Harten, Ami
ENO schemes with subcell resolution. (English) Zbl 0696.65078
J. Comput. Phys. 83, No. 1, 148-184 (1989).

The author gives an idea for constructing an essentially non-oscillatory (ENO) finite difference scheme for problems containing the equation of continuity in the following form: $u_t + f(u)_x = 0$, $u(0, x) = u_0(x)$. The construction is based on the observation that cell averages of a discontinuous piecewise-smooth function contain information about the location of the discontinuity within the cell.

The reader can find a detailed description of the main idea of ENO schemes and its generalization for second and higher order of accuracy. There is an application for Euler equation of gas dynamics. One can find a very interesting numerical example demonstrating the efficiency of proposed scheme.

Reviewer: Gy.Molnárka

MSC:

65M06	Finite difference methods for initial value and initial-boundary value problems involving PDEs
35L65	Hyperbolic conservation laws
76N15	Gas dynamics, general

Cited in **2** Reviews
Cited in **102** Documents

Keywords:

essentially non-oscillatory finite difference scheme; equation of continuity; Euler equation; gas dynamics; numerical example

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