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ON THE SELECTION OF SPACECRAFT PARAMETERS AND ITS APOGEE SOLID ROCKET ENGINE

The problem of a combined optimization of spacecraft design parameters and its apogee solid rocket engine for the orbital maneuver resulting in the spacecraft transfer from elliptic orbit into given circular orbit is examined. The problem is formulated as a problem of nonlinear mathematical programming with limitations in the form of equalities and differential constraints. Optimal values of spacecraft design parameters and its apogee solid rocket engine resulting in delivery of maximal payloads to given final circular orbit are determined considering requirements of a system approach to designing complicated systems.

Keywords: *apogee solid rocket engine, transfer orbit, final circular orbit, designed parameters, optimization.*

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