

Geant4 (GEometry ANd Tracking) is general purpose Monte Carlo simulation tool for elementary passing through and interacting with matter. It provides modular geometry, particle table with particle properties, physics processes with cross sections, final state products. kinematics of particle produces in interactions, provision of I/O capabilities. It finds quite a wide variety of user domains including high energy and nuclear physics, space engineering, medical applications, material science, radiation protection and security. In order to meet wide variety of requirements from various application fields, a large degree of functionality and flexibilities are provided in this toolkit. But, it cannot run it out of the box. User needs to define his/her own detector geometry as well as the kinematics of initial particles according to the experiment, activated the required matter-particle interactions during the simulation and store the information of energy deposit (or digitised signal) in the sensitive part of the detector. During the lectures, we will talk about sequence of steps to do the Geant4 simulation of your experiment and in tutorial session will discuss few examples which are also provided along with the Geant4 software code.

Day1 : Installation of software, defining material and construction of geometry,

Day2 : Activating particles, physics processes, control of process etc and

Day3 : User interface, readout of signal (energy deposit) and other informations.

Prerequisites: Basics of matter-particle interactions, e.g.,

- Techniques for nuclear and particle physics experiments
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- Radiation Detection and Measurement
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