Thermoelectric Interconnects

A method for improving the efficiency of thermoelectric devices

Georgia Tech researchers have developed a new method for increasing the power density generation of TE devices by designing novel device interconnect architectures. In this method TE legs are laid out in a close-packed structure, which achieves higher power densities, and enables more cost effective and reliable TE devices.

Summary Bullets

- **Efficient** – Increased power density for powering sensors, wearable devices, and personal power generators
- **Cheaper** – Fabrication utilizes classic, lower cost roll-to-roll processing techniques
- **Market Specific** – Better suited to these current markets than traditional inorganic TE materials

Solution Advantages

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Potential Commercial Applications

Power Generation

- Thermoelectric generator
- Waste heat recycling
- Personal Power generators
- Powering wearable electronics
- Powering low power sensors

Electric Coolers & Heat Pumps

- Refrigerators

- Freezers
- Clothes dryers
- Dehumidifiers
- Personal thermostats

Background and More Information

Thermoelectric (TE) materials convert heat into electricity (e.g., TE generators) and electricity into cooling (e.g., TE coolers). All TE devices require that the TE materials are connected electrically in series and thermally in parallel. The overall efficiency of the device is dependent on how the method that TE materials (e.g., legs) are connected together.

Inventors

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IP Status

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Publications

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Images

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