

# Numerical Methods in Propulsion System Design

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## ABSTRACT

Report is devoted to place and role of numerical simulation in design of rocket propulsion systems. In introduction advanced solutions in liquid propellant rocket engines design are presented. Further essence of design process described briefly. The central place of method of solution of direct problem in design process was shown. Numerical simulation for solving direct problem of fluid dynamic was used as the alternative to theoretical and experimental approaches. Main features of numerical models of processes in propulsion systems were observed. Some results of simulation and (or) design of different types of chemical propulsion system were presented also. The combined rocket engine, rocket engine with injection of after-turbine gas into supersonic part of the nozzle, solid propellant engine and hybrid propulsion engine are under consideration.

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