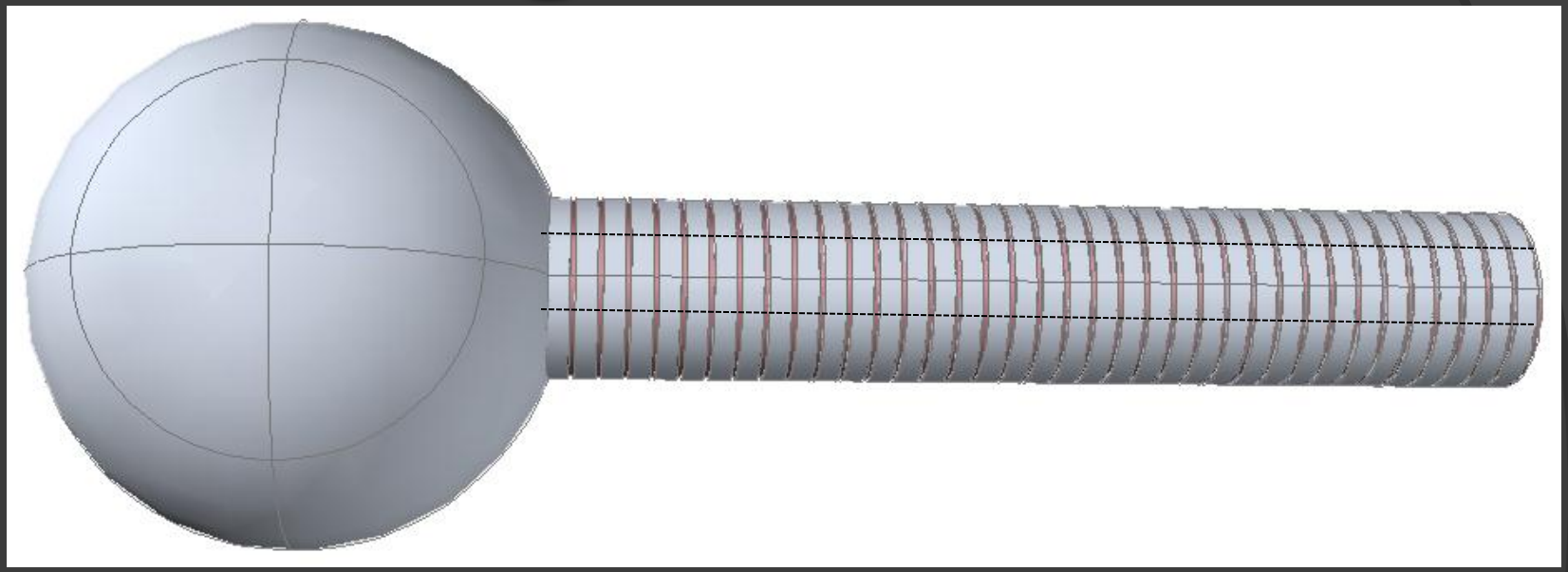
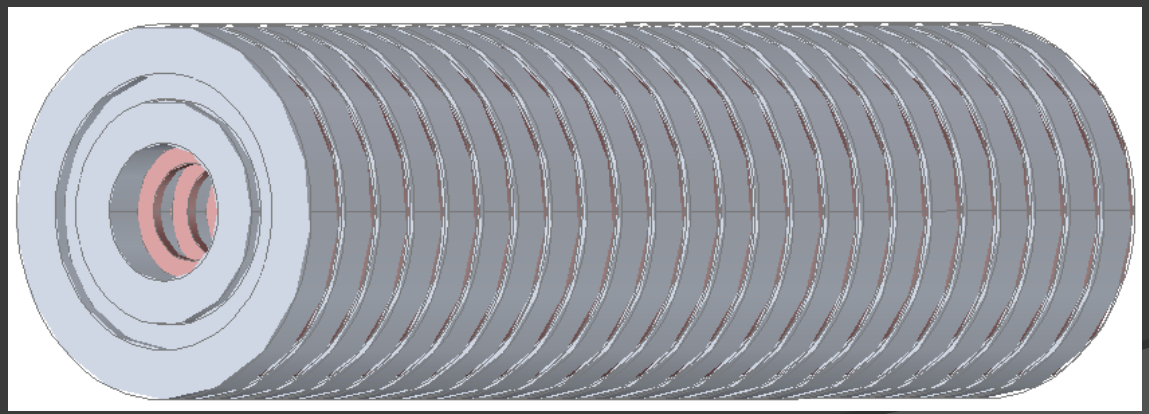
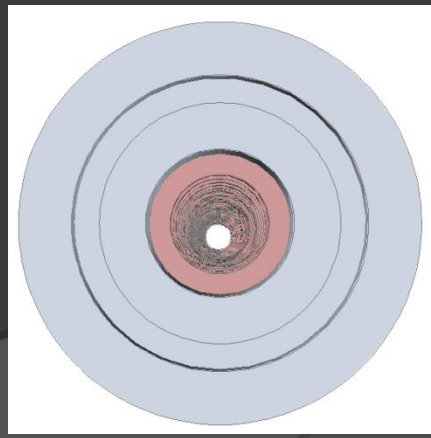
Joshua Troyer, Alexander Lipnicki, and Mark Yuly.
Department of Physics, Houghton College.

