

On the energy estimates for the wave equations with decaying propagation speed

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Abstract:

We consider the energy estimates for the wave equation with time dependent propagation speed. It is known that the asymptotic behavior of the energy is determined by the interactions of the properties of the propagation speed: smoothness, oscillation and the difference from an auxiliary function. The main purpose of the article is that if the propagation speed behaves asymptotically as a monotone decreasing function, then we can extend the preceding results to allow faster oscillating coefficients. Moreover, we prove that the regularity of the initial data in the Gevrey class can essentially contribute for the energy estimate.

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