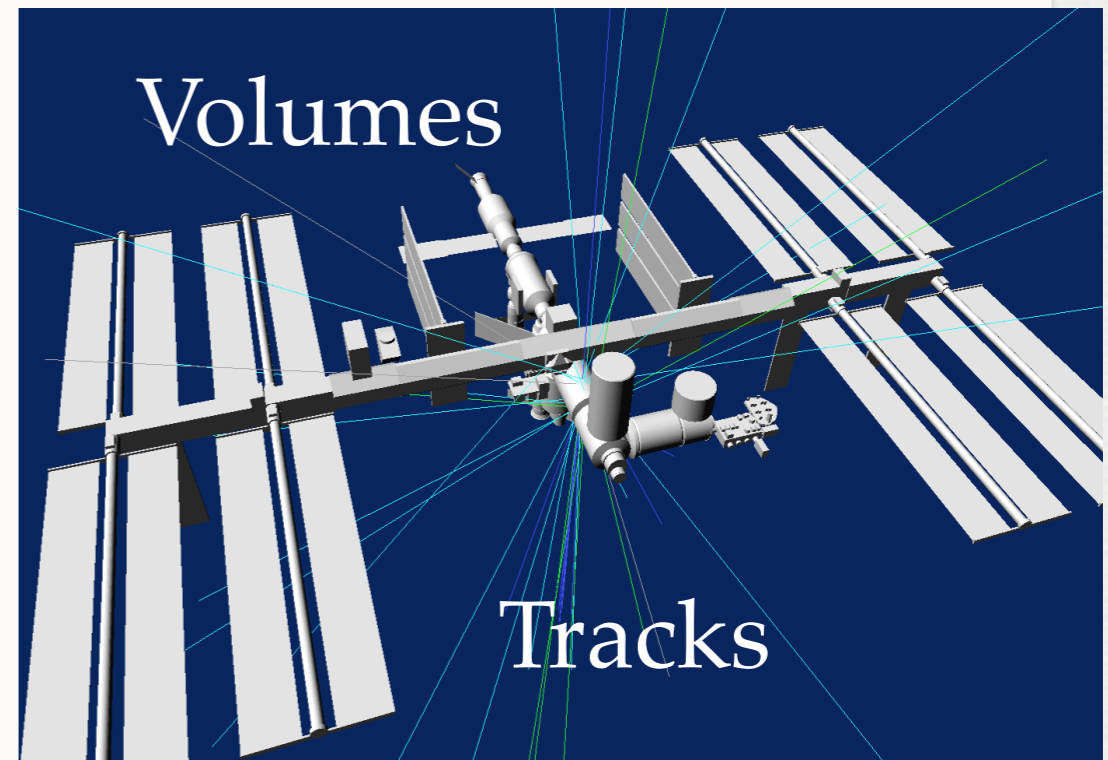


VISUALIZATION

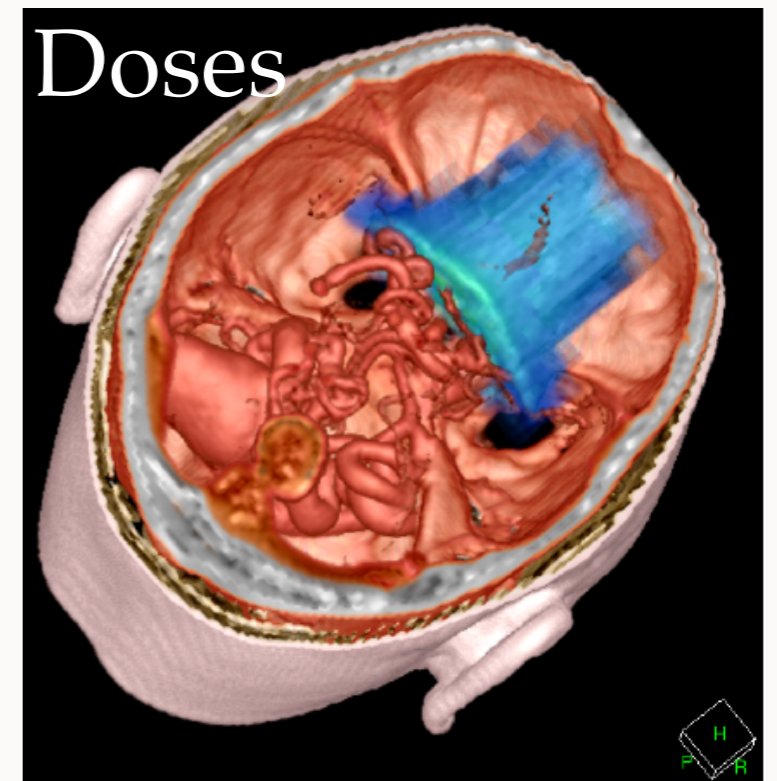
<http://www.ifh.de/geant4/g4course2010/task0/vis.html>