Considerations in the Design of Electrostatic Accelerator Columns

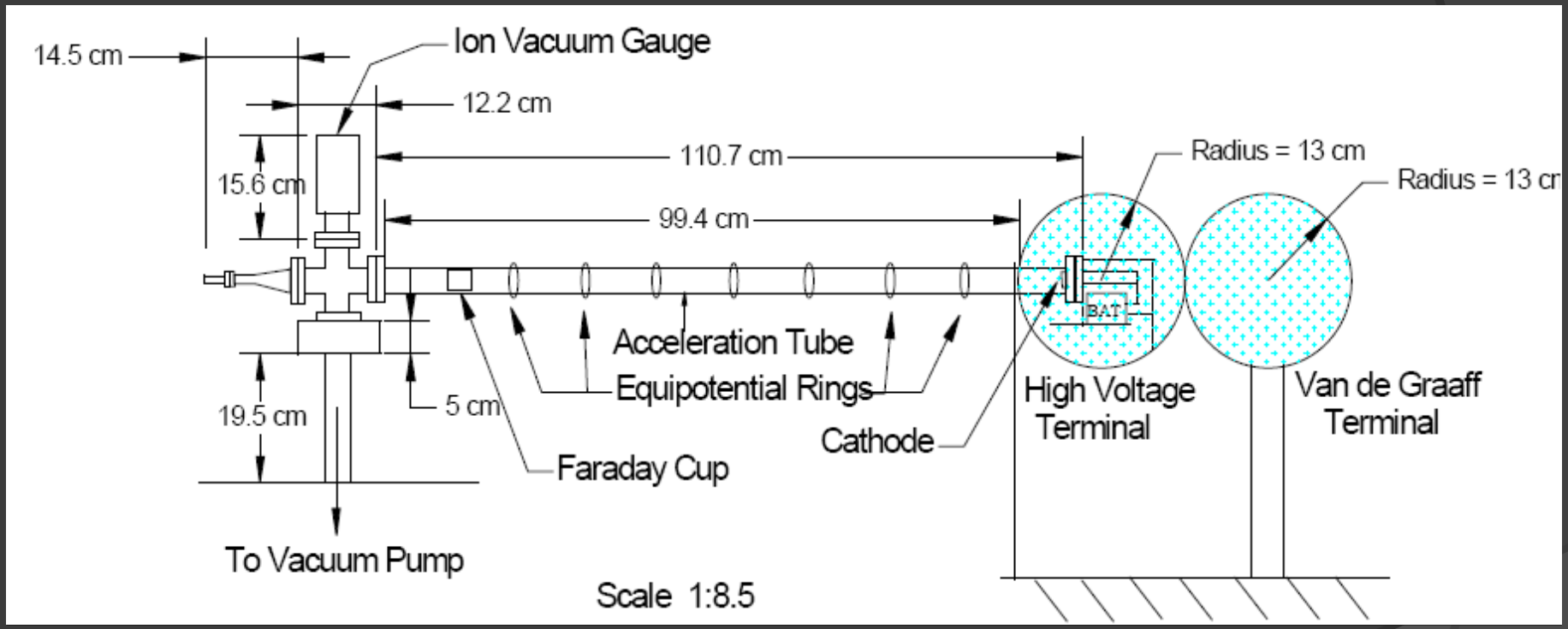
Accelerating Tube



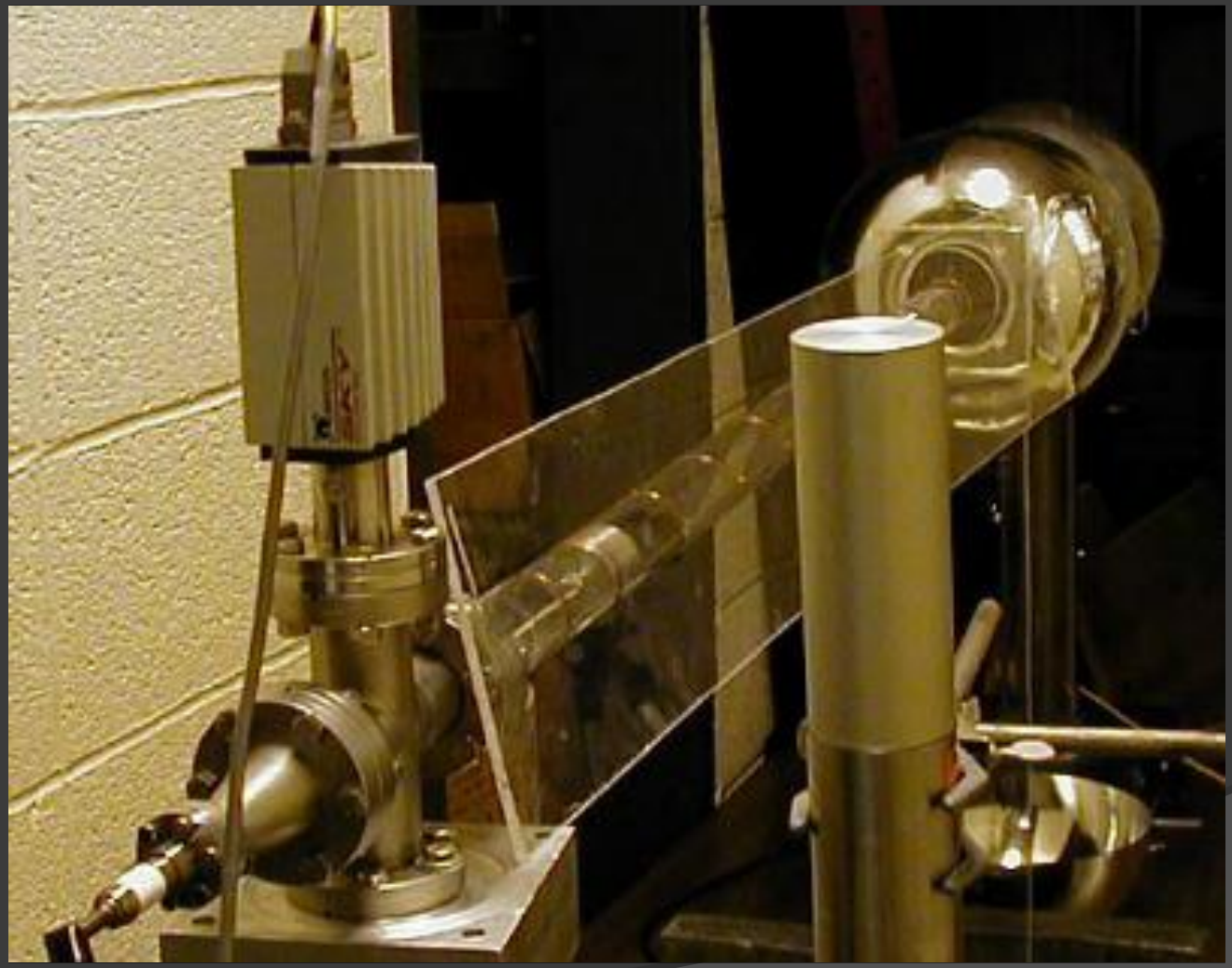




Initial Design

