



High Energy Physics - Experiment

CMS: Cosmic muons in simulation and measured data

[Lars Sonnenschein](#)

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A dedicated cosmic muon Monte-Carlo event generator CMSCGEN has been developed for the CMS experiment. The simulation relies on parameterisations of the muon energy and the incidence angle, based on measured and simulated data of the cosmic muon flux. The geometry and material density of the CMS infrastructure underground and surrounding geological layers are also taken into account. The event generator is integrated into the CMS detector simulation chain of the existing software framework. Cosmic muons can be generated on earth's surface as well as for the detector located 90 m underground. Many million cosmic muon events have been generated and compared to measured data, taken with the CMS detector at its nominal magnetic field of 3.8 T.

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