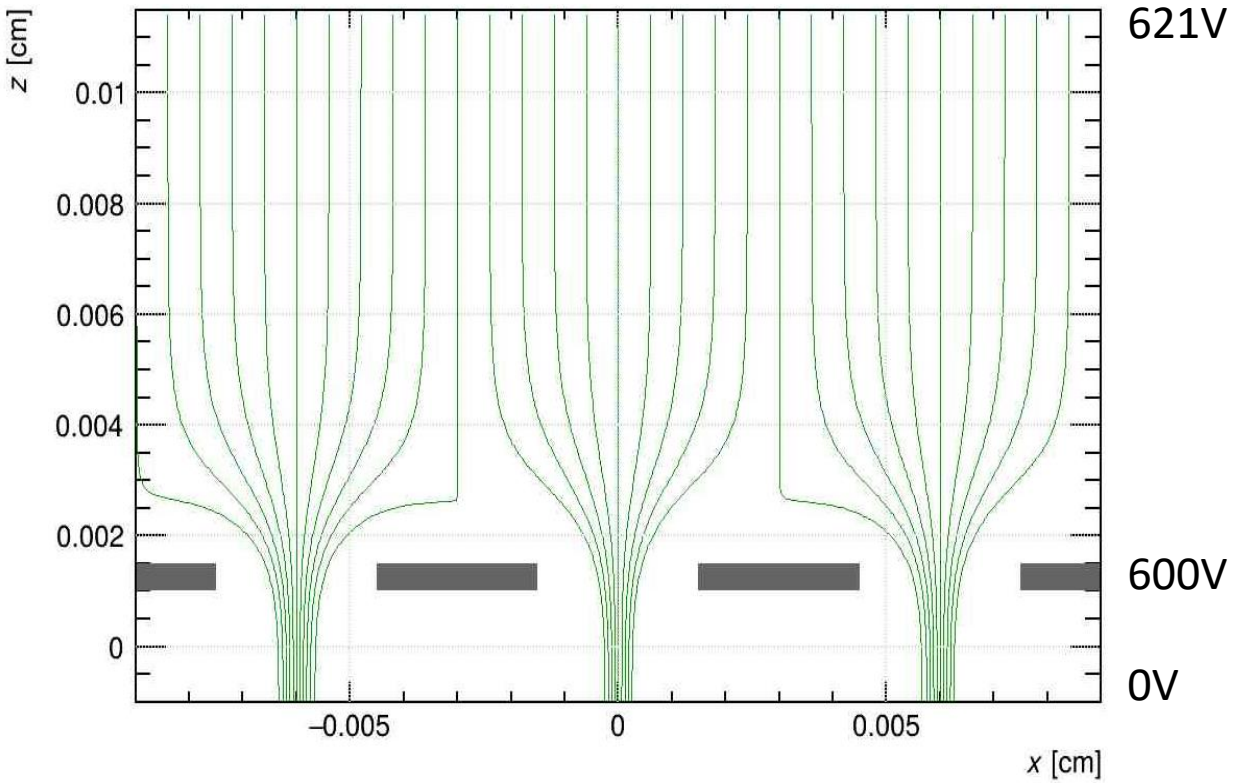
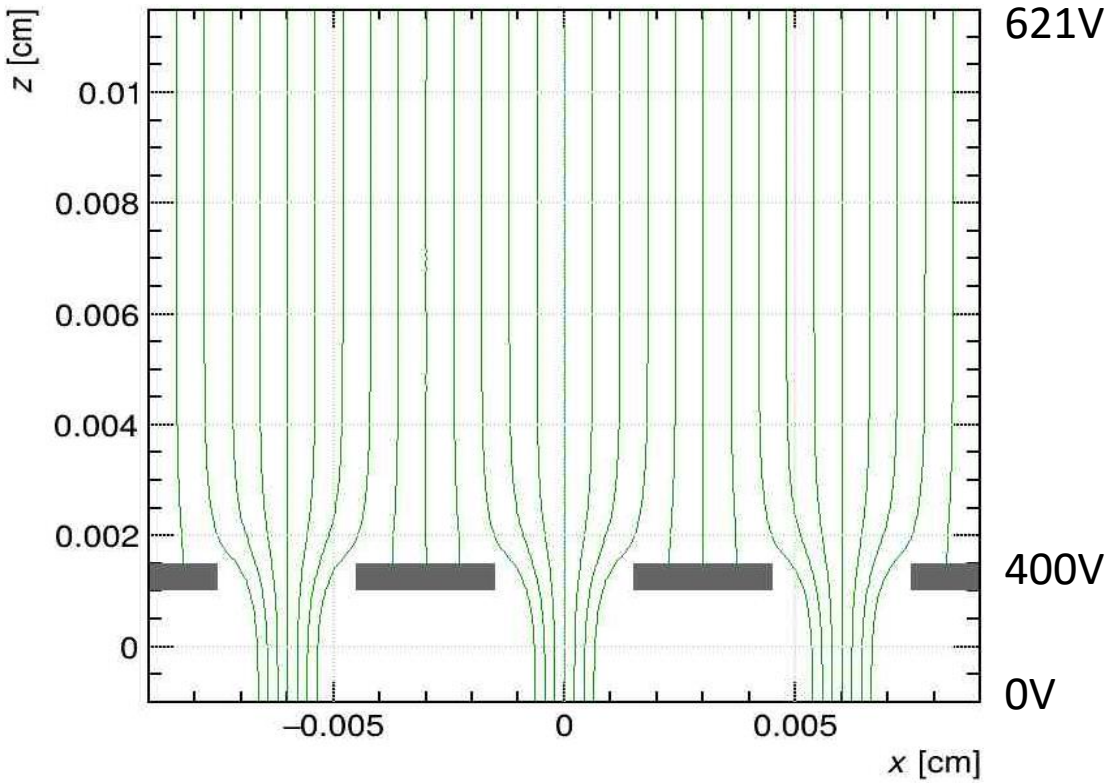
An Update on James' Research with Peter Lewis

