways of describing regions and their combinations – FLAIR based on Boolean algebra

- Conversion between GEANT4 and FLAIR formats is not fully automatic

- Requires some trial and error but method now better understood and can be repeated more easily
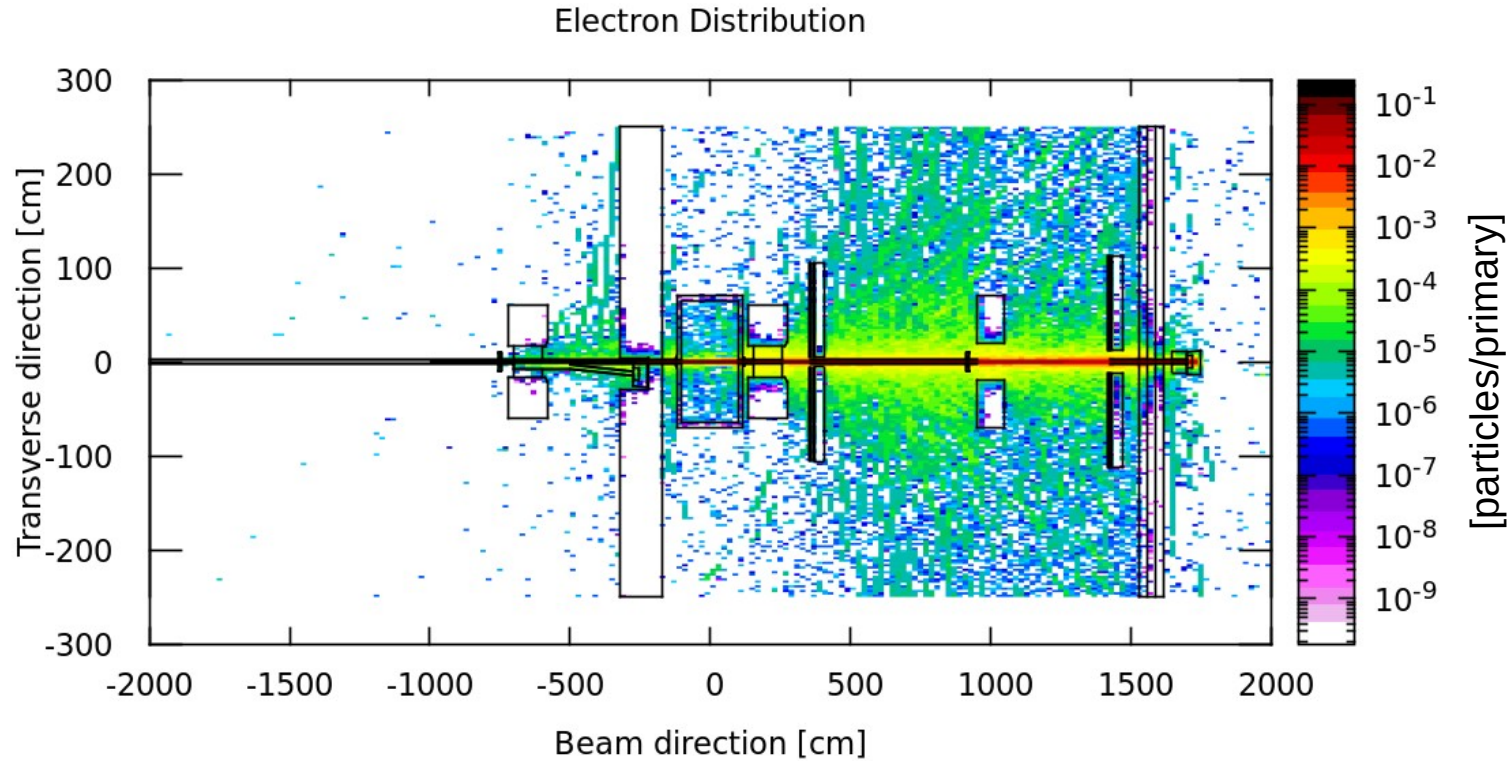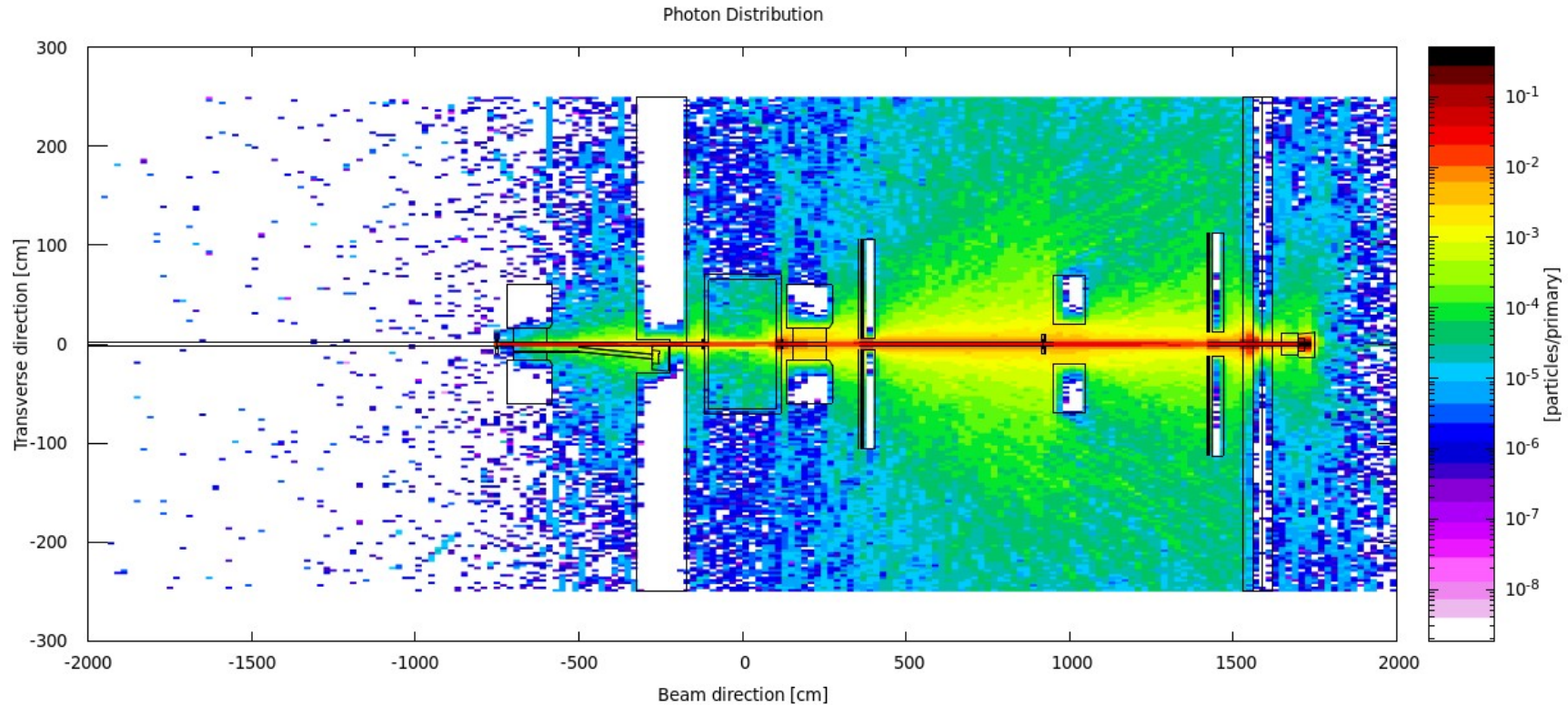
FLAIR Geometry

