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DEVELOPMENT OF THE COLLIMATOR DOUBLING A SLICE NUMBER FOR A RING DETECTOR SPECT. N.Yamaoka, Y.Higashi and K.Sukeyasu. Shimadzu Corporation, Kyoto.

The ring detector SPECT system has much higher sensitivity and better resolution than a rotating gamma camera SPECT. On the other hand, the number of images so far has been equal to the number of detector rings. We developed a new collimator to double the number of slices of a ring detector SPECT. For example, one can obtain six transaxial images with a three ring SPECT. The original SPECT, SET-031, has the unique turbo-fan collimator, which is installed inside the detector ring and rotates under the control of the host computer. All the segment of the collimator focus in a slice plane. The new collimator has two focal planes separated approximately 18mm each other. The collimator is composed of two half-annuli, one of which has focus in a front plane and the other has focus in a rear plane. Six transaxial images has been obtained by adopting the newly developed collimator and computer program of the original three ring SPECT, SET-031.

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DEVELOPMENT OF SOFTWARE FOR MEASURING SYSTEM RESOLUTION

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The hole diameter and septal thickness of medium energy collimator are generally larger than those of low energy collimator in order to collimate high energy γ -rays. It is difficult to measure the system resolution with medium energy collimator, because the diameter and septal thickness of collimator influence line spread function indicating a response of collimator to line source. Therefore we have developed a new measuring method and program which is based on the definition of collimator geometric resolution. It enables us to evaluate line spread function avoiding influence of hole dia. and septal thickness. After acquiring the data of line source, we can easily evaluate the system resolution (FWHM/FWTM) by using this program. Our experimental results agreed well with the calculated values and this method and program were useful for evaluating resolution of collimators.

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DEVELOPMENT OF "SCINTIPAC 700", THE NEW DATA PROCESSING SYSTEM FOR NUCLEAR MEDICINE. R.Ban, K.Kume and H.Wani. Shimadzu Corporation, Kyoto.

We have developed "Scintipac 700" as the new data processing system for nuclear medicine. It has the following features.

1. Acquire data in high resolution of up to 512x512 for all purposes and 1024x256 or 2048x512 especially for whole body scan.
2. Acquire and process data in high speed.
Ex. Acquire maximum 500 frames/sec
Reconstruct a transverse image within 1 sec.
3. Acquire data and process another data simultaneously.
4. Offer affluent clinical programs making good use of our long experience in Scintipac series.

The above characteristics enable us to realize the efficient and precise data processing in the field of nuclear medicine.

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STARPORT 400AC/T NUCLEAR IMAGING SYSTEM. T.Nakayama, H.Kurihara, H.Takano, T.Tatsuike. Yokogawa Medical Systems.

The GE Starport Data Acquisition System, consisting of a nuclear gamma camera and stand alone operator console, is designed to help satisfy the acquisition requirements of today's nuclear medicine department. Specially designed detector (390mm UFOV) for close proximity head imaging without shoulder interference. Associated with the Starport System is the GE Autotune detector. All acquisitions, including static, dynamic, multigated, whole body and tomographic are digitally controlled by the Starport System electronics. The logical design of the console requires little instruction for clinical use and requires only a few keystrokes during normal acquisition routines. Data acquired can subsequently be loaded via floppy disk onto GE's Starcam or Star nuclear medicine computers and processed using all GE and user defined processing protocols.