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Recent developments and upgrades to the Geant4 geometry modeler

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The Geometry modeler is a key component of the Geant4 tookit. It has been designed to exploit at the best the features provided by the Geant4 simulation toolkit, allowing the description in a natural way of the geometrical structure of complex detectors, from a few up to the hundreds of thousands of volumes of the LHC experiments, as well as human phantoms for medical applications or devices and spacescraft for simulations in the space environemnt.

The established advanced techniques for optimizing tracking in the geometrical model have been recently enhanced and are currently under evolution to address additional use-cases. New geometrical shapes increased the rich set of primitives available, and new tools help users in the process of debugging her/his geometrical setup. The major concepts of the Geant4 geometry modeler will be reviewed, focussing on recent features introduced in the last releases of the Geant4 toolkit.

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