NUCLEAR SCIENCE AND ENGINEERING: **33**, 270 (1968)

Letter to the Editor

Concerning "An Optimal Control of a Distributed-Parameter Reactor"

In a recent note of the above title,[1] an integral equation was obtained as the necessary and sufficient condition for the optimal control, and a procedure for constructing an approximate solution to the integral equation was discussed. The following additional remarks are considered necessary.

1) In Eq. (29), an index corresponding to p is missing on κ_l's. It should read

$$\exp(-\alpha_p t) = \sum_{l=1}^{p} \kappa_{pl} \eta_l(t) \quad . \tag{1}$$

In the subsequent equations, all κ's must be changed to include the index p.

2) From Eq. (30), it is clear that the solutions $a_m(t)$, $m = 1, 2, \ldots, N$, must lie in the subspace of $L_2(0, T)$ spanned by $[\tilde{\eta}_l(t)]$. Therefore, the expansions can be carried out directly in terms of $[\tilde{\eta}_l(t)]$ instead of $[\eta_l(t)]$ as was done in the note.

3) The procedure for constructing the approximate solution is valid when the set $[\exp(-\alpha_l t)]$ is "almost orthogonal," i.e.,

$$\kappa_{pp} \gg \kappa_{pl} \text{ for } l = 1, 2, \ldots, p - 1 \quad . \tag{2}$$

In cases where the above condition is not met, and if an accurate determination of the control function is desired, then other methods must be used.

S. H. Kyong

Bell Telephone Laboratories
Whippany, New Jersey 07981

May 10, 1968

[1] S. H. KYONG, *Nucl. Sci. Eng.*, **32**, 146 (1968).

Corrigendum

WESTON M. STACEY, Jr., "Linear Analysis of Xenon Spatial Oscillations," *Nucl. Sci. Eng.*, **30**, 453 (1967).

The second term in Eq. (8) should be divided by

$$\langle \Psi_1^{th*} | \Sigma_f^{th} | \Psi_1^{th} \rangle \quad .$$