584

A HIGH RESOLUTION QUAD BGO DETECTOR. E. Sugihara, M. Uemura, S. Inoue, A. Ohgushi and M. Kumamoto. Hitachi Medical Corp., Chiba.

We investigated the fundamental characteristics of a 6㎜ wide BGO scintillation detector to develop a high spatial resolution and high sensitivity positron emission tomograph. To fabricate the detector, a similar principle to that of the quad BGO detectors which have been utilized in POSITOLOGICA-Ⅱ(NIRS) was applied. Our quad BGO detector basically consists of four BGO crystals ($6\times24\times24$㎜³) and two photomultiplier tubes(PMT R647 Hamamatsu), and the crystal identification for incident annihilation photons is performed by comparing the amplitude of analogue output signals from the two PMTs.

This method enables us to arrange the narrower crystals closely in circular arrays.

Results of our experiment indicated a temporal resolution of 4.8ns-5.5ns(FWHM) and a good characteristic of the crystal identification.