

GTS gun summary

Dec 12th 2019

Gabriel Palacios

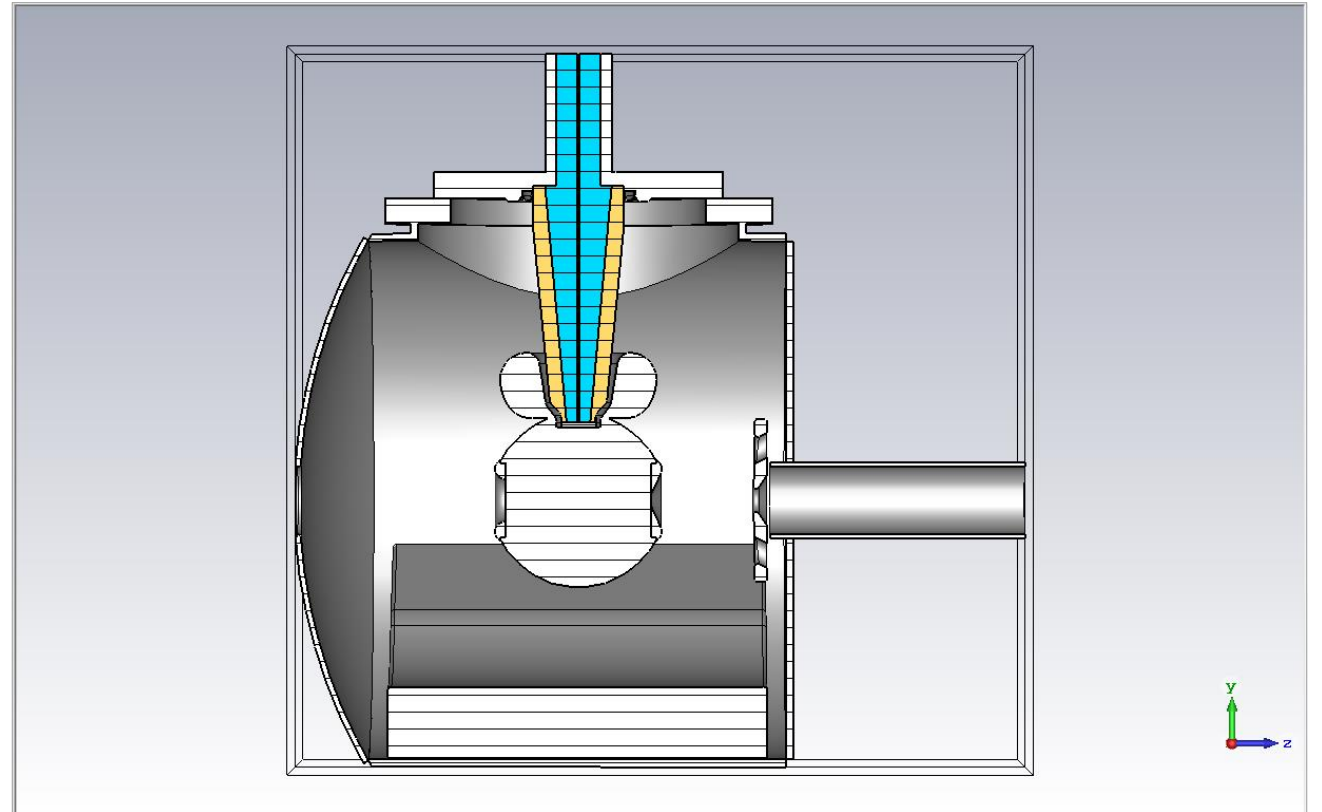
gabrielp@jlab.org

Read me

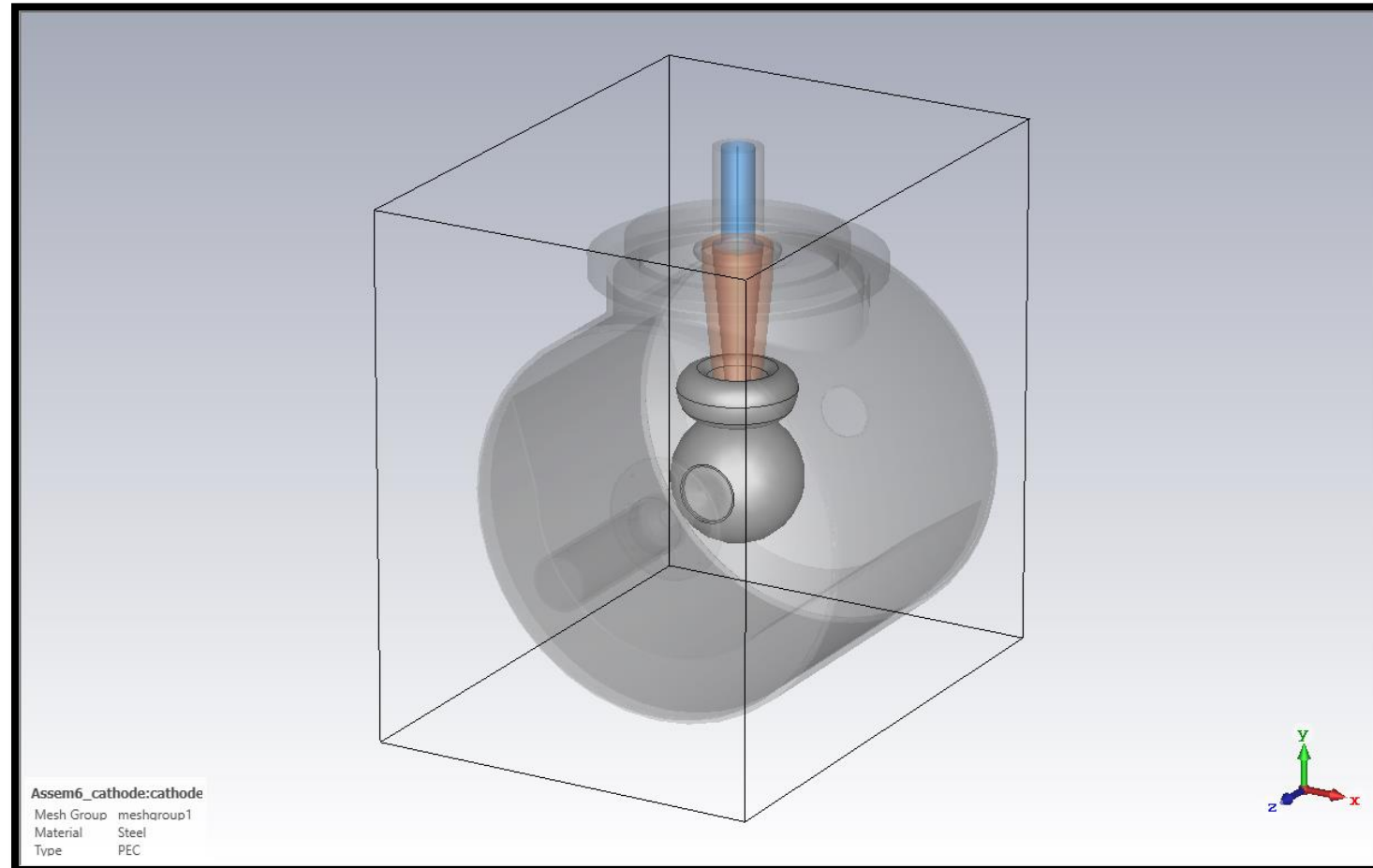
- This is the model I generated in Solidworks based on the original STEP files and construction drawings provided by the design dept. Most of the parts were remodeled in order to remove unwanted features (bolt holes and knife edge grooves) unnecessary for the simulations.
- I used this model for the electrostatic simulations of the GTS electron gun. The result shown here were obtained using CST Microwave studio.
- The 3D model images shown in this document are screen captures after it is imported to CST Microwave studio.
- The model consists of 13 simplified parts. The separation of the model in this way allows for better meshing of relevant sections for the electric field simulation as well as optimizing resources by omitting irrelevant details (bolt holes, internal puck holder, etc).
- The Parasolid file can be downloaded from [this link](#).

