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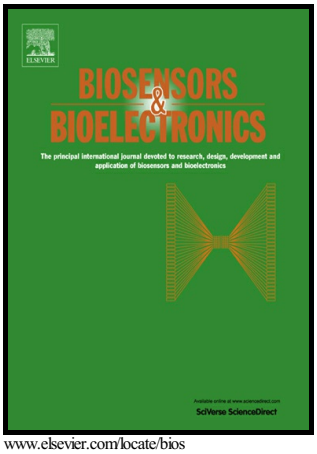

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PII: S0956-5663(18)30392-0
DOI: https://doi.org/10.1016/j.bios.2018.05.038
Reference: BIOS10496

To appear in: *Biosensors and Bioelectronic*

Received date: 31 March 2018
Revised date: 17 May 2018
Accepted date: 23 May 2018

Cite this article as: Yu Pang, Jinming Jian, Tao Tu, Zhen Yang, Jiang Ling, Yuxing Li, Xuefeng Wang, Yancong Qiao, He Tian, Yi Yang and Tian-Ling Ren, Wearable humidity sensor based on porous graphene network for respiration monitoring, *Biosensors and Bioelectronic,* https://doi.org/10.1016/j.bios.2018.05.038

Wearable humidity sensor based on porous graphene network for respiration monitoring

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Abstract: Respiration is as one of the most essential physiological signals, which can be used to monitor human healthcare and activities. Herein, we report a flexible, lightweight and highly conductive porous graphene network as the humidity sensor for respiration monitoring. To enhance the sensing performance, the graphene oxide (GO), poly (3, 4-ethylenedioxythiophene)-poly(styrenesulfonate) (PEDOT: PSS) and Ag colloids (AC) were used to modify the porous graphene. The humidity properties of porous based graphene networks have been investigated at different relative humidity (RH). The porous based graphene sensors exhibit excellent capability of monitoring different breathing patterns including mouse and nose respiration, normal and deep respiration. Besides, the signal variations before and after water intake was recorded by the sensor, which demonstrates the ability to monitor water loss during breathing period. Furthermore, the humidity sensor shows the ability to detect

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