

New Analytical Approach for Investigation of Non-Stationary Dynamics of Media with Moving Inhomogeneities

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Non-stationary processes in various elastic media with moving inclusions like material point bodies, phase boundaries, defects, are under investigation in this paper. The law of motion for an inclusion is considered to be unknown. Small strain approximation is used. The interaction of inhomogeneities with the continuum is described by configurational forces (internal and external). This statement leads to necessity to consider nonlinear (because configurational force is a quadratic quantity) non-stationary problems. A new asymptotical approach for problems of such kind is suggested. The solution of simplest model problem (a point mass moving along a string on an elastic foundation) is given and discussed.

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