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| Autoren | R. Groll, S. Reichel, T. Schadowski, H.J. Rath |
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| Abstract | <p>Future micro-satellite mission have to be planned for minimized fuel need with a maximum of specific impulse. Optimizing this specific Impulse of a thermo-electric micro-thruster with coupled methods of transsonic flow solvers and thermo-electric heating/plasma generating methods are an efficient way analyzing the thermo-fluid dynamic behavior of the thrust efficiency depending on the generated heat inside an electric plasma generator.</p> <p>Future micro-satellite mission have to be planned for minimized fuel need with a maximum of specific impulse. Optimizing this specific Impulse of a thermo-electric micro-thruster with coupled methods of transsonic flow solvers and thermo-electric heating/plasma generating methods are an efficient way analyzing the thermo-fluid dynamic behavior of the thrust efficiency depending on the generated heat inside an electric plasma generator. This work deals with the computational and dimensional analytic modeling of the heat and production rate inside the investigated micro-thruster. Describing new ways of computational modeling trans-sonic electrothermal flows the efficiency of future micro thruster devices will optimized using parameter studies of computation simulation results before producing the first prototype.</p> |