Stability of a CJ Detonation Wave
of the Reactive Navior-Stokes Equations

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We study the nonlinear stability of a planar gaseous Chapman-Jouguet (CJ) detonation wave of the reactive Navior-Stokes Equations. A planar CJ detonation is the one that propagates at the minimum speed among all planar detonations. The stability mechanisms of the CJ detonation are different from those of the strong detonations due to the degeneracy of the CJ detonation wave. It is shown that the Cauchy problem solution exists globally and that the solution converges uniformly to a CJ detonation wave as $t \to +\infty$ provided that the initial data is a suitable small perturbation of the CJ detonation wave in the limit of small resolved heat release (SRHR).