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Asymptotic profiles for a wave equation with parameter-dependent logarithmic damping.

(English) [Zbl 1479.35089](#)

Math. Methods Appl. Sci. 44, No. 18, 14003-14024 (2021).

Summary: We study a nonlocal wave equation with logarithmic damping, which is rather weak in the low-frequency zone as compared with frequently studied strong damping case. We consider the Cauchy problem for this model in \mathbb{R}^n , and we study the asymptotic profile and optimal estimates of the solutions and the total energy as $t \rightarrow \infty$ in L^2 sense. In that case, some results on hypergeometric functions are useful.

MSC:

35B40 Asymptotic behavior of solutions to PDEs

35B05 Oscillation, zeros of solutions, mean value theorems, etc. in context of PDEs

35B45 A priori estimates in context of PDEs

35C20 Asymptotic expansions of solutions to PDEs

35L15 Initial value problems for second-order hyperbolic equations

35R09 Integro-partial differential equations

35S05 Pseudodifferential operators as generalizations of partial differential operators

Cited in **1** Review
Cited in **2** Documents

Keywords:

asymptotic profiles; logarithmic θ damping; optimal L^2 and energy decay; nonlocal wave equation

Full Text: [DOI](#) [arXiv](#)