

SPACE POWER SYMPOSIUM (C3)  
Advanced Space Power Technologies and Concepts (3)

Author: Mr. Tatsuhito Fujita  
Japan Aerospace Exploration Agency (JAXA), Japan, fujita.tatsuhito@jaxa.jp

Mr. Daisuke Joudoi  
Japan Aerospace Exploration Agency (JAXA), Japan, joudoi.daisuke@jaxa.jp  
Prof. Susumu Sasaki  
Japan Aerospace Exploration Agency (JAXA), ISAS, Japan, sasaki.s@apost.plala.or.jp

OVERVIEW OF STUDIES ON LARGE STRUCTURE FOR SPACE SOLAR POWER SYSTEMS (SSPS)

**Abstract**

Japan Aerospace Exploration Agency (JAXA) has been conducting studies on Space Solar Power Systems (SSPS) using microwave and laser beams since FY1998. Large structure assembly is one of the most critical technologies for realizing SSPS. Large structure of kilometer-size must be constructed on orbit for the SSPS practical models. We have been studying how to assemble a structure of 100m size like mirror and panel for antenna and solar array on orbit as a middle target before the study of kilometer-size structure. As the result of trade-off study on the style and assembling method of large structure for SSPS we selected deployable truss structures for generator and transmitter, and inflatable truss structures for large reflector. We are preparing for ground demonstration of assembling technology for deployable truss structures and carried out test of each equipments for demonstration. We carried out deploying and hardening examination of inflatable tube in order to get the basic characteristic data. And we made trial model of thermal structure model for sandwich panel of generator and transmitter in order to aim at weight reduction of sandwich panel. We analyzed the rate of gathering solar light in large reflector from bending of structure by thruster using the distribution of illumination in segment mirror we analyzed. This paper shows outline of each research.