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Regular and singular perturbations of an abstract Euler-Poisson-Darboux equation. (English. Russian original) [Zbl 0968.34041](#)

Math. Notes 66, No. 3, 292-298 (1999); translation from *Mat. Zametki* 66, No. 3, 364-371 (1999).

From the text: Suppose that in the Banach space \mathbb{E} the Cauchy problem

$$u''(t) + (k/t)u'(t) = Au(t), \quad t > 0, \quad (1)$$

$$u(0) = u_0, \quad u'(0) = 0, \quad (2)$$

with a linear closed operator A is uniformly well-posed. The author considers cases when equation (1) is perturbed by terms whose coefficients depend on t , and he studies the behavior of the solution to problem (1), (2) as $k \rightarrow 0$ (regular perturbation), as well as the singular perturbation if a parameter $\varepsilon \rightarrow 0$ is introduced into the equation as a multiplier for $u''(t)$.

MSC:

34G10 Linear differential equations in abstract spaces

Cited in **2** Documents

Keywords:

regular and singular perturbations; Euler-Poisson-Darboux equation; linear closed operator

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