kernel''.

The choice of the correction function is closely related to the character of noise, and it has already been shown that, when the point spread function of the reconstructed image is Gaussian, the ratio of the one-dimensional signal power to noise power is maximized for a given r.m.s. resolution width. Such an optimized correction function has already been reported (Phy. Med. Biol. **20**, 789).

The error kernel was evaluated with the optimized correction function. The error kernel is presented as a function of r/σ where 2.35 σ is the resolution (FWHM) of the reconstructed image. Some applications of this formula are also presented. For instance, the variance at the center of a ring source having a constant activity density is nearly independent of the diameter of the ring, while that of a disc source is nearly proportional to the diameter.

Some Experimental Result Of Perception

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Since the image of the distribution of radioisotope contains statistics noise, we are not perceptible the hot region where target counts are close to background counts, even if only one hot resion exists in the uniform background.

Therefore, it is the purpose of present experiment that we are just visible the target how the differences of counts between target and backgrond are. These studies were done by computer simulation method.

First, in respect of the recognition of target with line printer, distinct display is the most available by using the threshold counts at $B+\sqrt{B}$ Second, the perception of this display is related to the formula, $T-B/\sqrt{B}$, and the value of 1.2 in this formula shows fifty percent distinguishable.

(T, Target count; B, Background count)

This value is considerd to be not so different with other display systems that collecting suitable output method line printer is available for simple RI image as one target area exist in the uniform background.

The Third "Intercomparison of Computer-Assisted Scintigraphic Techniques"

Sponsored by IAEA

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This report discribes some results of the third study of IAEA co-ordinated research programme on "Intercomparison of Computer-assisted Scintigraphic Techniques'' which was initiated in 1970. The first and second intercomparison which was reported on the special lecture of the 13th annual meeting of J.S.N.M. at 1973 by T. Nagai, employed mathematically simulated phantoms produced by computer, but there were some opinions that they are not suitable representation of clinical situations, since shape of the simulated phantom is too simple to simulate the clinical scans. Therefore, in the third programme, gamma-camera images of dead human liver filled with 99m-Tc solution were applied. Their images were produces in Hannover, recorded on magnetic tape in IAEA and send to 19 participating institutes including NIRS.

The specification of the scitigrams is as follows;

(1) 96 images were record on M.T., 46 of which contain cold lesions and 50 contain hot lesions.
(2) The liver-scan contains up to 6 sherical lesions.
(3) For the 128×128 matrix the sample size is 3.44×3.44 cm, but the scans normally lie between X-channels 20 and 90 and Y-channels