

SHOCK-TO-DETONATION TRANSITION IN A TUBE WITH SHAPED CENTRAL BODY

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To realize fast deflagration-to-detonation transition (DDT) in a high-intensity pulse detonation burner or pulse detonation engine operating on methane – air mixture, it has been suggested to insert a properly shaped central body into a detonation tube. For optimizing the shape of the axisymmetric central body aimed at minimizing the DDT run-up distance and time, a systematic two-dimensional numerical simulation of shock-to-detonation transition in the inviscid reactive flow was performed. As a result of the study, the optimal geometrical parameters of the central body were obtained for further experiments.

ПЕРЕХОД УДАРНОЙ ВОЛНЫ В ДЕТОНАЦИЮ В ТРУБЕ С ПРОФИЛИРОВАННЫМ ЦЕНТРАЛЬНЫМ ТЕЛОМ