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The complex physical-mathematical model of a turbulent combustion gas subsonic jet flow in a space filled by air is proposed. The model consists of a two-parametric turbulent viscosity model and a diffusion combustion model. In order to describe the boundary layer in the physical processes under investigation, averaged equations are used. The comparison of results found by the proposed model and experimental data is realized and discussed.

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**MSC:**

- 76N15 Gas dynamics, general
- 76K05 Hypersonic flows
- 76B25 Solitary waves for incompressible inviscid fluids
- 76F06 Transition to turbulence
- 80A20 Heat and mass transfer, heat flow (MSC2010)
- 68U20 Simulation (MSC2010)

**Keywords:**

- gas dynamics, general; hypersonic flows; transition to turbulence; wakes; jets; mass transfer; heat transfer; heat flow; simulation

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