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Recent developments and upgrade to the Geant4 visualization Qt driver

Geant4 is a toolkit for the simulation of the passage of particles through matter. This object-oriented toolkit supports a variety of visualisation drivers including OpenGL, OpenInventor, HepRep, DAWN, VRML, Ray-Tracer, gMocren and ASCII Tree, with diverse and complementary functionalities.

In 2013, Geant4-MT[1] has brought multi-threading to Geant4. The OpenGL suite of visualization drivers has been significantly improved by adding many functionalities, some specially for MT, in particular in the OpenGL Qt driver. Users may browse the scene tree and render the scene in multiple frames. The Qt driver is also able to treat multi-thread output separately and change view parameters in a graphic window. Migrating from old OpenGL (based on Display Lists) to modern OpenGL (based on Vertex Buffer Object) compliant code was not only a major implementation, but it also allowed us to include WebGL [2]. Furthermore, there have been efforts to make the user interface more user friendly, but still allow users to customize it by adding menus, buttons, toolbars, viewpoints on scene and many others.

[1] : <http://http://geant4.web.cern.ch>

[2] : <https://www.khronos.org/webgl/>

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