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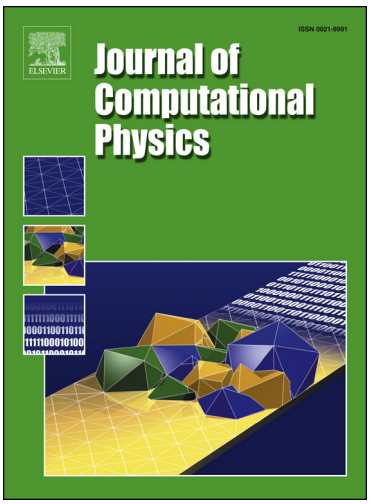

Finite differences on staggered grids preserving the port-Hamiltonian structure with application to an acoustic duct

Vincent Trenchant, Hector Ramirez, Yann Le Gorrec, Paul Kotyczka

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Highlights

- A structure preserving spatial discretization method which preserves the port-Hamiltonian systems for open systems governed by the wave equation is presented.
- The method is extended in 2D for rectilinear and regular triangular meshes.
- Time integration is performed using implicit midpoint rule and numerical results are presented in open and closed loop in the case of boundary control.
- The advantage of the regular triangular mesh over the rectilinear one regarding isotropy is discussed.