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The Cellular Structure and Its Tracks of a H2/O2/Ar Detonation Waves

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In this paper, the cellular structure and its tracks of a two-dimensional ordinary detonation wave in low pressure H_2/O_2/Armixture simulated with detailed chemical reaction model, high order scheme and high resolution grids are investigated. The regular cellular structure is produced by introducing perturbations in the reaction zone of a steady one-dimensional de tonation wave. The calculated structure shows a double-Mach like strong type configuration, in which strong ignition is observed behind the transverse wave. It is also observed that there are three different structure tracks associated with different triple points or the kink on the transverse wave. The comparisons with previous experiments indicates the presence of strong structure for an ordinary detonation.

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