Visualization

- Quick response to study geometries, trajectories and hits
- High-quality output for publications
- Flexible camera control to debug complex geometries
- Tools to show volume overlap, errors in detector geometries
- Interactive picking to get more information on visualized objects

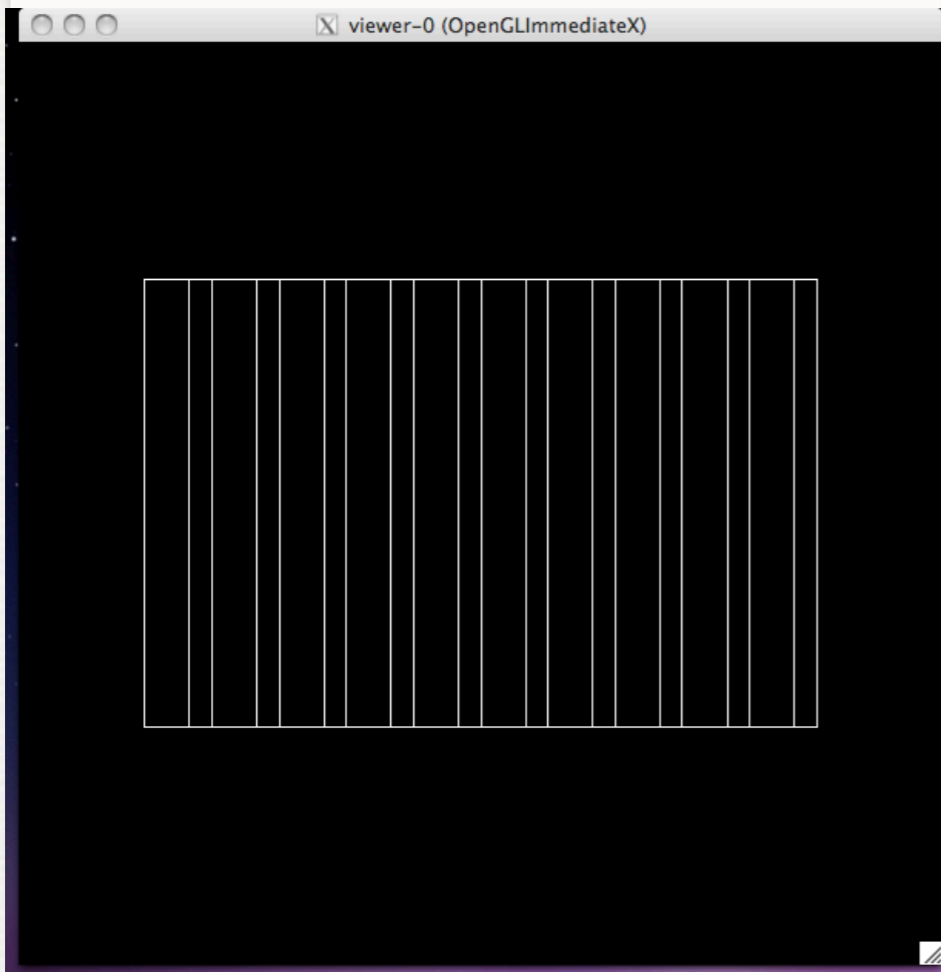


Courtesy T. Ersmark,



gMocren Visualization Driver

Example From Task1.0b



- 📌 OGLIX Driver:
 - */vis/open OGLIX*
 - OGLIX == OpenGL Immediate Xlib
- 📌 *ls /vis* : list all commands related to visualization
- 📌 *help /vis/open* : help on a specific command

