



Contribution ID: 168

Type: poster

## Gate Simulation study of the 24 Modular J-PET and data analyzing

*Tuesday, 25 June 2019 13:30 (1h 30m)*

A novel Positron Emission Tomography (PET) detector consisting of strips of polymer scintillators is being developed in J-PET Collaboration. Despite other commercial PET scanners which are based on crystal scintillators, 24 modular J-PET is the latest prototype of the J-PET collaboration using Silicon photomultipliers. Each module in this prototype contains 13 strips of EJ-230 with 50 cm long plastic scintillator. Modules in this geometry are placed on the lateral area of a cylinder with 70 cm diameters. The axis of each detector is parallel to the axis of the cylinder. At ends of each module there is a silicon photomultiplier (Si-PM). GEANT4 Application for Tomographic Emission (GATE) is one of the most advanced specialized software packages for simulations of the Positron Emission Tomography scanners. For this simulation, 6 point sources have been used and just back to back events taken into account. Gate Output J-PET Analyzer (GOJA) is a software developed by J-PET collaboration to analyze GATE simulation output. This software can perform three dimensional list-mode of coincidences, which can be used in image reconstruction. Since modular J-PET is under construction, one of the aims of investigations is to find out all the NEMA characteristics of the tomography by GATE simulation. In parallel, GATE simulation and GOJA data analyzing have been implemented, to provide us with the reconstructed images of J-PET. For this goal, we are developing Quantitative Emission Tomography Iterative Reconstruction (QETIR) software.

**Primary author:** DADGAR, Meysam (Faculty of Physics, Astronomy and Applied Computer Science, Jagiellonian University )

**Presenter:** DADGAR, Meysam (Faculty of Physics, Astronomy and Applied Computer Science, Jagiellonian University )

**Session Classification:** Poster session