PURDUE INNOVATES | Office of Technology Commercialization

Manufacturing of Semiconducting and Conducting Polymer Fibers from Melt

A new, melt-processing production method for polymer conductors increases stability and lowers the cost of manufacturing organic transistors for use in flexible electronics, textiles, and the computer industry.

Flexible electronics is a new industry with rapid growth in the last decade. They are commonly used in everyday objects such as cell phones, keyboards, and cameras. The current issue with this technology is that in order to produce flexible electronics, polymer conductors and semiconductors are needed to design the transistors. The method of producing these are costly, often instable, and leaves residue on the material. In order to continue advancements in this field, a new method is needed for producing these conductors.

Researchers at Purdue University have identified a new method for manufacturing polymer conductors that is both more stable than the predecessor, but also less expensive. This new development uses melt-processing, similar to how thin films such as plastic bags are made. This advancement in production allows for reduced costs of these organic transistors and there reduced flexible electronic costs.

Advantages:

-Lowered costs

-Increased stability

-Environmentally friendly

Potential Applications:

-Flexible electronics

-Textiles

-Computer industry

TRL: 3

Technology ID

2017-MEI-67741

Category

Chemicals & Advanced Materials/Polymer Science & Smart Materials

Semiconductors/Fabrication & Process Technologies

Semiconductors/Semiconductor Materials & Substrates

Authors

Jianguo Mei

Yan Zhao

Further information

Will Buchanan

wdbuchanan@prf.org

View online

Intellectual Property:

Provisional-Patent, 2017-11-01, United States | Utility Patent, 2018-10-31, United States

Keywords: Flexible electronics, polymer conductors, melt-processing, organic transistors, reduced costs, increased stability, environmentally friendly, semiconductors, thin films, computer industry