

Munz, C.-D.; Schneider, R.; Gerlinger, O.

The numerical approximation of a free gas-vacuum surface. (English) [Zbl 0874.76057](#)

Hebeker, Friedrich-Karl (ed.) et al., Numerical methods for the Navier-Stokes equations. Proceedings of the international workshop held, Heidelberg, Germany, October 25-28, 1993. Braunschweig: Vieweg. Notes Numer. Fluid Mech. 47, 181-190 (1994).

Summary: We present an approach to the tracking of a gas-vacuum interface within a fixed Eulerian grid in conjunction with a scheme in conservation form. The tracking algorithm gives an estimation of the interface motion. This information is used to modify the numerical flux at the vacuum boundary to prevent the numerical smearing, and to identify the vacuum region. The numerical method is applied to grid zones containing gas only.

For the entire collection see [\[Zbl 0837.00018\]](#).

MSC:

76M20 Finite difference methods applied to problems in fluid mechanics

76N10 Existence, uniqueness, and regularity theory for compressible fluids and gas dynamics

Keywords:

[numerical flux at vacuum boundary](#); [fixed Eulerian grid](#); [scheme in conservation form](#)