Getting Started with Geant4

Report of Contributions

Contribution ID: **1** Type: **not specified**

An introduction to Geant4

Tuesday 21 January 2020 09:10 (1h 25m)

What is Geant4 ?
How is a Geant4 application constructed ?

Presenter: NOVAK, Mihaly (CERN)

Contribution ID: **2** Type: **not specified**

A first Geant4 application

Tuesday 21 January 2020 10:55 (2 hours)

Checking the Geant4 installation
Compiling and running a Geant4 application
Interacting with a Geant4 application: first steps

Presenter: NOVAK, Mihaly (CERN)

Contribution ID: **3**   Type: **not specified**

User Interface - I

- Syntax of UI command
- Interactive mode / batch mode
- G4UIExecutive class

Presenter: NOVAK, Mihaly (CERN)

Contribution ID: **4** Type: **not specified**

Visualization - I

- Introduction to Visualization
- Quick Looks at Visualization Drivers
- Basic Visualization Commands

Presenter: NOVAK, Mihaly (CERN)

Contribution ID: **5**   Type: **not specified**

User Actions, Hits and Digits

- Mandatory user actions

- Optional user actions

- Sensitive detectors

- Hit/digits collections

Presenter: POKORSKI, Witold (CERN)

Contribution ID: **6**   Type: **not specified**

Scoring - I

- Sensitive detectors & Hits

- Basic scoring commands

Presenter: APOSTOLAKIS, John (CERN)

Contribution ID: **7** Type: **not specified**

Creating and visualising a detector / setup

Tuesday 21 January 2020 14:10 (1h 30m)

Hands on exercises on
- A first Geant4 geometry
- Visualising the setup

Presenter: NOVAK, Mihaly (CERN)

Contribution ID: **8** Type: **not specified**

Hands-on - I

- Guide to Geant4 installation

- Execute a few basic examples

Presenters: APOSTOLAKIS, John (CERN); POKORSKI, Witold (CERN)

Contribution ID: **9** Type: **not specified**

Material Definition

- Defining Materials
- NIST Material database

Presenter: NOVAK, Mihaly (CERN)

Contribution ID: **10**   Type: **not specified**

Describing a detector

Tuesday 21 January 2020 15:55 (1h 45m)

Building a geometry: new features and further exercises
- placing volumes
- first materials

Contribution ID: **11** Type: **not specified**

Hands-on II

Materials & simple geometry exercise

Presenters: COSMO, Gabriele (CERN); APOSTOLAKIS, John (CERN)

Contribution ID: **12**　　　　　　　　　　　　　　　　　　　　Type: **not specified**

Materials in Geant4

Wednesday 22 January 2020 09:10 (1h 45m)

Creating materials for a setup - overview and exercises

Presenter:　NOVAK, Mihaly (CERN)

Contribution ID: **13**   Type: **not specified**

Physics - I

- Introduction
- G4VUserPhysicsList class
- Modular physics list
- Packaged physics lists
- Choosing appropriate physics List
- Extending a physics list
- Use of generic physics list

Presenter: IVANTCHENKO, Vladimir (CERN)

Contribution ID: **14**

Type: **not specified**

Particles and processes

- Particles

- Processes

- What happens at a step

- Cuts

Presenter: IVANTCHENKO, Vladimir (CERN)

Contribution ID: 15 Type: **not specified**

Hands-on - III

Electromagnetic examples

Presenters: NOVAK, Mihaly (CERN); IVANTCHENKO, Vladimir (CERN)

Contribution ID: **16**   Type: **not specified**

Configurable setups

Wednesday 22 January 2020 11:10 (1h 35m)

How to change the material of a volume via user command

Presenter: NOVAK, Mihaly (CERN)

Contribution ID: **17** Type: **not specified**

Hands-on - IV

Exercise on EM physics

Presenters: NOVAK, Mihaly (CERN); IVANTCHENKO, Vladimir (CERN)

Contribution ID: 18 Type: **not specified**

Extracting information

Wednesday 22 January 2020 14:10 (1h 30m)

Creating user actions to measure observables (energy deposition)

Contribution ID: **19** Type: **not specified**

How can I intervene ?

Wednesday 22 January 2020 15:55 (1h 15m)

What other hooks does Geant4 provide for the user to record, configure/change behaviour ?
A tour of Geant4 user actions, with exercises to demonstrate key aspects

Contribution ID: **20**   Type: **not specified**

More on Geant4 User actions

Thursday 23 January 2020 09:10 (1h 40m)

Presenter: NOVAK, Mihaly (CERN)

Contribution ID: **21**   Type: **not specified**

Controlling Geant4 applications

Thursday 23 January 2020 11:10 (1h 30m)

How to create your own User Command

Presenter: NOVAK, Mihaly (CERN)

Contribution ID: **22** Type: **not specified**

The next steps

Thursday 23 January 2020 14:10 (1h 30m)

A taste of some of the most useful Geant4 features
- Creating a magnetic field
- First steps with multi-threading

Contribution ID: **23** Type: **not specified**

Questions and Answers

Thursday 23 January 2020 15:55 (1 hour)

Discussion session