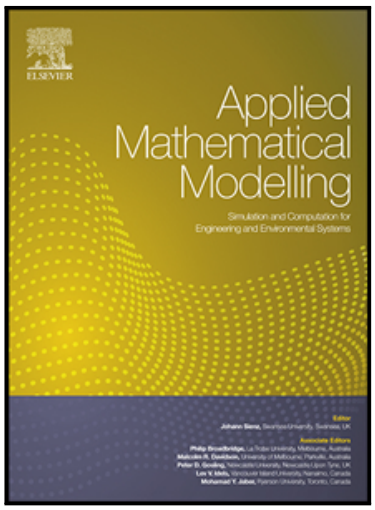

Precise integration method for natural frequencies and mode shapes of ocean risers with elastic boundary conditions

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Highlights:

- A relatively new precise integration method for modal analysis of ocean risers is developed.
- It is suitable for ocean risers with variable tension and cross-section and various boundaries.
- The results are proved to be very accurate by comparing the analytical solution and literature.
- Computing time is quite short and the method exhibits good convergence and high efficiency.
- Effects of elastic constraints simulating damaged and undamaged boundaries on natural frequencies and mode shapes are investigated.