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On the existence of solutions of neutral functional differential equations of Carathéodory type. (Chinese. English summary) Zbl 0628.34065

J. Shandong Univ., Nat. Sci. Ed. 21, No. 3, 44-53 (1986).

Consider a general type of neutral functional differential equations (1) $(d/dt)D(t, x_t, \lambda) = f(t, x_t, \lambda)$. The existence theorems of solutions to retarded-type equations, neutral equations with continuous function f and retarded g-type equations with discontinuous function f were established by *J. K. Hale* [J. Differ. Equations 9, 168-181 (1971; Zbl 0213.36901)], *M. A. Cruz* and *J. K. Hale* [J. Math. Anal. Appl. 34, 267-288 (1971; Zbl 0218.34062)] and *J. K. Hale* [Theory of functional differential equations (1977; Zbl 0352.34001)], respectively. In this paper the author generalizes these theorems for (1) under the assumption that $f(t, x_t, \lambda)$ are discontinuous but satisfy the Carathéodory condition for $(t, \phi) \in \Omega$ uniformly with respect to $\lambda \in \Lambda$.

Reviewer: Jinghuang Tian

MSC:

34K05 General theory of functional-differential equations

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retarded-type equations; neutral equations