information and also make a correction similar to that used in the HCI-02 program.

This new system of the human whole body counter and its soft-ware show one of the direction of human whole body counter in the future.

NIRS On-line Computer System for R.I. Image Data Acquisition and Processing

T. A. IINUMA, E. TANAKA, T. HIRAMOTO and T. ISHIHARA
Division of Physics

K. FUKUSHISA and S. YASHIRO
Division of Technical Service

T. MATSUMOTO
Division of Clinical Investigation

National Institute of Radiological Science, Chiba

Output pulses from image detectors in radioisotope imaging are those from a NaI (Tl) scintillation detector caused by γ-quanta. Thus, output signals are essentially a digital information and so are feasible to be collected by means of a digital computer. We have developed an on-line computer system to collect all informations from various image detectors such as recti-linear scanner and Anger camera without loss of information and to process them into an analog pattern from which doctors can extract useful diagnostic information.

The on-line system consists of a central computer and three on-line experimental sites which are connected by several co-axial cables for signal transmission. Two sites of the three are recti-linear scanner room and whole-body counter room respectively. On-line input/output devices that are attached to the experimental sites are impedance converter (IC), input/output typewriter (I.O.T.) and cathode-ray tube display unit (CRT). Output pulses from the detector are transmitted via IC to an analog to digital converter (ADC) located at the computer room. The ADC converts height of each pulse into digital clock pulses which are connected to an increment unit (INC) and or a sequence unit (SEQ). The INC has an ADD-1 function to a memory word of which address corresponds to the number of the clock pulses. Since we have three INC, three-dimensional pulse height analysis is possible with our system. On the othe rhand, the SEQ has a function to write a number of the clock pulses to a memory word of a preassigned buffer regions in time sequence, and the information are transfered to a magnetic disk. Using these units, multi-parametric information can be gathered.

For image visualization, we have developed display software for the CRT, a curve plotter and a line printer. We are also making various software for image processing and for pattern recognition.