"Microfabricated Thermoelectric Generator Devices for Integrated High Voltage Power Sources"

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Deep space missions have a strong need for compact, high power density, reliable and long life electrical power generation and storage under extreme temperature conditions. The planned development of much smaller spacecrafts incorporating a variety of micro/nanodevices and miniature vehicles will require novel, reliable power technologies. It is also expected that such micro power sources could have a wide range of terrestrial applications, in particular when the limited lifetime and environmental limitations of batteries are key factors. Advanced solid-state thermoelectric combined with radioisotope or waste heat sources and low profile energy storage devices are ideally suited for these applications. Some of the technical challenges associated with these concepts and results to date on the fabrication and testing of microgenerator devices are presented in this paper.