HUMAN SPACEFLIGHT SYMPOSIUM (B3)
Human and Robotic Partnerships in Exploration - Joint session of the Human Spaceflight and Exploration Symposia (6-A5.3)

Author: Mr. Aleksei Bogdanov
OJSC "SPA "Orbital systems", Russian Federation, info@rusandroid.com

ROBOTIZED COSMONAUTICS

Abstract

At present Russian piloted cosmonautics is developing behind current limitations caused by human factors which include period and conditions of work in outer space, risks connected with life and health of crewmembers, etc. To achieve progress in piloted cosmonautics it is necessary to make a set of innovative solutions which helps to decrease operating costs of manned space vehicle and overcome human factor constraints. The use of anthropomorphic robotic systems is one of such innovative solutions. At the present time the research of workability of anthropomorphic robotic complex on board of new generation piloted spacecrafts becomes relevant. The emerging technology considers development of anthropomorphic robotic complexes for operating robotization of cosmonaut performance under orbital flight conditions with realization of an opportunity of further integration into unpiloted space vehicles. Anthropomorphic robotic complexes (ARC) can be used on cosmic stations, on-planet bases and interplanetary complexes. This makes it possible to increase opportunities for development of revolutionary space vehicle types which operate in piloted and unpiloted modes. Robotization will change its functional capabilities and make it possible to intensify the human presence in outer space significantly. "FEDOR" anthropomorphic platform developed by SPA "Android technics" for flights as part of "Federation" Prospective Piloted Transport System in cooperation with S.P. Korolev RSC Energia and directed by ROSCOSMOS State Space Corporation is one of outstanding examples of the emerging technology. The first flight performed only by a robot (without any crewmembers) is planned to be realized in 2021.