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Crushable Cooling Column for Granule Battery Assembly in Electric Vehicle

A crushable cooling column for electric vehicle battery assemblies improves safety by absorbing crash impact and reducing thermal runaway without adding mass or volume.

In current state of the art electric vehicles, battery assemblies suffer from increased battery thermal runaway. They also do not provide any additional safety features despite occupying significant volume in the engine assembly; the protection surrounding these batteries increases the mass of the car by adding heavy metal protective plates. These factors combine to reduce the overall distance per charge that current battery assemblies can provide.

Researchers at Purdue University have developed a crushable cooling column in a snake shape for use in electric vehicle battery assemblies. The purpose of this column is to provide thermal management access to each battery cell, locate each battery cell, and provide system rigidity during normal operation. Furthermore, this technology will increase safety by absorbing impact energy during a vehicle crash.

Advantages:

-Reduces thermal runaway

-Improves battery safety without increasing its mass or volume

-Eliminates the need for large protective metal plates

Potential Applications:

-Electric vehicle battery assemblies

TRL: 5

Intellectual Property:

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Category
Automotive & Mobility
Tech/Battery Management & Charging Technologies
Materials Science & Nanotechnology/Thermal Management Materials & Solutions

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