Title: Low-Dissipation Central-Upwind Schemes
Author: Alexander Kurganov 1

Abstract:

Central-upwind schemes are Riemann-problem-solver-free Godunov-type finite-volume schemes, which are, in fact, non-oscillatory central schemes with a certain upwind flavor: derivation of the central-upwind numerical fluxes is based on the one-sided local speeds of propagation, which can be estimated using the largest and smallest eigenvalues of the Jacobian.

I will introduce new low-dissipation central-upwind schemes, which utilize a subcell resolution approach to reduce the amount of numerical dissipation present in central-upwind schemes without risking large spurious oscillation. Applications to several hyperbolic systems of conservation laws will be discussed.

1 Southern University of Science and Technology