Further Observations of the MICE geometry

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Received a series of directories containing the geometry of the MICE Step IV beam-line. All of the separated elements seem to run under GEANT well. The first thing done with these files was to add the correct material definitions. The material references were then changed in the gdml files.

I attempted to compile all of the files into a single gdml file which can be read by GEANT4 or the "GDMLtoMAUSModules" python script. The resulting geometry did not look right with anomalous objects appearing at the upstream quadrupoles. To investigate the source of this oddity, each set of material sub-assemblies was simulated separately in an attempt to identify the anomaly. Images of the simulations are shown in Fig. **??**. There is no evidence of a source for the distortion of the model. It is possible that it is an artifact of visualizing nested geometries in this OpenGL. A different visualization tool may produce better results but it is clear that all of the important elements are in the geometry.

The remaining concern is whether the

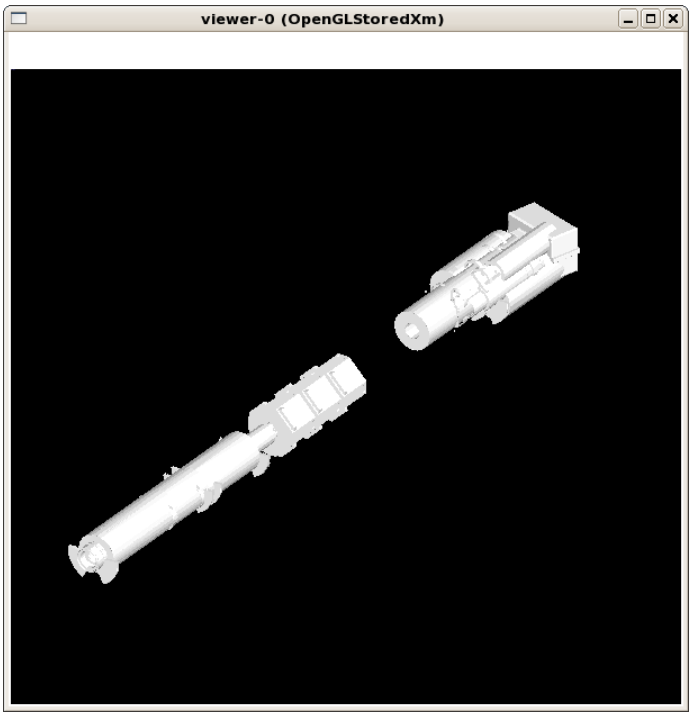
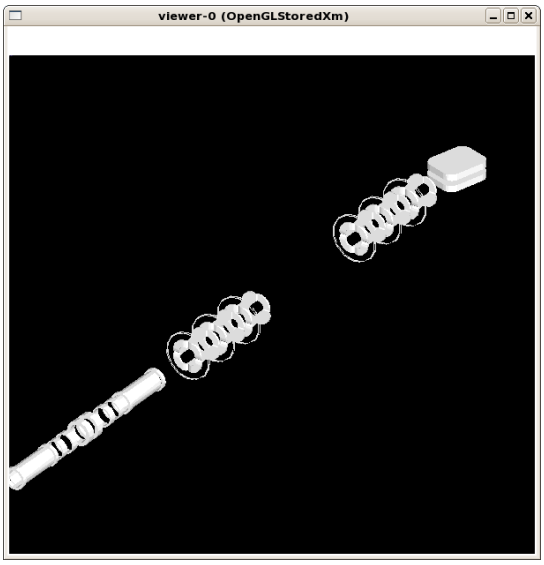
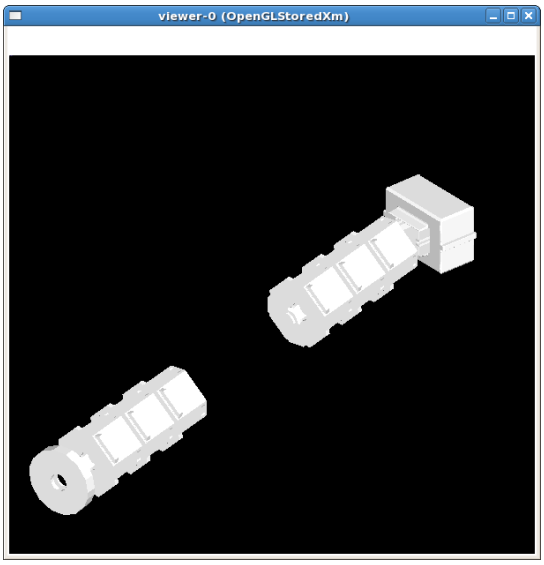


Figure 1: Geometry implementation from a naive combination of gdml files generated from a Step IV model broken down by material.

