Status of CMS Full Simulation

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CMS Full Simulation Status

- **Production in 2012:**
  - Geant4 9.4patch03 + CMS fixes
  - About 3.5 billion events are produced in 2012
- **Geant4 in 2013:**
  - Geant4 9.5patch01 + CMS fixes
    - approved for CMS production
    - current development version
    - similar physics and CPU performance as with 2012 version
  - Geant4 9.5patch02
    - physics validation is ongoing
  - Geant4 9.6
    - CMS integration test successful
    - gcc 4.7.2
    - CLHEP 2.1.3.1

New requirement from CMS

- **Scope:**
  - Profiling of CMS Monte Carlo production demonstrates that 10-15% of CPU is spent for standard mathematical functions log, exp, sin, cos...
  - It is possible significantly speedup simulation production using fast mathmatical libraries
- **Requirement:**
  - Evaluate effects of usage of fast mathematical libraries on accuracy of Geant4 tracking and physics
  - Investigate if it is feasible to produce a built in option allowing to enable/disable fast mathematics.