Let D_{H_2} denote a domain containing H_2 such that $\overline{D}_{H_2}\cdot\overline{(K+D_{K_1})}=0$. Let D_{K_2} denote a domain containing K_2 and such that $\overline{D}_{K_2}\cdot\overline{(H+D_{H_1}+D_{H_2})}=0$. This process may be continued and $D_H=\sum D_{H_n}$ and $D_K=\sum D_{K_n}$ are two mutually exclusive domains covering H and K respectively.

THE UNIVERSITY OF TEXAS

ON AN INTEGRAL EQUATION WITH AN ALMOST PERIODIC SOLUTION

BY B. LEWITAN

We assume that the function $f(x)$ is almost periodic in the sense of H. Bohr and that the functions $E(\alpha)$, $\alpha E(\alpha)$ are absolutely integrable in $[-\infty,\infty]$.

THEOREM. *If all real zeros of the function*

$$\gamma(\alpha)=\frac{1}{2\pi}\int_{-\infty}^{\infty}E(u)e^{-i\alpha u}du$$

have integer multiplicities and only two limit points ∞, α^*, *then every solution* $\phi(x)$ *of the equation*

$$\int_{-\infty}^{\infty}E(\xi-x)\cdot\phi(\xi)d\xi=f(x) \tag{1}$$

which is uniformly continuous and bounded in $[-\infty,\infty]$ *is almost periodic.*

PROOF. Without loss of generality we may assume that the finite limit point α^* has the value 0; otherwise we multiply equation (1) by $e^{-i\alpha^* x}$.

Putting

$$f_n(x)=\frac{3}{2\pi}\int_{-\infty}^{\infty}f\left(x+\frac{2u}{n}\right)\frac{\sin^4 u}{u^4}du,$$

we obtain

$$\int_{-\infty}^{\infty}E(\xi)\phi_n(\xi+x)d\xi=f_n(x),$$