



GEANT4
A SIMULATION TOOLKIT



IN2P3 and ED PHENIICS Geant4 Tutorial

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Geant4 IN2P3 and ED PHENIICS Tutorial,
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Tutorial

- Organization
 - 10 sessions in 5 days, ~30 hours in total
 - Morning: 3h session divided by 30 minutes break
 - Afternoon: 3h30 session divided by 30 minutes break
 - Last session: 2h
- The teaching staff
 - Ivana Hrivnacova (IJCLab), Igor Semeniuk (LLR), Marc Verderi (LLR)
- The equipment
 - PCs with Ubuntu 20.04.4 LTS
 - Geant4 is already installed with the required configuration
- A user account is provided:
 - `ed-geant4-n`, password `ed-geant4-n$`

Web Site

[https://geant4-ed-project.pages.in2p3.fr/
geant4-ed-web/](https://geant4-ed-project.pages.in2p3.fr/geant4-ed-web/)

Sessions

- In most sessions, we will learn one main subject (eg. geometry, physics processes etc.) and another complementary one (visualization, user interfaces etc.)
- Each session is divided in a theoretical (presentations) and a practical parts (hands on), both will take approximately the same time
 - That's why the material presented is reduced when compared to other Geant4 tutorials
 - We put more importance into practical parts, with hope that after the tutorial you will be able to find more advanced features in Geant4 documentation and apply them in your application without difficulties

Sessions (cont.)

| 1 | 2 | 3 | 4 | 5 |
|--------------------------------|----------------|-------------------|-------------------------------------|---------|
| Introduction in Geant4, Kernel | Geometry | Primary Particles | Physics-1 | Scoring |
| | User Interface | Visualization | Visualization++ User Interface++ | |

| 6 | 7 | 8 | 9 | 10 |
|-----------|--------------------------|--------------------|--------------------|---------------|
| Physics-2 | Multithreading Scoring++ | Geometry++ | Physics++ (part 2) | Event Biasing |
| Analysis | Geometry-persistence | Physics++ (part 1) | Kernel++ | |

Hands-On

- The exercise in each session is divided into parts a, b, (c)
- Each part corresponds to (a) dedicated presentation(s) given in the theoretical part of the session
- A solution is provided for all parts together and it will be available on the tutorial web site after a session is finished
 - Tip: you can use diff command to compare the solution code with the start code

```
diff -rw sessionN_start sessionN_solution > diffs
```

Closing Session

- We will be interested in your opinion and your suggestions for future improvement of the tutorial
 - 30 minutes of the last session for a discussion