

Geant 4

General introduction of version 10.2 and prospects

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NATIONAL
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LABORATORY



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- Released on December 4th, 2015
- Further improvements in both computing speed and memory consumption.
 - Preliminary benchmarks show a few % speedup with sizable memory reduction
- New features include:
 - C++11 native code
 - Unified Solids Library is now installed as an external package
 - Updated Goudsmit-Sounderson multiple scattering model for e+/e-
 - Full Auger atomic de-excitation cascade simulation
 - Alternative Geant4-DNA physics models for liquid water
 - Improved simulation of low-energy, evaporated nucleons by Fritiof model coupled with Precompond-de-excitation model
 - A new model for nuclear gamma de-excitation
 - Neutron_HP is merged into Particle_HP, which also deals with proton, deuteron, triton, 3He and alpha
 - Substantial revision of the Radioactive Decay model
 - “Batch plotting” facility in G4tools
 - Dedicated thread of Visualization for “real-time” event display
 - See following presentations for details

- Compilation using the C++11 Standard is now mandatory.
- Cmake 3.3 or higher is required.
- Platforms:
 - Linux, gcc-4.8.3 on 64 bit architectures (Intel or AMD) with CERN CentOS Linux 7 (CC7) (based on CentOS Linux 7).
 - MacOSX 10.11 with clang-3.7 (Apple LLVM/Clang-7.0.0)
 - Windows7 with Visual C++ 14.0 (Visual Studio 2015)
- More verified and tested configurations (64 bits):
 - Linux, gcc-4.9.3, gcc-5.2.0, clang-3.6
 - Linux, Intel-icc 15.0, 16.0
 - MacOSX 10.10 with clang-3.6
 - MacOSX 10.9 with clang-3.5
 - Windows7 with Visual C++ 12.0 (Visual Studio 2013)
 - Linux for Intel Xeon Phi with Intel-icc 15.0, 16.0 (gcc-4.9 compatibility layer)
- Note: Windows platforms are supported/verified only for the sequential mode. Multithreading capability is not yet supported on Windows.

Recent patch releases

- Nov 30th, 2012 – Geant4 version 9.6 release
 - Feb 4th, 2015 - Geant4 9.6-patch04 release
- Dec 6th, 2013 – Geant4 version 10.0 release
 - Mar 6th, 2015 - Geant4 10.0-patch04 release
- Dec 5th, 2014 – Geant4 version 10.1 release
 - Jun 19th, 2015 - Geant4 10.1-patch02 release

- Versions 10.0 and 10.1 will be supported with necessary patches at least for 2016.
 - They are kept compliant with C++98.
- We stop full support of version 9.6.
 - Individual cases may be discussed.

- Releases
 - Next release : early December 2016 (date t.b.c.)
 - Next beta release : end of June 2016
 - Patch releases for versions 10.0, 10.1 and 10.2 will be made as needed
- Next Technical Forum in March, 2016 (date t.b.c.)
 - Main topic : 2016 work plan
 - Draft 2016 work plan will be publicized in advance for user's feedbacks
 - User's input on requirements is welcome
 - New/improved functionalities, supported platforms, etc.
- Tutorials
 - 3rd Geant4 School and Monte Carlo Workshop for Radiotherapy, Imaging & Radiation Protection
 - University of Wollongong, Wollongong (Australia), 26-30 April 2016.
 - Further tutorials will be announced through the Geant4 announcement mailing list and also on the collaboration web pages.