



Introductory Remarks

Geant4 Online Collaboration Meeting
20 – 24th September 2021

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An “Online” meeting, again...

- Last year, we hoped for an “in person” meeting in 2021
 - But this did not happen because of uncertainties related to the pandemic & evolution of sanitary rules
- Having a second online edition is **certainly a penalty !**
 - The coffee break/lunch/dinner/... discussions will not happen again
 - Discussions during sessions are often the starting point of further iterations at those occasions !
 - But for now we have to cope with that, so please take even more advantage of the session discussion times, and make use of online notes !
- **Hoping that next year we will actually meet in Rennes !**
 - Laurent Garnier –thanks !- is still willing to make this real one to happen ! ;)

Focus of this CM

- This year we made an open call for volunteers for the program committee and got offers from:
 - Luciano Pandola
 - Sergio Losilla
 - Laurence James Nevay
 - Luis Sarmiento aka Pico
- They formed the program committee (+ex-officio Alberto Ribon & Marc Verderi)
 - **Thank you to them !**
- **The focus of this CM is:**
 - Converging on major release 11.0
 - Collaborative aspects:
 - Website renovation
 - Strategy wrt
 - 1) Git repository
 - 2) R&D activities
 - Please refer to the proposals in the [Google doc documents circulated](#)
 - Self/internal education

Converging on major release 11.0

- **Converging on major release 11.0 is the primary mandate of this CM**
 - Address any possible difficulties, confirm choices, etc.
- Some highlights of 11.0:
 - **Tasking:**
 - This scheme is a renovation of the multi-threading and is more flexible
 - It is also a door to hybrid computing
 - And has a potential which is still to be explored
 - To what level of granularity could it be relevant to task, sub-task, sub-sub-task, etc. ?
 - The deployment of the scheme looks rather smooth !
 - **You are warmly invited to cross-check that your favorite examples run well !**
 - **Transporting light hypernuclei**
 - **VecGeom solids as default**
 - **C++17 as minimum standard**
 - **Optimization of library structure**

Website renovation

- Website renovation was triggered at last year CM
- Quickly followed by an initiative by Anna Zaborowska, Grigorii Latyshev & Dmitri Konstantinov
 - With a nice prototype <https://thegriglat.gitlab.io/g4site/>
 - **Many thanks to them !**
- The “WTF” Website Task Force was then created in November 2020
 - Chaired by Alex Howard
 - The WTF holds regular meeting since then
 - And matured the project : revision of structure, adoption of Jekyll technology, etc.
- **The spirit of this renovation is *not* to convert Drupal pages using Jekyll technology but to *rethink* the web site and ensure long term maintenance**
- It is now time to converge on this effort and to define plans to produce this new website !
- **Presentation and discussion tomorrow**
 - By Dmitri, Grigorii and Alex

Strategy wrt Git repository

- Open science and open data policies are being promoted
 - See starting CERN initiative of this topic
- Publicly open Git repository is one aspect, and is considered a “good practice”
 - Advertised by the HSF as such, and adopted by some projects
- Is such a **publically open model** adapted to Geant4 ?
 - We believe not
 - Mainly because of the physics development time scale ($O(\text{months})$) & validation ($O(\text{month})$) that make unexploitable for users’ research work snapshots of the repository at arbitrary times t
- But could we benefit from a **more open model** that today ?
 - We believe yes
 - Should shorten bug fixes cycles by well informed users
 - Should ease providing additional light functionalities
 - Last not least, should help **to attract new developers**
 - Partly responding to **our generation issue**
- **Discussion on this tomorrow !**

Our generation issue:

1) Attract new developers

2) Keep these developers

Strategy wrt R&D activities

- R&D is part of the life cycle of Geant4, since RD44
- Here, we underline the case “risky R&D”:
 - That is R&D that may appear invalid at the end, and that possibly involves external contributors
- R&D work-flows:
 - Technically simple :
 - Conduct the R&D up to the point it demonstrates (or not) to be beneficial and integrate if so.
 - Collaboratively delicate:
 - People need recognition for their activity during the risky/exploratory phase
 - R&D must not be disruptive with regular development and maintenance activities
- Summary of the proposal:
 - Any (reasonable) R&D proposal is granted the status of **"recognized R&D activity"** by the SB
 - No initial definite acceptance nor refusal of such proposals
 - The manpower is accounted for by the **R&D TF**:
 - As Geant4 contribution, for Geant4 members
 - As external contribution for non-members
 - Each year, R&D projects are reviewed by a team appointed by the SB, and feedback is provided
- **This proposal will be discussed tomorrow too !**

Self / Internal Education

- Geant4 is vast and complex
 - And many different expertise contribute to it
 - But experts in some domain(s) are not in others...
- **There are technical aspects we need to know for our daily work**
 - **C++ of course**
 - But with **somewhat spread** wrt good practices
 - **Already :**
 - C++17 seminar in June, by Ivana
 - C++11/14/17 hackathon last Monday, by Ben & Ivana
 - **Both events were very well received !**
 - **Thank you Ivana & Ben !**
 - **Agreed to have more hackathons !**
 - **What about an education session on the website renovation too ?**
 - Others ?
- **There are plenty of expert subjects interesting to anyone curious**
 - String models FTF and QGS :
 - What are their commonalities and differences ?
 - Why tasking and how does it work ?
 - Could initiate further thinking of where to apply it
 - What makes VecGeom special wrt what we had already ?
 - Commenting some code could trigger more efficient programming ideas
 - How the cut machinery works ?
 - Why, eg, G4MaterialCutCouple is so important ?
 - GPU programming & related MC constraints ?
 - And many others : Visualization, CMake, infrastructure...
- **We propose to promote internal seminars / key note lectures and are seeking for volunteers !**
- **This would be useful to new members too !**

Wishing a productive CM despite its virtual format !

Thank you !