## LPCC Detector Simulation Workshop preparation

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## Introduction

- Second LPCC Detector Simulation Workshop planned for 18-19 March 2014
- Indico web page ready:
  - https://indico.cern.ch/conferenceDisplay.py? ovw=True&confId=279530
- Goal of this meeting: to discuss the format and to draft the agenda

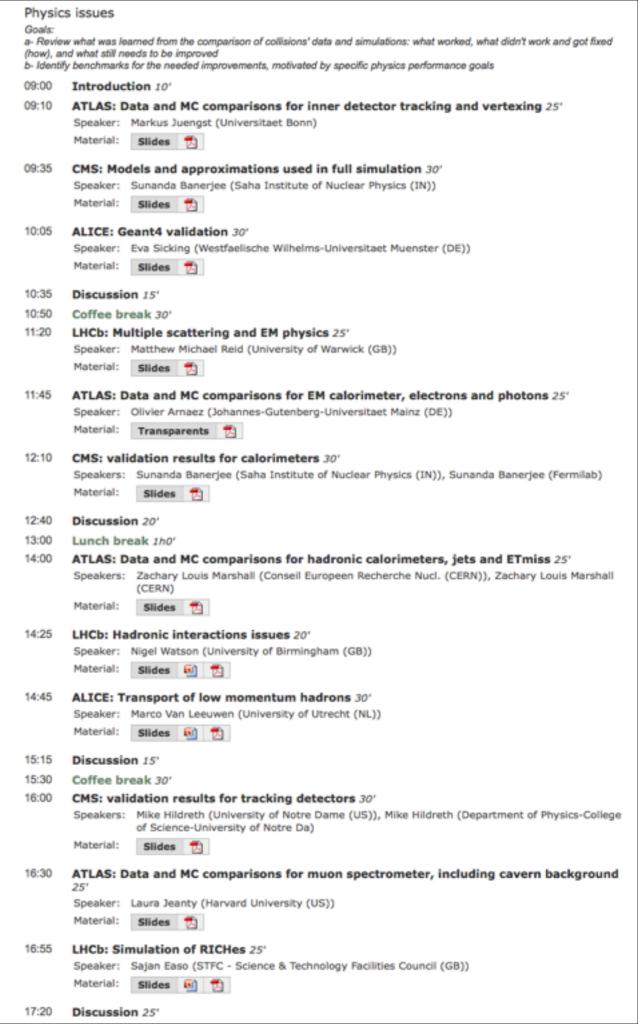
## Past event

- First LPCC Detector Simulation workshop took place 6-7 October 2011 (more than 2 year ago)
  - indico: <a href="http://indico.cern.ch/conferenceDisplay.py?confld=144956">http://indico.cern.ch/conferenceDisplay.py?confld=144956</a>
- let's try to look at the past experience and see if there is anything to improve:
  - two (very) full days
    - not that much room for discussions
  - day one: Physics issues
  - day two: Technical issues and developers outlook and feedback

quite some mixture of different topics

08:30 - 18:30

- question: what can the experiments have available by March 2014?
- should we try to ask specifically for some particular validation?
  - shower shape, multiple scattering, etc
- or should we just keep the same format as in 2011?



- Technical issues
  - Do we want to review the same issues again, or we are more interested in other things?
- Developers' outlook
  - any particular topic, or standard review of Geant4?

Review requirements by the experiments for improvements on the technical side: CPU performance, architectural issues, fs simulations, handling of pileup, etc... LHCb: Geant4 in the LHCb simulation application 30 Speaker: Gloria Corti (CERN) Material: Slides (%) ALICE: Geant4 integration 30' Speaker: Dr. Ivana Hrivnacova (Universite de Paris-Sud 11 (FR)) Material: Slides T ATLAS: Fast simulation, current status and plans 30' Speaker: Andreas Salzburger (CERN) Material: Slides 7 CMS: Fast simulation 30' Speaker: Andrea Giammanco (Universite Catholique de Louvain (BE)) Material: Slides 7 Discussion 20' Coffee break 20' ATLAS: Overall simulation performance, including pile-up 30' Speaker: John Derek Chapman (University of Cambridge (GB)) CMS: pileup issues 30' Speakers: Mike Hildreth (Department of Physics-College of Science-University of Notre Da), Mike Hildreth (University of Notre Dame (US)) Material: Slides 🖭 🃆 12:40 Discussion 20 Lunch break 1h0' Developers' outlook and feedback Goal: review the plans for future developments, also in view of the needs presented by the experiments in Session 2 Geant4 kernel: status & perspectives 30' Speaker: Makoto Asai (SLAC National Accelerator Laboratory) Geant4 physics: status & perspectives 45' Speaker: Dr. Alberto Ribon (CERN) Material: Slides 7 Discussion 15' Coffee break 20' Detector Simulation R&D 30' Speaker: Dr. Rene Brun (CERN) Slides 🖭 🃆 Physics Validation 30 Speaker: Andrea Dotti (CERN) Material: Slides 7 Final discussion Discuss possible ways to monitor progress in this area, and to steer some immediate concrete work. Possible proposals: Define a reference version of Geant 4, emergent from the current validation studies with LHC data Identify benchmarks for improvements in the simulations, motivated by specific physics performance goals

16:50 - 18:00

08:00 - 14:00

14:00 - 16:50

Technical issues

- Formulate a recommendation to SFT and the experiments for a new mandate for the Geant 4 validation forum
- Propose a format for future meetings of this type:
- o hand over to the revamped validation forum?
- o decide to iterate the workshop on a yearly basis? o setup focused WGs on separate issues (physics aspects, technical aspects, ....)

## Summary

- let's try to decide whether we want to keep the same format as two years ago, or change it somehow
- let's try to draft the agenda
- each of us will be in charge in organising speakers from his experiment