

DECAY PROPERTIES FOR A GENERALIZED A SEMILINEAR EQUATION WITH FRACTIONAL DAMPING

ABSTRACT. In this work we study and asymptotic properties of global solutions for an initial value problem

Description. In this work we consider the Cauchy problem of a generalized second order evolution equation in \mathbb{R}^n given by

$$\begin{cases} \partial_t^2 u + (-\Delta)^\delta \partial_t^2 u + b(-\Delta)^\beta u + a(-\Delta)^\alpha u + (-\Delta)^\theta \partial_t u = 0, \\ u(0, x) = u_0(x), \quad \partial_t u(0, x) = u_1(x), \end{cases} \quad (1)$$

where $u = u(t, x)$ with $(t, x) \in]0, \infty[\times \mathbb{R}^n$, $n \geq 1$, $b, a > 0$, constants, $p > 1$ an integer and u_0, u_1 are the initial data. The exponents $\delta, \beta, \alpha, \theta$ and γ of the Laplacian operator are such that $0 \leq \delta \leq 2$, $\beta > \alpha$, $0 \leq \alpha \leq 2$, $0 \leq \theta \leq (2 + \delta)/2$.

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