gate_v6.2 01/08/2012

About the general set-up:

- *This version is validated for Geant4 9.5.p01*
- *The Compilation is validated with gcc4.6 / gcc4.5 / gcc4.4 / gcc4.3*
- Recommended CLHEP version : 2.1.1.0

- **You must use CMAKE to compile GATE and Geant4**
- ***Minimal version for CMAKE : 2.6***
- ***All information regarding the installation are provided by the documentation:***

Generic page: *http://www.opengatecollaboration.org/InstallingGATE*
Dedicated procedure: *http://wiki.opengatecollaboration.org/index.php/New_Compilation_ProcedureV6.2*

- *The variable G4VERSION is removed*

Important points related to the macro file modifications between **gate_v6.2** *and the previous versions:*

- *Physical processes name: 'UHadron' move to 'Hadron'*
- *'MultipleScattering' effect is removed and should be replaced in your macro by 'eMultipleScattering' or 'hMultipleScattering'*

- *NOTE : It is recommended to use Urban93Model with 'eMultipleScattering'*

Bug corrected:

- *Ion sources management*
- *Regular and Fictitious tracking in a voxelized geometry*
- *SPECT blurring module corrected*

New developments and capabilities:

- *Optical imaging package*

For details, read the user's guide on the dedicated section:
http://wiki.opengatecollaboration.org/index.php/Users_Guide_V6.2:Generating_and_tracking_optical_photons

- *New Actor: mhd image format reader*

http://wiki.opengatecollaboration.org/index.php/Users_Guide_V6.2:Readout_parameters_for_Radiotherapy_applications:_Actors

- *New Actor: Cross Section Production (Carbon 11 and Oxygen 15)*

http://wiki.opengatecollaboration.org/index.php/Users_Guide_V6.2:Readout_parameters_for_Radiotherapy_applications:_Actors

- *New Actor: Electromagnetic Properties*

http://wiki.opengatecollaboration.org/index.php/Users_Guide_V6.2:Readout_parameters_for_Radiotherapy_applications:_Actors

- *SPECT feature: Store the septal penetration information*

http://wiki.opengatecollaboration.org/index.php/Users_Guide_V6.2:Defining_a_system#SPECTHead

- *SPECT feature: Define an acquisition protocol with a multiple energy windows*

http://wiki.opengatecollaboration.org/index.php/Users_Guide_V6.2:Digitizer_and_readout_parameters#Energy_windows

- *New main program to use Gate as following:*

  Gate [OPTION]... MACRO_FILE
  -h, --help print the help
  -a, --param set alias. format is '[alias1,value1] [alias2,value2] ...'
  --d use the DigiMode
  --qt use the Qt visualization mode
  You can always use Gate as usual: Gate
  Idle>control/execute MACRO_FILE

- *QT visualisation*

Chapter "Running Gate in a QT mode" in the following user's guide section:
http://wiki.opengatecollaboration.org/index.php/Users_Guide_V6.2:How_to_run_Gate

- *Interfile Image format: The interfileReader supports both BIG ENDIAN and LITTLE ENDIAN byte order*

- *Muti-system approach and multi-coincidence sorter management*

For details, read the chapter "Multi-system approaches: how to use more than one system in one simuation set-up?" in the following user's manuel section:
http://wiki.opengatecollaboration.org/index.php/Users_Guide_V6.2:Digitizer_and_readout_parameters

- *Sinogram output: Available without the ecat7 library*

- *New physical process: Cerenkov effect available*

Documentation updates:
The documentation section on the website has been redesigned to be more convenient for users.
A documentation for developer is under developments, LXR and Doxygen tools are available at the following links:
http://www.opengatecollaboration.org/lxr/source
http://www.opengatecollaboration.org/Doxygen

About the users guide:
Generic page: http://www.opengatecollaboration.org/UsersGuide
Dedicated wiki page: http://wiki.opengatecollaboration.org/index.php/Users_Guide_V6.2

Most important updates are listed here:

- *Table of contents for each chapter*
- *Actor section: description of 3 new actors*
- *New SPECT options: Store the septal penetration and define acquisition with a multi energy windows*
- *New important section for the 'Optical Imaging' module*
- *New section for the multiple system option*
- *Update of the 'How To Run Gate' section : Qt visualisation*

Benchmarks:

Tree benchmarks are available:

- *benchPET*
- *benchSPECT*
- *benchRT*

It is highly recommended to execute all benchmarks to qualify your Gate installation.

Examples

- *Radiotherapy: 10 examples which are described in the file $GATEHOME/examples/example_Radiotherapy/ListOfExamples.txt*
- *Optical Imaging: How to define a simulation with Gate using bioluminescence or fluorescence probes. Details are available in this file: $GATEHOME/examples/example_OPTICAL/README*