

Linear-Grating Triboelectric Generator

A new principle of triboelectric generator (TEG) based on fully-contacted, sliding electrification process

Inventors at Georgia Tech have developed a new principle of triboelectric generator based on fully-contacted, sliding electrification process. This lays a new foundation for designing versatile, high performance TEGs to harvest diverse forms of mechanical energy in daily life. This principle can be applied to TEGs of different configurations that accommodate the needs of energy harvesting and/or sensing from diverse mechanical motions, such as contacted sliding, lateral translation and rotation/rolling.

Summary Bullets

- **Versatile:** can be applied to TEGs if different configurations
- **Enhanced output:** linear grating is introduced to the sliding elements, resulting in enhancements of output charge, output current, and current frequency

Solution Advantages

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Potential Commercial Applications

- Energy harvesting

Background and More Information

The triboelectric effect has been known for many centuries and is the cause of many charging phenomena. Though the fundamental mechanism of this effect is still under investigation, it has been utilized in applications including photocopying, laser printing, and chemical systems. However, it has not been utilized for energy harvesting until very recently. The TEG offers a simple, low-cost, and scalable green energy technology, but the TEGs require periodic contact and separation of two materials that have opposite triboelectric polarities, making it only applicable to harvest energy from intermittent impact or shock.

Inventors

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IP Status

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Publications

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