

Blow-up of result in a nonlinear wave equation with delay and source term

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Abstract

In this paper we consider the initial boundary value problem for a nonlinear damping and a delay term of the form:

$$|u_t|^l u_{tt} - \Delta u(x, t) - \Delta u_{tt} + \mu_1 |u_t|^{m-2} u_t + \mu_2 |u_t(t - \tau)|^{m-2} u_t(t - \tau) = b |u|^{p-2} u,$$

with initial conditions and Dirichlet boundary conditions. Under appropriate conditions on μ_1 , μ_2 , we prove that there are solutions with negative initial energy that blow-up finite time if $p \geq \max\{l + 2, m\}$.

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