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SIMULATION OF SUPERSONIC COMBUSTION IN AN OBLIQUE SHOCK WAVE

Abstract

In this work, a two-dimensional computational simulation of combustion processes in an oblique shock wave arising from the interaction of an incoming flow of a combustible mixture with a wedge was carried out. A stoichiometric hydrogen-air mixture at high Mach numbers was considered. The simulation was carried out using averaged Navier-Stokes equations with a two-parameter k-w Wilcox turbulence model. The numerical model of gas dynamics was based on the methods MUSCL, AUSMP and MacCormack. A series of computational calculations with different Mach numbers of the incoming gas flow was carried out. Various wave configurations were obtained depending on the velocity of the incoming flow after stabilization of the processes in computational domain.

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