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Locally lipschitzian guiding function method for ODEs. (English) Zbl 0935.34007

Nonlinear Anal., Theory Methods Appl. 33, No. 7, 747-758 (1998).

The author treats the existence of periodic solutions to the problem

$$x'(t) = f(t, x(t)), \quad x(0) = x(T), \quad (*)$$

where $f : [0, T] \times \mathbb{R}^n \rightarrow \mathbb{R}^n$ is a Carathéodory function with integrably bound growth. Under the assumption that f has a locally Lipschitzian guiding function V with $\text{Ind}(V) \neq 0$ it is proved that problem (*) admits at least one solution. Moreover, it is shown that every coercive direct potential has $\text{Ind}(V) = 1$, and so it can be used as a guiding function in the above theorem.

Reviewer: J.Myjak (L'Aquila)

MSC:

34A60 Ordinary differential inclusions

34C25 Periodic solutions to ordinary differential equations

Cited in **3** Documents

Keywords:

differential inclusions; periodic solutions; guiding function; fixed point index

Full Text: [DOI](#)

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