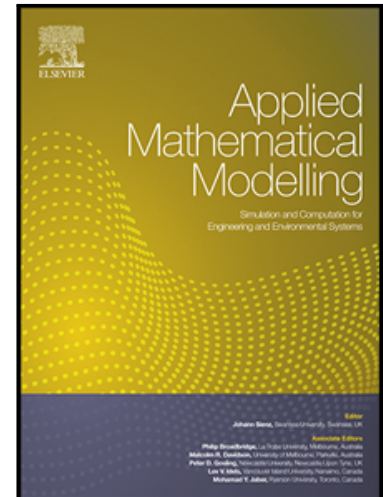


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Analytical analysis of free vibration of non-uniform and non-homogenous beams: asymptotic perturbation approach

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Highlights

- Perturbation method is proposed to solve differential equation with variable coefficients.
- Analytical formula is derived for frequencies of non-uniform and non-homogeneity beams.
- Laminated beam and axially functional graded beam are analyzed.
- Different boundary conditions are considered.
- Solution is validated by the FEM and the published references.

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