Workshop Goals – part 2

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Outline

- Workshop's Goals and Opportunities
  - See 2009 slides
- Focus areas of Collaboration Meeting
- The Geant4 Delta Review 2009

Focus areas

- Computing Performance
- Physics Performance
- Physics Lists
- Internal Topics
  - Ongoing developments
  - Code improvement

Internal Topics

- Ongoing developments
- Code improvement
- New ‘Infrastrucure’
  - testing tools
  - code management

Geant4 Review 2009

- Delta-Review held in January 2009
  - Followed Review of April 2007
- Progress on many, major topics noted by panel
  - Strong showing of progress and plans
- Issues
  - Report includes new recommendations

Geant4 Delta Review 2009

- Organized by the Geant4 Oversight Board
- Followed Geant4 Review 2007
  - Previous reviews: 2001 full, 2002 delta
  - Panel members from 2007, with one change
- Addressed issues relevant to HEP users, medical & space communities
  - Reviewers from HEP, medical, space+hadronic MC code
- Topics covered included:
  - EM & Hadronic physics, validation, computing performance, documentation.

Geant4 Review 2009 outcome

- Review panel report included 22 recommendations
  - These span 8 different areas:
    - EM physics
    - Hadronic physics
    - Computing Performance
    - Physics Validation
    - Release Validation
    - Documentation
    - User Support
    - Resources.

Geant4 Review 2009

Key recommendations

1. Simplification of choices where possible – e.g. removal of less accurate EM models/options.
2. Provide guidance to users for available EM models and options
3. Study assumptions and parameterisations of physics models in FLUKA and improve corresponding hadronic models available in Geant4, where needed
4. Continue in monitoring CPU performance, perform code reviews for improvement
5. Development of multi-threading capability in Geant4.
6. Include thread-safety in the planned code design assessment with view to integrate it in code
7. Consolidation of the hadronic WG and low-energy WG web pages

Geant4 Review 2009

Key recommendations - 2

1. Provide pointers to physics benchmark results and tests and related documentation
2. Adopt a range of metrics to characterize as broad a range of validation results as possible
3. Acquire/redirect resources to improve documentation and keep up with updates
4. Adopt periodic review of the documentation and improve documentation design
5. Identify new tools to adopt for the software installation
6. Involvement of the user community in the log-term support of physics models
7. Seek for additional support from all available sources; extend the Collaboration to new Institutions

Responses & actions

- Report made 22 recommendations
- Actions planned by WG/SB for 2009 are underway
- Next actions and responses to be formulated by SB in Catania