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Decay Properties for the Damped Wave Equation with Space Dependent Potential and Absorbed Semilinear Term

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Abstract

We consider the Cauchy problem for the damped wave equation with space dependent potential $V(x)u_t$ and absorbed semilinear term $|u|^{p-1}u$ in \mathbb{R}^N . Our assumption on $V(x) \sim (1 + |x|^2)^{-\alpha/2}$ ($0 \leq \alpha < 1$) still implies the diffusion phenomena and the decay rates of solutions are expected to be the same as the corresponding parabolic problem. In this

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