Blow - up of solutions of wave equation with a nonlinear boundary condition and interior focusing source of variable order of growth

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Abstract

In this paper, being investigated an initial - boundary value problem for a one - dimensional wave equation with a nonlinear source of variable order and nonlinear dissipation at the boundary. The existence of a local solution of the problem under consideration is proved. Then the question of the absence of global solutions is investigated. Depending on the relationship between the order of growth of the nonlinear source and the nonlinear boundary dissipation, different results are obtained on the blow - up of weak solutions in a finite time interval.

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