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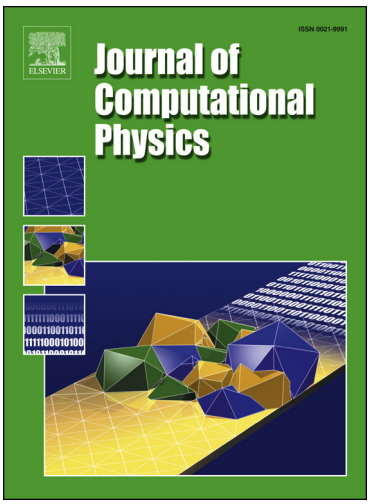

Simulation of high density ratio interfacial flows on cell vertex/edge-based staggered octree grids with second-order discretization at irregular nodes

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Highlights

- A numerical code to solve the Navier-Stokes equations for unsteady 3D two-phase flows with large density ratios is presented.
- The conservation equations are discretized on an adaptive octree grid with a novel cell vertex-edge variable storage arrangement.
- New discretization schemes at the irregular grid nodes, with different degrees of accuracy, efficiency and simplicity of implementation, are proposed.
- The accuracy and efficiency of the results obtained with the proposed methods compare favorably with results of previous works.
- The ability of the code to accurately simulate complex interfacial phenomena is demonstrated by comparing with experimental results.