

SPACE SYSTEMS SYMPOSIUM (D1)
Poster Session (P)

Author: Dr. Houde Liu
China Academy of Space Technology (CAST), China

Dr. Xueqian WANG
China Academy of Space Technology (CAST), China

Mr. Zonggao Mu
China

Prof. Bin LIANG
China Academy of Space Technology (CAST), China

Prof. Wenfu Xu
China

DUAL-ARM SPACE ROBOT SYSTEM DESIGN AND COORDINATION OPERATIONS
TECHNOLOGY RESEARCH**Abstract**

Robotic systems are expected to play an increasingly important role in future space activities with the development of space technology. One broad area of application is in the servicing, construction and maintenance of satellites and large space structures in orbit. Compared with a single-arm space robot, a dual-arm or multi-arm system has much more dexterity and flexibility, and can complete more complex tasks. Becoming an important development direction and trends of in-orbit service. The paper first analyzes the objectives of in-orbit mission by space robot and combined in the typical characteristics of the manipulation, then introducing the needs of space robot during the mission. On this basis of the research foundation, designed the initial scheme of dual arm space robot system, including the robot configuration, docking mechanism and manipulator configuration. Then, based on the robot system designed, the problem of coordinated operation is researched, including dual arms operation together (including capturing and non-capturing task), one arm is used for target capturing, and the other for keeping the base initially fixed. Finally, based on the goals of the autonomy capture task, simulation is studied, the results show that the feasibility of the dual arm space robot system and lay the foundation for the subsequent space robot technology on-orbit service.