Kovenya, V. M.

Splitting methods for the numerical solution of multi-dimensional problems of gas dynamics.
(Russian) Zbl 0955.76066
Sib. Zh. Vychisl. Mat. 3, No. 3, 271-280 (2000).

In order to construct efficient numerical algorithms for solving problems of gas dynamics and aerodynamics with governing Euler equations, the author uses the method of splitting of the corresponding operators according to physical processes and spatial directions. More precisely, the author constructs minimum dissipation schemes for numerical solution of Euler equations written in conservative and nonconservative form, and studies their properties. Together with minimum dissipation properties (comparable with those of Beam-Warming scheme), the algorithms presented require a smaller amount of operations per grid node.

Reviewer: V.Grebenev (Novosibirsk)

MSC:

76M20 Finite difference methods applied to problems in fluid mechanics
76N15 Gas dynamics (general theory)

Keywords:

conservative form; multi-dimensional problems; Euler equations; minimum dissipation schemes; nonconservative form

Full Text: Link