

REGULARITY RESULTS FOR DEGENERATE WAVE EQUATIONS IN A NEIGHBORHOOD OF THE BOUNDARY

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Abstract

In this work we present a study for behavior, near the boundary point $x = 1$, of the weak and very weak solutions of a 1-dimensional degenerate wave equation. To develop this study, the L^2 norm of the solution will be analyzed in an ε -neighborhood of the boundary point $x = 1$. An analogous investigation has been considered before by Fabre and Puel for a class of n -dimensional nondegenerate wave equations. This results has a key role to achieve the exact boundary controllability as the limit of a sequence of internal controllability problems, set in ε - neighborhoods of the boundary, as $\varepsilon \rightarrow 0$.

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