PURDUE INNOVATES | Office of Technology Commercialization

Flexible Hybrid Electronics for Extreme Environment (FEEE)

Chiplet-based flexible electronics platform survives radiation, vibration, and thermal cycling.

Extreme environments pose intense and dynamic conditions, particularly to electronic systems which are sensitive to temperature, humidity, radiation, and more. Despite the prevalence of extreme conditions across a variety of industries and applications, there have been no demonstrations of flexible electronics platforms capable of withstanding these conditions. Researchers at Purdue University have developed a platform-based approach to creating flexible electronics for extreme environments. Purdue's platform includes use of a flexible substrate and chiplets capable of withstanding extreme thermal cycle, arctic environment, high vibration, high/low G, high UV, radiation, EM, humidity, salinity and pH variation. This technology can be used to integrate physically conformable electronics in aerospace, automotive, industrial and defense applications for sensing, autonomy, and more.

Advantages

-Flexible substrate and chiplets

-Use in extreme environments

-Improved system resilience

Applications

-Flexible electronics

-Extreme Environments

-Aerospace

-Automotive

Technology Validation:

Technology ID

2024-HUSS-70548

Category

Aerospace & National Security/Defense, Electronics, & Surveillance Technologies
Aerospace & National Security/Hypersonics & Propulsion Systems
Automotive & Mobility Tech/Micromobility & Smart Urban Infrastructure

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View online

This technology is in the conceptual stages.

TRL: 2

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