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Analytical study on dynamic responses of a curved beam subjected to three-directional moving loads

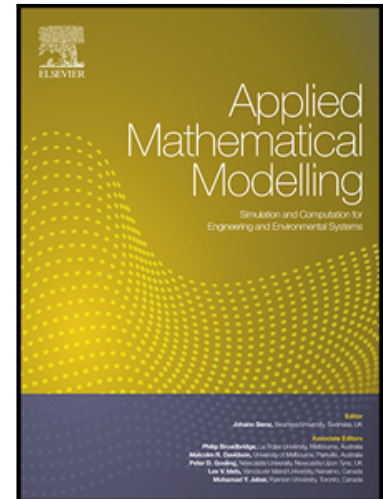
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Highlights

- Analytic solutions for vertical, torsion, radial and axial responses of a curved beam under 3D moving loads are derived.
- Higher-mode truncation, damping ratio, and the coupling of vertical-torsion and radial-axial are considered.
- Conditions of resonance and cancellation are formulated for vertical, torsion, radial and axial motions of the beam.
- The influences of parameters on curved bridge midpoint vibration are explored.

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