

CASTS Talk

High Resolution Finite Compact Difference Scheme for Hyperbolic Conservation Laws

2013 - 05 - 15 (Wed.)

10:00 - 12:00

308, Mathematics Research Center Building (ori. New Math. Bldg.)

A finite compact (FC) difference scheme requiring only bi-diagonal matrix inversion is proposed by using the known high-resolution flux. Introducing TVD or ENO limiters in the numerical flux, several high-resolution FC-schemes of hyperbolic conservation law are developed, including the FC-TVD, third-order FC-ENO and fifth-order FC-ENO schemes. Boundary conditions formulated need only one unknown variable for third-order FC-ENO scheme and two unknown variables for fifth-order FC-ENO scheme. Numerical test results of the proposed FC-scheme were compared with traditional TVD, ENO and WENO schemes to demonstrate its high-order accuracy and high-resolution.



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