

Bendegúz Borkovits
Budapest
Hungary
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Reviewer
Eötvös Loránd University (ELTE)
Pázmány Péter sétány 1/A.
Budapest
Hungary

Dear Reviewer,

my name is Bendegúz Borkovits and I am writing to you about a project called Simulating detectors with Geant4 that I have been working on while attending the course Scientific Modelling Computer Laboratory at ELTE.

The main goal of the project is to use Geant4 to simulate a neutron detector. Geant4 is a software developed at CERN that allows the creation of virtual detectors, thus the opportunity to simulate real-life detectors at home and model particle induced events. The software offers an enormous number of built-in libraries that provide the user with tools to define the desired parametrization of the detector, the particles, and the environment itself.

As of now, my work consisted of learning how to build a simulation using said software by following tutorials to inquire about the stepping stones of a Geant4 program and solve the technical difficulties that arose during the early development of the project. As a result, I simulated Cherenkov radiation that was induced by a proton. Then, I extracted data about the properties of the optical photons via a set of photo-sensitive detectors. Finally, using Python in a Jupyter notebook, I successfully prepared the data for evaluation.

In conclusion, I have inquired enough information about the software to simulate a neutron detector, the parameters of which will be provided by my supervisor later. All the source files, reports, presentations and notebooks have been uploaded to Moodle and will also be updated to my GitHub repository.

Yours faithfully,

Bendegúz Borkovits