Trial Simulation

- Simulation to test geometry behaved as expected – no magnetic fields implemented yet

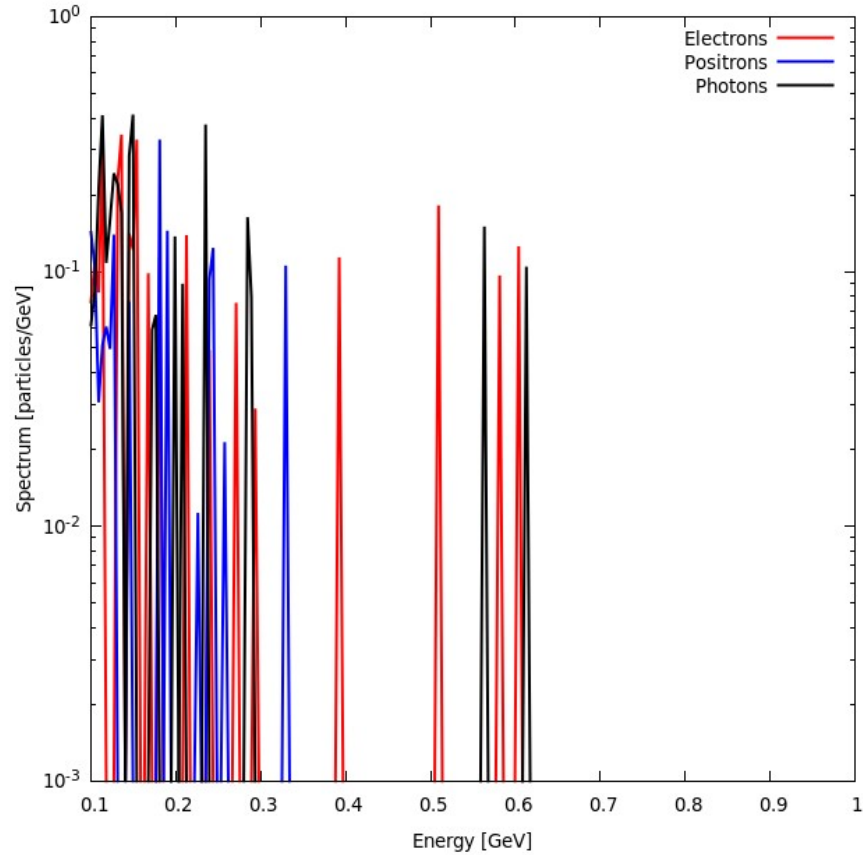- Beam parameters – 10,000 electrons at (1.0 ± 0.01) GeV with no divergence
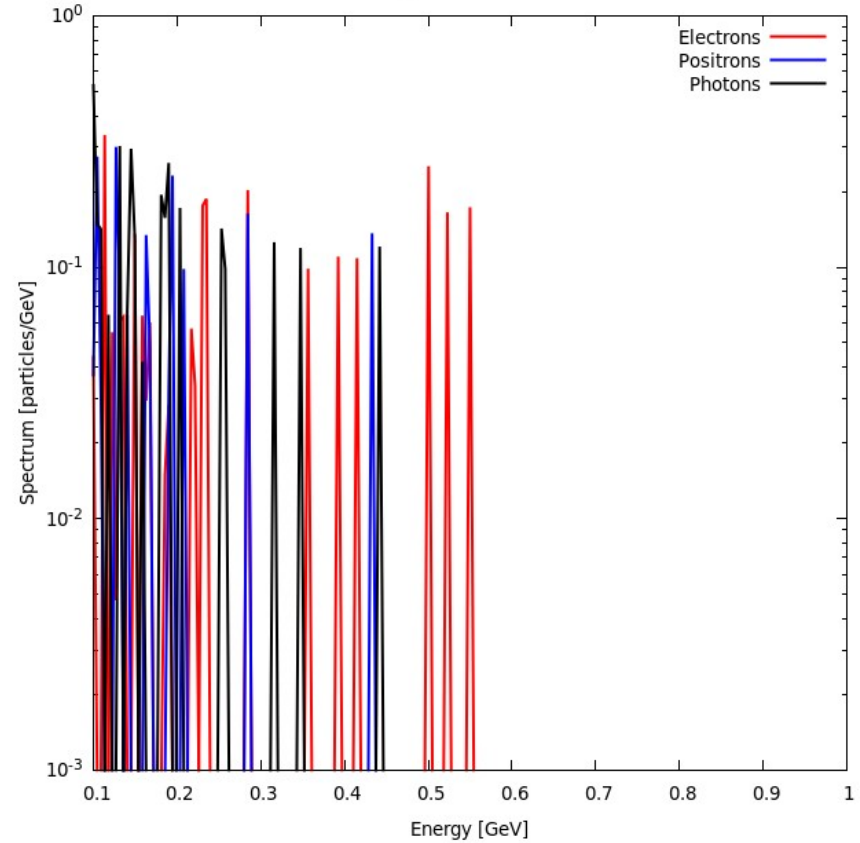
Test Results I

Electron Distribution

Test Results II

Photon Distribution

Test Results III

Lower IP Detector — Spectrum [particles/GeV] vs Energy [GeV]

Upper IP Detector — Spectrum [particles/GeV] vs Energy [GeV]

Legend: Electrons, Positrons, Photons

In the Future

- More detailed simulation to be run with correct parameters (provided in handbook)

- Magnetic fields to be included in simulation

- Final version of GEANT4 file to be completed and converted to FLAIR format

- 1-2 days to reconfigure the geometry within FLAIR then full simulations can begin