Docket #: S18-200

Fully self-healable and stretchable organic transistor for skin-inspired electronics

Stanford researchers have developed stretchable and self-healable organic transistors that can be used to create skin-inspired wearable electronics. The invention blends a polymer semiconductor and an elastomer to create stretchable and self-healing semiconducting film and insulating film.

Stretchable electronics have the potential to be used in applications such as electronic skins, physiological monitoring, implanted treatment, and human-machine interface. Current stretchable electronic materials are not self-healable and are easily damaged by scratching. This invention's self-healing nature supports the creation of long lasting electronic skin.

Stage of Development

- Proof of concept

Related Technologies:
Stanford docket 17-234: Development of damage-resistant stretchable electronic materials and devices for multifunctional wearable electronics

Stanford docket 18-197: Strain-sensitive, stretchable, and self-healable semiconducting film for multiplexed skin-like sensor array

Applications

- Electronic Skins
- Smart prosthetics
- Stretchable electronic circuits

- Self-Healable electronic devices

Advantages

- High stretchability up to 100% with no electrical degradation
- Self-healable

Publications

- Wang, S., Xu, J., Wang, W. et al (2018). Skin electronics from scalable fabrication of an intrinsically stretchable transistor array. Nature 555, 83–88.

Innovators

- Hung-Chin Wu
- Xuzhou Yan
- Jinyoung Oh
- Zhenan Bao
- Youngjun Yun

Licensing Contact

Evan Elder

Associate Director, Licensing and Strategic Alliances, Physica

Email