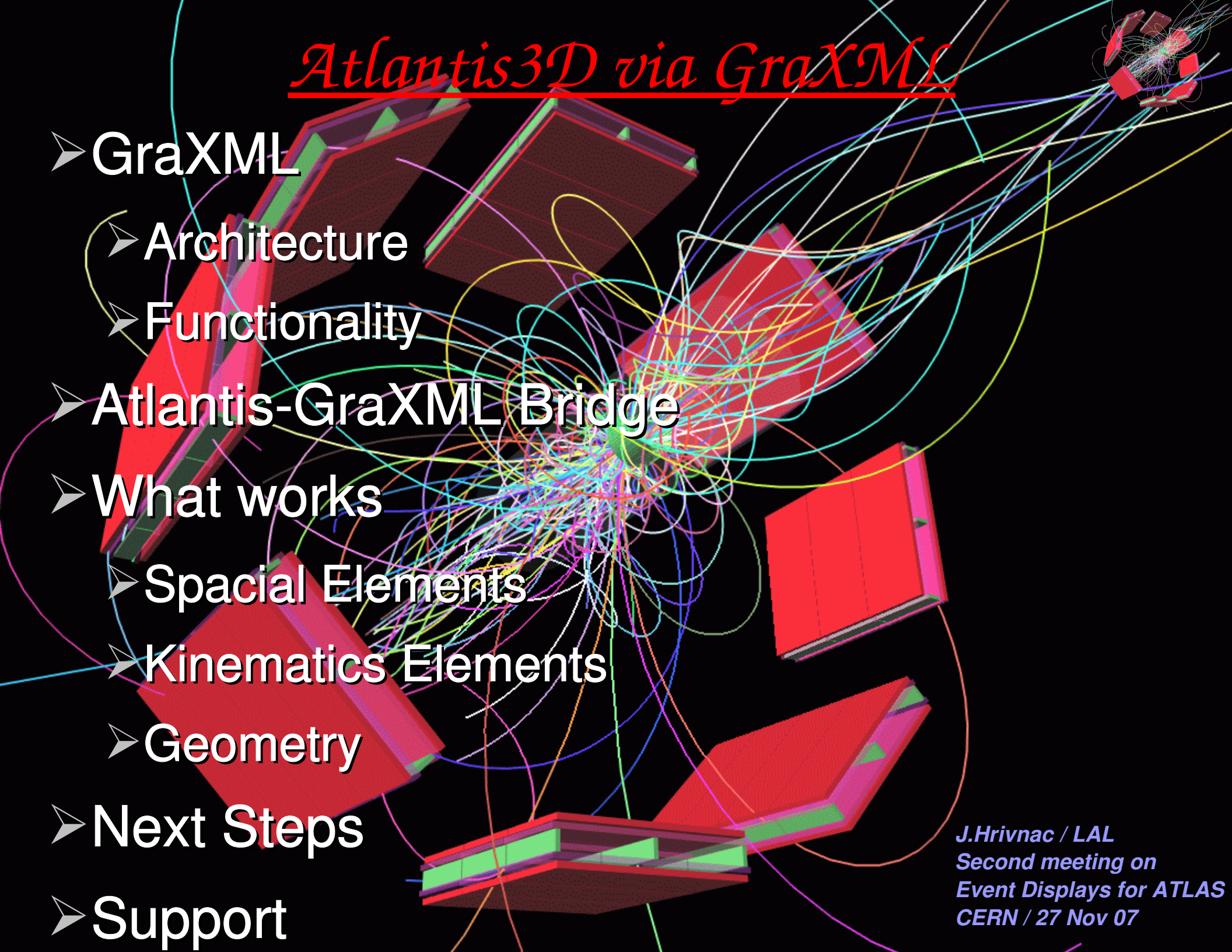
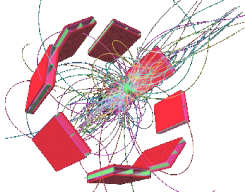
Atlantis3D via GraXML

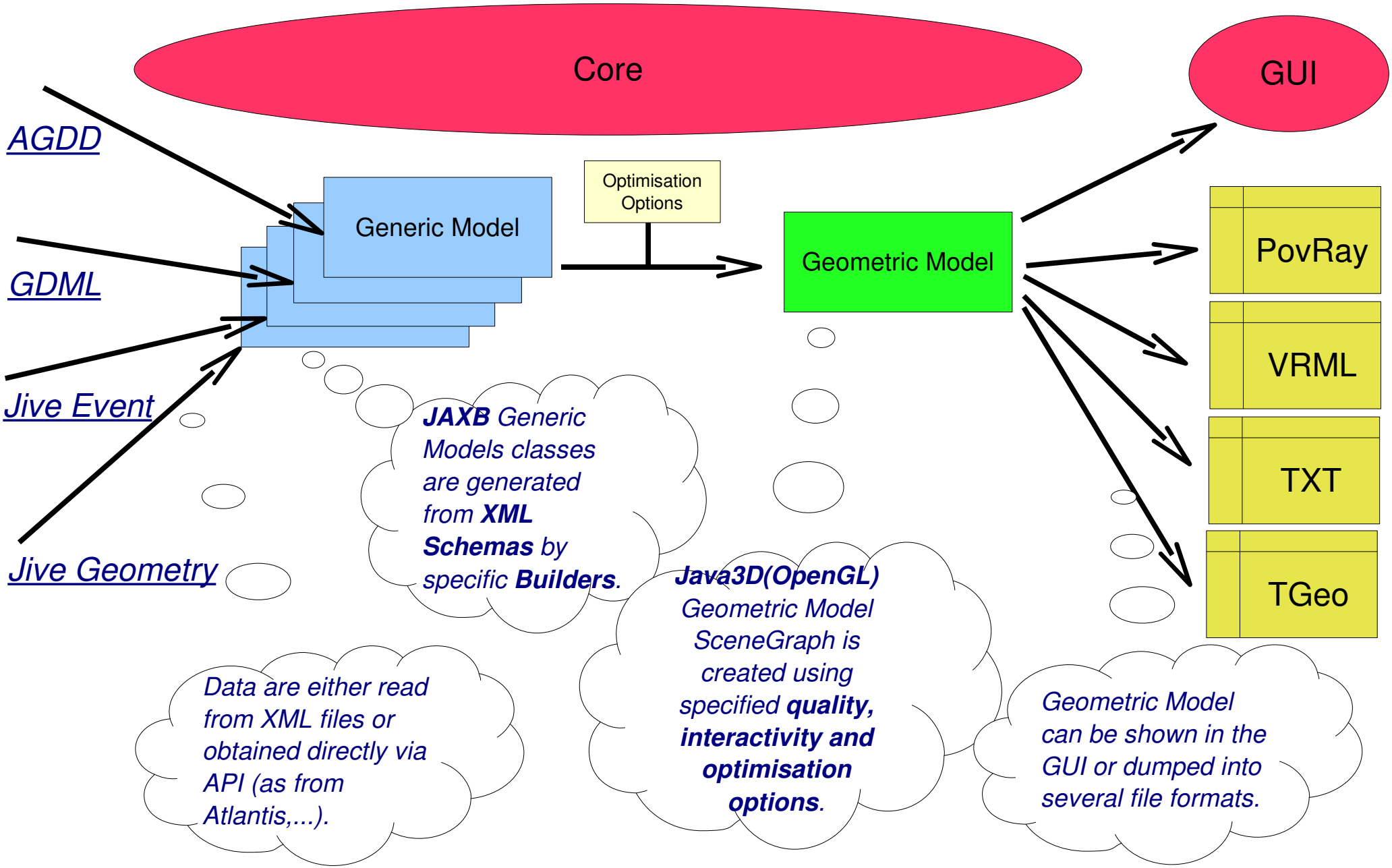


- GraXML
  - Architecture
  - Functionality
- Atlantis-GraXML Bridge
- What works
  - Spacial Elements
  - Kinematics Elements
  - Geometry
- Next Steps
- Support

