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Optimized low-dissipation and low-dispersion schemes for compressible flows

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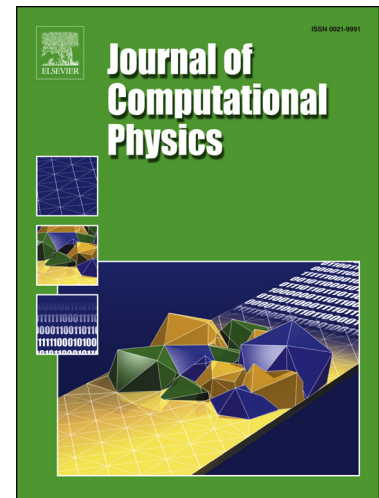
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Highlights

- A class of optimized schemes, including linear schemes and non-linear schemes, are proposed for interpolation-based finite difference method.
- The dispersion and dissipation properties of linear schemes can be controlled independently.
- Extending the optimized linear schemes into the non-linear ones makes the method accurate and robust.
- In low-speed turbulence or aeroacoustics, the linear schemes show better results than non-linear ones.
- For shock-embedded flows, the optimized non-linear schemes can produce high-resolution results in flows with both multi-scale structures and discontinuities.

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