

STRETCHABLE BATTERIES USING SOLID POLYMERIC ELECTROLYTES

Summary

Methods to create stretchable electrodes and ion conducting polymers have been combined to make safe and reliable stretchable battery technology to improve portable energy storage capabilities. This stretchable battery technology is expected to be integrated into clothing and specialized suits that address applications for energy storage but without additional burden to the people using the technology on the go. The heart of this technology is improving the ion conducting polymers that are naturally flexible along with attaching these polymers to stretchable electrodes that are not conventionally flexible.

Competitive Advantages

- Solid polymer-based electrolytes are used and are not susceptible to the well-known issues associated with liquid lithium ion battery technology
- Stretchable batteries will be inherently safer and have higher mechanical strength compared to rigid battery designs
- Elastic design allows for better mobility of users equipped with energy storage and devices that require energy

Problem Addressed

- Existing energy storage technology is lagging in the demand for wearable technology requiring energy
- Conventional batteries are bulky and limit dexterity and mobility to the user if used in a wearable design
- Wet lithium ion battery technology can be dangerous if not designed or used properly

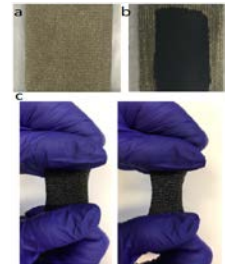
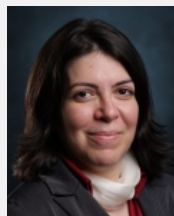
Meet the Inventor

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Research Interests:

- Lithium Ion Batteries
- Polymer Nanocomposite Electrolytes
- Materials for Energy Storage and Others



Applications

- Military clothing and fatigues
- Medical clothing
- Astronaut suits and clothing
- Field engineers and technicians
- Emergency Response personnel
- Hiking gear

Patents

- 62/490,833
- PCT/US18/29096

Publications

- Ardebili, H., et al., RSC Adv., 2014,4, 59637-59642
- Ardebili, H., et al., Journal of Power Sources. 303 (2016)

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