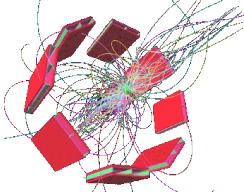
J.Hrivnac / LAL
Second meeting on
Event Displays for ATLAS
CERN / 27 Nov 07

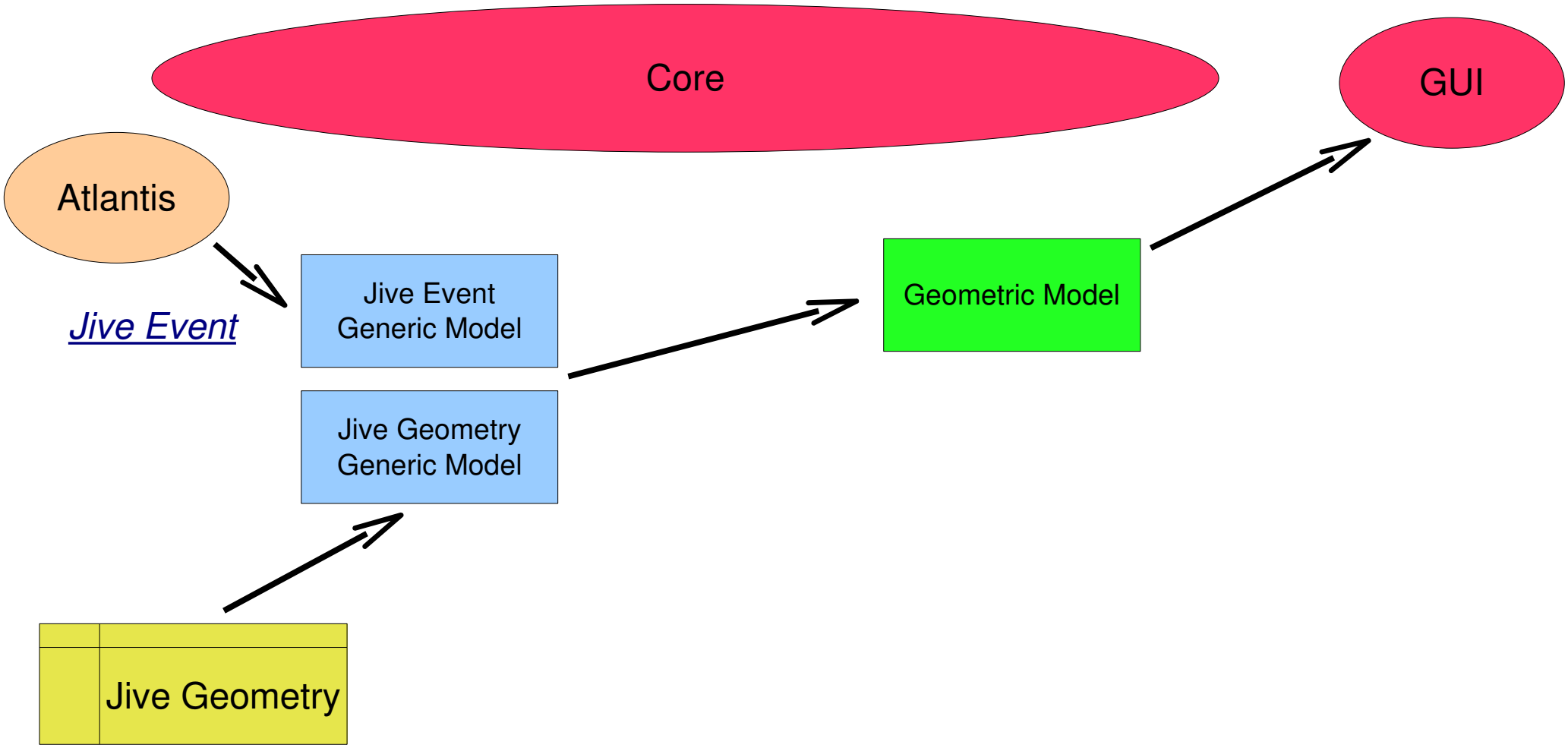
GraXML Architecture

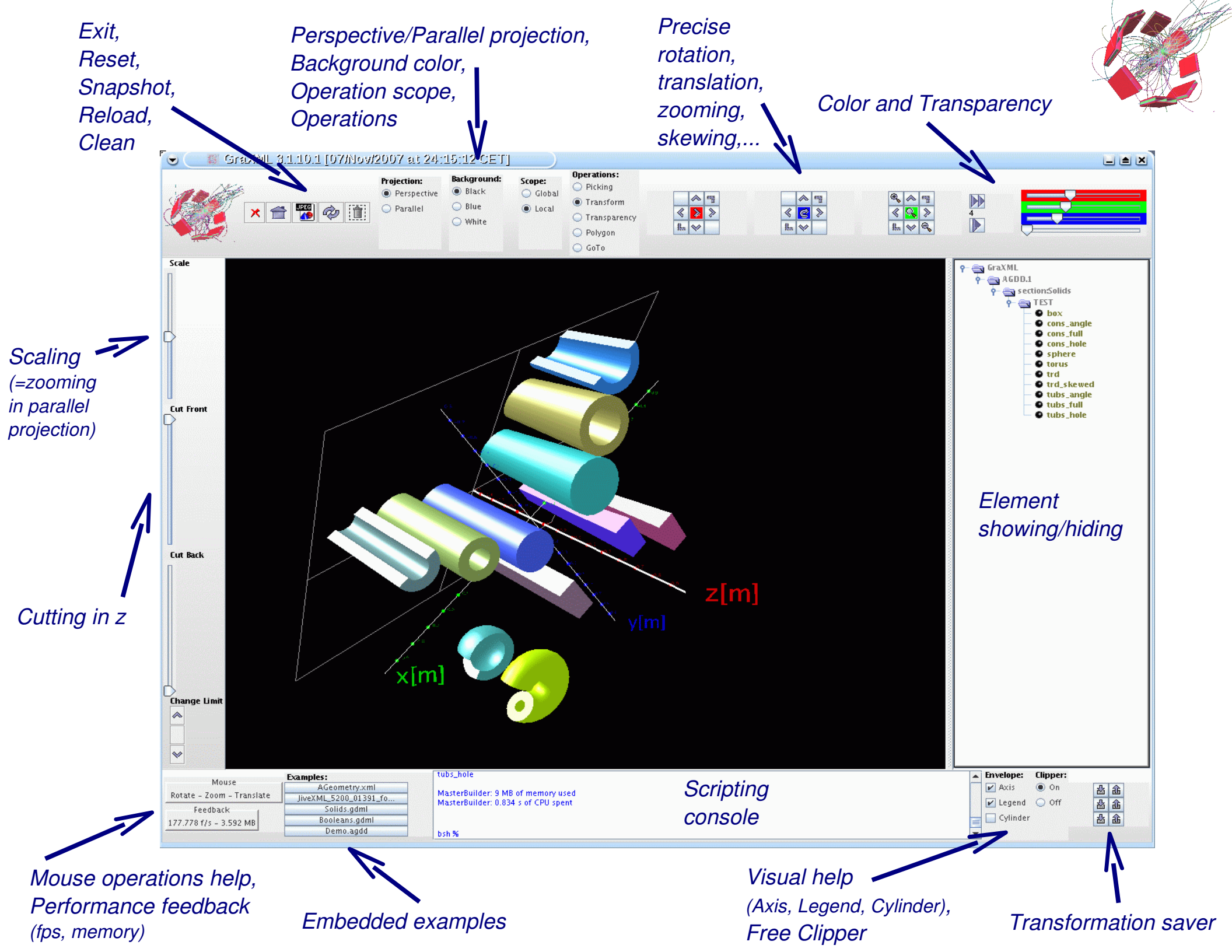




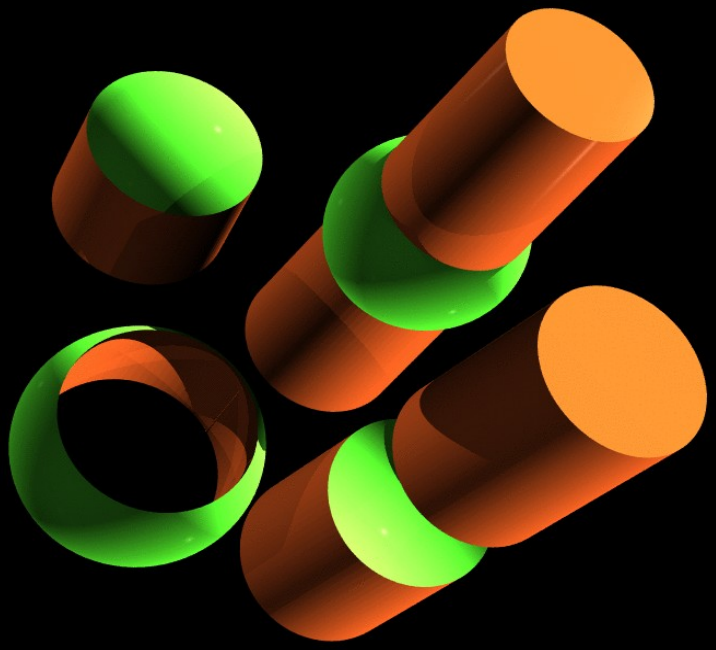
GraXML with Atlantis



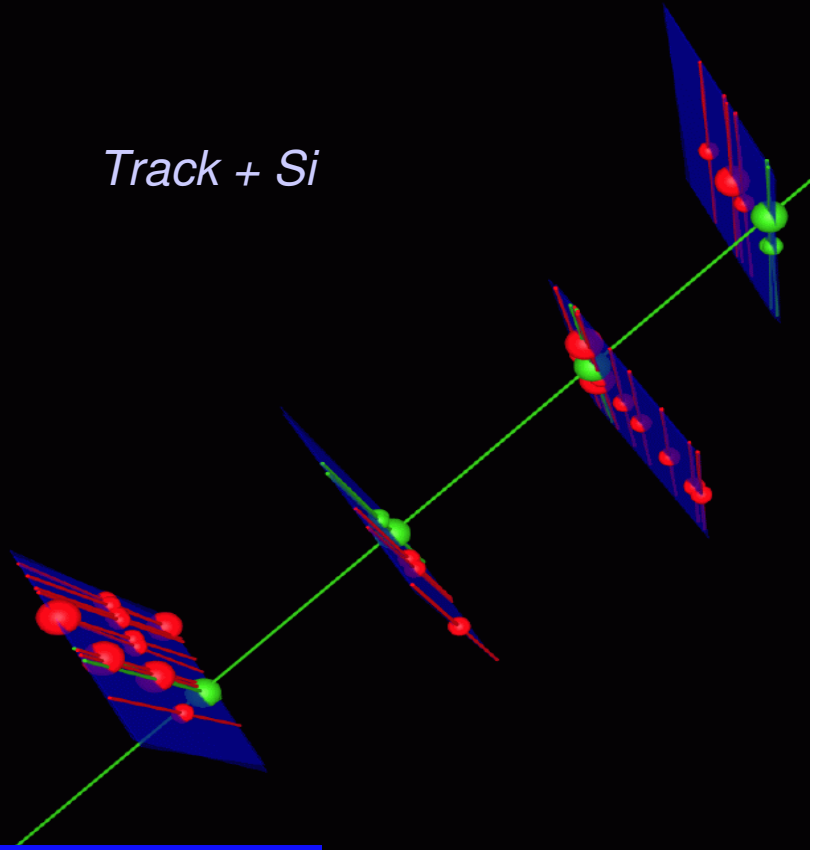


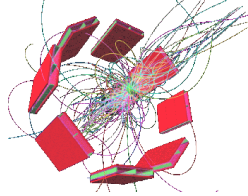

Exit,
Reset,
Snapshot,
Reload,
Clean
Perspective/Parallel projection,
Background color,
Operation scope,
Operations
Precise
rotation,
translation,
zooming,
skewing,...
Color and Transparency
Projection:
Perspective
Parallel
Background:
Black
Blue
White
Scope:
Global
Local
Operations:
Picking
Transform
Transparency
Polygon
GoTo
Scale
Cut Front
Cut Back
Change Limit
Scaling
(=zooming
in parallel
projection)
Cutting in z
GraXML
AGDD.1
sectionSolids
TEST
box
cons_angle
cons_full
cons_hole
sphere
torus
trd
trd_skewed
tubs_angle
tubs_full
tubs_hole
Element
showing/hiding
z[m]
y[m]
x[m]
Mouse
Rotate - Zoom - Translate
Feedback
177.778 f/s - 3.592 MB
Examples:
AGeometry.xml
JiveXML_5200_01391_fo...
Solids.gdml
Booleans.gdml
Demo.agdd
tubs_hole
MasterBuilder: 9 MB of memory used
MasterBuilder: 0.834 s of CPU spent
bsh %
Scripting
console
Envelope:
Axis
Legend
Cylinder
Clipper:
On
Off
Mouse operations help,
Performance feedback
(fps, memory)
Embedded examples
Visual help
(Axis, Legend, Cylinder),
Free Clipper
Transformation saver