Goal: To maximize gain while simultaneously minimizing Ion backflow

Current Progress

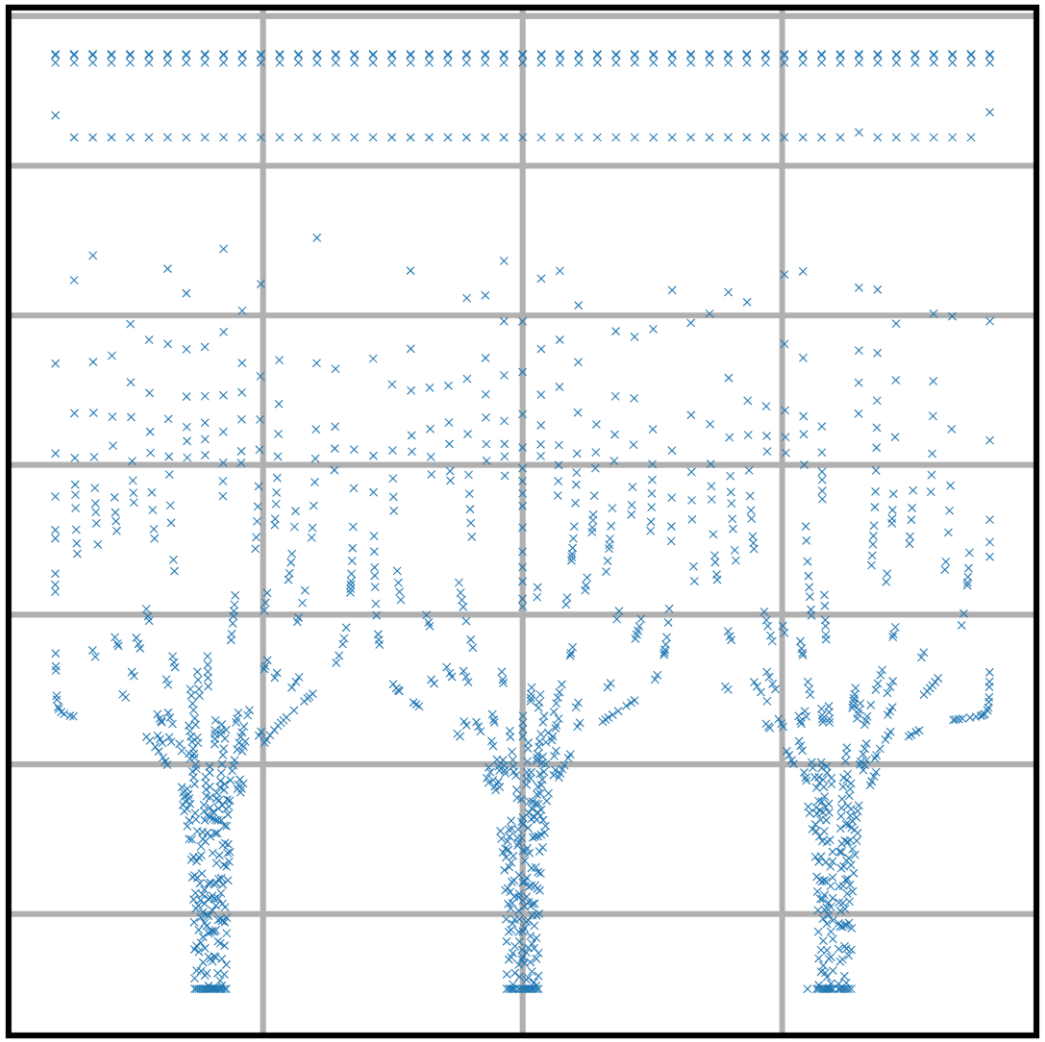
- Created a basic model of the detector in gmsh and generated an electric field
- Plotted the Efield in Garfield and verified its accuracy
- Stored the data for the Efield to a CSV





Next Steps

- Plot the field lines from the CSV file correctly (currently, each field line is connected to the previous)
- Devise a way to measure the radius of the field line bundle
- Adjust the model design to match the real version



Parameters

- Current Adjustable parameters:
  - Hole radius (15 μm)
  - Distance between the mesh and the readout plane (50 μm)
  - Distance between the mesh and the cathode (10 μm)
  - Mesh thickness (5 μm)
  - Potential on each surface (621 V, 600 V, and 0 V)
  - All values will be adjusted to match the specifications on the meeting notes from Oct. 28th (to be used as a starting point before beginning the optimization process)