GTS gun parts

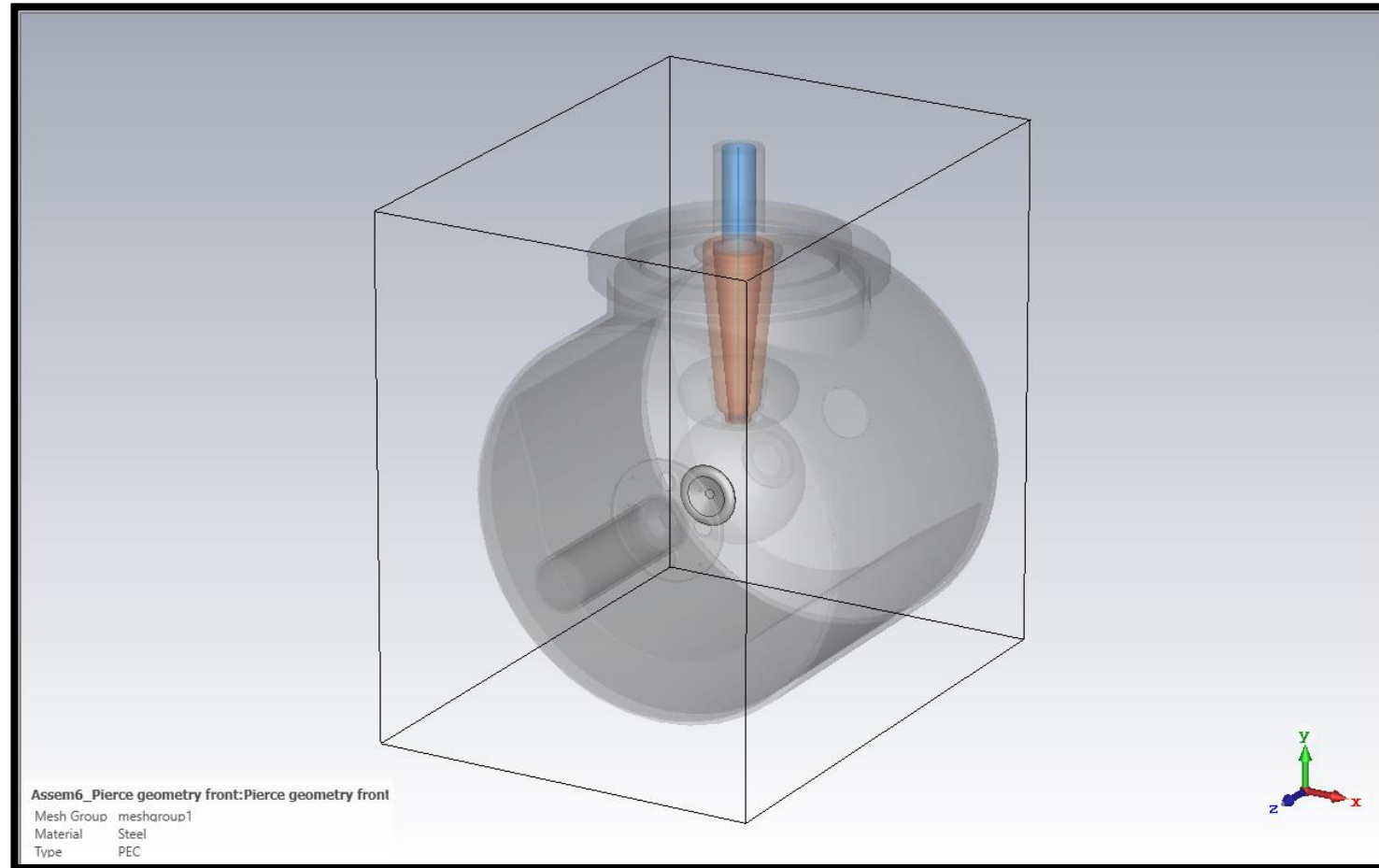
- [Cathode electrode](#)
- [Pierce geometry front](#)
- [Pierce geometry back](#)
- [Cathode triple point](#)
- [HV cable](#)
- [Kovar ring](#)
- [Anode](#)
- [Beamline](#)
- [Vacuum chamber](#)
- [NEGs](#)
- [Insulator](#)
- [Rubber plug](#)
- [Flange](#)



