



INTERNATIONAL SOCIETY OF
BIONIC ENGINEERING

Tissue-like wearable sensor for continuous health monitoring

*From **soft tissue** to **soft sensors***

The case was provided by the
Individual Member of ISBE **Sheng Xu**

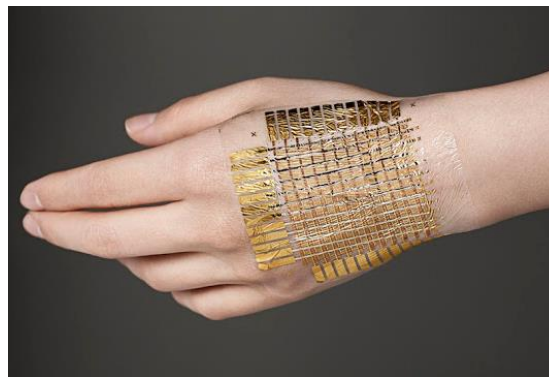
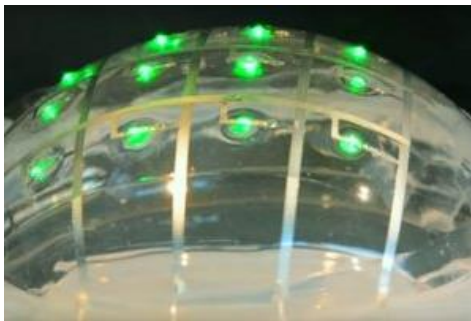
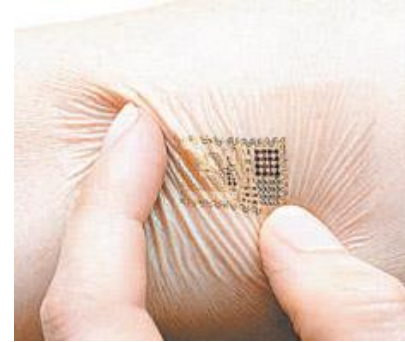
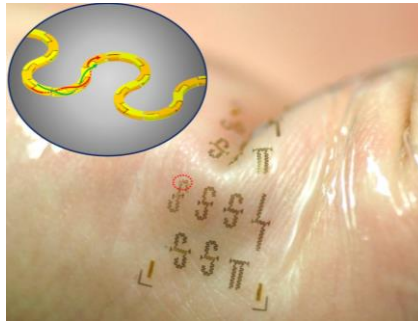
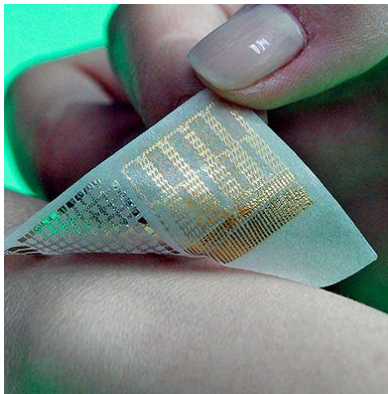
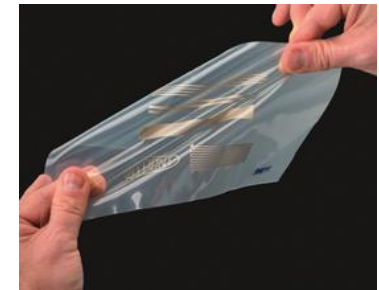
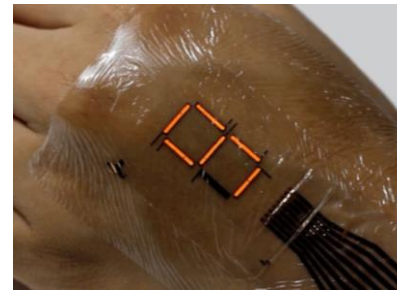
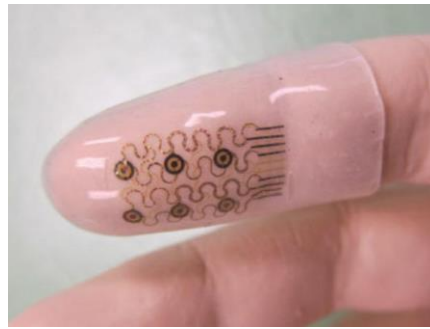
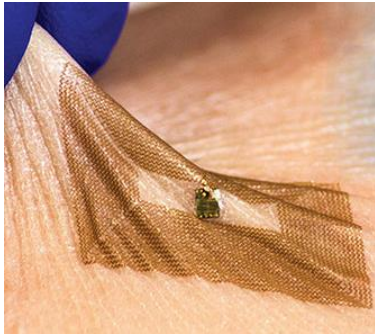
University of California San Diego, USA

