

AUTOMATED SYSTEM FOR ORIENTATION AND STABILIZATION OF A SMALL SPACECRAFT

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Flight control of small spacecraft is one of the most time-consuming and complex components of the process of their operation. This is especially true for small spacecraft (SS), designed to implement modern space programs.

As follows from the existing experience of creation and operation of SS, the reliability and safety of their flight are determined not only by the perfection of the aircraft, but also the quality of methods, tools and flight control systems. In addition, the requirements for control systems affect the appearance and characteristics of the SS, its systems and onboard software. Therefore, the development of principles, methods, tools and flight control systems of the SS should be among the tasks that are solved during the operation of the spacecraft, such as:

- spacecraft flight control aimed at reliable achievement of its goal;
- logist SS support of flight, long-term operation outside the Earth;
- analysis of the current results obtained in the flight of the SS, and its current capabilities due to the condition and performance of the spacecraft.

As previous studies show, the features of SS flight require a new approach to ensure the necessary efficiency of the methods, tools and control systems used by SS, while eliminating existing shortcomings in the methodology and technology of this process.

To address these issues, automatic control systems with a status monitor can be created. The author has developed the principles of construction of such systems, which simplify the management task when performing the required tasks, reduce the load on the operator and expand its capabilities to solve other tasks.

References:

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