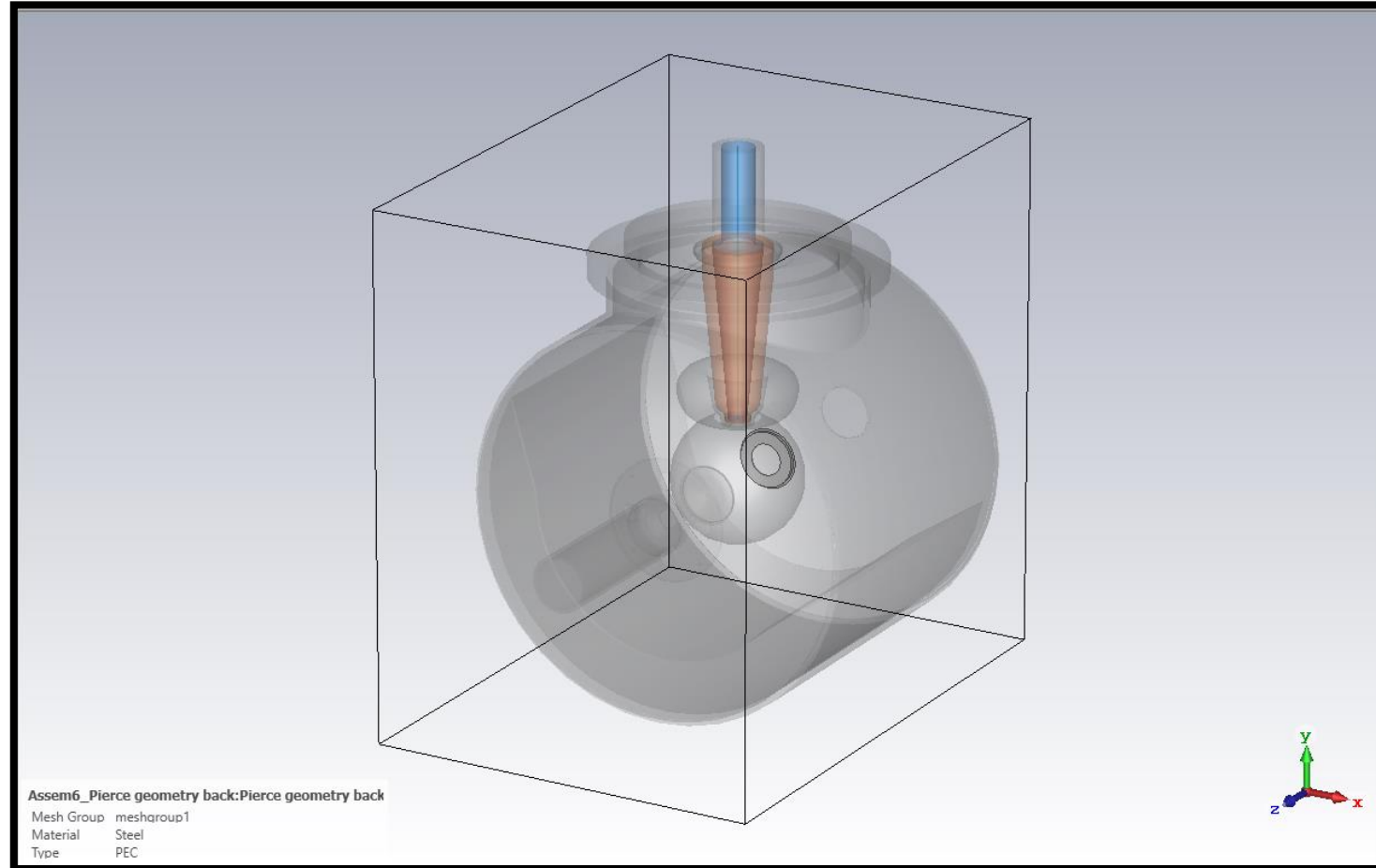
Cathode electrode



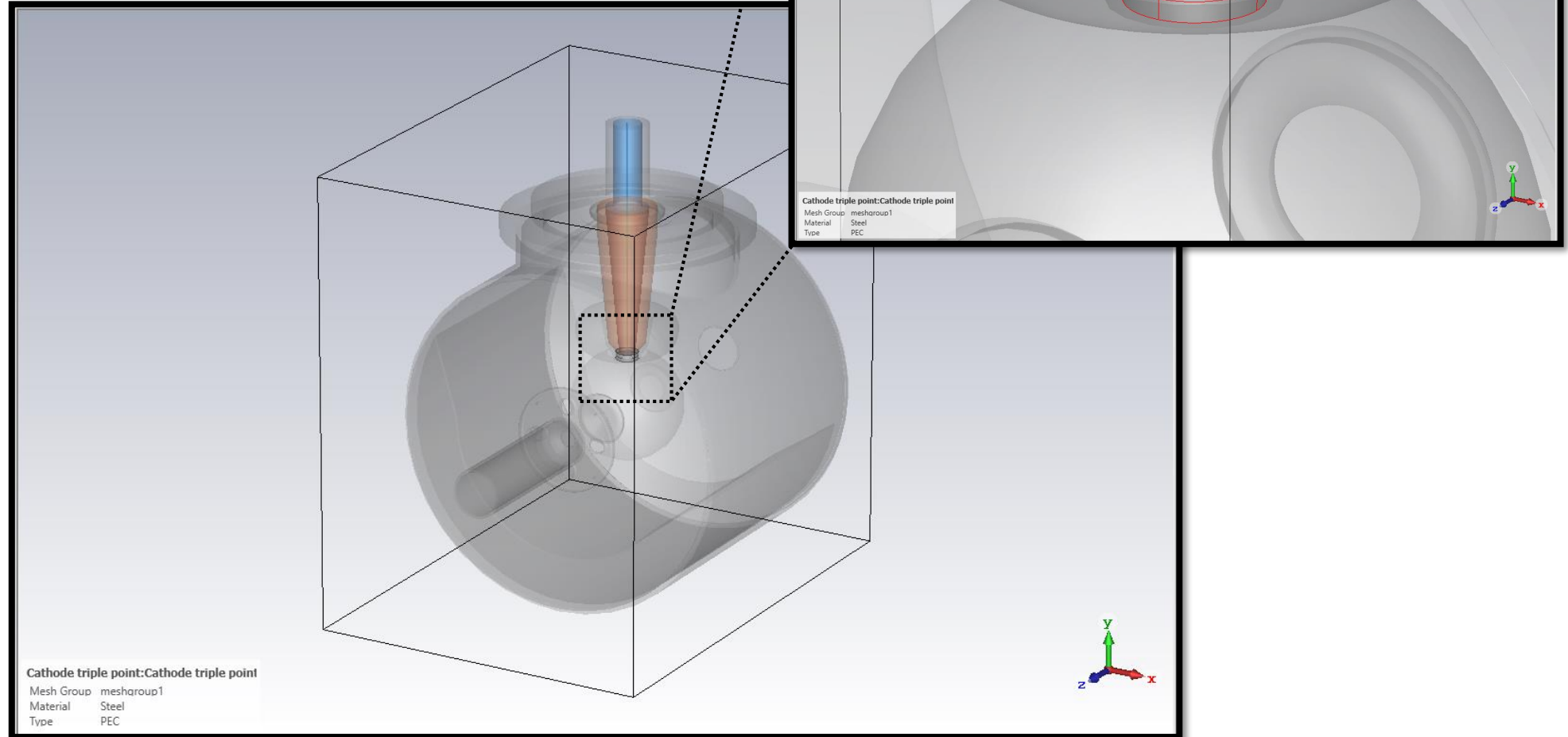
Pierce geometry Front



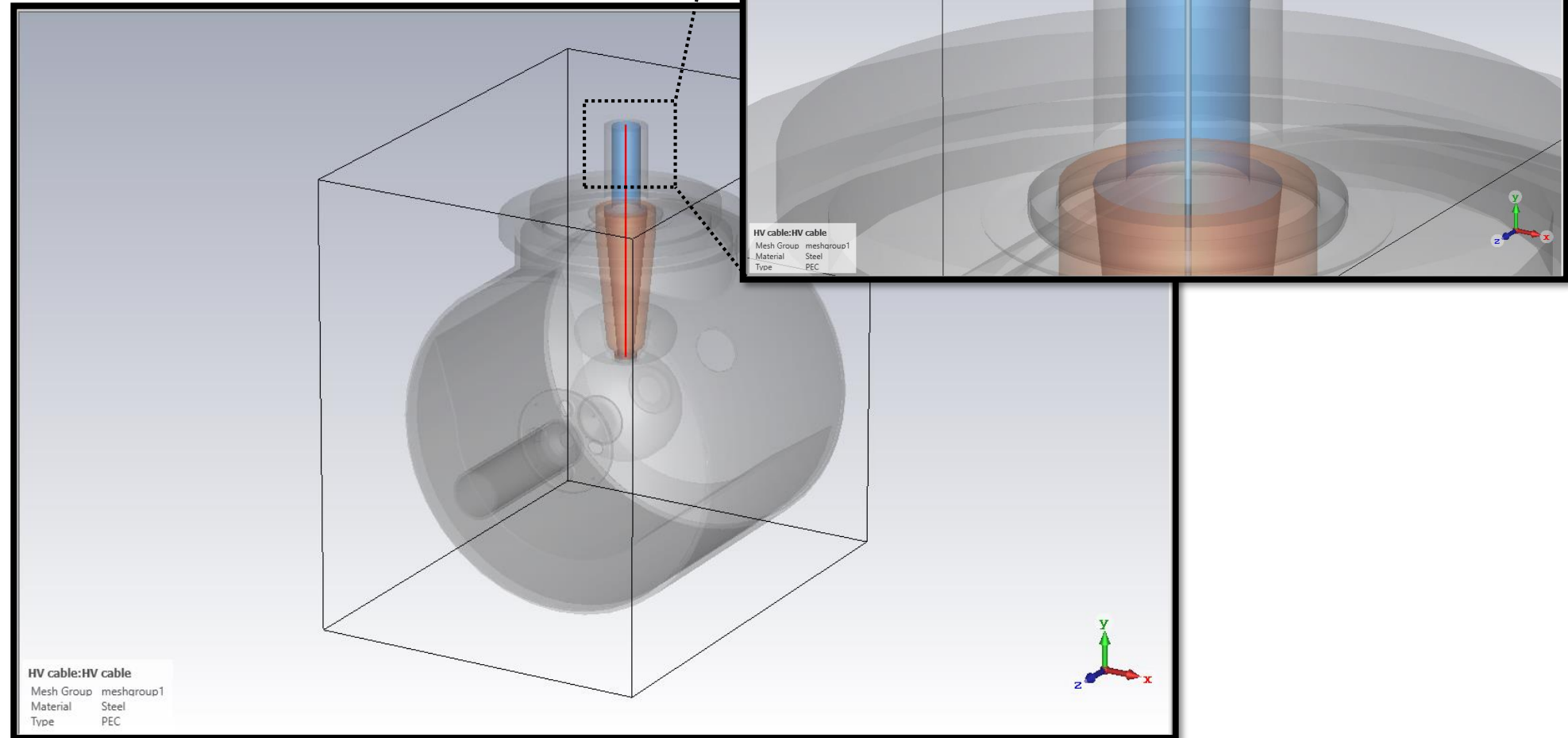
