



GEANT4
A SIMULATION TOOLKIT



Basic & Extended Examples For 10.6

I. Hrivnacova, IPN Orsay (CNRS/IN2P3)
For N&E Examples WG

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New Extended Examples

- The number of extended examples is growing
 - 124 (last CM) => 128 (this CM)
- 4 new extended examples added since the last CM, 2 more are planned to be added still for the release
 - 3 examples in medical/dna
 - 1 example in parallel/MPI
 - 2 medical examples in preparation
- A brief overview on the next two slides, a less brief overview in the parallel session 6B in the afternoon

New Extended Examples (1)

- [medical/dna/chem5](#)
 - Jose Ramos-Mendez
 - New in 10.5
 - The example is a variation of the [chem4](#) example, it shows how to activate the chemistry code and score the radiochemical yield G using the constructors `G4EmDNAPhysics_option8` and `G4EmDNAChemistry_option1`
- [medical/dna/microprox](#)
 - Sebastien Incerti
 - In 10.6
 - This examples shows how to compute proximity functions in liquid water using exclusively Geant4-DNA physics processes and models.

New Extended Examples (2)

- [medical/dna/dnadamage1](#)
 - Ngochoang Tran, Carmen Villagrasa
 - New in 10.6
 - The `dnadamage1` example shows a simple way to simulate dna direct and indirect damages using the Geant4-DNA physics and chemical processes in a molecular DNA geometry.
- [parallel/MPI/mpi04](#)
 - Ivana Hrivnacova
 - In 10.5
 - The example is as `exMPI03`, but adds the output in `G4analysis ntuple` and demonstrates `ntuple merging`.

Ongoing Tasks

- The WG Wiki pages were updated for Work Plan 2019 items, see
- <https://twiki.cern.ch/twiki/bin/viewauth/Geant4/NoviceExtendedExamples>
 - The link to Wiki pages is also available from the WG Web page
 - The access is restricted to Geant4 developers

TWiki >  Geant4 Web > NoviceExtendedExamples
(2015-05-04, IvanaHrivnacova)

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N&E Examples WG

- [Adding A New Example](#)
- [Extended Examples Review](#)
- [Applying Coding Guidelines](#)
- [Examples Doxygen Documentation](#)
- [Status of Examples MT Migration](#)
- [List of Extended Examples](#)

-- [IvanaHrivnacova](#) - 04 May 2015

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Examples Review

- No new “Obsolete features” items in 2019
- Explicitly defined physics lists in examples not demonstrating physics
 - Reduced from 23 (2015) to 12 (2016), 13 (2017)
 - A list of all customized physics builders defined in examples given to PL WG after the last year CM
- Explicit use of `std::cout`, `std::cerr`
 - The examples authors will be informed by e-mail and invited to fix the code

Macros Review

- Objectives:
 - To review all examples and remove the commands, defined in the example messenger classes, if they are not directly relevant to the features demonstrated in the example.
 - All the useful remaining commands should be demonstrated in a macro, and all macros provided with an example should be referenced in the README.
- The procedure of the review was discussed and agreed at the WG meeting in March 2018
- Ongoing - a table for monitoring the progress was added to the page
 - ~ 23 % of all extended examples were reviewed in 2018
 - Need to continue this effort

Coding Guidelines

- Following the coding guidelines is requested when adding a new example
 - Most of the guidelines are checked automatically
- The number of violations was reduced significantly in the past years
- The list of violators (examples files) is available on the wiki page
 - Updated once per year
- All developers which are responsible for the examples, where a violation of guidelines was detected, were reminded by e-mail in beg of September