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SPACECRAFT FOR FUNDAMENTAL AND APPLIED SCIENTIFIC STUDIES

Abstract

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Since the origin of the space technologies, the scientific space researches are aimed at the solution of the fundamental problems of origin, evolution and further development of the Universe, Solar system and the Earth.

Since the sixties of the last century the prime company in Russia on design development of the space systems for the scientific applications is Lavochkin Association. The spacecraft developed by Lavochkin Association for the first time in human history performed the landing on the Moon, Mars and Venus, delivered in automatic mode the lunar samples to the Earth, performed imaging of the Moon and Venus surfaces, delivered the Rover scientific laboratory – Lunokhod on the Moon surface and etc.

Currently in Russia the research programs of Mars and its satellites, the Moon and Sun are in progress, as well as a new line of the activities in Russian space studies – research of Jupiter and its satellites. Obviously, it is of a paramount importance that these programs are built in the common well-targeted, successive program of the planetary researches.

Preliminary design studies implemented jointly with the institutes under the Russian Academy of Sciences and the prime research institutes of the space industry allowed generation of the concepts of interconnected research programs of the Moon, Mars, astrophysical studies with high level of unification of the technical solutions in order to mitigate the risks and to reduce the resources consumption. All these programs are based on the staged approach of the implementation with the balanced growth of the complicity of the technical solutions and the applied technologies.

Besides, the programs are being implemented with a large scale involvement of the international cooperation.