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SPACE POWER SYMPOSIUM (C3)
Space-Based Solar Power Architectures – New Governmental and Commercial Concepts and Ventures (1)

Author: Dr. Xinbin Hou
CAST, China, houxinbin@cast.cn

Dr. Li Wang
China Academy of Space Technology (CAST), China, wangli@cast.cn
Dr. Ming Li
China Academy of Space Technology (CAST), China, liming_cast@sina.cn

SPACE STATION - THE STRATEGIC OPPORTUNITY FOR THE DEVELOPMENT OF SPS IN CHINA

Abstract

As one of the most prospective space macro systemSolar Power Satellite(SPS), also named Space Based Solar Power(SBSP), is obtaining more attention in the world. In 2011, The International Academy of Astronautics (IAA) published a report——Space Solar Power: The First International Assessment of Space Solar Power: Opportunities, Issues and Potential Pathways Forward. An important international roadmap for Space Solar Power was presented in this paper. As a huge complicated satellite system, many key technologies, including large in-space structure, space assembly, space robot, solar power generation, power management and distribution, wireless power transmission, thermal management, and so on, need to be broken though in the future. The technology flight demonstrations in different lever, including component lever, subsystem lever and system level, need to be carried on in space. LEO is the most important orbit to demonstrate those technologies. Space station, as an important space infrastructure, is fitted for these demonstrations very well.

Shenzhou8 spacecraft successfully completed the rendezvous and docking test with Tiangong-1 space module on November 3, 2011. The success marks that China's Manned Space Engineering has achieved an important milestone and set a sound foundation for the later development of space station. China's manned space station project has been officially initiated on October 27, 2010. The construction of a state-level large scale long-term space laboratory with involvement of human will be established around 2020. The space station will consist of several experiment modules and will be an important strategic opportunity for the technologies development of SPS in China. In this paper, the rough roadmap and technology character of Space station will be presented. By analyzing the key technologies of SPS, some technology demonstration projects utilizing space station will be suggested.