

Advanced Examples: Meeting June 2023

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Agenda

- Update on the Adv Ex workplan 2023
 - Documentation/webpage
 - Open bugs
 - Developments in the medical linac example, by Barbara Caccia, ISS, Italy
 - MicroElec, by Quentin Gibaru, ONERA, France
 - Further developments of the Radioprotection and eFLASH radiotherapy example, by Giuliana Miluzzo, INFN Catania, Italy
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- Apologies: C. Inguibert

New examples released in Geant4 11.2beta

- Development of a specific advanced example for proton tomography (1,2) (C. Michelet and PhD student Z. Li): **Done**
 - [stim_pixe_tomography](#)
- Development of two examples describing ESA telescopes (1,2) (P. Dondero and R. Stanzani): **Done**
 - [Xray_TESdetector](#)
 - [Xray_SiliconPoreOptics](#)

Work Plan 2023

- Release of a new example showing how to import in Geant4 simulations IAEA Phase Space Files (2)[*] (M. Cortes Giraldo): [in progress](#), [Master student working on this](#)
- Development of an advanced example showing the use of MicroElec (C. Inguibert): [in progress](#)
- Improve the Hadrontherapy advanced example in the simulations of proton, carbon ion and helium ion beam irradiation (M. Dordevic). [Results finalised and paper to be submitted for publication](#)
- Development of a SPring-8 synchrotron x-ray polarimetry example for testing low energy polarised gamma-ray physics (1,2) (J. Brown)
- Update and maintenance of the medical_linac (1,2): [see presentation by B. Caccia](#)
- Further developments of in-silico experimental microdosimetry in the Radioprotection example (1,2) (F. Romano): [see updates by G. Miluzzo](#)
- Development of a mammography example (1,2) (O. Kadri): [The code needs to be revised](#)
- Implementation of preclinical, mice, PET images to evaluate a dose distribution for new drugs (1,2) (G. Russo): [timeline to be defined](#)
- Development of two examples describing ESA telescopes (1,2) (Paolo Dondero): [done](#)
- Update the G4 Adv Ex. Webpage: [S. Guatelli, done](#)
- Maintenance and code review (e.g. implementation of the extended examples coding guidelines and migration to C++17) in selected examples (1,2)
 - [On going \(S. Guatelli\), done in fastAerosol. Next one: underground](#)

Bugzilla

[Problem 2358 \(new\)](#)

- Platform: PC Windows
- Assignee: S. Guatelli

```
During run the example, advanced/STCyclotron, I find G4GeneralParticleSource::GetParticleEnergy()  
function can not get the primary particles' energy correctly when run in Windows OS. While in Linux OS,  
G4GeneralParticleSource::GetParticleEnergy() function work well. I can't solve the bug.
```

[Problem 2424](#)

- G4Exception : Cache001, when running only a few primaries with multiple sources in GPS
- Gammaknife advanced example
- Assignee: F. Romano

(S. Guatelli not managed to reproduce the problem when Geant4 is compiled MT. After further investigation, it seems that the problem appears when Geant4 is compiled with MT OFF)

[Problem 2548](#) - Microelectronics Example Crashing With Macro File. Fixed by D. Lambert. Done

[Problem 2338 and 2503](#) – underground, executable crashes when running included macros. Problem with the physics list and alpha particles.

To be done

Webpage

- Now we have a WG webpage and an Adv Ex webpage

https://www.geant4.org/docs/advanced_examples_doc/index

https://www.geant4.org/collaboration/working_groups/advExamples/

- Added the webpages of the new three examples released
- Missing: xray_fluorescence, ICRP145_HumanPhantoms, eFLASHRadiotherapy, underground (to be added)
- Links in the Geant4 Application Developer Manual have been corrected (to appear with the beta release)
- Link in https://geant4-userdoc.web.cern.ch/Doxygen/examples_doc/html/index.html has been corrected (to appear with the beta release)