General introduction of version 10.5 and prospects

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Version 10.5

- Released on December 7th, 2018

- Cmake 3.3 or higher is required.

- Platforms:
  - Linux, gcc-4.8.5.
  - Tested on 64 bit architectures (Intel or AMD) with CERN CentOS Linux 7 (CC7) (based on CentOS Linux 7).
  - MacOSX 10.14 Mojave with llvm/clang-6.0.1 (Apple LLVM/Clang-10.0.0)
  - Windows-10 with Visual C++ 14.11 (Visual Studio 2017)

- More verified and tested configurations (64 bits):
  - Linux, gcc-4.9.3/5.4.0/6.3.0/7.3.0/8.2.0, clang-3.9/5.0
  - Linux, Intel-icc 19.0
  - MacOSX 10.11, 12, 13 with clang-3.8/4.0/5.0
  - Windows-10 with Visual C++ 14.0 (Visual Studio 2015)

- Along with the migration from POSIX threading to C++11 threading, multi-threading on Windows is now supported.
  - Refer to the next slide for requirements.

- Refer following presentations for new/enhanced features of 10.5.

Migration from POSIX threading to C++11 threading

- Due to the migration from POSIX threading to C++11 threading, enabling multi-threading on Windows for use with either static or dynamic libraries, the following migration is required:
  - Any usage of G4THREADCREATE should pass a reference to an allocated G4Thread pointer.
  - G4THREADCREATE (previously a macro) is now a variadic template function that accepts an unlimited number of arguments to the function launched on the thread.
    - no longer valid:

      G4Thread t;

      G4THREADCREATE(&t, myfunction, myarg);
    - instead:

      G4Thread t = new G4Thread();*

      G4THREADCREATE(t, myfunction, myarg);

- G4MUTEX_INITIALIZER, G4MUTEXINIT, and G4MUTEXDESTROY are now empty macros and their usage is unnecessary and thus deprecated.
  - Safe to keep them, as they are empty…

Other releases and coming events

- Other recent release
  - May 25th, 2018 – Geant4 version 10.4-patch02 release
- Coming Releases
  - Next release : early December 2019 (date t.b.c.)
    - Next beta release : end of June 2019
  - Patch releases for versions 10.4 and 10.5 will be made as needed
- Next Technical Forum in March/April, 2018 (date t.b.c.)
  - Main topic : 2019 work plan
    - Draft 2019 work plan will be publicized in advance for user's feedbacks
  - User's input on requirements is welcome
    - New/improved functionalities, supported platforms, etc.
- Other events
  - Future tutorials will be announced through the Geant4 announcement mailing list and also on the collaboration web pages.