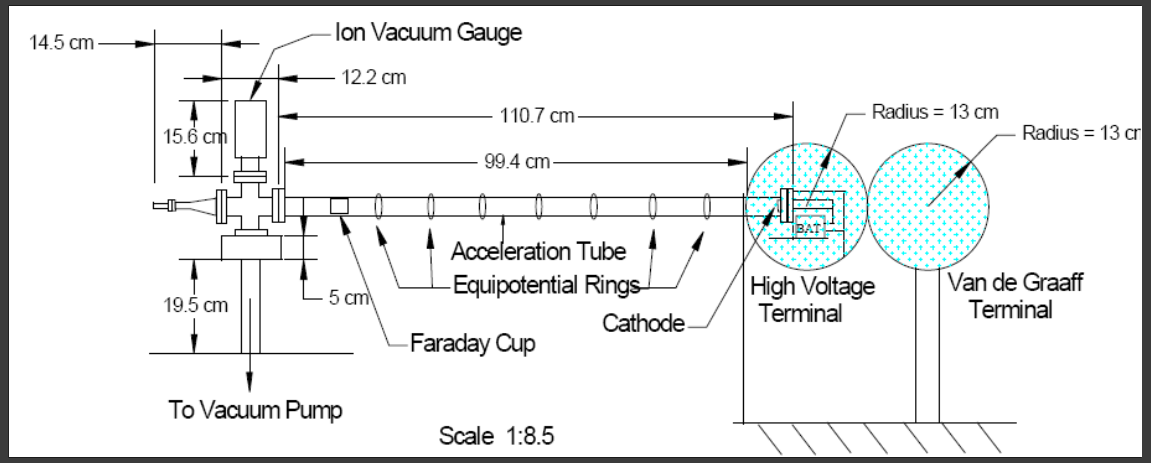


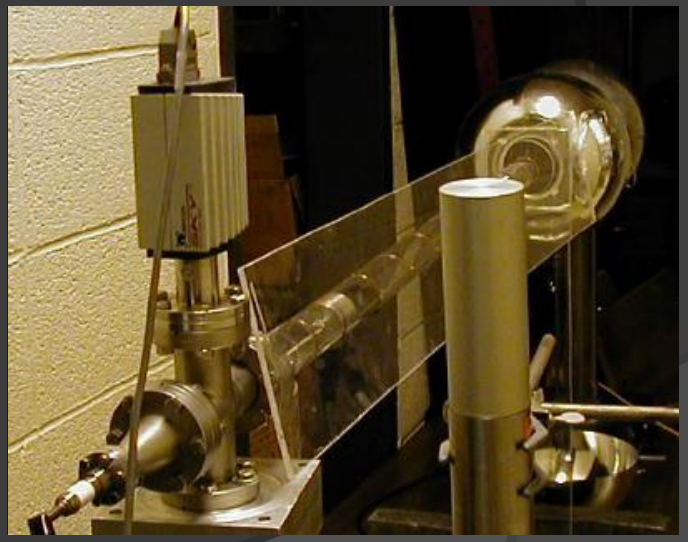
Initial Design…



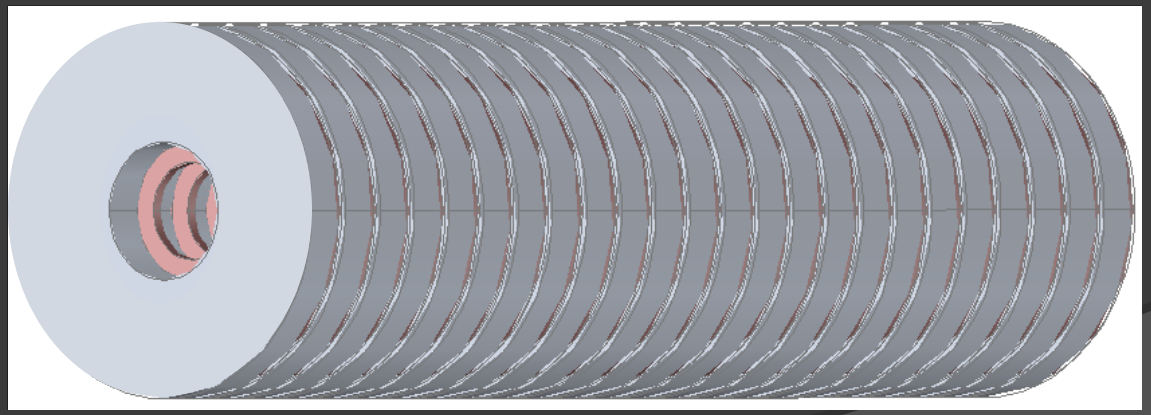
Initial Design's Problems

