60th Geant4 Technical Forum : Introduction to developers' part

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Developers' Presentations

- Presentations by Geant4 developers:
  - Today's Technical Forum is dedicated to present and discuss the content of last Geant4 release, 11.2.0, published 2023 Geant4 plan of work.
    - Please note/remember that Geant4 releases are now including the patch number :
    - [major release #].[minor release #].**[patch #]**
  - Presentations will cover:
    - the non-physics part (Gabriele)
    - EM (Vladimir)
    - Hadronic (Alberto)
    - The update on the R&D activities (Witek)
    - Update on requirements (Krzysztof)
      - Krzysztof is taking over this activity, and will present the new organization of it
      - I stop after ~14 years dealing with this ;)

Some news on Geant4 side [1/2]

- An **assessment of the GPU R&D projects, AdePT and Celeritas**, took place at CERN on the 13th and 14th of December 2023
  - Documents describing the projects and results were distributed one week before
  - And then public presentations took place during above two afternoons
- **Assessment panel:**
  - Makoto Asai,   Geant4/EIC, Jlab   Matti Kortelainen,   CMS, Fermilab
  - John Chapman,   ATLAS, CERN/Cambridge University   Andrea Valassi,   CERN IT
  - Gloria Corti,   LHCb, CERN   Sandro Wenzel,   ALICE, CERN
  - Ivana Hrivnacova,   Geant4/ALICE, IJCLab   Ben Wynne,   ATLAS, Edinburgh University
  - Vincenzo Innocente, CMS, CERN   Marc Verderi,   Geant4, LLR (chair)
- Report is (late but) now being checked by the projects for possible factual mistakes
  - And should be converged very soon
- **Few messages:**
  - The panel was **impressed by the amount of work and investigations** made by the projects !
  - Findings:
    - **The physics**, despite its randomness and relative complexity, **is not the limiting factor**
    - **Geometry is the limiting factor:**
      - Because of a different shape (CSG representation) branching to a different calculation, making other threads waiting
    - **The CPU – GPU communication is not the limiting factor is was anticipated to be**
      - It is fast enough to send back data from the GPU to CPU
  - A delta-assessment by December 2024 will be proposed
    - With, in particular, common tests and benchmarks

Some news on Geant4 side [2/2]

- This year is an election year in Geant4
  - Mandates are 2 years long
- Election of Working Groups representatives at the Steering Board will start soon
- It will be followed by the Spokesperson election
- The process should be concluded by April/May