An adaptive method for a model of two-phase reactive flow on overlapping grids[1]

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A two-phase model of heterogeneous explosives is handled computationally by a new numerical approach that is a modification of the standard Godunov scheme. The approach generates well-resolved and accurate solutions using adaptive mesh refinement on overlapping grids, and treats rationally the nozzling terms that render the otherwise hyperbolic model incapable of a conservative representation. The evolution and structure of detonation waves for a variety of one and two-dimensional configurations will be discussed with a focus given to problems of detonation diffraction and failure.

[1]In collaboration with A.K. Kapila, Department of Mathematical Science, Rensselaer Polytechnic Institute.