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RESEARCH OF THE AM0 CALIBRATION TECHNOLOGY FOR MULTI-JUNCTION SPACE SOLAR
CELL**Abstract**

The technology of multi-junction space solar cell has a particular rapid development in China. Triple-junction solar cell has been widely used in space missions. The more efficient 4J & 5J solar cells are also in the technology research stage. Testing the space solar cell photovoltaic performance need to use the AM0 standard solar cell to calibrate the spectral irradiance distribution of solar simulator in the laboratory. But the ground level sunlight or indoor calibration technique has met lots of difficulties, not only in theory but in practice. Shanghai Institute of Space Power-Sources(SISP) had led relative institutions into the research of space AM0 calibration technology. The high-altitude balloon system for AM0 calibration has been fabricated. It is mainly composed by balloon, solar cell panel, sun tracker and loading basket. It can test 30-way multi-junction solar cell short-circuit current at the same time. In sep 2012, the first multi-junction solar cell high-altitude balloon flight calibration test of our country has been implemented in Nimenggu. The balloon which carried the calibration model flew to the 32km high altitude, and the loading basket has been retrieved successfully after the test. This program will serve the AM0 solar cell space calibration, and make efforts to the development & application of the multi-junction space solar cell.