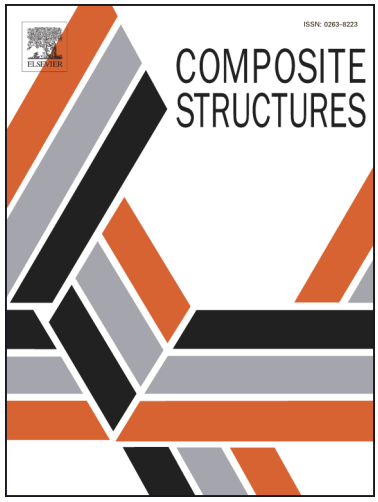

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A simple first-order shear deformation shell theory for vibration analysis of composite laminated open cylindrical shells with general boundary conditions

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Abstract

This paper presents, for the first time, a simple first-order shear deformation shell theory (S-FSDST) for free and transient vibration analysis of composite laminated open cylindrical shells with general boundary conditions. By partitioning the radial displacement into bending and shear components, the present theory contains only four unknowns and can be regarded as an enhanced classical shell theory with the consideration of the effects of shear deformation and rotary inertia terms. The governing equations and appropriate boundary conditions are derived from Hamilton's principle. To obtain natural frequencies and transient responses accurately, the method of reverberation ray matrix (MRRM) is employed based on the obtained exact closed-form solutions. The artificial spring technology is adopted to achieve the general boundary conditions. Accordingly,

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