

Supporting Information

Piezotronic Effect on ZnO Nanowire Film Based Temperature Sensor

*Fei Xue,¹⁺ Limin Zhang,¹⁺ Wei Tang,¹ Chi Zhang,¹ Weiming Du,¹ and Zhong Lin Wang^{*1,2}*

¹Beijing Institute of Nanoenergy and Nanosystems, Chinese Academy of Sciences,
Beijing, 100083, China.

²School of Material Science and Engineering, Georgia Institute of Technology,
Atlanta, Georgia 30332, USA.

Corresponding Author

*E-mail: zlwang@gatech.edu.

Author Contributions

⁺These authors contributed equally to this work.

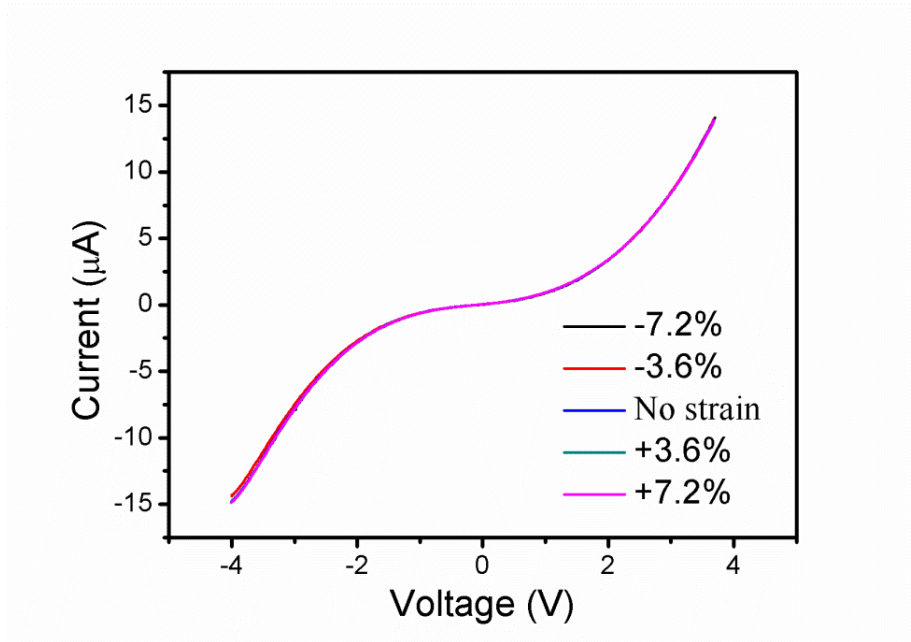


Figure S1. I-V curves of a device with Schottky contact electrodes under different strain values, whose ZnO nanowire film was directly grown on bimetallic strip. Owing to the temperature sensitive bimetallic strip, there was geometric deformation in the ZnO nanowire film synthesized by hydrothermal method, resulting that piezopotential in strained nanowire film had a little influence on the I-V curves.

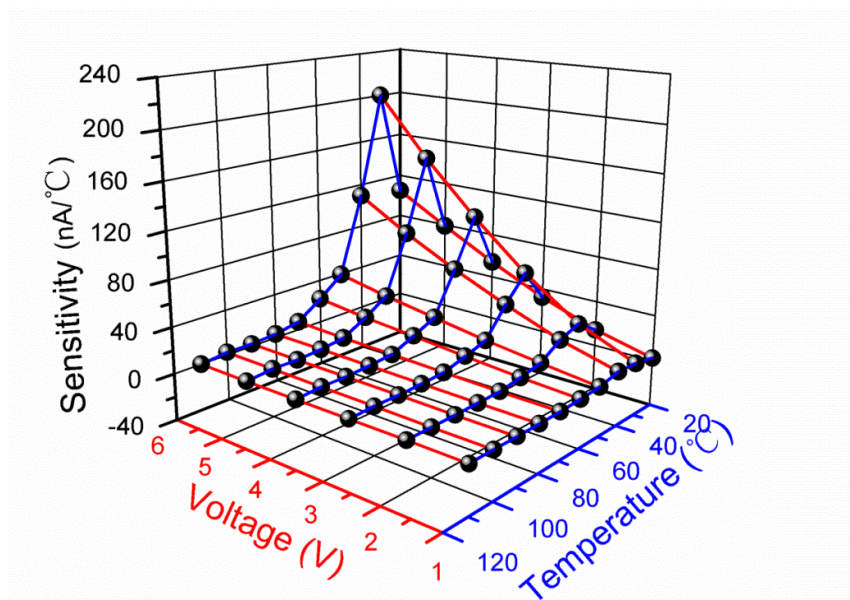


Figure S2. The sensitivity of this sensor at different bias voltages and different temperatures, which was defined as following: $S = |(I_{\text{temperature}} - I_{\text{temperature} - \Delta T}) / \Delta T|$, $\Delta T = 10^\circ\text{C}$.

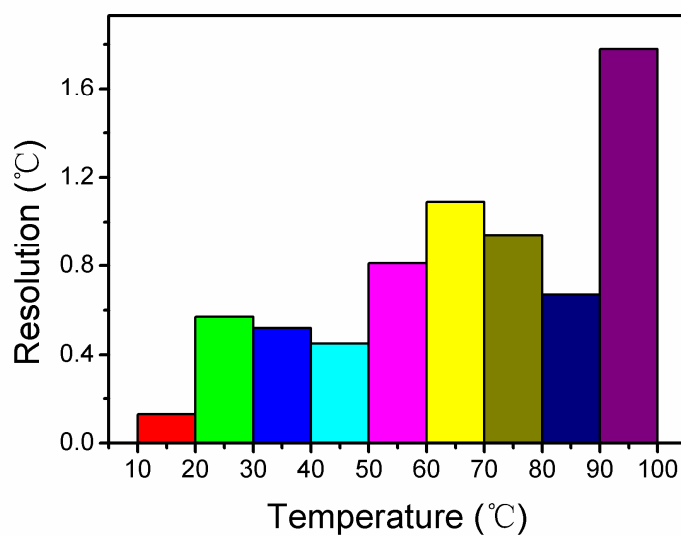


Figure S3. The resolution of this sensor at different temperatures. The change of current signal of this sensor was not linear to the change of temperature, leading to the variation of resolution at different temperatures.