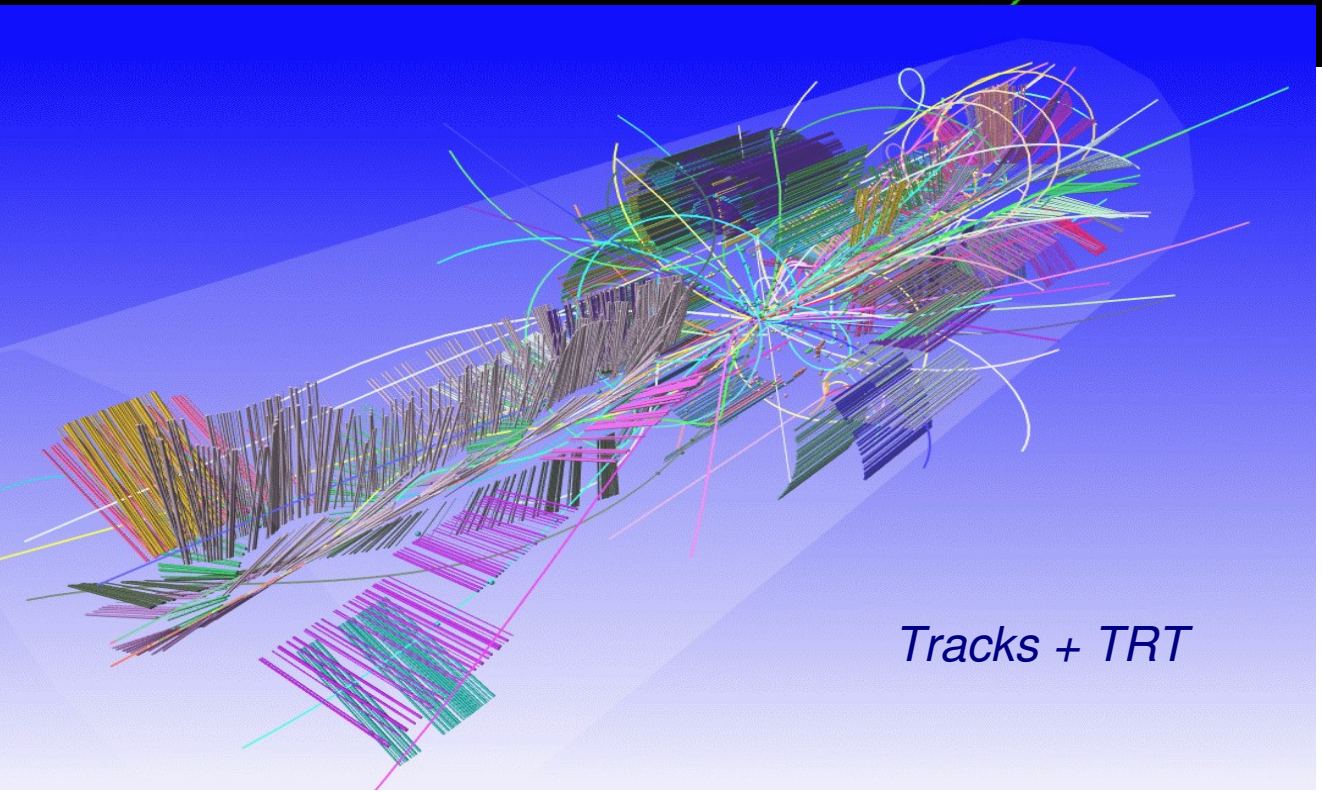
Booleans + Ray Tracing



Track + Si

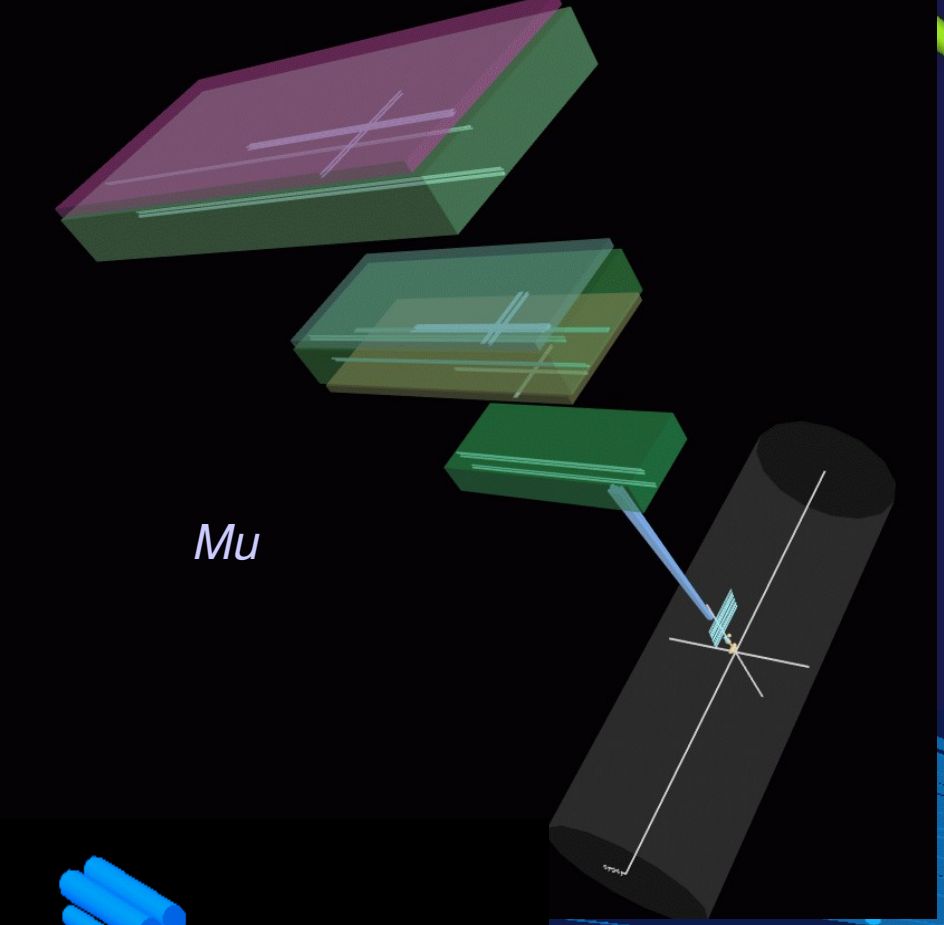


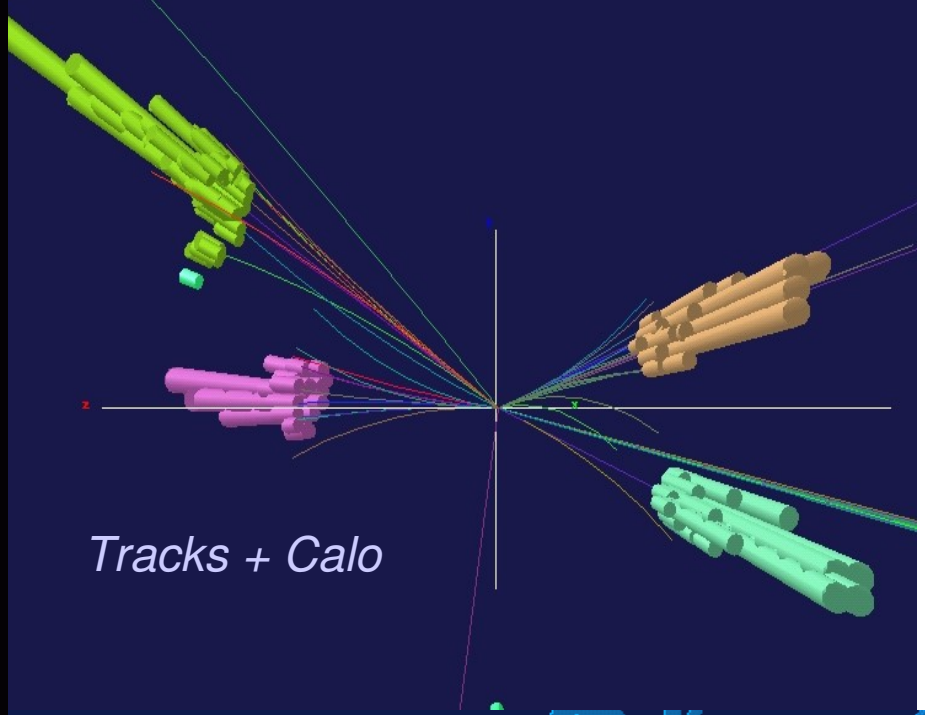


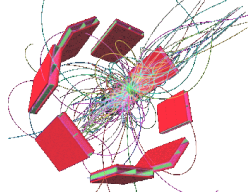


