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EXPERIMENTAL INVESTIGATION ON THE DAMAGE CHARACTERISTIC OF SOLAR ARRAY  
UNDER MILLIMETER SIZE ORBITAL DEBRIS HYPERVELOCITY IMPACT**Abstract**

The damage characteristic of solar array under millimeter size orbital debris hypervelocity Impact were carried out by two-stage light gas gun, the impact velocity ranging from 3-7km/s. The mechanical damage equation and the variation of volt-ampere characteristic of solar array were established through analyzing the damage characteristic, damage modes, boundary effect, open-circuit voltage, short-circuit current, and maximum output power. According to the experiments results, the life of the solar array for a given spacecraft was predicated, and the results shows that the millimeter size orbital debris has little effect on the life, unless the whole solar array was short circuit.