- Charge Build Up
- Sparking at the Cathode



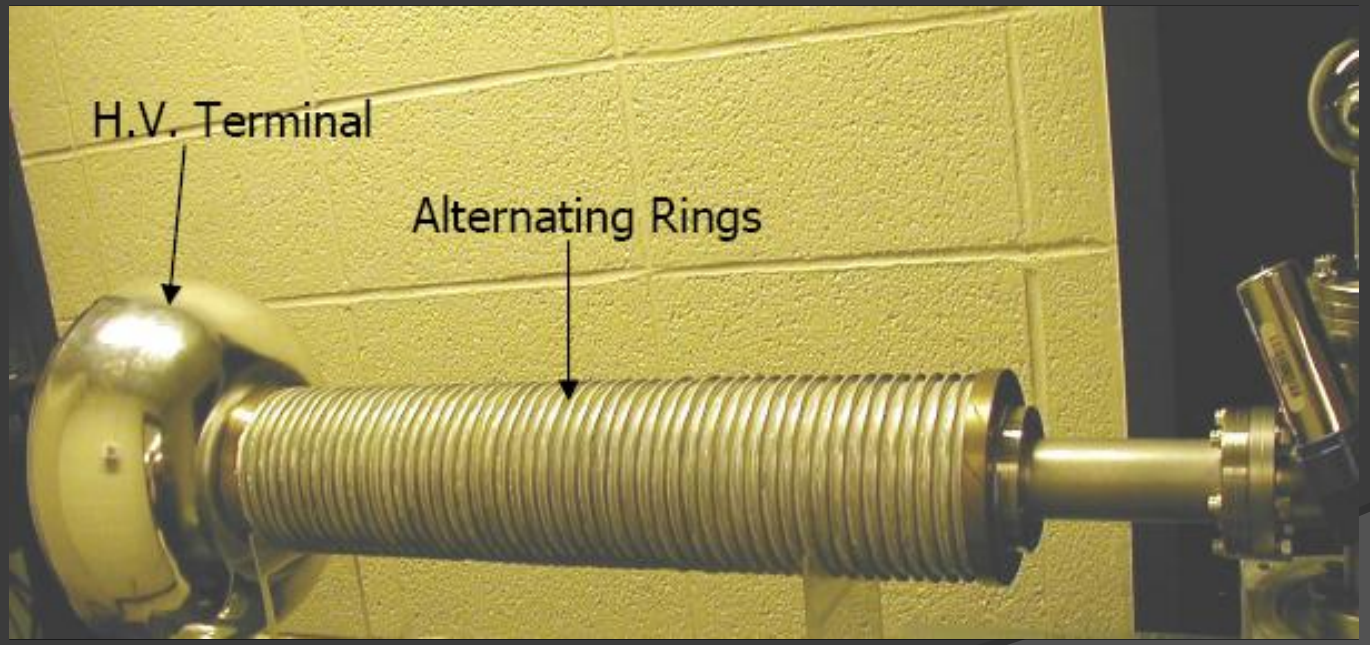


Second Design



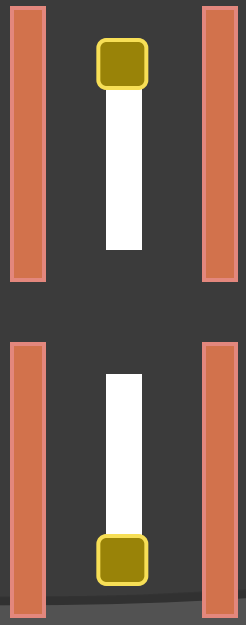
Second Design's Problems

