Contribution ID: **373** Type: **Talk**

From tests of discrete symmetries to medical imaging with J-PET detector

Wednesday 8 September 2021 13:30 (20 minutes)

The Jagiellonian Positron Emission Tomograph (J-PET) is a multipurpose detector for 1) tests of discrete symmetries, 2) medical imaging by combinig metabolic information collected by standard PET with structural information obtained from Positronium lifetime in a concept of morphometric image and 3) test of quantum entanglement of photons originating from the decay of positronium atoms. The experimental apparatus consists of 192 plastic scintillators read out from both ends with vacuum tube photomultipliers. Signals produced by photomultipliers are probed at four levels in the amplitude domain and digitized on 8 FPGA based readout boards in triggerless mode. Using the TOT (Time Over Threshold) response, as a measure of energy loss instead of charge integration methods, significantly reduces system deadtime, which is especially crucial in case of J-PET, built out of plastic scintillators producing very fast light pulses. System performance and recent results will be presented togehter with the non-linear correlation between input energy loss and TOT of the signal.

Primary author: Prof. MOSKAL, Paweł (Institute of Physics, Jagiellonian University, Poland)

Presenter: Prof. MOSKAL, Paweł (Institute of Physics, Jagiellonian University, Poland)

Session Classification: Applications of nuclear and particle physics technology

Track Classification: Applications of nuclear and particle physics technology