

IAF SPACE POWER SYMPOSIUM (C3)
Solar Power Satellite (1)

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RELIABLE DESIGN AND VERIFICATION FOR SPACE SOLAR POWER APPLICATION

Abstract

This paper introduces the reliable design and verification for high efficiency solar cell to be used in space. High reliability and long life span is the demand for development of space solar power application. The use of high efficiency multiple junction solar cell and low density solar panel structure will be the trend of future development. This paper gives a high efficiency multiple junction solar cell with semi-rigid panel strategy. Experiments results validates the design is feasible. From the analysis and experiment results, it is can be seen that semi-rigid panel has the higher ESD threshold than rigid panel, which is helpful for the ESD design. Moreover, semi-rigid panel tends to have higher radiation than the rigid panel, which is severe to the anti-radiation design. The reliable design and verification methods could be a useful sample for the further development of space solar power application.