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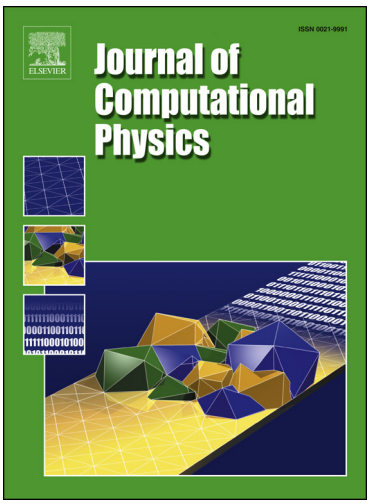

A novel geometry-adaptive Cartesian grid based immersed boundary–lattice Boltzmann method for fluid–structure interactions at moderate and high Reynolds numbers

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Highlights

- An adaptive IB-LBM-LES method is developed.
- The IBM feedback coefficient is derived and approximated.
- The Lagrangian force is divided into predicted flow and IB acceleration tractions.
- The method can perform weakly coupled FSI simulations for small mass ratios.
- Several validation cases are conducted.