

**Benchohra, Mouffak; Boucherif, Abdelkader**

**On first order multivalued initial and periodic value problems.** (English) Zbl 1019.34008  
Dyn. Syst. Appl. 9, No. 4, 559-568 (2000).

The authors study the existence of solutions to first-order differential inclusions of the form  $y'(t) \in F(t, y(t))$  a.e.  $t \in [0, T]$ , with initial ( $y(0) = a$ ) or periodic ( $y(0) = y(T)$ ) condition, where  $F : [0, T] \times \mathbb{R} \rightarrow \mathbb{R}$  is a closed, bounded and convex-valued multivalued map. They convert the problem to an appropriate fixed-point problem and use a fixed-point theorem for condensing maps combined with upper and lower solutions.

Reviewer: S.K.Ntouyas (Ioannina)

**MSC:**

- [34A60](#) Ordinary differential inclusions
- [34A12](#) Initial value problems, existence, uniqueness, continuous dependence and continuation of solutions to ordinary differential equations
- [34C25](#) Periodic solutions to ordinary differential equations

Cited in 4 Documents

**Keywords:**

differential inclusion; initial value problems; periodic solutions