

## Accepted Manuscript

An energy finite element method for high frequency vibration analysis of beams with axial force

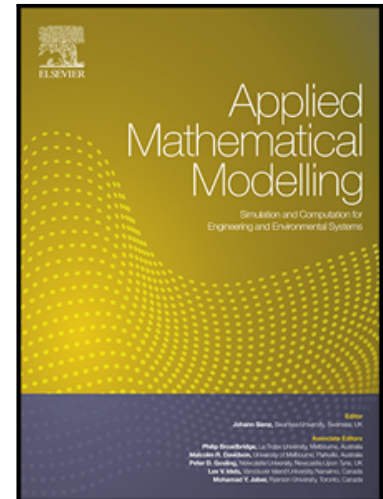
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**Highlights**

- An energy finite element method for beams with axial force is developed.
- The present method is convenient and valid for high frequency vibration analysis.
- Energy density governing equation is established considering effects of axial force.
- Impedance of beams with axial force is derived for the present method.
- Large axial tensile force has significant effects on energy density response.

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