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TITLE: Evolution equations of second order with damping: existence via time discretisation

ABSTRACT:

Nonlinear evolution equations of second order in time often arise in solid and quantum mechanics. We consider several classes of such equations incorporating damping terms. The existence of generalised solutions follows from the convergence of a sequence of approximate solutions. For the approximation, a suitable time discretisation method can be employed. Depending on the structure of the equation and the type of nonlinearities, different functional analytic approaches (monotone operators, strongly continuous perturbations, convex and non-convex potentials, ...) are the basic ingredients.