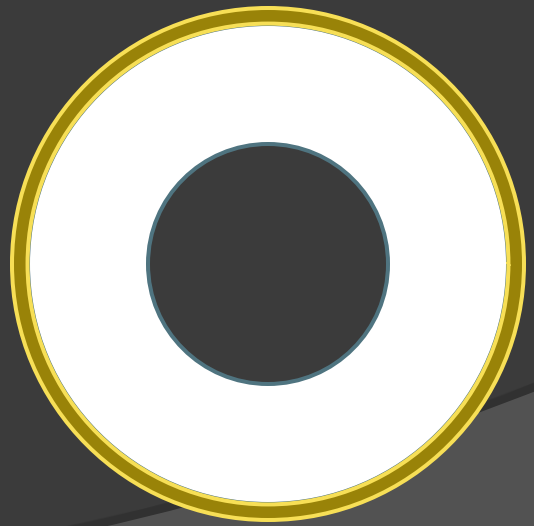
- Vacuum
- Conductive Impurities in the Epoxy



Third Design

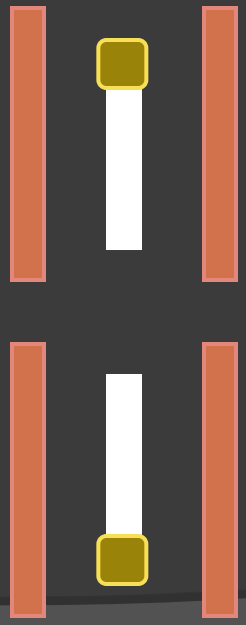
- Teflon Washers
- O-rings
- Stainless Steel Washers