1. Biological Prototype



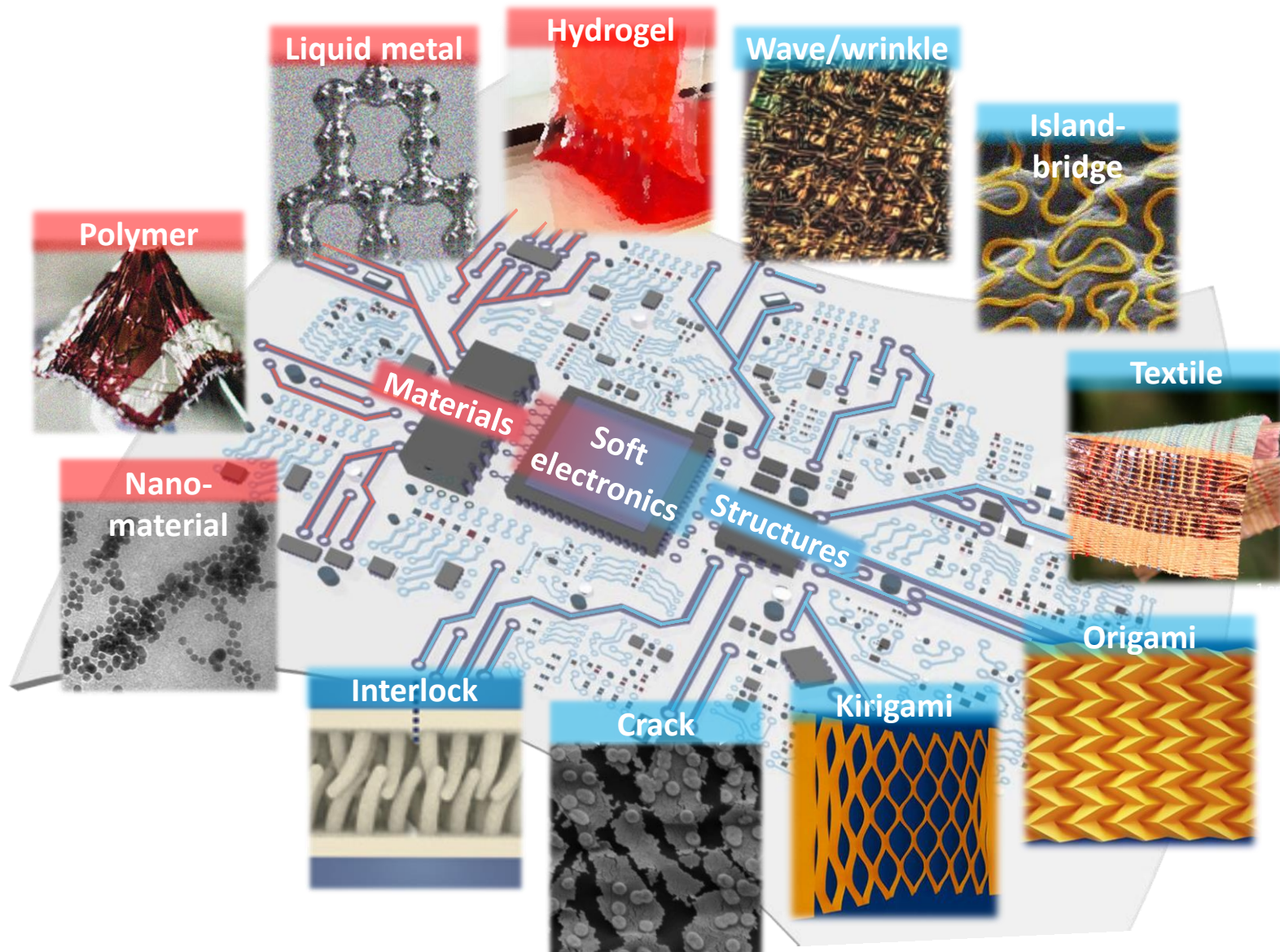
Biological tissues, such as the human skin, are intrinsically soft (flexible, stretchable, and twistable).

