

Parallel 1A report

Julia Yarba, Andrea Dotti

Geant4 21st Collaboration Meeting – Ferrara, 12-16 September 2016

Summary

Physics List Factory	<i>HATCHER, Robert</i> 
<i>Aula Magna, Ferrara</i>	14:00 - 14:20
Special Purpose tools for validation	<i>YARBA, Julia</i> 
<i>Aula Magna, Ferrara</i>	14:20 - 14:30
Statistical Testing for validation: status and plan	<i>DOTTI, Andrea et al.</i> 
<i>Aula Magna, Ferrara</i>	14:30 - 14:40
Discussion on Physics List category	<i>FOLGER, Gunter</i> 
<i>Aula Magna, Ferrara</i>	14:40 - 15:10
Medical Validation Testing suite: technical details	<i>DOTTI, Andrea et al.</i> 
<i>Aula Magna, Ferrara</i>	15:10 - 15:30

Physics Lists Business

We'll switch by default to new Physics List Factory from Robert.

- Old will be put in namespace G4Legacy and kept available for some time

Unfortunately many work-item of this year will be moved to next (e.g. finish cleanup at exit in MT, documentation)

Discussed about starting a campaign to possibly review and simplify some PL aspects (e.g. template in hadronic constructors)

Statistical Testing and Tools

FNAL working on a general tool to produce “variation bands” for exposed parameters

- Ready been used for Bertini single interaction model and SimplifiedCalorimeter
- Need to understand how to correlate the “variation band” to the “systematic uncertainty”

Would like to add (automatic) regression testing to DoSSiER DB

- Current tool (used by ctest/cdash) cannot be used as-is: different technology, too complex => a dedicated add-on to DoSSiER (lower priority?)
- SLAC and CERN team work together on common extension/evolution of statistical testing tool

Testing for medical application

Test suite being created to perform physics validation of medical applications (see parallel 2A for physics content)

- Comparing with data
- Integrated with ctest/cdash:
 - Run G4 job
 - Run post-processing (histogram plotting)
 - Run regression testing

Important that feedback to Geant4 model developers is back-ported on time