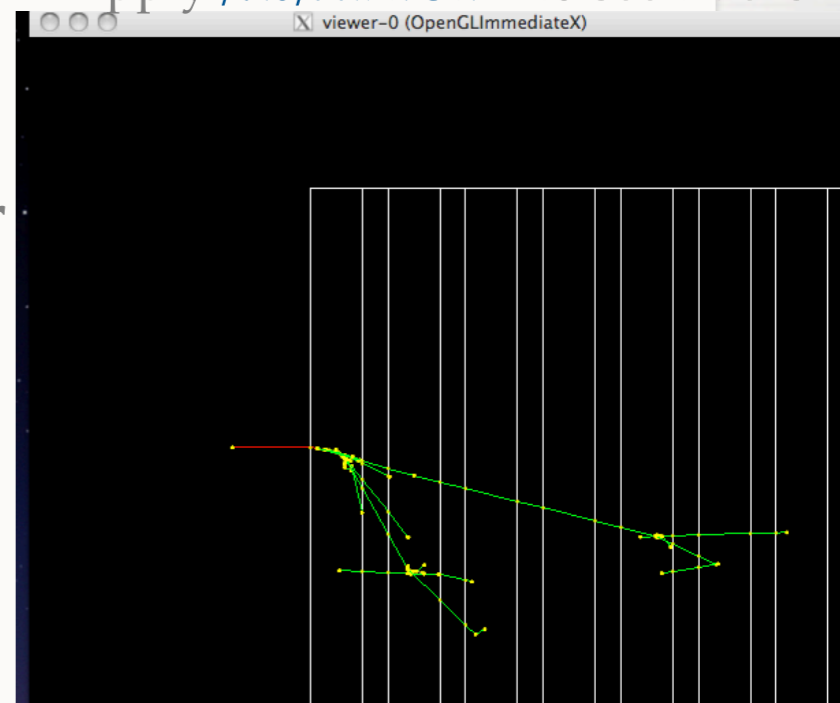
OGLIX⇒ Immediate, use this if complex geometries (BUT if you cover the window it will not be-redrawn)
OGLSX ⇒ Stored mode, use memory to store the image to be displayed