Pierce geometry back



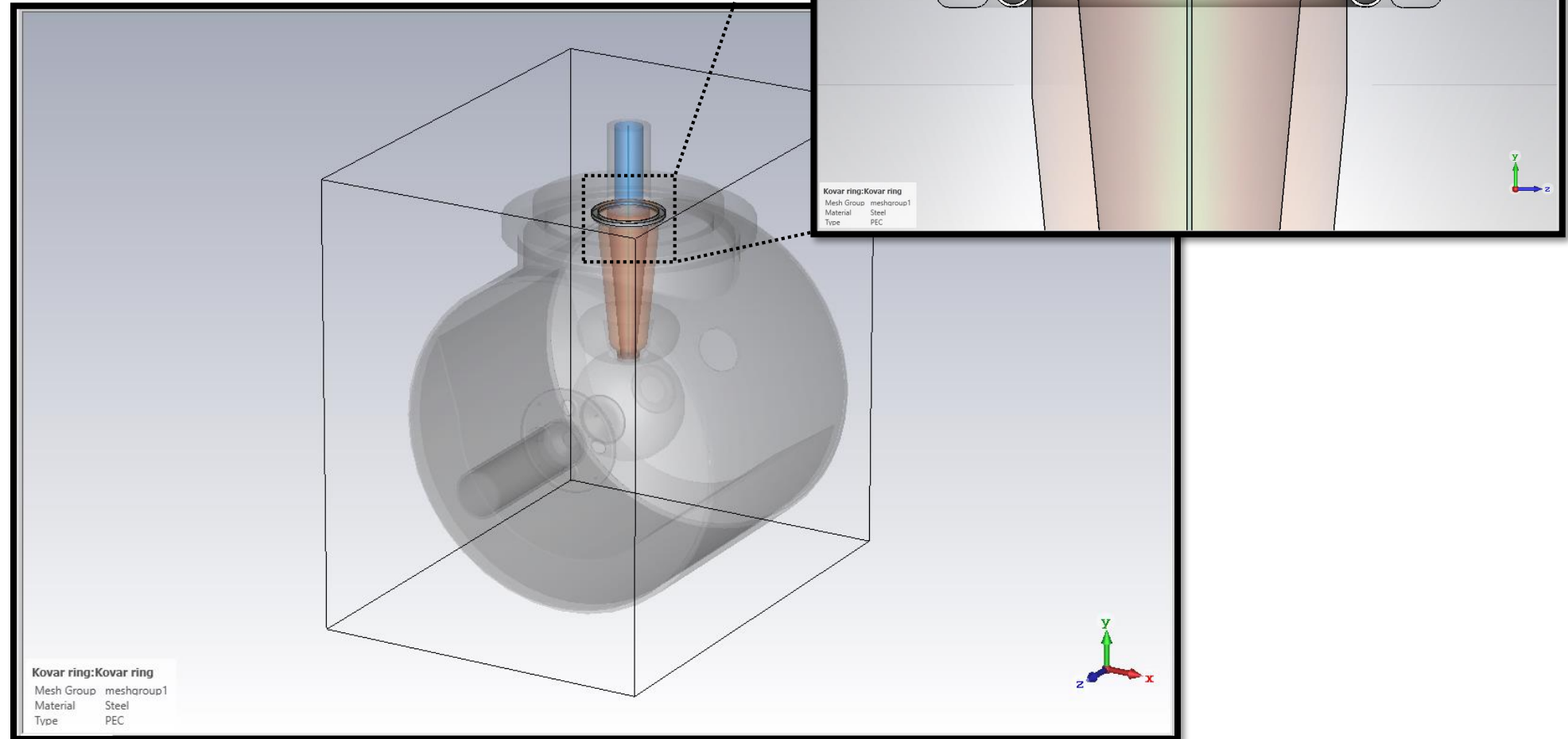
Cathode triple point



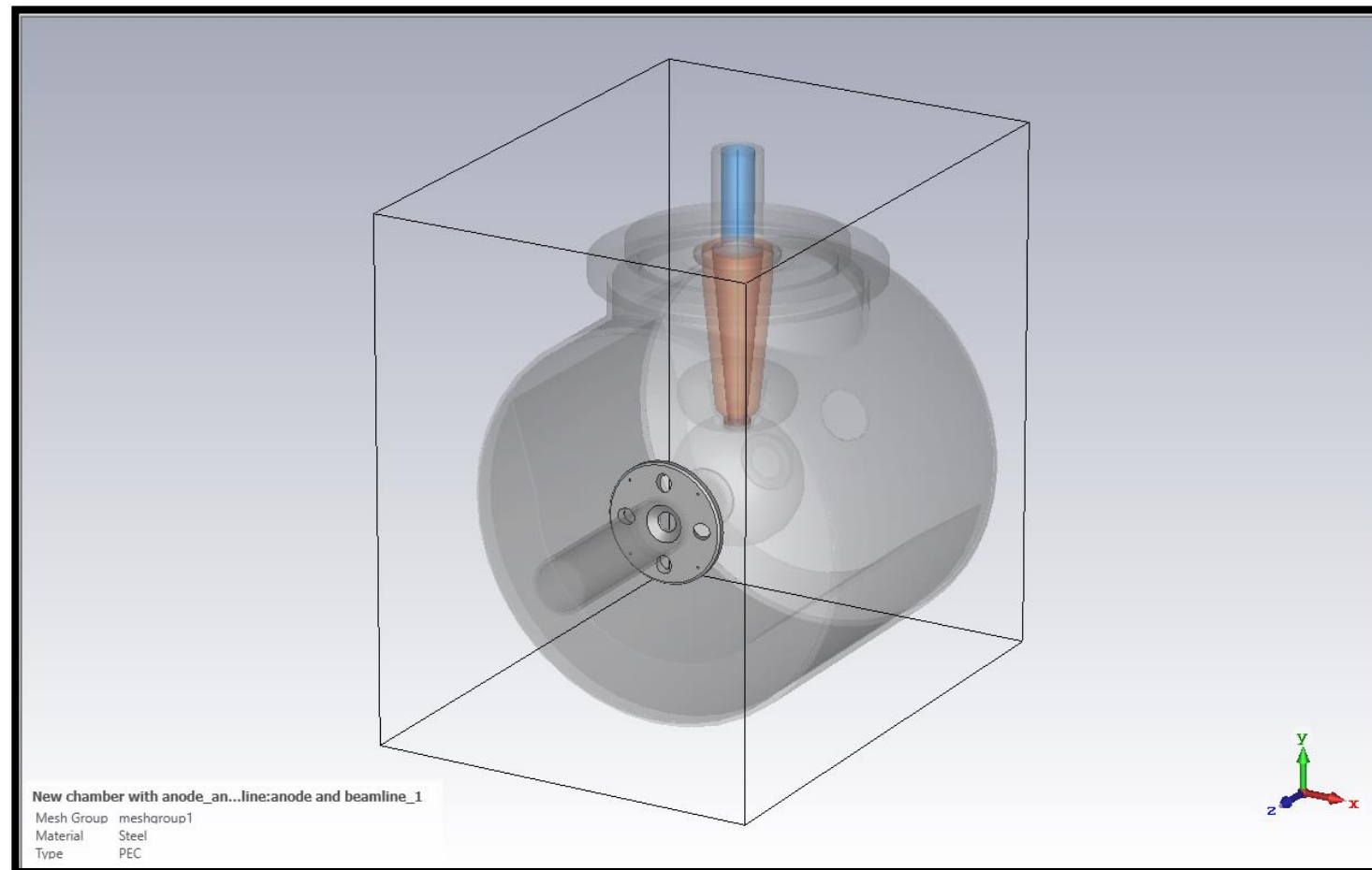
HV cable



