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Paper Abstract**

Name: Dr. Vincent C. Truscillo (Primary Contact)
Jack Mondt
Tosh Fujita

Position/Title: Project Manager

Affiliation: Jet Propulsion Laboratory

Address: 4800 Oak Grove Drive
Pasadena, CA 91109

Phone Number: (818) 354-1820

Fax Number: (818) 393-6439

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Paper Title: Commercial Technologies from the S1'-100 Program

Category: Power and Energy

Description: JPL and Los Alamos Laboratory have managed a contract with industry to develop a variety of commercially-viable technologies which have tremendous potential for utilization in the commercial marketplace. The value and breadth of these technologies are a culmination of over a decade of research sponsored by NASA, the Department of Energy, and the Department of Defense through the S1'-100 Project, with a mission to develop a space power system.

This paper will display the many technologies that are available from that program. The format to be used is given below as an example of one of these technologies.

***NOVEL FIBER PAD SOLVES METALLURGICAL
ATTACHMENT PROBLEMS BETWEEN SURFACES OF
UNLIKE MATERIALS***

Description of Innovation

An array of metallic fibers with excellent thermal and electrical conductive properties which provide stress relief between the joint of two surfaces made of dissimilar materials.

Prior Application by Government

This pad was developed to enable thermoelectric converters to be metallurgically attached between a heat source and heat sink. The compliant fibers in the pad allowed the conduction of both heat and electricity while preventing the transfer of mechanical stresses into the converter.

Potential Commercial Application

Compliant pads are useful where conductive thermal and electrical transfer is needed between materials which cannot be easily bonded. An example is the joint between a superconducting cable utilizing ceramic materials and a conventional power distribution cable.

Besides the technology featured above, a host of other devices were developed for the S1'-100 Space Reactor System that may have application to commercial uses. These devices include high conductivity heat transfer components, self-lubricating bearing Jigs, self-energized liquid metal pumps, compact heat exchangers, high strength bonding of ceramics to metals, high-temperature electrical coils, electrical insulators, and high-temperature motors and generators.