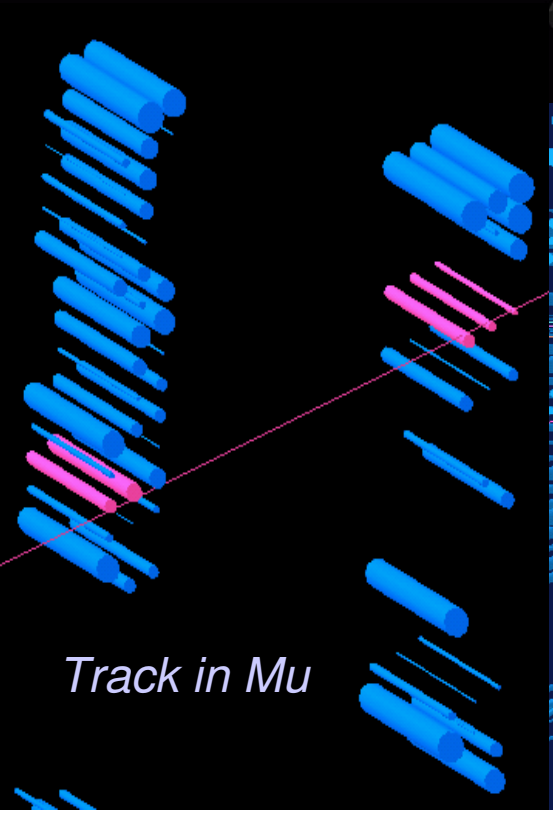
Tracks + TRT

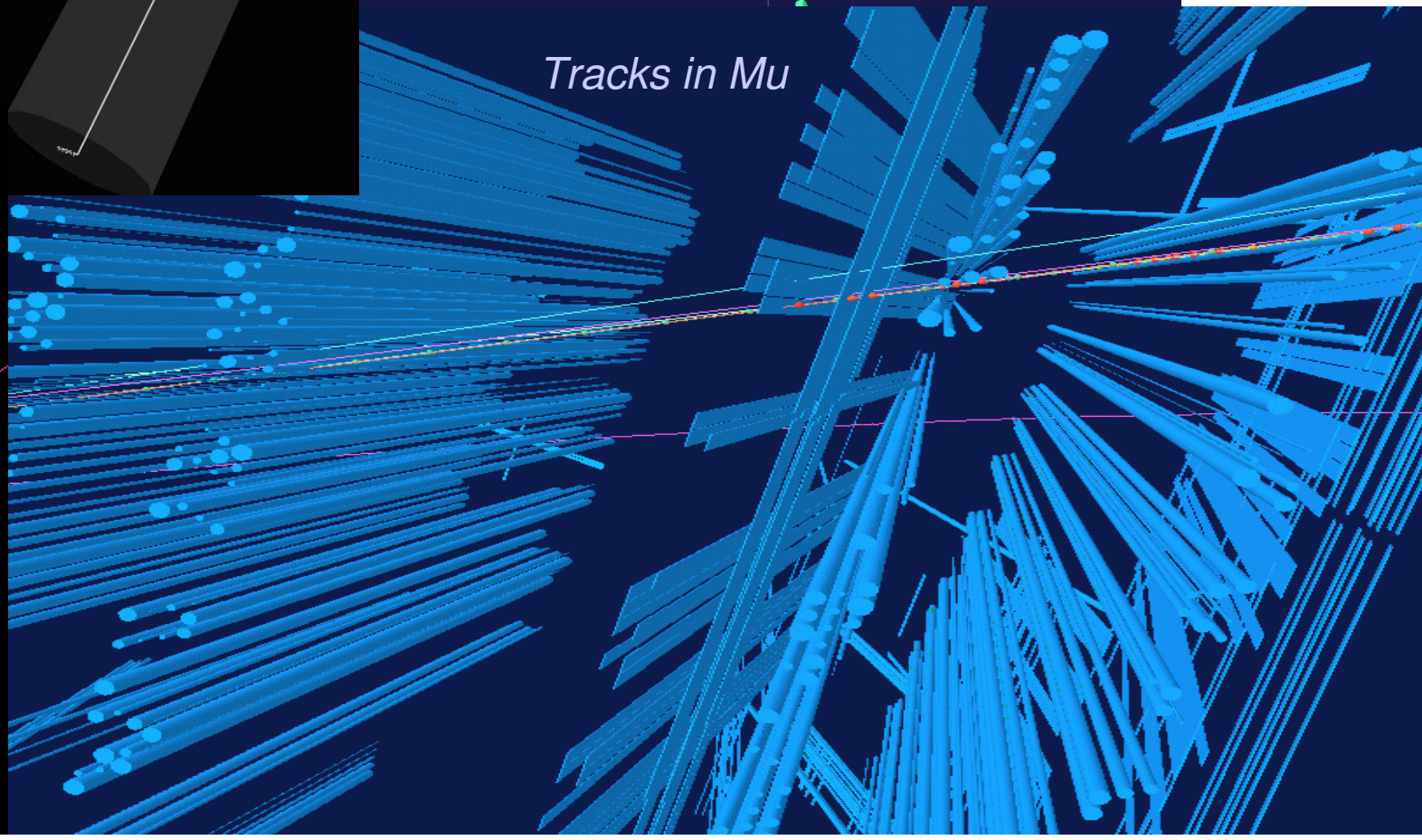
GraXML was already able to display almost all Atlas data in the past (by reading application neutral AGDD). The code is there.