2. Bionic Study



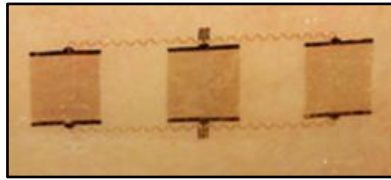
The sensors need to be soft to allow continuous integration and accurate measurements on the tissues.

3. Design and Processing

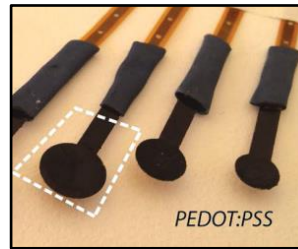


Wang, C.F., Wang, C.H., Huang, Z.L. *et al.*, Adv. Mater. 30, 1801368 2018.

4. Achievements and Application



Rogers *et al.* Adv. Healthcare Mater. 2014

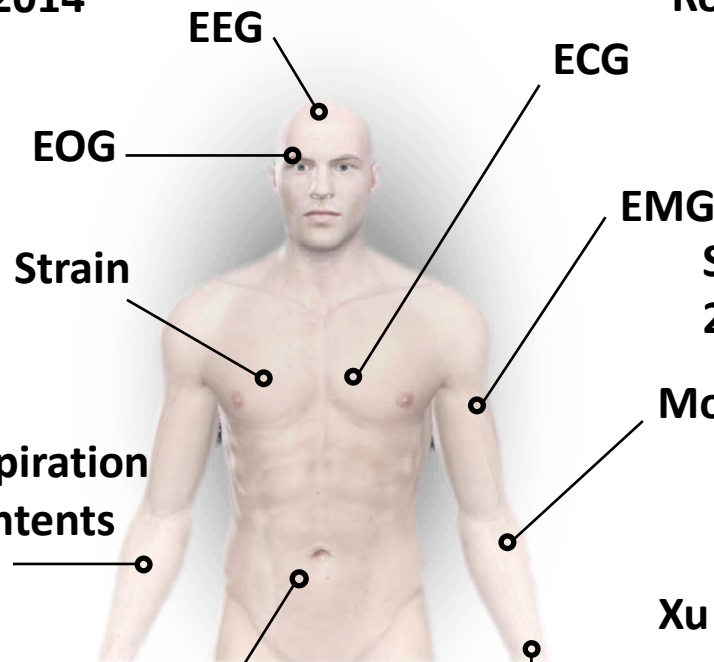


Malliaras *et al.* Adv. Healthcare Mater. 2014

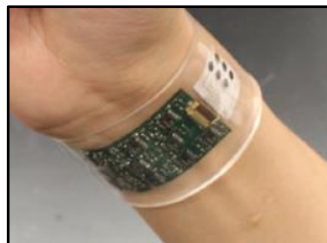


Rogers *et al.* Science, 2014

Bao and Ng *et al.* Science, 2016



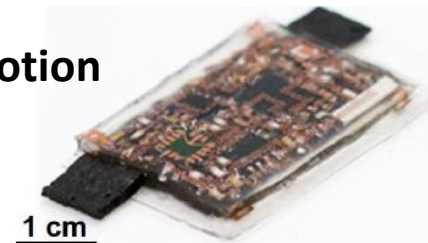
Someya *et al.* Nat. Nanotech., 2017



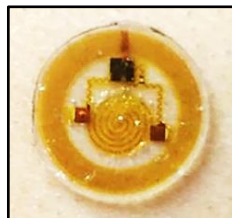
Javey *et al.* Nature, 2016

Perspiration contents

Motion

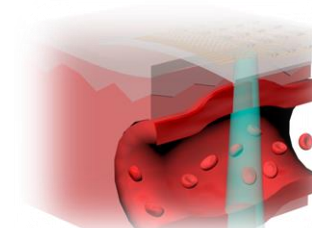


Xu *et al.* Nat. Electron., 2018



**Temperature & pressure
Rogers *et al.* Sci. Trans. Med. 2018**

**Blood pressure
Xu *et al.* Nat. Bio. Med., 2018**





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*The current **wearable sensing** technique
has been successfully applied in **health
monitoring and human machine interface.***

