

A Thermal Switch and Regulator Device Based on Graphene Foams

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- Materials and Manufacturing
- Mechanical Engineering

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- devices
- Electric Vehicles & Cars
- Energy Storage
- Graphene
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- Mechanical Engineering
- Thermal
- Thermally Conductive

Researchers at Purdue University have developed a new thermal switch and regulator device for energy applications including battery technologies, electric vehicles, energy storage devices, and space conditioning systems. Current thermal switch technology is often limited to the ability to turn thermal conductance either on or off, inhibiting performance thermal devices, especially in inclement weather conditions. Purdue researchers have fine-tuned a graphene-based switch for more reliable thermal management. In testing at 85% applied strain, the new switch exhibited thermal conductance at a ratio of 8.09 between fully compressed and uncompressed settings, heat flux of 3 kW/m², and adjustable temperature window of ~10 °C. This efficient approach can allow for optimal thermal control even in harsh environments.

Advantages:

- Reliable
- Improved thermal management

Potential Applications:

- Batteries
- Vehicles
- Energy storage
- Space conditioning

People:

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Intellectual Property:

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