Mu


Tracks + Calo

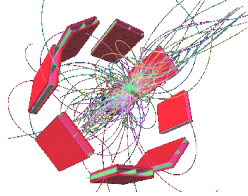



Track in Mu


Tracks in Mu

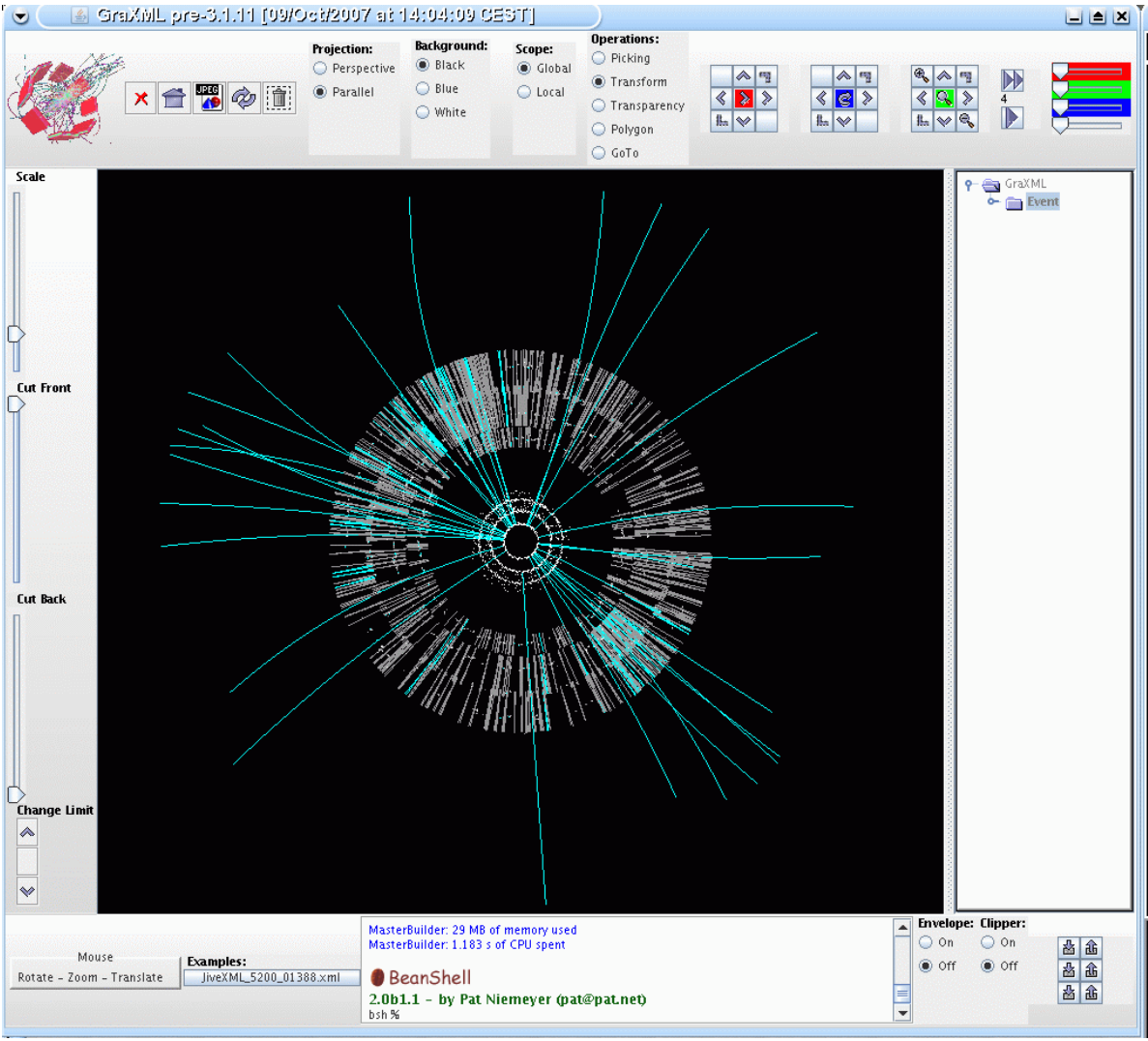
Thanks to Zdenek Maxa for the Atlantis side of the Bridge.

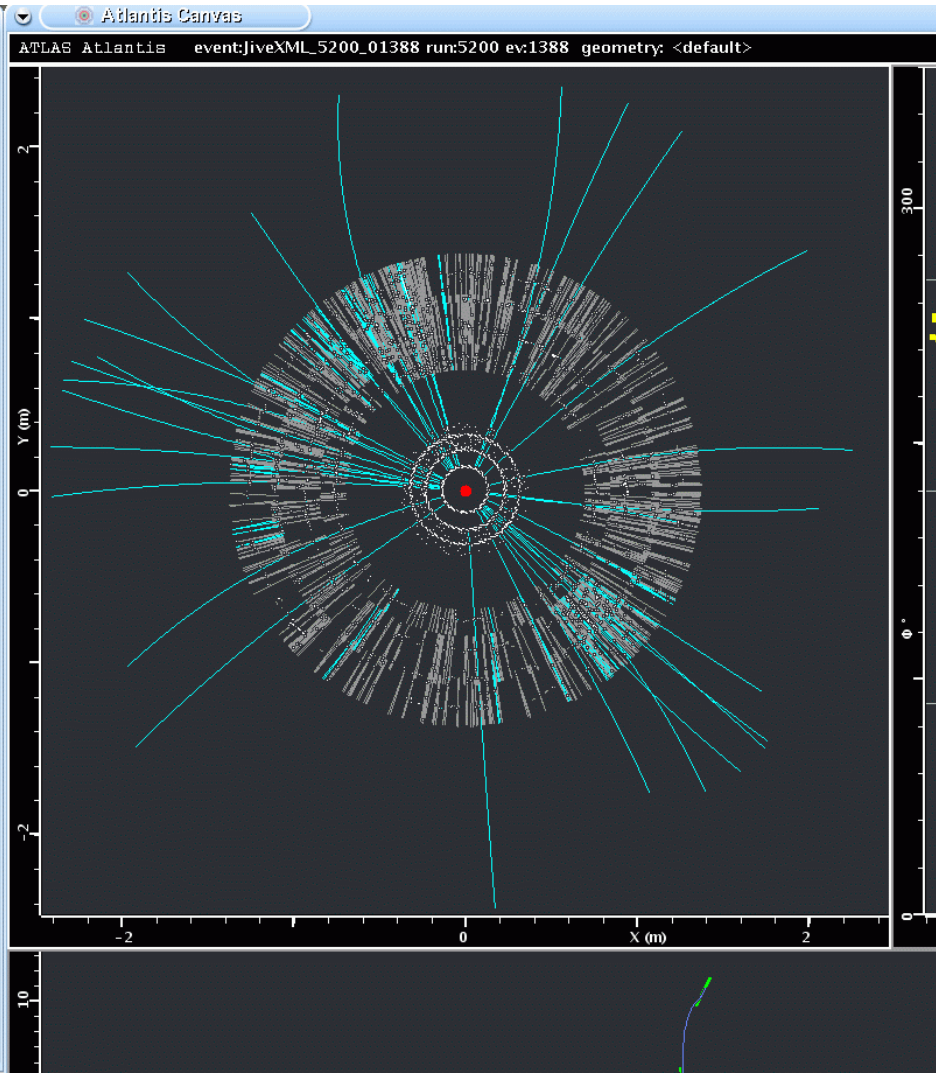
Atlantis - GraXML Bridge



- Atlantis selector sends selected elements to GraXML:
  - GraXMLBridge is created via Reflection (so that its unavailability doesn't break compilation).
  - GraXMLBridge accumulates data comming from selection and transforms them into JAXB Generic Model.
  - This Generic Model is then send to GraXML (which is started if needed). Visualisation properties (colors,...) are send as well.
  - GraXML converts Generic Model to Java3D Geometric Model and shows it. All standard GraXML operations are available.
- When a new selection is performed, old Models are scratched and new Models are created.
  - If requested, several Models can be visible at the same time (each could be shown/hidden).
- GraXML can be shutdown, but not reanimated within the same session (that is probably due to OpenGL behind Java3D).
- Builder options can be set from Atlantis GraXMLBridge (they are not available from GUI).
- Atlantis-GraXML prototype works on Linux (both 32/64). GraXML itself work also on MS and MacOSX, transparently distributed via Java WebStart.

