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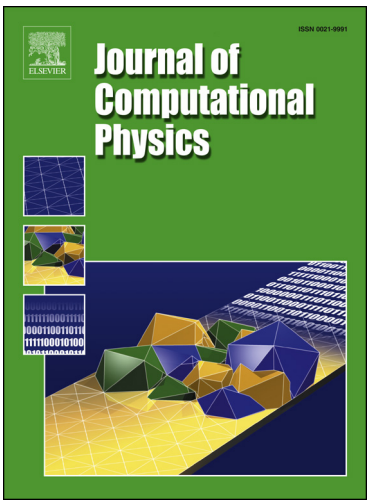

Artificial viscosity in Godunov-type schemes to cure the carbuncle phenomenon

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Highlights

- It is external with respect to a specific Riemann solver.
- It is consistent with the underlying physical principles (the Euler equations are not distorted, but complemented to Navier–Stokes-type equations).
- The dissipation is introduced in shock layers only, without any impact on the scheme quality in the flow regions free of the risk of carbuncle instability.
- Many of the existing CFD codes support simulations in the framework of both Euler and Navier–Stokes equations; this approach will be easy to implement within such codes.