Exercise

<http://www-zeuthen.desy.de/ILC/geant4/g4course2010/task0/vis.html>

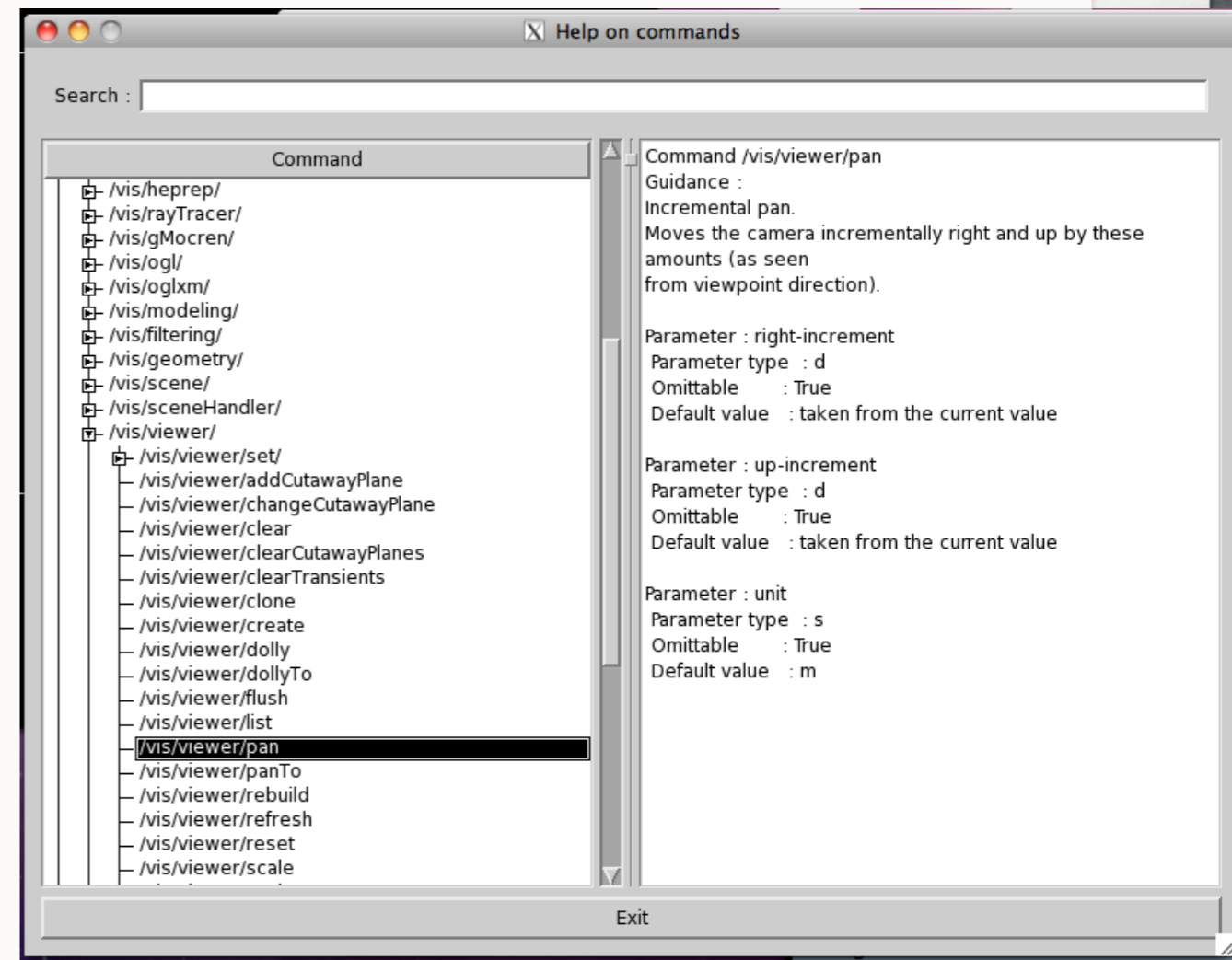
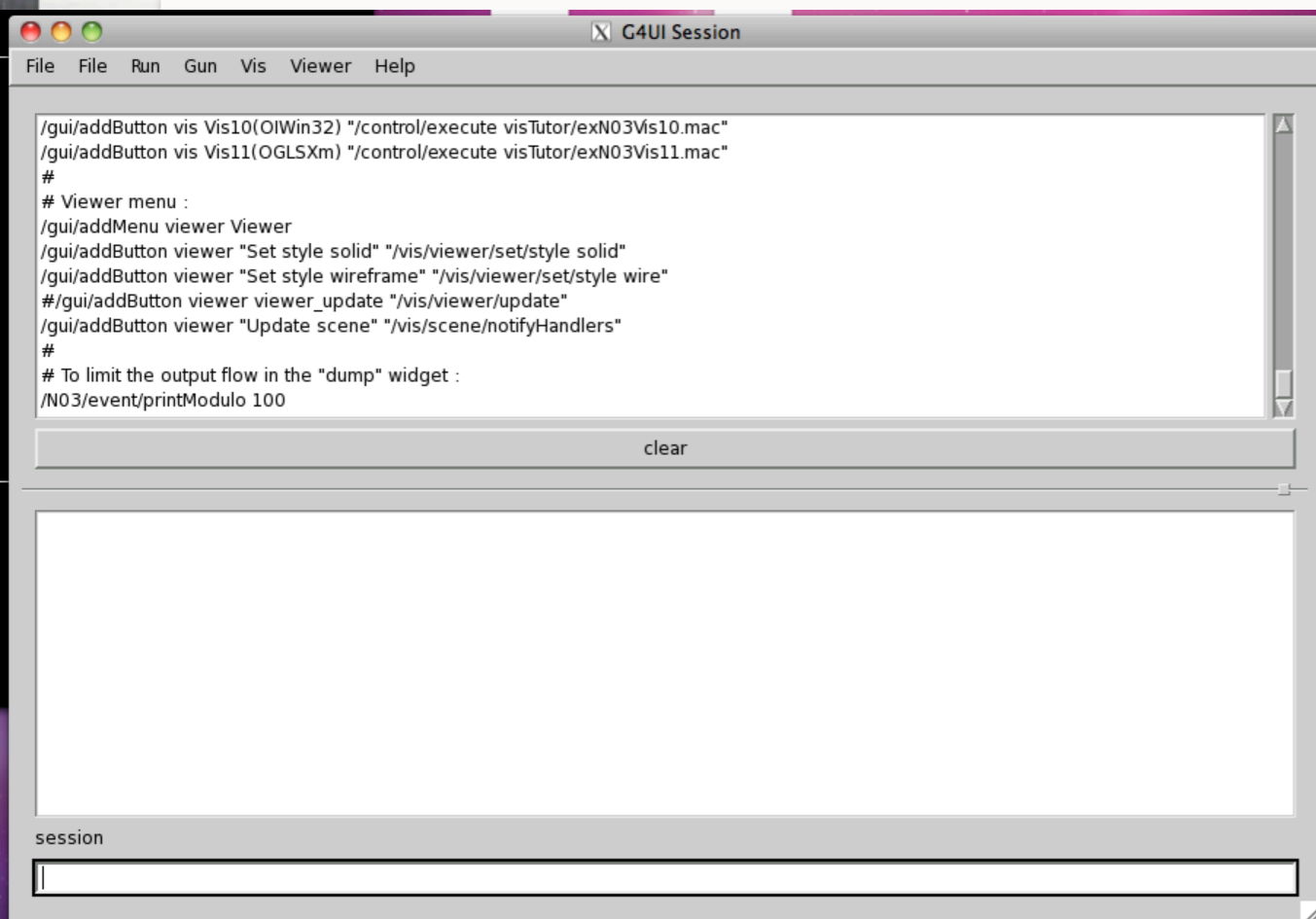
- **Goal:** show the detector setup with OGLIX, then use the OpenGL with Qt extensions: use mouse to rotate / move and use a GUI
- Some useful commands:
- */vis/ogl/printEPS* : produce an EPS file
- */vs/viewer/set/viewPointThetaPhi* : set viewing angle
- */vis/viewer/zoom* , */vis/viewer/zoomTo* : set zoom factor
- */vis/viewer/pan* , */vis/viewer/panTo* : move camera

