

Evolution equations and Tikhonov regularization.

ABSTRACT

We study the asymptotic behavior when $t \rightarrow \infty$ of solutions of the differential inclusion $-\dot{u}(t) \in Au(t) + \varepsilon(t)u(t)$, where A is a maximal monotone operator in Hilbert space and $\lim_{t \rightarrow \infty} \varepsilon(t) = 0$ with $\int_0^\infty \varepsilon(t)dt = \infty$. If A is a subdifferential, there is strong convergence towards the least-norm element of $A^{-1}0$. The same is true for any A when the parameter function ε has finite total variation. We provide a counterexample for convergence in the absence this hypothesis.