Geant4 General Paper

23 September 2013

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Agenda

- Purpose of paper
- Review of outline
  - based on MC2013 general paper
- Review of section authors
- Content of Extensions and Validation sections
  - discussion
- Identify supporting papers
  - discussion of existing references and those to be written
- Section content and planning
  - discussion

Purpose of Paper

- Advances in Geant4 since last general paper in 2006
  - cover major advances
  - refer as much as possible to published papers
  - not meant to be a detailed progress report
  - publish collateral papers before-hand

- Journal
  - NIM, IEEE?
  - alternatives

Paper Outline (1)

I. Introduction (The Evolution of Geant4?)
   A. issues which drive change in Geant4
   B. how Geant4 design adapts to change
   C. use cases and applications

II. Multi-threading
   A. the transition to multi-threading and the reasons for it
   B. implementation
   C. results

III. Geant4 Kernel Functionalities
   A. tracking and scoring
   B. detector modeling (geometry, materials, etc.)
   C. visualization

Paper Outline (2)

IV. Recent Developments in Physics Modeling
   A. electromagnetic
   B. hadronic
   C. extensions
   D. validation

V. Outlook for the Next Decade
   A. a brief summary of Geant4 progress
   B. where Geant4 is going

Section Authors

- Paper committee
  - Andrea Dotti
  - Peter Gumplinger
  - Marc Verderi
  - Dennis Wright
- Section authors (so far)
  - II: Multi-threading – Makoto, Andrea, John Ap., Gene, Gabriele
  - III A: Tracking and scoring - Takashi Sasaki and Tsukasa Aso
  - III B: Detector modeling – Gabriele Cosmo
  - III C: Visualization - Joseph Perl
  - IV A: EM physics – Vladimir Ivantchenko and Sebastien Incerti
  - IV B: Hadronic physics – Alberto Ribon and Dennis Wright

Extensions Section

- Content
  - DNA, solid state physics, medical applications, space applications, ….
  - interfaces to other codes
  - a lot to cover, can’t do it all
- Authors
  - depends on what we decide above

Validation Section

- Content
  - testing, physics validation tools
  - LHC calorimetry
  - again, a lot to cover
- Authors
  - Likely: Gunter Folger, Julia Yarba, Hans Wenzel, Alberto Ribon, Andrea Dotti