INVESTIGATION OF NONSTEADY COMBUSTION BY THE INTERFERENCE METHODS

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It is shown, that on dynamics of change of an interference picture in time it is possible to investigate non-stationary gas dynamics parameters of flows arising at combustion. The problem by definition of specific impulse and jet force combustions created by products of solid propellants is considered at their ignition. According to interference measurements the response of a zone of combustion of solid propellants on reset of laser radiation is calculated. The received results well enough correlate with experimental results received by other methods.

The tomograpfic problem by definition of scalar potential of density of an impulse of products of combustion is formulated. It is shown, that, using these results it is possible to restore the fields of velocities and pressures. By means of the given method on experimental data received from interference measurements fields of velocities and pressure for an initial phase of ignition of combustible gas mixture are restored.

The common statement of problem on recovery of fields of velocities and pressures according to interference measurements is formulated. It is offered to use the equations of motion of a gas medium for the approximate definition of vortical components of velocity.

Keywords: combustion, interferometry, fields of velocities and pressure