Apply */vis/beamOn 1* to see tracks



Qt Extensions

- Qt Extensions allows to **zoom/move with the mouse**
- Provide a **GUI to enter commands**
- **Provide interactive Help system**
- **Requires Qt installed!** (G4 works with both Qt3 and Qt4, the latter are recommended)



- Not tested here: the Motif extensions give similar functionalities, Motif are usually installed by default on Linux

More Resources

- **SLAC 2009 Tutorial agenda** (search visualization topics):

<http://geant4.slac.stanford.edu/SLACTutorial09/Agenda.html>

- **Geant4 Visualization Commands Tutorial:**

<http://geant4.slac.stanford.edu/Presentations/vis/G4VisCommands.pdf>

<http://geant4.slac.stanford.edu/Presentations/vis/G4VisAdvanced.pdf>

- **Geant4 and OpenGL Tutorial:**

<http://geant4.slac.stanford.edu/Presentations/vis/G4OpenGLTutorial/G4OpenGLTutorial.html>

- gMocren (medical physics: patient data visualization):

<http://geant4.kek.jp/gMocren/>

List Of Drivers

- ASCIITree (ATree)
- DAWNFILE (DAWNFILE)
- G4HepRep (HepRepXML)
- G4HepRepFile (HepRepFile)
- RayTracer (RayTracer)
- VRML1FILE (VRML1FILE)
- VRML2FILE (VRML2FILE)
- gMocrenFile (gMocrenFile)
- FukuiRenderer (DAWN)
- OpenGLImmediateX (OGLIX)
- OpenGLStoredX (OGLSX)
- OpenGLImmediateXm (OGLIXm)
- OpenGLStoredXm (OGLSXm)
- OpenGLImmediateQt (OGLIQt)
- OpenGLStoredQt (OGLSQt)
- VRML1 (VRML1)
- VRML2 (VRML2)