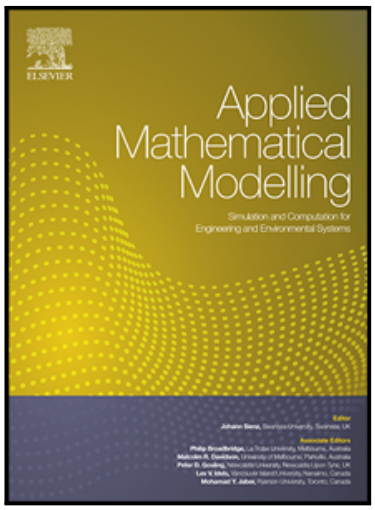

Development of a high-order compact finite-difference total Lagrangian method for nonlinear structural dynamic analysis

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Highlights

- A compact finite-difference total Lagrangian method (CFDTLM) is developed for nonlinear structural dynamics analysis.
- The large deformation of elastic structures for Hookean and neo-Hookean materials is accurately simulated using the CFDTLM.
- The CFDTLM is extended and assessed for simulating thermo-elastodynamic problems.
- The numerical solution procedure adopted is simpler than high-order finite volume and finite element formulations.
- The solution methodology proposed is accurate for simulating nonlinear structural dynamics problems.