J-PET detector NEMA spatial resolution studies

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J-PET detector, based on long plastic scintillator strips, was recently constructed in Jagiellonian University [1]. It consists of 192 modules axially arranged into three layers, read out from both sides by digital constant-threshold boards. Each signal is probed at four different thresholds. Synchronization detection modules has been completed with a reference detector placed inside scanner.

J-PET scanner may be licensed for commercial use after fulfilling standards defined by The National Electrical Manufacturers Association (NEMA). To determine performance characteristics of J-PET detector a NEMA-NU-2 [2] norms are used which specify the standard values of the spatial resolution, signal-to-background ratio and scattered gamma fraction. Therefore, it is necessary to carry out appropriate testing of the J-PET prototype which results will be used for device certification [3].

In this poster initial results of the J-PET spatial resolution will be presented for $^{22}$Na source placed at selected positions inside the detector chamber as well as time and energy resolutions for detection modules.