

66th International Astronautical Congress 2015

SPACE POWER SYMPOSIUM (C3)
Space-Based Solar Power Architectures / Space & Energy Concepts (1)

Author: Ms. ZhengAi Cheng
Qian Xuesen Laboratory of Space Technology, China, alicecheng0518@126.com

Dr. Xinbin Hou
Qian Xuesen Laboratory of Space Technology, China, houxinbin@cast.cn
Dr. Xinghua Zhang
Qian Xuesen Laboratory of Space Technology, China, zxhroad@163.com
Mr. Lu Zhou
Qian Xuesen Laboratory of Space Technology, China, zhoulu007@gmail.com
Prof. Jifeng Guo
Harbin Institute of Technology, China, guojifeng@hit.edu.cn
Mr. Chunlin Song
Harbin Institute of Technology, China, sclin1217@163.com

IN-ORBIT ASSEMBLY MISSION OF SPACE POWER STATION

Abstract

Space Power Satellite(SPS) is a huge spacecraft which utilize solar power in space to supply electric power to electric grid.A huge symmetrical platform concept was given by China.Obviously it needs to be assembled in orbit, so it took modular design method and unitized docking system. An integrated assembly scheme use multi space robots aiming at this space solar station concept was represented.An overall mission design with supporting facilities as rockets,the transporter between orbits, space robots was introduced. The whole scheme was autonomous planned by program which can achieve the sequence planning of each subsystem, the route planning and the cooperating system of multi robots. By optimize the plan a scheme which cost least time and energy can be obtained. The huge space solar station can be built in orbit rapid efficient and reliable by this in-orbit assembly mission.