

On the existence of solutions for a nonlinear differential inclusion

Aurelian Cernea

Faculty of Mathematics and Computer Science, University of Bucharest, Romania

acernea@fmi.unibuc.ro

We study nonlinear differential inclusions of the form

$$x' \in Ax + F(t, x), \quad x(0) = x_0,$$

where A is a m -dissipative operator on a Banach space X , $x_0 \in X$ and $F(\cdot, \cdot) : [0, T] \times X \rightarrow \mathcal{P}(X)$ is a set-valued map with nonconvex values that satisfies Fillipov type assumptions.

Using certain selection theorems, some existence results are obtained when X is separable and non-separable.

We also establish several variational inclusions for solutions of the problem considered in separable Banach spaces.

References

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