



Contribution ID: 521

Type: **Poster**

New developments on visualization drivers in Geant4 software toolkit

Thursday 24 May 2012 13:30 (4h 45m)

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Summary

The Geant4 software toolkit simulates the passage of particles through matter. Visualization is a key part of it. Geant4 is used in many application domains including high energy, nuclear and accelerator physics, and in medical and space science. We have developed several visualization drivers, such as OpenInventor, HepRep, DAWN, VRML, RayTracer, ASCIITree, gMocren and OpenGL to fit the various requirements of each domain.

During the last 3 years, the OpenGL suite of visualization drivers has been significantly improved by adding a lot of functionalities, in particular a new OpenGL Qt driver. Qt is a free and well-known toolkit available on all platforms, including Windows, that has enabled us to offer Geant4 visualization that has the same look and feel on all systems. Geant4 release 9.5 integrates the latest improvements in the OpenGL and Qt viewer, including faster first time rendering, integration of multiple visualization frames and the user interface into same window, making posters (thanks to gl2ps), a new Qt viewer components help tree and volume tree, easy creation of videos, “free hand” rotation mode, etc. Thanks to the cmake build system, compiling Geant4 with the Qt viewer is simple. Also use and choice of user interface and visualization drivers has been simplified in all examples.

Author: Mr GARNIER, Laurent (LAL-IN2P3-CNRS)

Presenter: Mr GARNIER, Laurent (LAL-IN2P3-CNRS)

Session Classification: Poster Session

Track Classification: Software Engineering, Data Stores and Databases (track 5)