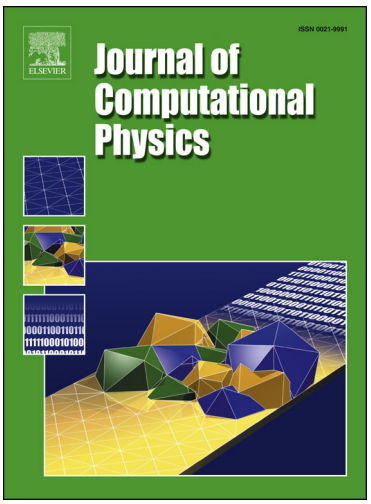
# Accepted Manuscript




An optimization-based approach for high-order accurate discretization of conservation laws with discontinuous solutions

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## Highlights

- An optimization approach for high-order accurate resolution of shocks is proposed.
- Element faces of DG method align with unknown location to accurately represent shock.
- A new monotonic discontinuity indicator makes optimization-based tracking practical.
- Full space optimization solver critical for robustness of proposed tracking method.
- Method accurately resolves supersonic, 2D flow with as few as 2000 DOFs.

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