Axial-bending coupled vibration analysis of an axially-loaded stepped multi-layered beam with arbitrary boundary conditions

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Highlights

- Both free and forced vibration of non-uniform beams are studied analytically.
- Axial-bending coupled vibration is taken into consideration.
- Arbitrary boundary conditions are integrated into the final equation.
- The Poisson's effect of the generally layered beam is taken into consideration.
- Numerical studies show the reliability and efficiency of the proposed method.