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RUSSIAN ORBITAL STATION: DESIGNING, DEVELOPMENT, AND UTILIZATION STRATEGY

Abstract

The paper describes innovative design approaches implemented during the development of the Russian Orbital Station (ROS) of the new generation, the characteristics of its functional capabilities in the course of operation in polar solar-synchronous near-Earth orbit are given, the fundamentals for the orbiting complex utilization strategy are presented, the focus of which is the sequential achievement of the maximum effectiveness (taking into account the gradual evolution of technologies) of execution of scientific research, goal-oriented programs, projects, and separate experiments. The prospects for improvement of the station as a universal platform for development of new technologies in space and establishing of robotized space industries, as well as enhancement of ROS's orbital infrastructure by increasing the alignment of robotic spacecraft interacting with ROS, including specialized free-flying serviced modules of the station, are shown. The new methodological and technological solutions implemented at development of the ROS project, and planned to be implemented during the station assembly and operation, considered as the technological basis for transition to the Moon exploration and implementation of the program of research flights beyond low Earth orbit, were analyzed.