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Simulation of Anti-Matter Matter Interactions in GEANT4

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One of the most exciting puzzles in cosmology is connected with the question of the existence of anti-matter in the Universe. A number of dedicated cosmic ray experiments aim to search for anti-nuclei. Also, anti-nuclei have been observed in nucleus-nucleus and proton-proton collisions by experiments at the RHIC and LHC accelerators. To support the experimental studies of the anti-nuclei a Monte Carlo simulation of anti-nuclei interactions with matter is implemented in the Geant4 toolkit. Geant4 is a software toolkit for the simulation of the passage of particles through matter. Simulation codes for anti-proton and antinucleus interactions with matter were implemented in the FTF model of Geant4. The implementation combines practically all known theoretical approaches to the problem of antinucleon-nucleon interactions. Main components of the simulation algorithm of anti-proton and antinucleus-nucleus interactions in Geant4 will be presented. Good agreement with simulation results and corresponding experimental data is reached.

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