

## **Executive Statement:**

This technology offers a novel approach to thermal management in spacecraft by dynamically controlling radiative properties using origami-based geometries.

## **Technology Overview:**

The invention utilizes origami-like structures to adjust surface geometries, thereby actively controlling radiative absorption and emission. This method provides a flexible solution for managing the thermal conditions of spacecraft and potentially other applications, by alternating between different surface configurations to regulate heat transfer.

## **Key Advantages:**

- Active control over radiative absorption and emission
- Minimization of coolant loss
- Reduction of stress on electronic components due to temperature fluctuations
- Flexible thermal management system adaptable to changing conditions

## **Problems Addressed:**

- Challenges in managing thermal conditions of spacecraft
- Limitations of current thermal management systems in adapting to variable thermal environments
- High coolant loss and stress on electronic components in space applications

## **Market Applications:**

- Spacecraft thermal management systems
- Solar-thermal energy absorption systems
- Radar detection systems with minimized detectability
- Broader applications in thermal regulation across various high-technology sectors