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TEMPERATURE HOMOGENIZATION DESIGN AND ANALYSIS FOR THERMAL RADIATOR IN  
SPACE

**Abstract**

Spacecraft works in vacuum environment, and thermal radiation is the critical path of spacecraft heat dissipation. Radiator is an important component of spacecraft thermal control system. Optimization radiator design and improve radiation efficiency are significant works in spacecraft thermal control system design. In order to optimize the design of space radiator, heat transfer is analyzed for the radiator base on the theory. When the radiator temperature is more homogeneous, the radiator average temperature is lower, and the radiator heat dissipation is more efficient. Two radiators are designed and compared. The results show, the radiator, on its surface a network of heat transfer is build by heat pipes and fluid Loop, its homogenization of surface temperature and capability of heat dissipation are improved, the temperature of fluid loop system is down, and the heat transfer of radiator is optimized.