On the Stability of Invariant Sets of Functional Differential Equations with Delay

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Systems of functional differential equations with delay

$$dz(t)/dt = Z(t, z_t)$$

and

$$dz(t)/dt = Z(t, z_t) + R(t, z_t)$$

are considered where $z = (x, y), x \in \mathbb{R}^n, y \in \mathbb{R}^m$, and Z and R are the vector-valued functionals. It is supposed that these systems have a positive invariant set $x = 0$. The conditions are given when the uniform asymptotic stability of of the invariant set of the first system implies the uniform asymptotic stability of the invariant set of the second system. The asymptotic stability of this invariant set of the first system is studied separatly when the right-hand side of the system is an almost periodic in t.