STRONG ASYMPTOTIC CONVERGENCE OF EVOLUTION EQUATIONS GOVERNED BY MAXIMAL MONOTONE OPERATORS WITH TIKHONOV REGULARIZATION

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We consider the Tikhonov-like dynamics $-\dot{u}(t) \in A(u(t)) + \varepsilon(t)u(t)$ where A is a maximal monotone operator and the parameter function $\epsilon(t)$ tends to 0 for $t \to \infty$ with $\int_0^\infty \epsilon(t)dt = \infty$. When A is the subdifferential of a closed proper convex function f, we establish strong convergence of $u(t)$ towards the least-norm minimizer of f. In the general case we prove strong convergence towards the least-norm point in $A^{-1}(0)$ provided that the function $\epsilon(t)$ has bounded variation, and provide a counterexample when this property fails.

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