Computational solution of gas-dynamics and heat exchange conjugated problems for air intake lattice with anti-icing system

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The work is devoted to modeling of coupled processes of flowing around by cold air and heat-exchange between the flow and a structure of intake lattice with anti-icing heating system. The simulation is realized with software complex Sigma developed by Computational Mathematics and Mathematical Physics Department of Bauman Moscow State Technical University. The parametrical numerical investigation has been conducted for regimes of flowing around and heat exchange at different speeds and temperatures of the flow, that allowed us to calculate the heating system power ensuring the lattice structure temperature in a given regime. The developed method and results of numerical simulation may be applied for designing the anti-icing systems including sea ships exploited under arctic conditions.

Keywords: *system anti-icing, air intake lattice, computational modeling, numerical modeling, conjugated problems of gas-dynamics and heat exchange.*

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