FONCTIONS ELLIPTIQUES ET ÉQUATIONS DIFFÉRENTIELLES ORDINAIRES

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RÉSUMÉ. In this paper, we detail some results of a previous note concerning a trigonometric expansion of the Weierstrass elliptic function \( \wp(z); 2\omega, 2\omega' \). In particular, this implies its classical Fourier expansion. We use a direct integration method of the ODE

\[
\begin{align*}
\frac{d^2 u}{dt^2} &= P(u, \lambda) \\
u(0) &= \sigma \\
du(0) &= \tau
\end{align*}
\]

where \( P(u) \) is a polynomial of degree \( n = 2 \) or \( 3 \). In this case, the bifurcations of (E) depend on one parameter only. Moreover, this global method seems not to apply to the cases \( n > 3 \).