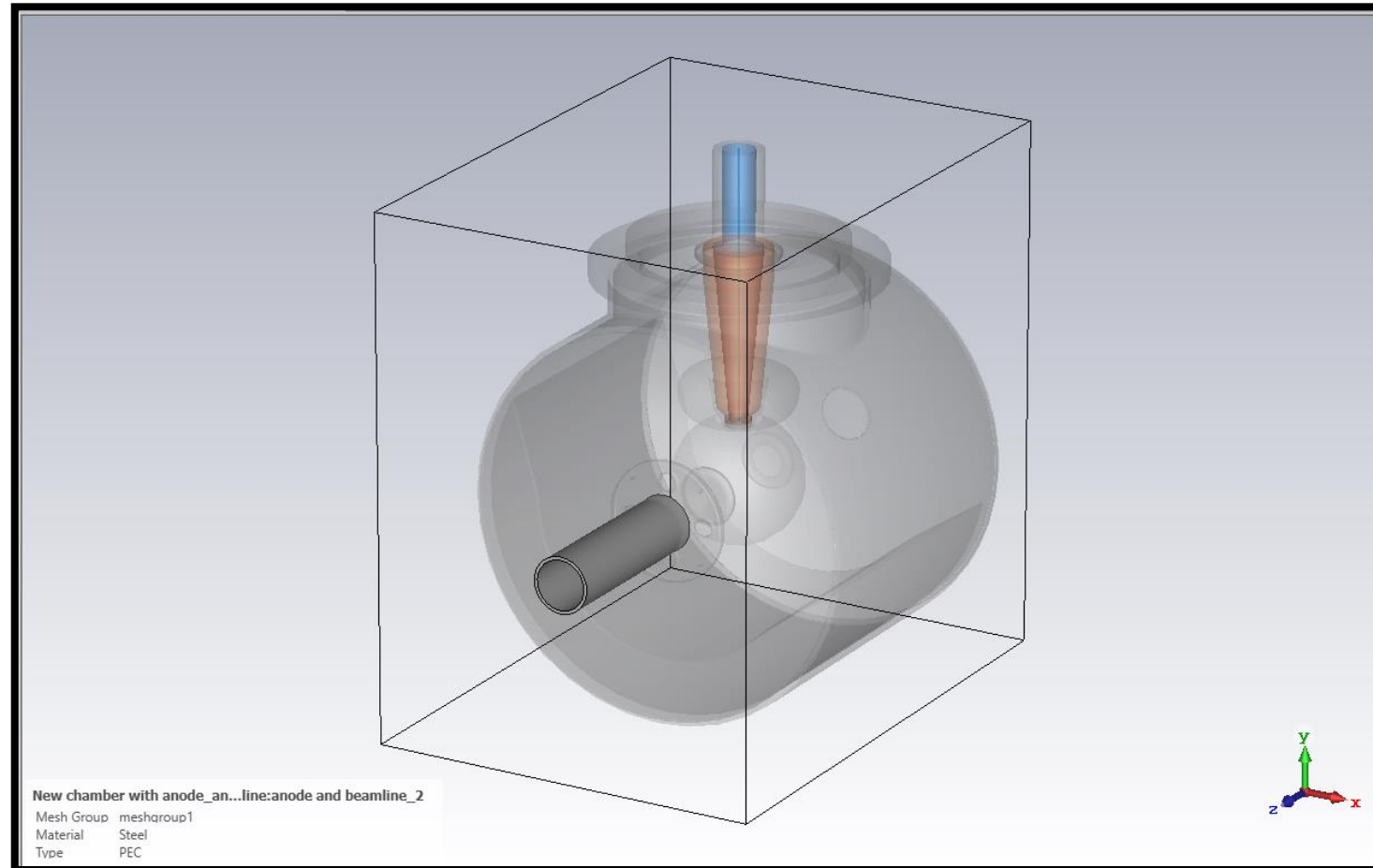
Kovar ring



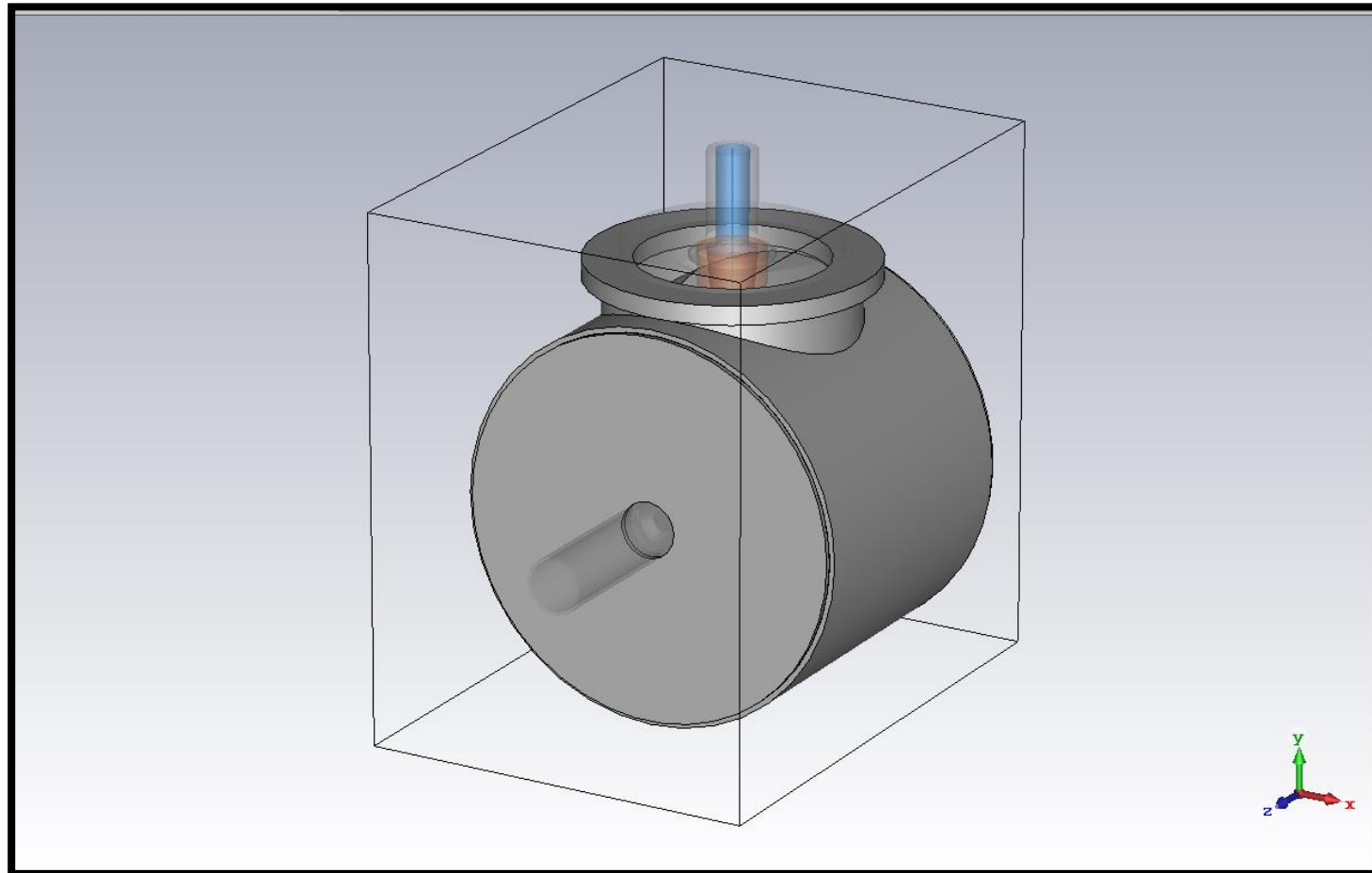
Anode



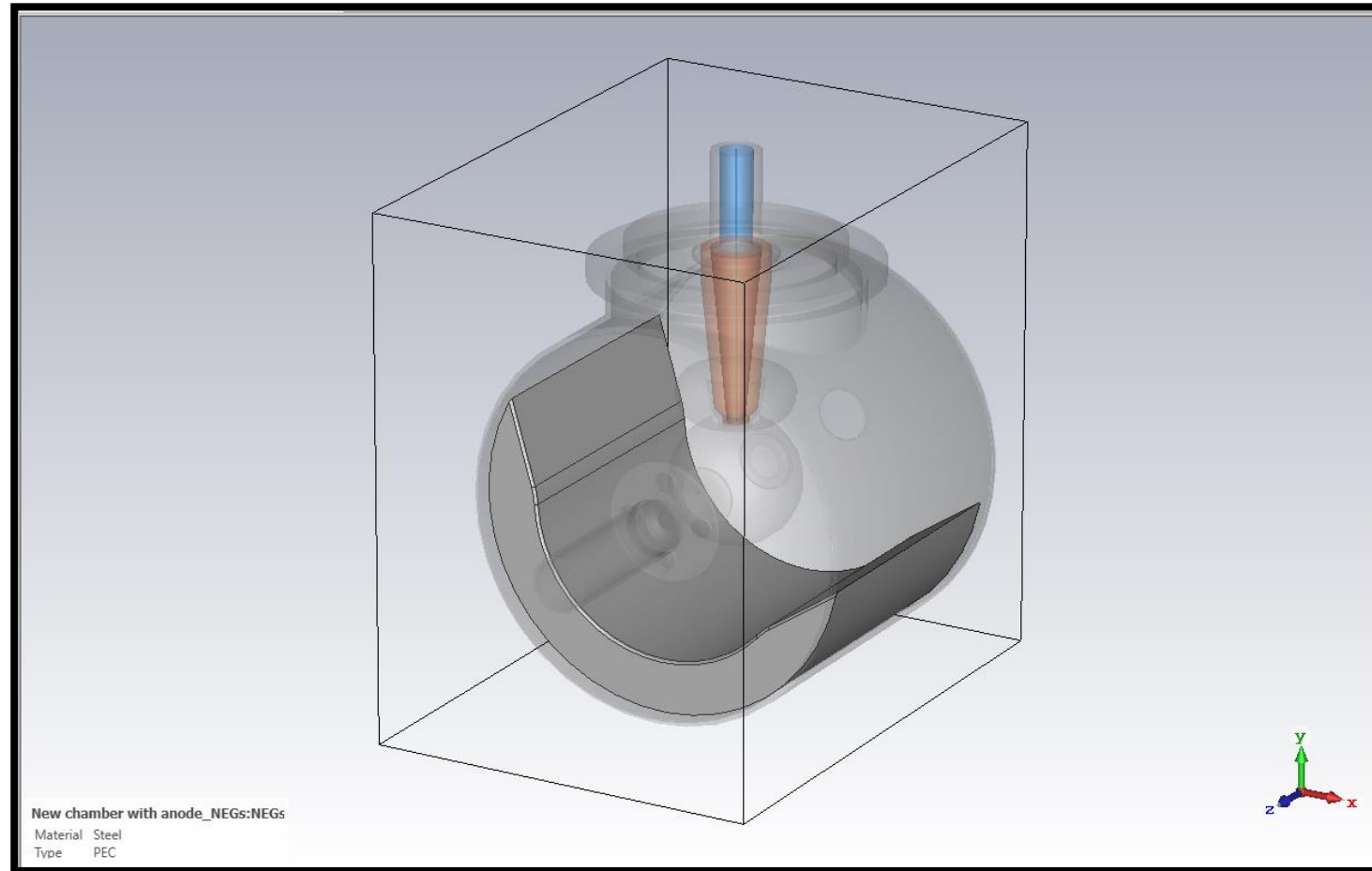
Beamline



