USCMS Engineer Status Report for June 2004

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1 Work Performed This Month

COBRA/Mantis development, testing, maintenance - implemented, tested and commissioned interfaces for new implementation of CMS field(VolumeBasedMagneticField), user access to G4 tracking and stepping manager, storage and retrieval of physics tables (retrieval of precompiled cross-section tables gives factor 4 faster run initialization (200-¿50 CPU s) - restructured Mantis steering to delegate generator and physics initialization has been moved out of the run to G4 run management; this simplifies and speeds up metadata initialization OSCAR developer and user support OSCAR releases and release testing OSCAR WWW maintenance: http://cmsdoc.cern.ch/oscar/ SPROM presentations: http://cmsdoc.cern.ch/swsi/agendas.html

As member of informal G4-experiments working group on Geant4 performance, reported on experience from OSCAR production and large-scale testing, on-going testing activities and requirements for improvements.

Reviewed 6 abstracts for the IEEE NSS/MIC 2004; this is acknowledged as contribution to the 2004 NSS-MIC Conference as member of the program committee - name and institute to be included in printed version of program booklet.

Note: Abstracts #153 (OSCAR) and #155 (Mantis) accepted for oral and poster presentations at CHEP 2004; abstract N38-3 (OSCAR) accepted for oral presentation at IEEE NSS/MIC 2004.

2 Status of Deliverables

1) Work in progress

2) With respect to plans from previous month:

- 1st iteration of OSCAR/G4 performance studies (memory,CPU): done - preparation of 2nd iteration: - interfaces and testing scripts for new magnetic field: done - testing and performace comparison of new vs old magnetic field: started - testing of new geometry implementations: delayed due to delayed delivery of new Geometry release

3 Plans For Next Month

- conclude OSCAR_3_ release series (based on Geant4 6.1) - make first public release of OSCAR/Mantis based on Geant4 release 6.2 and prepare for production-scale testing - implement prototype OSCAR/Mantis/G4 interface to HepMC (in collaboration with P. Moortgat)

4 Longer Term Plans

Evaluate effort involved in migration to HepMC as generator interface (in collaboration with F. Moortgat and PRS experts) - implement and test interfaces from HepMC to G4 (first implementation done), and from HepMC/G4 to final MC truth, test the latter in terms of completeness and navigability.

Implement and test infrastructure for local magnetic field managers (in collaboration with N. Amapane) - evaluate possible performance gains vs impact on physics

Implement and test mechanisms for partial-event simulation for channels such as W-¿-nu(e-nu) - important for productions at the level of 50M events per channel

Write/update/improve documentation (in collaboration with V. Popov)

5 Resources Needed

no new resources needed at present

6 Links To Supporting Documentation

- http://cmsdoc.cern.ch/oscar/

- https://savannah.cern.ch/projects/oscar/
- https://wwwlistbox.cern.ch/earchive/cms-oscar-developers/
- http://cmsdoc.cern.ch/swsi/agendas.html
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