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Geant4 for medical physics applications: novel developments and next steps

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Geant4 is an open-source Monte Carlo radiation physics simulation code, extensively used in medical physics, including verification of radiotherapy treatment planning systems, and the design of equipment for radiotherapy and nuclear medicine. It is also used in medical imaging for dosimetry, to improve detectors and reconstruction algorithms, and for radiation protection assessments. Geant4 can be used in stand-alone applications or via software tools like GAMOS, GATE, PTSim, and TOPAS. This presentation will show the latest developments of Geant4 in terms of physics modelling capability of interest for radiotherapy, nuclear medicine and radiation protection. An overview of anticipated future developments will be presented.

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