ERRATUM

Contributions to Stability Theory

BY J. L. MASSERA

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W. Hahn pointed out to the author that the proof of Theorem 29 is incorrect. As a matter of fact, the theorem itself is false as the following example shows.

Let x be a real variable and $f(x)$ a function which vanishes at the points of a sequence $\{x_n\}$ of positive numbers which tend to zero monotonically; assume moreover that $xf(x) < 0$ for $x \neq 0$, $x \neq x_n$. The solution $x = 0$, of $\dot{x} = f(x)$ is not asymptotically stable because of the existence of the solutions $x = x_n$ arbitrarily near $x = 0$. However, it is totally stable. Indeed, given $\varepsilon > 0$ choose n so that $x_n < \varepsilon$ and let $\delta \leqq x_{n+1}$ be so small that $|f(x)|$ takes on values $> \delta$ in both intervals (x_{n+1}, x_n) and $(-x_n, -x_{n+1})$. Then, if the function $|g(x, t)|$ satisfies $|g(x, t)| < \delta$ we have $x \cdot (f(x) + g(x, t)) > 0$ at certain points of both intervals and any solution $x(t)$ of $\dot{x} = f(x) + g(x, t)$ such that $|x(t_0)| < \delta$ cannot leave for $t \geqq t_0$ the interval $|x| \leqq x_n < \varepsilon$.

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An Example of a Smooth Linear Partial Differential Equation without Solution

BY HANS LEWY

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Mr. L. Bers kindly pointed out an error of sign occurring on p. 157 of the paper. It is eliminated by replacing throughout

$$y_1 + 2q_j x_1 - 2p_j x_2 \quad \text{by} \quad y_1 - 2q_j x_1 + 2p_j x_2$$

and

$$Y_1 - 2q_j X_1 + 2p_j X_2 \quad \text{by} \quad Y_1 + 2q_j X_1 - 2p_j X_2$$

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