

THE CLOSED EXPRESSION OF THE RESPONSE
OF A SHEAR BUILDING TO A TRANSIENT
SINUSOIDAL EXCITATION

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ABSTRACT

The behaviour of an undamped rod clamped at one end under the action of a transient sinusoidal acceleration is investigated. It is assumed that the deformation of the rod is mainly caused by shear. The solution of the differential equation of the motion which satisfies both, the initial and the boundary conditions is given in a series expansion and in a closed expression. The latter is obtained by properly enlarging the method given by D'Alembert to solve the equation of the vibrating string. Formulae for the case of resonance and for the seismic load are also given.

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