TITLE: Facile fabrication of self-healing temperature-sensitive sensor based on ionogels and its application in detection human breath

Dear Editor,

Thank you very much for your constructive comments. Attached please find our revised version of the above manuscript. The comments of the referees are taken into account and the corresponding amendments are made in the text and highlighted in red. In a separate attachment we send the reply letters to the referees.

We hope that the revised manuscript is now suitable for its publication.

Yours sincerely,
Tao Chen, Prof. Dr.
Jiangsu Provincial key of Laboratory of Advanced Robotics & Collaborative Innovation Center of Suzhou Nano Science and Technology, Soochow University, Suzhou 215021,
Reply on Referee Reports

We would like to thank you for your constructive comments, which really helped in improving the manuscript. The comments and questions all have been taken into account in revising the manuscript as follows.

Referee: 1

1. There is no information about how the conductivity change with stretching process;

Similar to reported literatures, the conductivity of the ionogels is obviously depended on the stretching process. As showed in Figure, the resistance increases with the stretching length.

![Graph showing resistance vs. stretching percentage]

“The conductivity of the ionogels almost linearly decreased with the stretching length.” was added.

2. How the humidity affect on the sensing when detecting human breath.

As description in the experimental section, the sensor based on the ionogels was packing completed by the Eco-flex films. Thus, the humidity had almost no effect on the sensing process when detecting human breath.

The effects of the temperature to the current was attributed to the migration rate of ionic mobility. As we know, ionic mobility was higher at high temperature and resulted in higher conductivity.

3. How about the ionogel thickness effect on the performance, like transparency, conductivity and sensitivity.

The transparency of the ionogels film would decrease with the increase of its
thickness. And the conductivity of the ionoges was independent on the thickness. In this work, the thin ionogels film is difficult to formed due to without polymerize. For the thick film, the flexibility will decrease significantly. Thus, the thickness of the film was set as 500 μm.

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