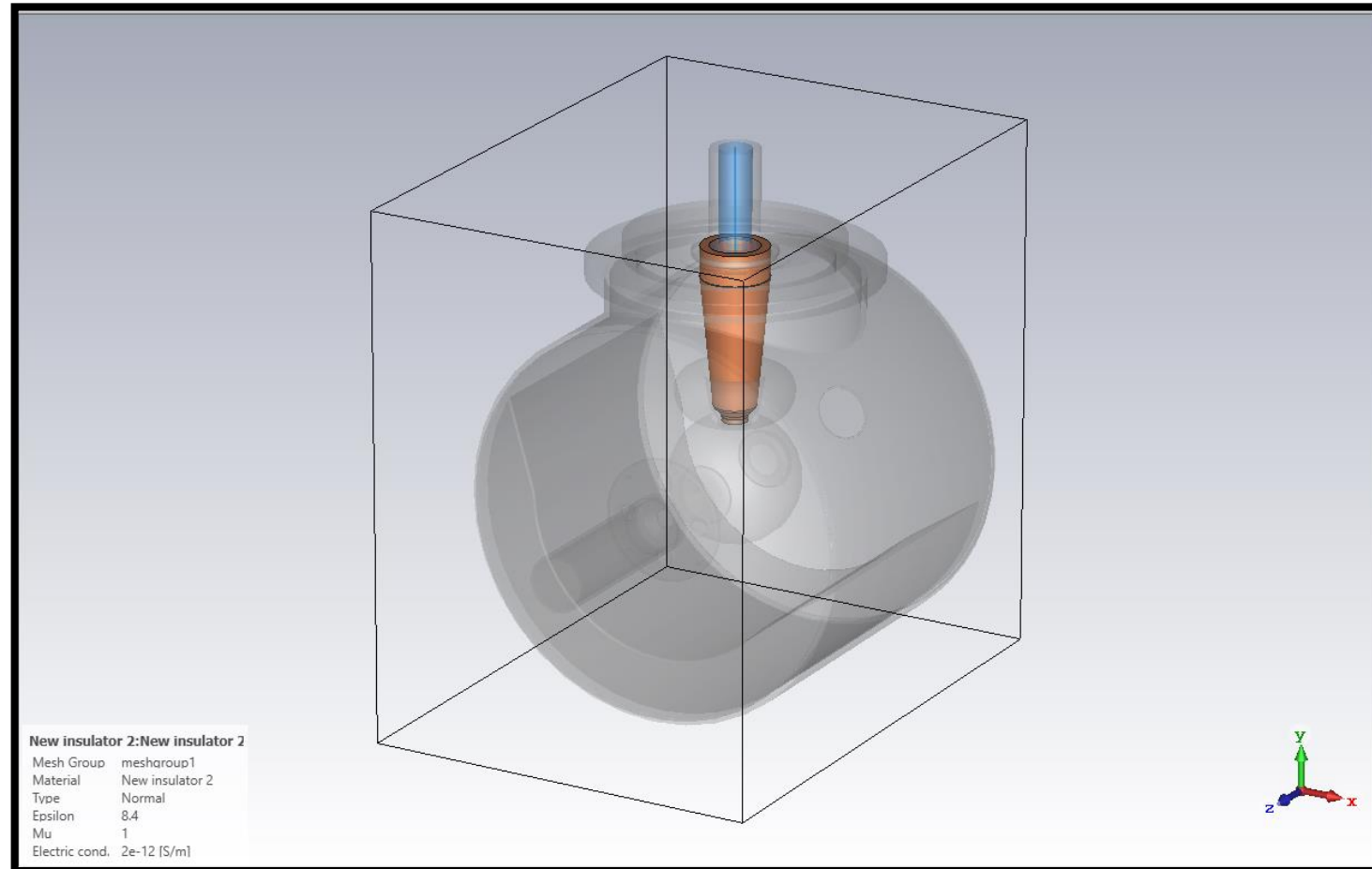
Vacuum chamber



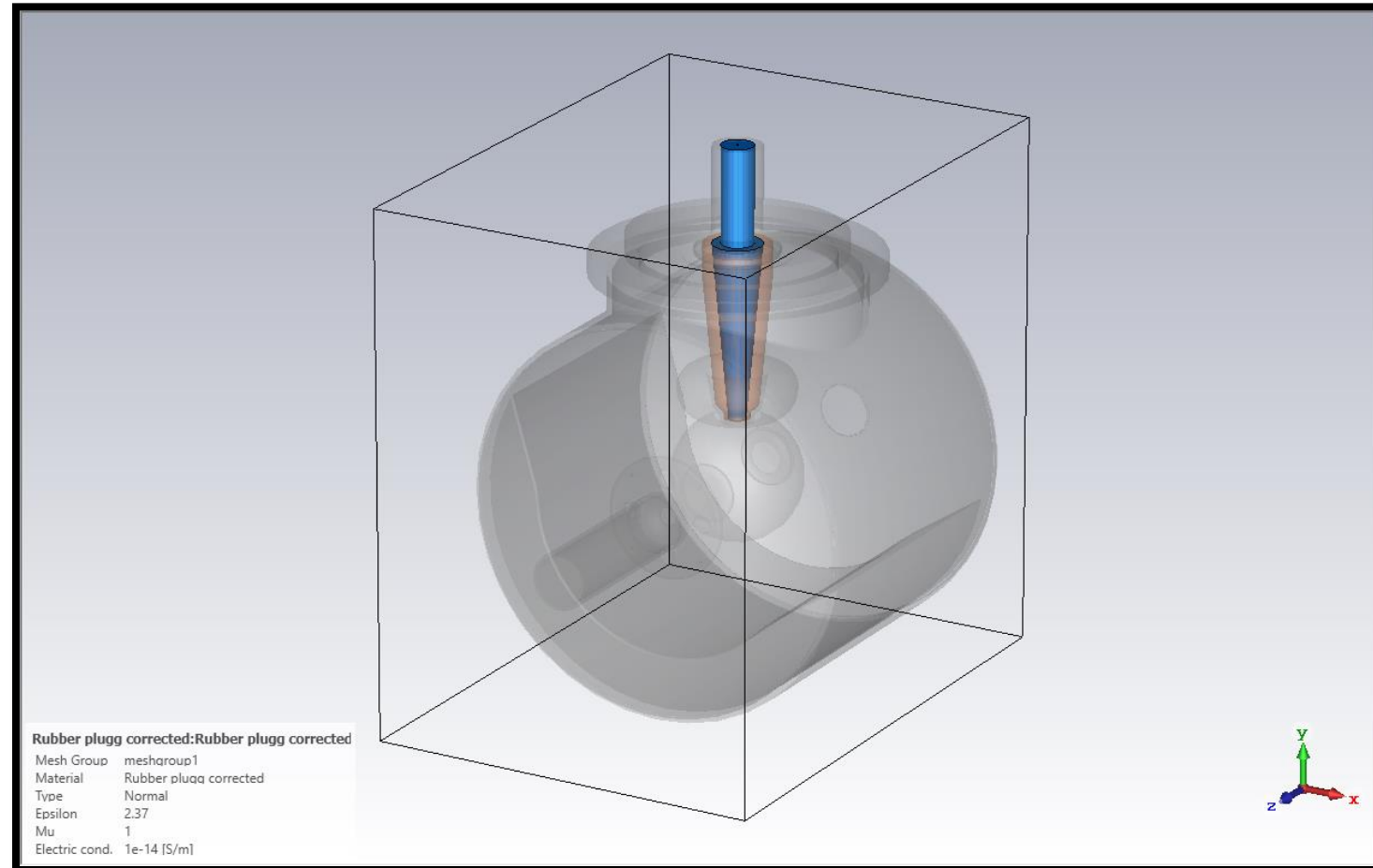
NEGs



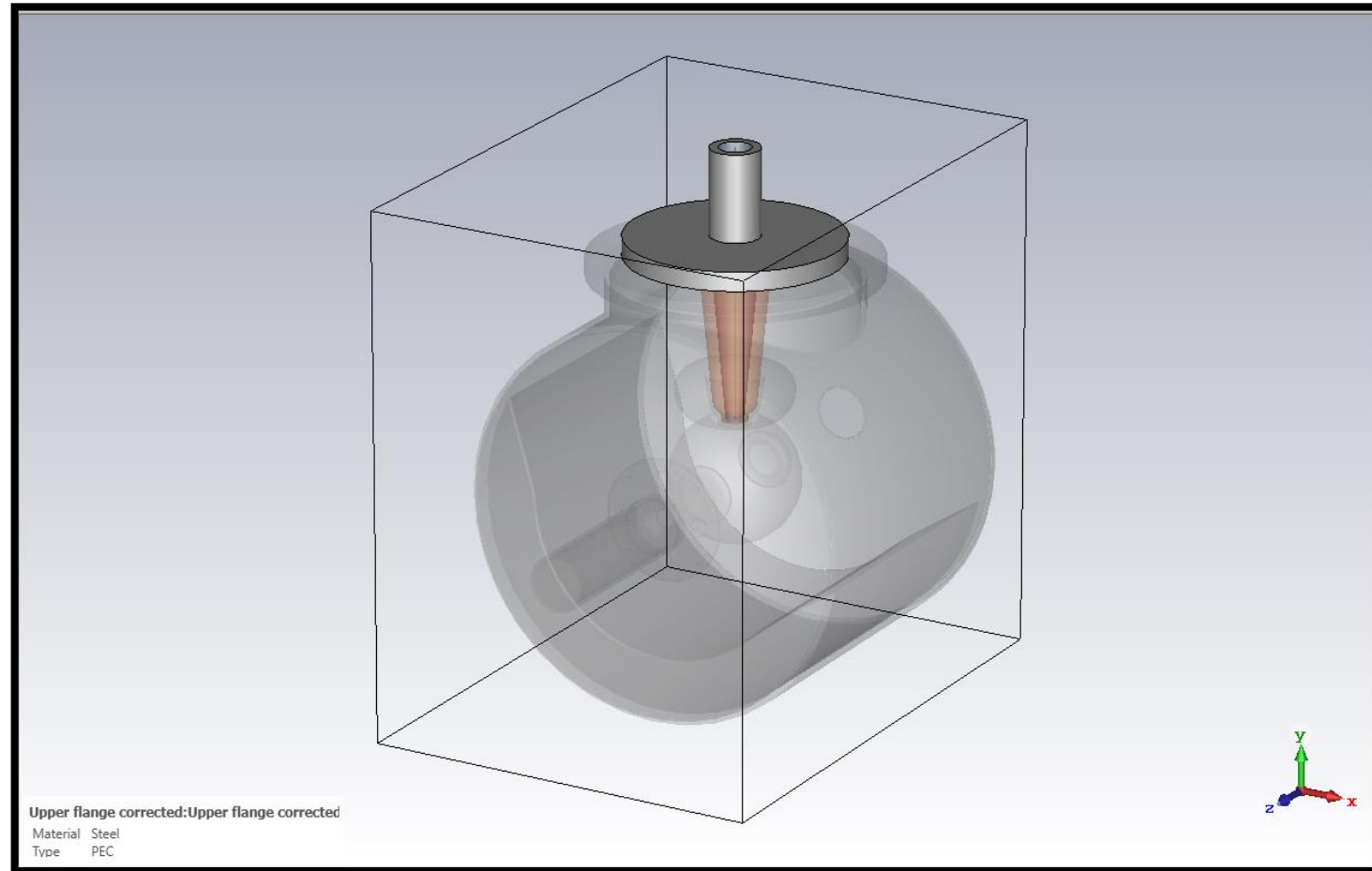
Insulator



