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# Optimizing the aerospace system parameters by means of the CFD-modelling

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*The aerospace system is based on the principle of rocket launch into low orbit. This three-stage system consists of the subsonic carrier aircraft, hypersonic booster aircraft and aerospace plane. To improve the aerodynamic efficiency and flight performance of the aerospace system the booster aircraft design parameters have been optimized for three types of fuel (hydrogen, methane and kerosene jet fuel). We have calculated the streamlining of the assembled aerospace system and its stages. The air flow motion was simulated by the solution of the Navier—Stokes equation using the turbulent model Menter SST  $k-\omega$ . We have carried out the comparison with the available data to validate the numerical procedures.*

**Keywords:** alternative fuel, aerospace system, conceptual design

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