Summary of Parallel Session 1A Geant4 General Paper

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What We Did

- Reviewed purpose of paper
- Requested supporting papers
- Defined content of Extensions and Validation sections
- Revised paper outline
- Defined duties of section authors

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

Revised Paper Outline (1)

I. The Evolution of Geant4

    A.   motivations for change in Geant4, major requirements

    B.   how Geant4 design adapts to change

    C.   use cases and applications (refer to medical, space apps).

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, GDML, materials, etc.)

    C.   visualization

Revised Paper Outline (2)

IV. Recent Developments in Physics Modeling

    A.   electromagnetic + results (also DNA, condensed matter)

    B.   hadronic + results

    C.   Combined results (LHC calorimetry)

V. Toolkit Extensions

    A.   Biasing, reverseMC, error propagation, QT, analysis

    B.   Basic Examples

VI. Validation

    A.   Release Tools (Valgrind, Coverity, CDASH, Ctest)

    B.   Physics Tools (EM. HAD, combined)

VII. Outlook for the Next Decade

    A.   a brief summary of Geant4 progress

    B.   where Geant4 is going

Paper Committee

- Andrea Dotti
- Peter Gumplinger
- Marc Verderi
- Dennis Wright

Section Authors

- I. Evolution of Geant4 – paper committee, Makoto
- II: Multi-threading – Makoto, Andrea, John Ap., Gene, Gabriele
- III A: Tracking and scoring – Takashi, Tsukasa
- III B: Detector modeling – Gabriele
- III C: Visualization – Joseph
- IV A: EM physics – Vladimir Ivantchenko and Sebastien
- IV B: Hadronic physics – Alberto, Dennis
- V A: Toolkit extensions (non-physics) - Pedro, Ivana, Marc. Laurent
- V B: Basic examples update - Ivana
- VI A: Release validation – Gunter, Gabriele
- VI B: Physics validation – Julia, Hans, Alberto, Andrea

Duties

- Paper committee
  - set up Latex template in svn
  - review contributions as they come in
  - propagate updated versions to collaboration

- Section authors
  - develop section outline and add to paper template
  - estimate time for completion of section
  - provide initial set of paper references