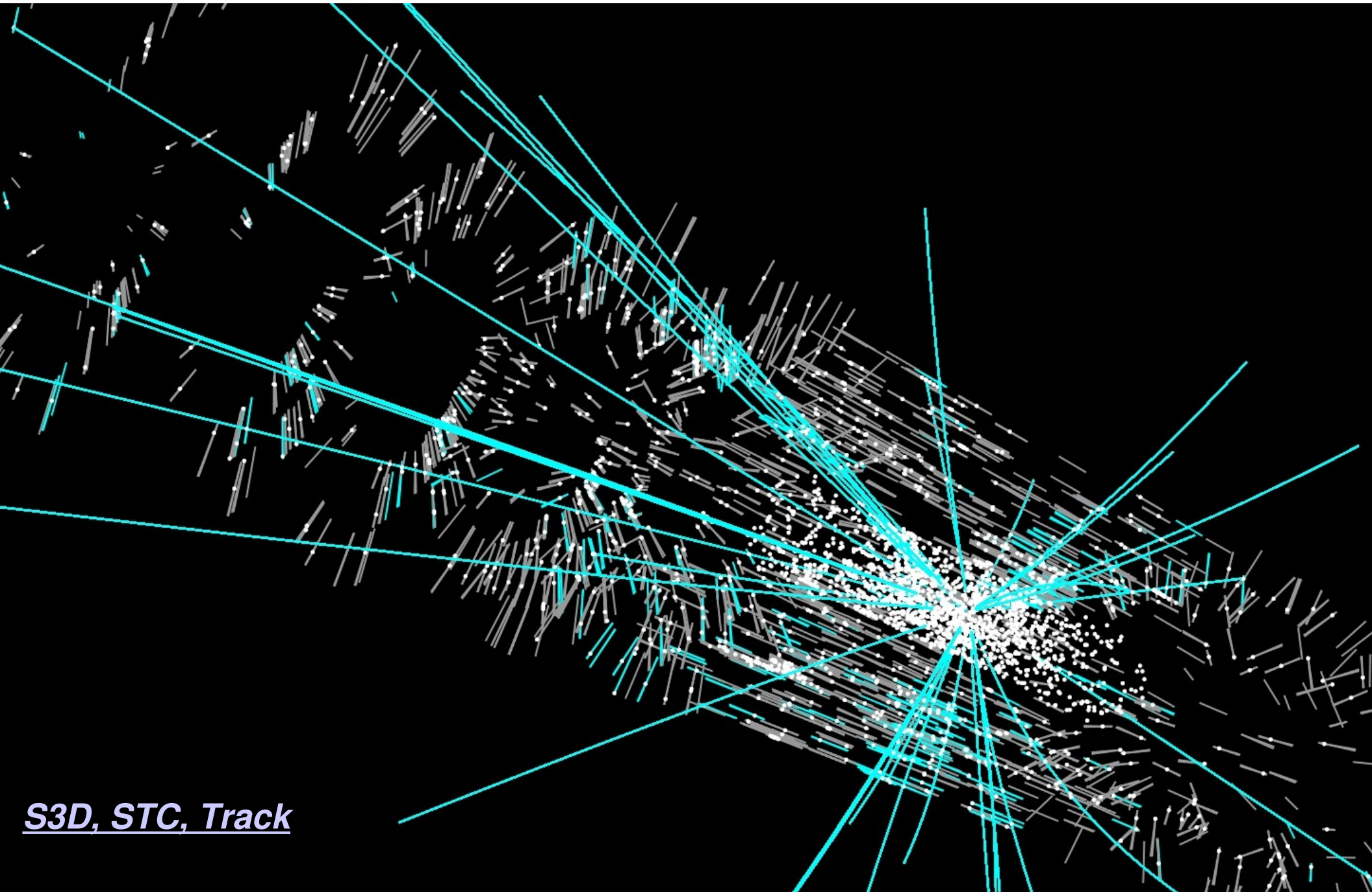
Spacial Elements





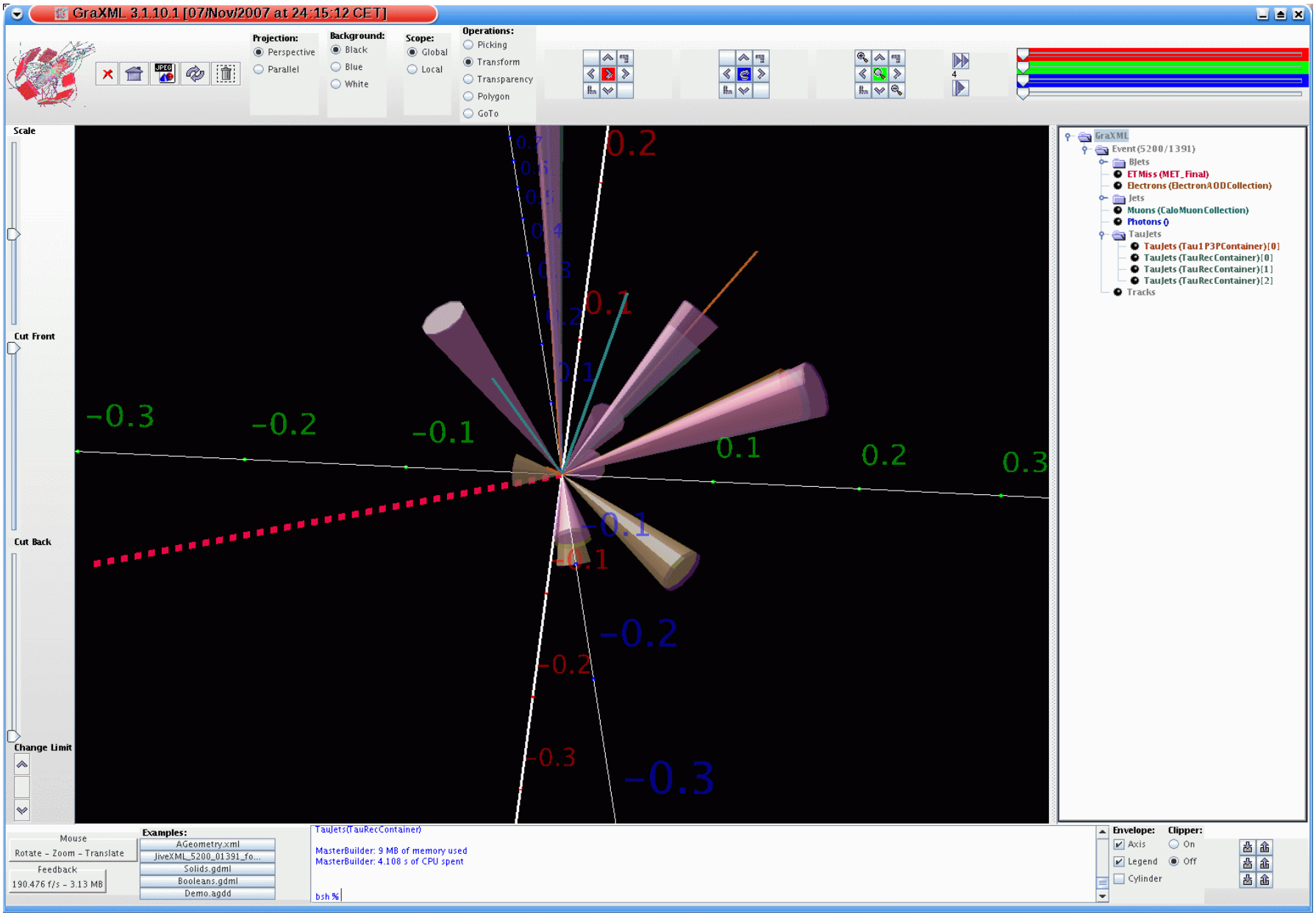
Atlantis Event exported to GraXML.
Selection and properties (colors,...) kept.

