

MODEL OF VARIGRAINED PARTICLE STREAM MOVING BY HYPERSONIC COMBUSTION MATERIALS INVESTIGATION

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Mathematical model of a motion of varigrained particles in combustion-gas stream of hypersonic stream generator has been developed. Dependences of impulse and energetic characteristics of inoverexpanded two-phase from process parameters are received. Research influence of gas stream generator parameters on particles kinetic energy carried out.

Mathematical model, stream, particles, speed, product of combustion, dependence

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References

1. Janenko N.N., Solouhin R.N., Papyrin A. N. and Fomin V.M. Supersonic Two-phase Flow in Non-equilibrium Velocity State of Particles. Novosibirsk: “Nauka”, 1980.
2. Abramovich G.N. Applied Gas Dynamics. Moscow: “Nauka”, 1969.
3. Bulanova E.A., Pervishin A.N. Impulse and Energy Responses of Underexpanded Two-phase Combustion Products Jets. SSAU Reporter №2 (10) part 2. – Samara: SSAU, 2006. 352-357.