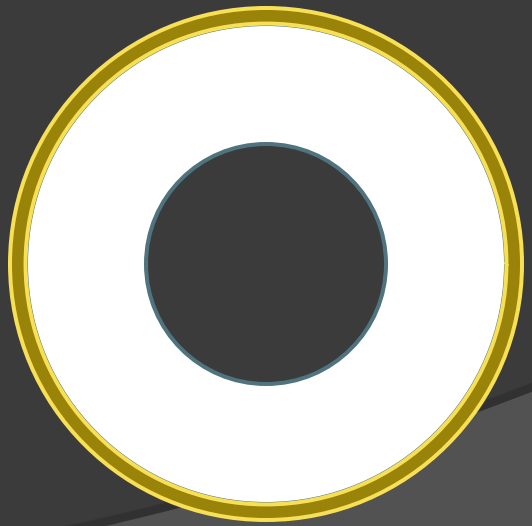




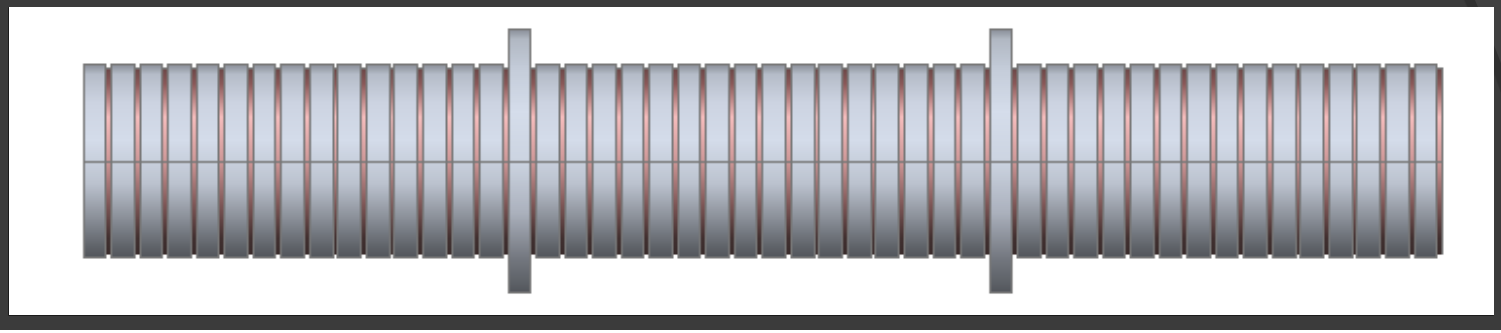
Third Design's Problems

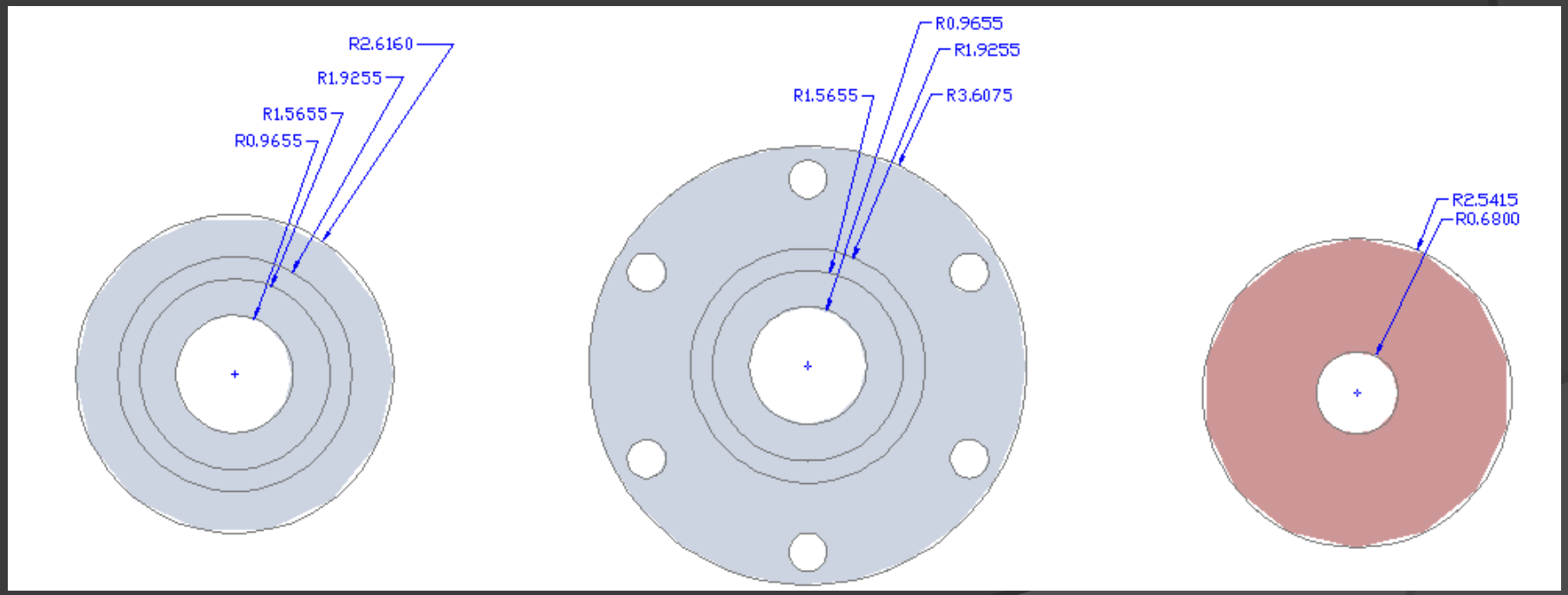
