

Briefing Chart

NASA SBIR/STTR Technologies

Lightweight, High-Temperature Radiator Panels

Christopher J. Crowley / Creare Incorporated, Hanover, NH

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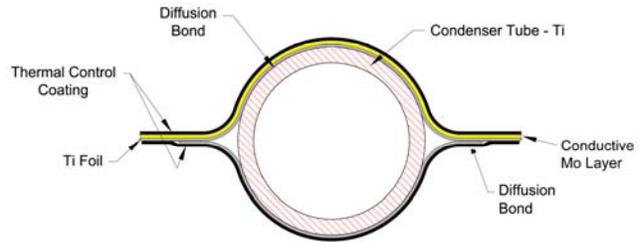


Identification and Significance of Innovation

Our innovation is an alternative radiator panel with novel material combination and fabrication methods that produces:

- Low weight (1.5 kg/m²)
- High fin efficiency (0.8)
- Excellent strength
- High temperature capability (550 K)

Little development effort and technical risk is required, yet it is a major advancement toward NASA's goals for light weight and high temperature operation in advanced radiators.



Lightweight Radiator Panel with All-Metal Construction

Technical Objectives

Our goal is to provide a radiator technology that:

- Uses standard materials—metal tubes and foils
- Extends known bonding methods to the fabrication of the unique radiator geometry
- Has demonstrated performance under thermal vacuum conditions

Work Plan

- Task 1. Design RDU Panel
- Task 2. Design the Bonding Fixture
- Task 3. Fabricate Radiator Panel
- Task 4. Conduct Performance Tests
- Task 5. Manage and Report

Schedule and Deliverables

- Demonstration radiator panel at 1 kW_t for one-sided operation at 550 K
- Delivery at 24 months after contract award

NASA and Non-NASA Applications

- Nuclear electric power spacecraft for NASA exploration missions
- Commercial spacecraft for reduced weight of heat rejection systems

Contacts

Christopher J. Crowley, P.I., Creare, 603-643-3800

Jay C. Rozzi, P.E., Creare, 603-643-3800

Duane Beach, COTR, NASA GRC, 216-433-6285

Glen Williams, Contract Contact, NASA GRC, 216-433-2885