

Zoom, 11-13 Jan 2021
(online school)

Welcome to the 1st DAMIC-M software school

Organizers :

Nuria Castello-Mor, Claudia De Dominicis, Mariangela Settimo

Indico page : <https://indico.in2p3.fr/event/22866/>



Motivations and Goals

We have developed in the last ~2 years a code for DAMIC-M simulations based on Geant4 and a framework for simulation and signal processing that are quite stable.

- The codes capitalised on the DAMIC experience, using some validated features and improving some others (geometry design, output format, strategy for simulation processing,..)
- The analysis framework can be extended with new applications (e.g., signal processing).

More and more collaborators are looking at simulations and analyses. We want to encourage people to :

- Be aware of the code already available
- use a common framework (more users = more validations and feedbacks)
- avoid people to restart from scratch (save time, avoid same errors, share knowledge)
- contribute to improve the software, add new features for the benefit of the collaboration and the experiment

Tools and covered topics

- [Geant4 based simulation code](#) (C++/root) DAY 1
- [General Analysis Framework](#) (python): process the G4 simulations to produce images and some basic observables, and process signal/data from test benches DAY 2

Tools :

- [gitlab.in2p3.fr repository](#) for software centralisation, cooperative work and version control (ask your task leader or MS for invitation) DAY 1
DAY 3
 - ➔ also offer a wiki page, allow to define issues, milestones, assign people to tasks etc.
- **Mailing list** : DAMICM-ANALYSIS-L.in2p3.fr, subscribe on listserv.in2p3.fr/ or send an email to your task leaders.
- **Slack room** (e.g., #damicm-sims, but almost all task have a dedicated room)
- A **computing cluster (CCIN2P3)** accessible to everybody, with maintained software DAY 3

Additional notes

- The talks are meant for software users: unfortunately there is not enough time to go in the details (e.g. for application development in Geant4 or to learn python)!
- We suggest to use the account in CCIN2P3 (the needed dependencies are installed : ROOT, Python, Geant4, git, cmake) but you can also use your personal computer or local cluster.
- For each topic we have an **INTRODUCTION FOLLOWED BY EXERCISES.**
- **Sessions will be recorded and be available online after the school, together with the presentations and the exercises.**
- We encourage people, especially students, to do some more tests by their own after the sessions.
- Each day we allocated 30 min to discuss possible problems encountered with the exercises of the previous day. don't hesitate to use this time and the slack chat !
- The 3rd day is dedicated to more advanced exercises and to an open discussion on future developments: share your ideas, your needs, and possible contributions!
- **Another school may be planned in about 1 year : we are confident more and more functionalities will be developed in the coming months and more people will be involved in analyses tasks**

Agenda

Mon 11/01: Gitlab + Geant4 simulation code

17:00	Introduction zoom, Nantes	Maríngela Sestiro 17:00 - 17:10
	Gitlab: Gitlab zoom, Nantes	Jorge Duarte Campderros 17:10 - 17:30
	Exercises: gitlab: access, clone, commit, ... zoom, Nantes	Jorge Duarte Campderros 17:30 - 17:50
18:00	DYNAMIC Geant4 simulations zoom, Nantes	Claudia De Dominicis 17:50 - 18:45
	Coffee Break zoom, Nantes	18:45 - 19:00
19:00	Exercises: Download, compile, interactive run zoom, Nantes	Claudia De Dominicis 19:00 - 19:15

Tue 12/01: Analysis framework

17:00	Discussion / Check exercises of the day before zoom, Nantes	Claudia De Dominicis, Jorge Duarte Campderros 17:00 - 17:20
	Pydantic zoom, Nantes	Nuria Castello Mor 17:20 - 18:20
18:00	Coffee break zoom, Nantes	18:20 - 18:35
	Exercises zoom, Nantes	Nuria Castello Mor 18:35 - 20:00

Wed 13/01: GitLab Advanced, Analysis framework discussions

17:00	Discussion / Check exercises of the day before zoom, Nantes	Nuria Castello Mor 17:00 - 17:20
	Gitlab: Advanced exercises zoom, Nantes	Jorge Duarte Campderros 17:20 - 18:00
18:00	Future developments zoom, Nantes	Maríngela Sestiro, Nuria Castello Mor 18:00 - 19:20
19:00	Conclusion zoom, Nantes	Maríngela Sestiro 19:20 - 19:35

Thanks to the speakers!
(Jordi, Claudia, Nuria)