

Screen-Printed Electroluminescent Lamp Modified with Graphene Oxide as a Sensing Device

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Coupling electrochemical and optical properties are currently opening new possibilities in the sensing field and offering improvements in terms of sensitivity, selectivity, cost effectiveness and ease of use. In this regard herein a screen-printed electroluminescent lamp modified with graphene oxide.¹The sensor was created using the alternating current electroluminescent (ACEL) technology but modifying its architecture and layers composition with graphene oxide and nafion. The sensing principle is based on the direct relationship between the light intensity of the display and the conductivity of the external layers. The device is able to detect the ionic concentration of any conductive species and can act as humidity sensor. Besides, the response time is so fast that just by coupling the display to a smartphone camera sensor, its potential was expanded for automatically monitoring human breath in real time. This flexible ACEL sensor holds a great potential for future advancement in wearable sensor technology in addition to other applications with interest for diagnostics as well as environmental monitoring, safety and security.

References

- [1] Yakoh, A., Álvarez-Diduk, R., Chailapakul, O., & Merkoçi, A. (2018). Screen-Printed Electroluminescent Lamp Modified with Graphene Oxide as a Sensing Device. *ACS applied materials & interfaces*, 10(24), 20775-20782.
- [2]

Figures

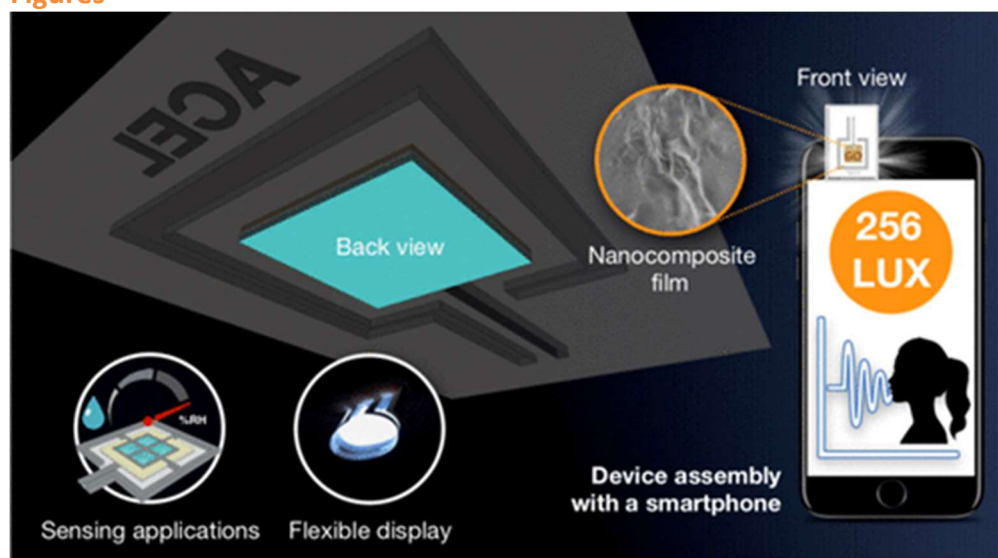


Figure 1.