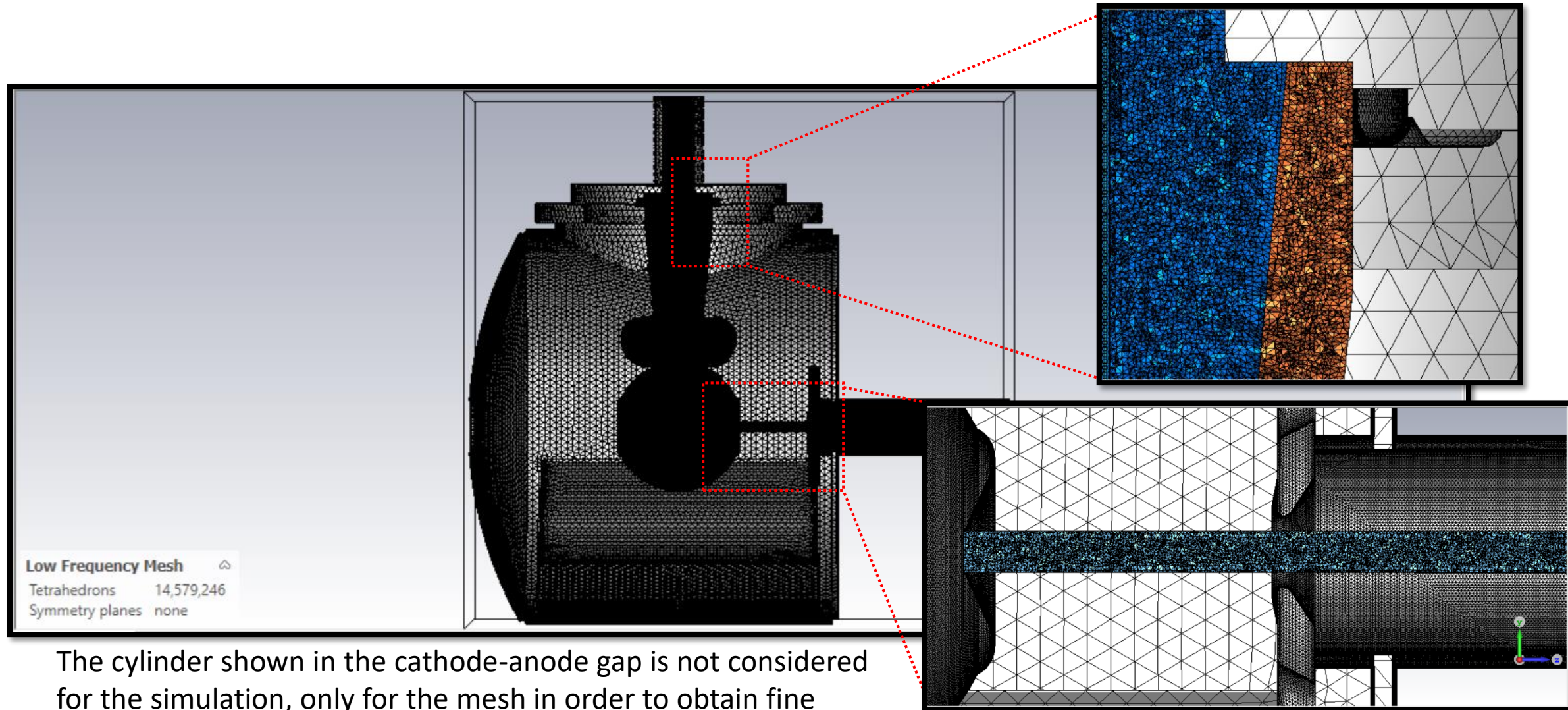
Rubber plug



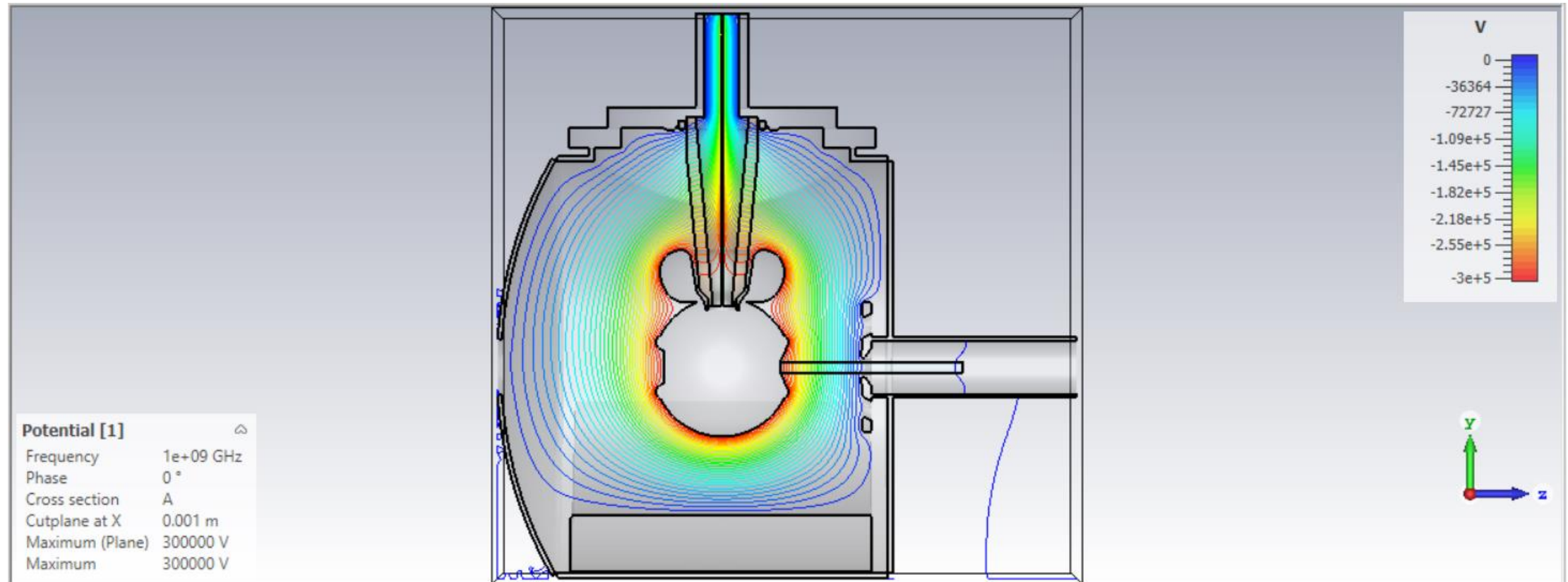
Flange



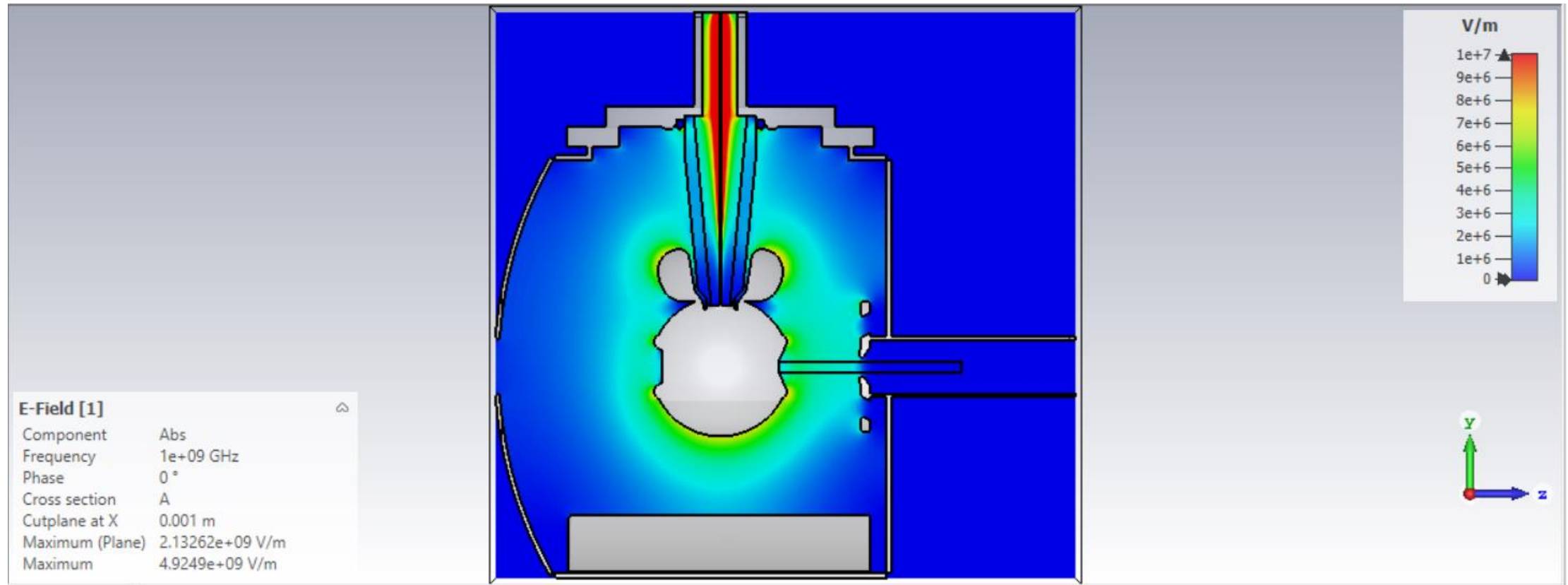
CST mesh



CST Potential isolines at -300 kV



CST electric field norm at -300 kV



The electric field norm $|E|$ shown here in false color is shown by setting the upper limit to $1E7$ V/m.