

## Polymers for High Temperature Energy Storage (#8227)

### *A method to discover polymers for high-temperature energy storage capacitors*

Inventors at Georgia Tech have developed a screening procedure based on a huge polymer dataset, advanced machine learning techniques, and high throughput density functional theory. This technology can be used to accelerate the polymer design for high-temperature energy storage capacitors. A two-stage down-selection procedure was applied to identify 131 promising polymer candidates. This screening procedure provides a general and rapid way to discover polymers for high-temperature energy storage capacitors.

### Benefits/Advantages

- **Increased energy storage capability:** This method can lead to moderate-high energy density at high temperatures (up to 150 degree Celsius).

### Potential Commercial Applications

- Technologies benefiting from rapid electrostatic energy storage and release
  - electric and hybrid electric vehicles
  - emerging energy storage markets, such as long-haul trucking and aviation

### Background/Context for This Invention

Polymers are required in many applications, including for electrostatic energy storage (the subject of the present invention disclosure). Such applications are relevant in hybrid and electric automobiles, and various other technologies that require rapid bursts of energy (such as defibrillators, nuclear reactors, aerospace and defense applications). While polymer solutions for such applications are available at low temperatures (around room temperature), such options at temperatures over 50 degree Celsius are unavailable.

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## **More Information**

### **Publications**

**For more information about this technology, please visit:**

<https://licensing.research.gatech.edu/technology/polymers-high-temperature-energy-storage>

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