

SPACE PROPULSION SYMPOSIUM (C4)
Nuclear Propulsion and Power (7.-C3.5)

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ADVANCED RADIOISOTOPE HEAT SOURCE & PROPULSION SYSTEMS FOR PLANETARY
EXPLORATION

Abstract

The exploration of planetary surfaces and atmospheres may be enhanced by increasing the range and mobility of a science platform. Fundamentally, power production and availability of resources are limiting factors that must be considered for all science and exploration missions.

A novel power and propulsion system is considered and its subsystems are discussed with reference to a long-range Mars surface exploration mission with in-situ resource utilization. Significance to applications such as sample return missions is also considered. Key material selection, radioisotope encapsulation techniques and challenges are presented.