

## عنوان مقاله:

Asymptotic Approximations of the Solution for a Traveling String under Boundary Damping

## محل انتشار:

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## خلاصه مقاله:

Transversal vibrations of an axially moving string under boundary damping are investigated. Mathematically, it represents a homogenous linear partial differential equation subject to nonhomogeneous boundary conditions. The string is moving with a relatively (low) constant speed, which is considered to be positive. The string is kept fixed at the first end, while the other end is tied with the spring-dashpot system. The asymptotic approximations for the solution of the equations are obtained by application of two time-scale perturbation technique and the characteristic coordinates method. The vertical displacement of the moving system under boundary damping is computed by using specific initial conditions. It is shown that how the introduced damping at the boundary may affect the vertical displacement of the axially moving system.

## کلمات کلیدی:

Axially moving string, Boundary damping, Two time-scale perturbation, Characteristic coordinates

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