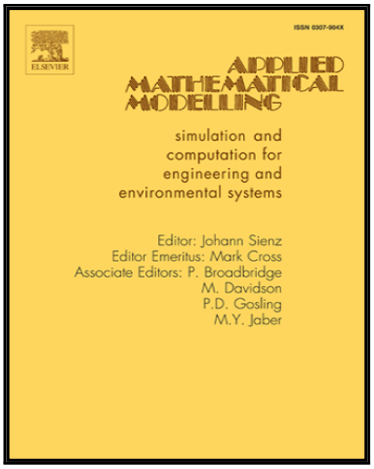

The spectral element method as an efficient tool for transient simulations of hydraulic systems

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Highlights

- Application of the spectral element method to transient hydraulic system simulations.
- Derivation of the numerical method and discussion of important boundary conditions.
- Careful numerical convergence analysis and simulations of water hammer effects.
- Simulation of pressure waves in a large-scale pumped-storage power plant.
- Low-dimensional semi-discretization suitable for optimal and model predictive control.