Spacial Elements



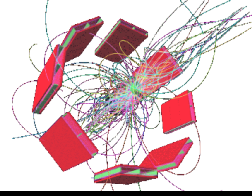
S3D, STC, Track

Kinematics Elements

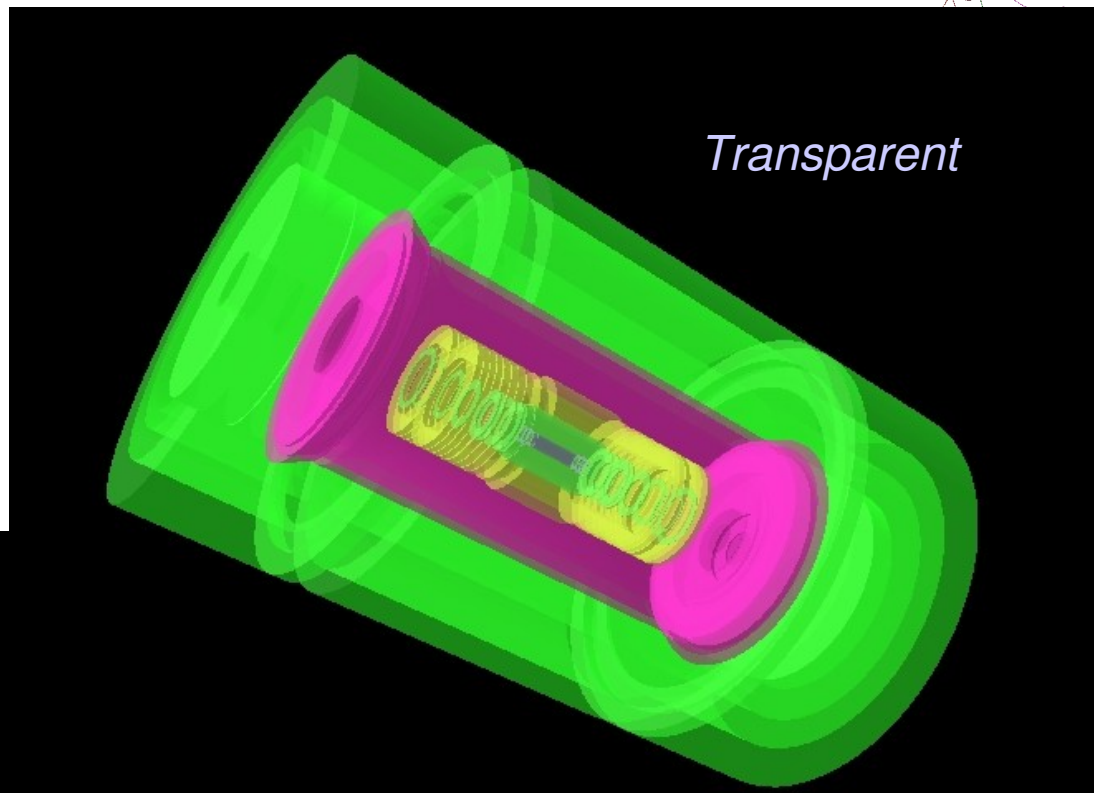


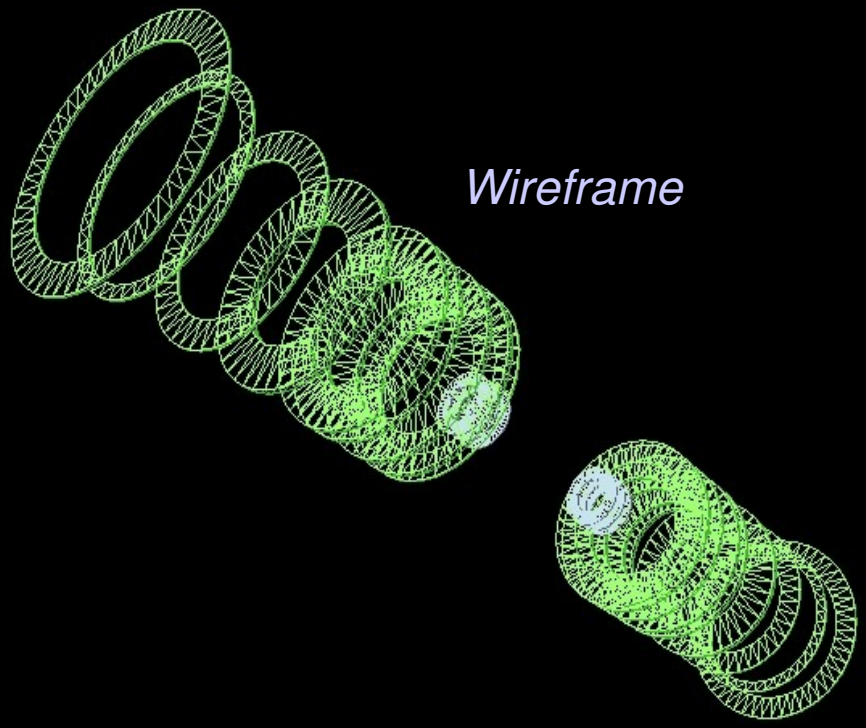
Electron, Photon, Muon, Jet, BJet, TauJet, ETMis

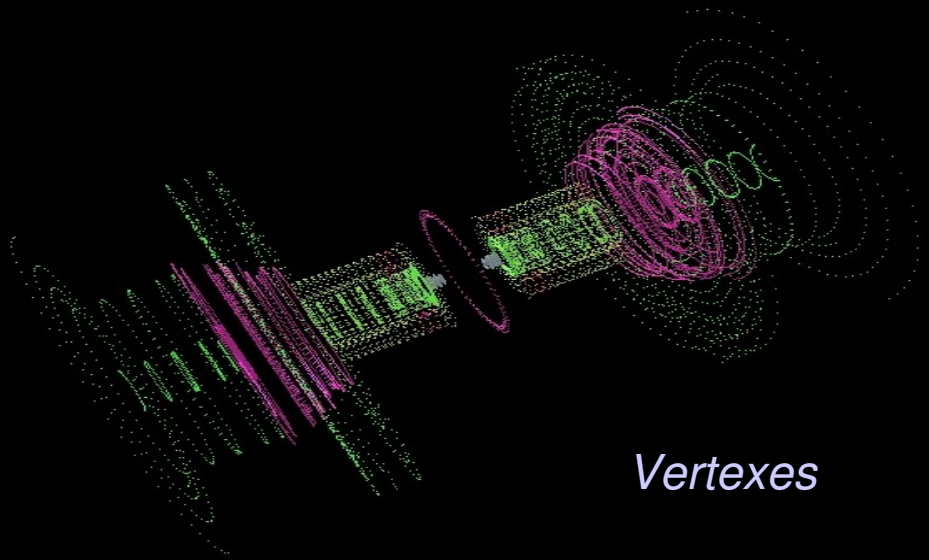
Geometry



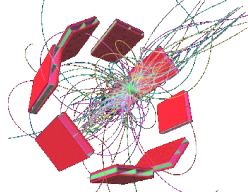
Geometry is read from Atlantis XML files, it is difficult to get full 3D information.







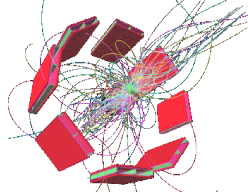
Next Steps



- Add all Event and Geometry elements:
  - Help needed to get real 3D information
- Put GraXML export to all Atlantis views
- Make Atlantis+GraXML release
  - Use Java WebStart ?
- Allow direct GraXML connection to Atlantis server ?
- Feed picked elements from GraXML back to Atlantis
- Improve Event and Geometry XML Schema
  - Handle it within Atlantis ?
- New GraXML development triggered by requirements from Atlantis bridge

Very little work needed,
GraXML already has all needed representations from past.
The most difficult is to get understandable 3D data from Atlantis
(as always).

Support



- GraXML:
  - Home: http://cern.ch/hrivnac/Activities/Packages/GraXML
  - Source Forge: https://sourceforge.net/projects/graxml
  - Web Start: http://cern.ch/hrivnac/Activities/Packages/WebStart/GraXML/GraXML.jnlp
- Atlantis-GraXML Prototype: ~hrivnac/public/AtlantisJava-09-08-12.tar.gz
- Detailed GraXML Presentation:
  - Modular Geometric Modeller: http://cern.ch/hrivnac/Activities/2003/March/GraXML