

Status of Geant4 simulation of calorimeters

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Geant4 is the main software tool for the simulation of calorimeter response. In this work we report recent developments of Geant4 physics models, which will be available in the coming version 10.6, scheduled for December 2019. The main directions of Geant4 developments will be discussed: improvements of physics model accuracy, technical modifications to increase CPU performance, and user interface extensions. It is expected that, due to these developments, the responses of electromagnetic and hadronic calorimeters will be slightly affected; validation results from thin-target benchmarks as well as for calorimeter benchmarks will be shown. We will present new features that allow to speed up the simulation and provide recommendations to users on how they may optimize the simulations of their detectors using the new Geant4 interfaces. We will also discuss the role of Birks corrections on the simulation of calorimeter response.

Primary authors: Prof. IVANTCHENKO, Vladimir (CERN); NOVAK, Mihaly (CERN); RIBON, Alberto (CERN)

Presenter: Prof. IVANTCHENKO, Vladimir (CERN)

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