Qualitative properties of a class differential inclusions

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Abstract: We examine the nonemptiness and some qualitative properties of the solution set of the differential inclusion:

$$\ddot{x}(t) \in F(t, x(t)), \qquad x(0) = x_0, \qquad t \in [0, 1],$$

where x belongs to a Banach space E and $F(t, x)$ is a compact valued multi. If $F(.,.)$ is one side Lipschitz in the state variable, then the solution set is nonempty compact connected, depends continuosly on parameters and is dense in the relaxed solution set.