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**Efficient implementation of essentially nonoscillatory shock-capturing schemes. II.** (English)

Zbl 0674.65061

J. Comput. Phys. 83, No. 1, 32-78 (1989).

This paper presents simplifications and improvements to the essentially nonoscillatory schemes for conservation laws developed in an earlier work by the same authors [ibid. 77, 439-471 (1988; Zbl 0653.65072)]. The method is applicable to systems of equations in several spatial dimensions. The simplifications involve the use of numerical fluxes instead of cell averages in the approximation of spatial derivatives. Better shock capturing methods are developed. Improved methods for sharpening contact discontinuities are also incorporated. The results of many computations are presented, and they are impressive.

Reviewer: [G.Hedstrom](#)

**MSC:**

- [65M20](#) Method of lines for initial value and initial-boundary value problems involving PDEs
- [76N15](#) Gas dynamics (general theory)
- [35L65](#) Hyperbolic conservation laws

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**Keywords:**

[efficient implementation](#); [Runge-Kutta time discretizations](#); [shocks](#); [contact discontinuities](#); [nonoscillatory schemes](#); [conservation laws](#); [systems](#); [shock capturing methods](#)

**Full Text:** [DOI](#)

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