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High-order essentially nonoscillatory schemes for Hamilton-Jacobi equations. (English)

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The first author and *J. A. Sethian* [J. Comput. Phys. 79, No. 1, 12- 49 (1988; Zbl 0659.65132)] constructed essentially nonoscillatory (ENO) schemes for the Hamilton-Jacobi equation and its perturbations, arising in front propagation problems.

In this paper a more general ENO scheme construction procedure is provided mainly by considering different multidimensional monotone building blocks. The schemes are numerically tested on a variety of one- and two-dimensional problems including a problem related to control optimization, checking the accuracy in smooth regions, resolution of discontinuities in derivatives, and the phenomenon of convergence to viscosity solutions.

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MSC:

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