- Vacuum
- Difficult Alignment





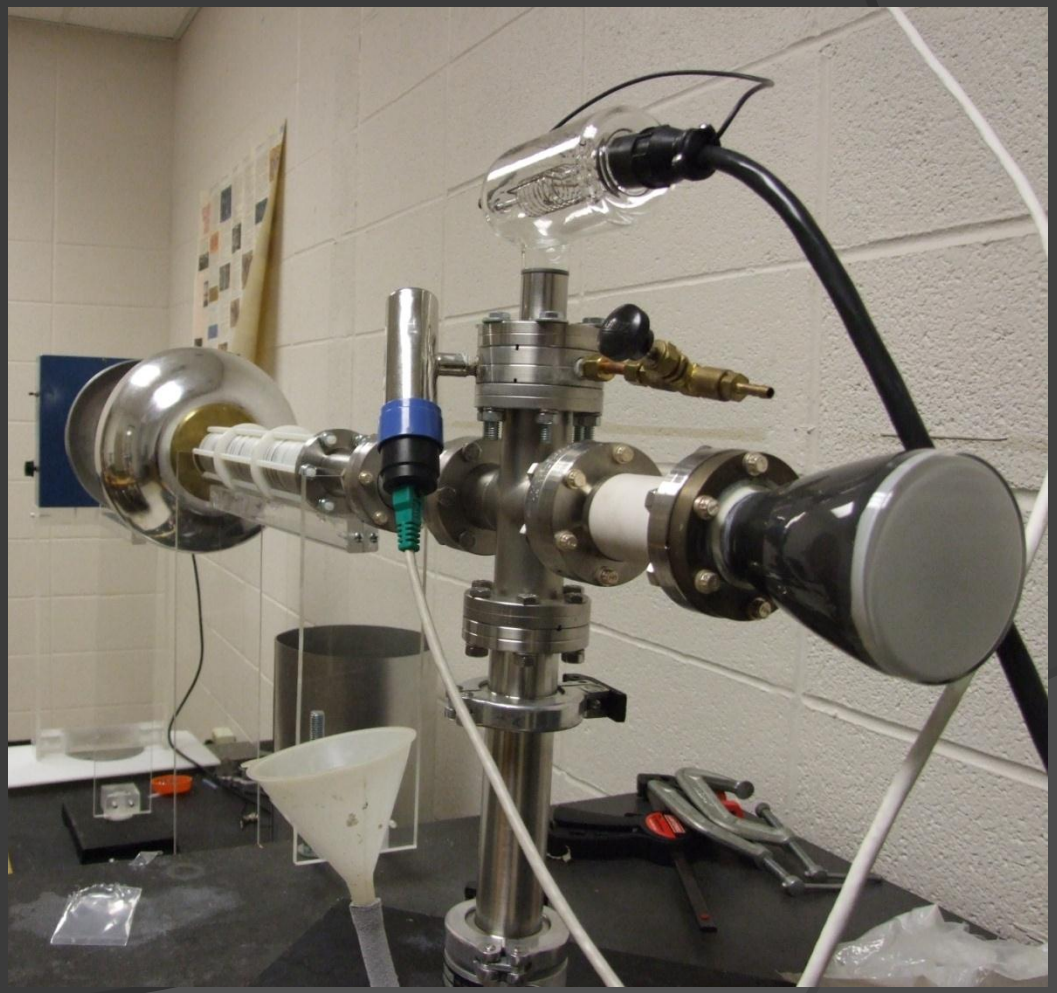
Current Design





Current Design…

- RCA 3RP1 CRT Electron Gun
- High Density Polyethylene
- Shielding
- Pre-stretched Nylon Rods
- Three-way Adjustable Base



Conclusion

- Future Plans
  - Beam Current
  - Energy Spectra