Existence and asymptotic behaviour of solutions to second-order evolution equations of monotone type

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Abstract

We present some recent results of Moroşanu and Djafari-Rouhani on the existence and asymptotic behaviour of bounded solutions to nonlinear second-order evolution equations of monotone type of the form:

$$p(t)u''(t) + q(t)u'(t) \in Au(t) + f(t) \quad \text{for a.a. } t \in \mathbb{R}_+ := [0, \infty), \tag{E}$$

with the condition

$$u(0) = x \ \in \overline{D(A)}, \tag{B}$$

where A is a maximal monotone operator in a real Hilbert space H, and p, q are real-valued functions defined on $[0, +\infty)$ satisfying some suitable conditions.

References

[1] G. Moroşanu, *Existence results for second-order monotone differential inclusions on the positive half-line*, J. Math. Anal. Appl. 419 (2014) 94-113.

[2] B. Djafari-Rouhani, H. Khatibzadeh, *A strong convergence theorem for solutions to a nonhomogeneous second order evolution equation*, J. Math. Anal. Appl. 363 (2010) 648–654.

[3] B. Djafari-Rouhani, H. Khatibzadeh, *A note on the strong convergence of solutions to a second order evolution equation*, J. Math. Anal. Appl. 401 (2013) 963–966.

[4] B. Djafari-Rouhani, H. Khatibzadeh, *Asymptotic Behavior for a General Class of Homogeneous Second Order Evolution Equations in a Hilbert Space*, To appear in Dynamic Systems and Applications.