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Existence of mild solutions for semilinear equation of evolution

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Abstract: The aim of this paper is to give an existence theorem for a semilinear equation of evolution in the case when the generator of semigroup of operators depends on time parameter. The paper is a generalization of [2]. Basing on the notion of a measure of noncompactness in Banach space, we prove the existence of mild solutions of the equation considered. Additionally, the applicability of the results obtained to control theory is also shown. The main theorem of the paper allows to characterize the set of controls providing solutions of the system considered. Moreover, the application of the main theorem for elliptic equations is given.

Keywords: semilinear equation of evolution, mild solutions, measure of noncompactness, sublinear measure
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