

IAF SPACE POWER SYMPOSIUM (C3)  
Space Power System for Ambitious Missions (4)

Author: Mr. Shankar Bhattarai  
Chosun University, Korea, Republic of, shankar@chosun.kr

DEVELOPMENT OF STANDARD DEPLOYABLE SOLAR PANEL MODULE FOR CUBESAT  
APPLICATION**Abstract**

Deployable solar panel have a long history in space industries. However, holding and release mechanism used in a big satellites are not equally applicable and suitable for CubeSat standard. Thus, in this work, a burn wire triggering type holding and release mechanism was developed for the use of 3U CubeSat deployable solar panel. The mechanism is based on a nichrome burn wire cutting method; although it provides a high loading capability, multi-plane constraints, reliable releasing the holding constraint, and handling simplicity during the tightening process of nylon wire. A demonstration model of 3U solar panel module was fabricated and functionally tested at various test conditions to validate the effectiveness of the design. The structural safety of the solar panel combined with the mechanism in a launch vibration environment was verified through the sine and random vibration tests at qualification level.