Contribution ID: **71** Type: **Poster**

Implementation and Experimental Validation of a SiPM Model in GATE

The aim of this work is to implement a model of Silicon PhotoMultiplier (SiPM) that can be used to simulate scintillator-based spectrometers implementing SiPMs with the GATE simulation platform.

GATE is a Monte Carlo simulation tool built on top of GEANT4 developed in order to ease the simulation of medical imaging systems like PET scanners. The use of SiPMs, instead of PMTs in PET scanners has increased and our aim is to provide the community with an easy way to accurately simulate gamma ray detectors based on scintillator crystals coupled with SiPMs.

In this work, we present the implemented model and its validation against measured data, specially for timing applications that are crucial in the context of time-of-flight PET. We show how it is possible to reproduce delay distributions of optical photons issued from a monolithic scintillator crystal coupled with a SiPMs array.

Primary authors: Mr MEHADJI, Brahim (Aix-Marseille Univ, CNRS/IN2P3, CPPM, Marseille, France); Mr DUPONT, Mathieu (CPPM CNRS/AMU)

Co-author: Prof. MOREL, Christian (CPPM (CNRS/AMU))

Presenter: Mr DUPONT, Mathieu (CPPM CNRS/AMU)

Track Classification: Miscellaneous and others