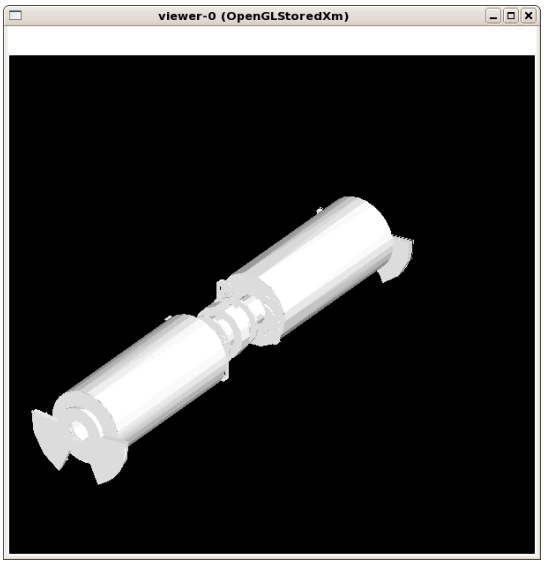


(a) Copper sub-model

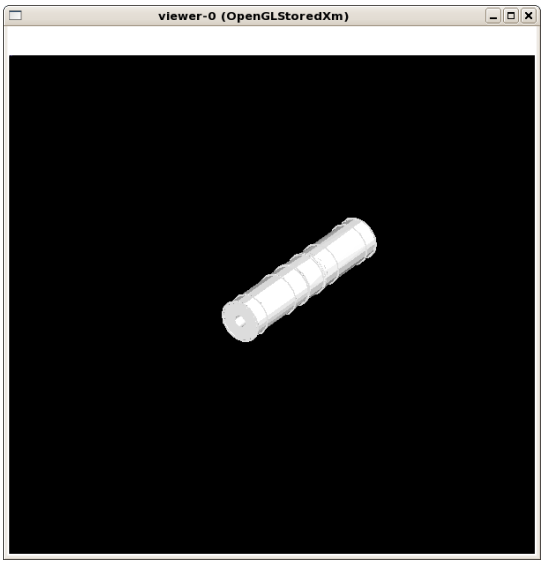


(b) Iron sub-model

Figure 2: Copper and iron sub-models of the Step IV geometry

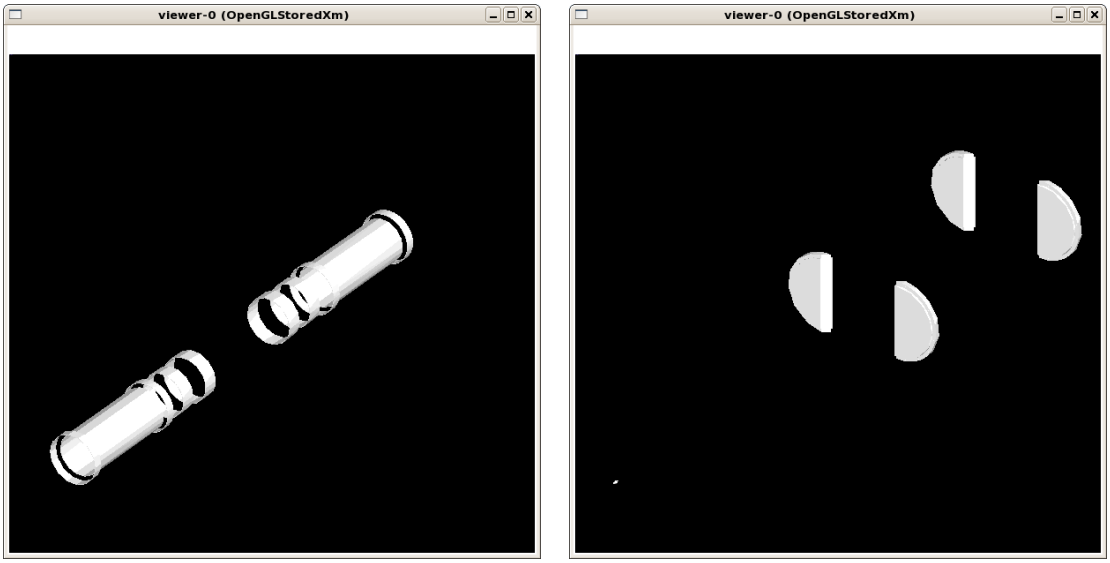


(a) Aluminum sub-model



(b) Stainless Steel sub-model

Figure 3: Aluminum and stainless steel sub-models of the Step IV geometry



(a) G10 sub-model (b) Iron sub-model

Figure 4: G10 and lead sub-models of the Step IV geometry