

## A Durable Laser Scribed Graphene Based Transfer Strain Sensor

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### Abstract

Laser scribed graphene (LSG), with programmable patterns and superior electronic properties, has attracted considerable attentions and has been widely applied in various wearable electronics. [1] However, its characteristics such as easy peeling, weak stretchability has prevent it from further industrial applications. Herein, this work reports a durable, ultrathin, skin-conformable laser scribed graphene based sensor by transferring LSG to a commercial make-up accessory (nose film), which has been reported as a pollution-free and skin-friendly flexible substrate. [2] Without any packaging, the sensor exhibits excellent durability, relatively high sensitivity with a gauge factor over 300, large stretch range of more than 50%. Its superior performance and printable preparation process can promote the industrialization of flexible strain sensors.

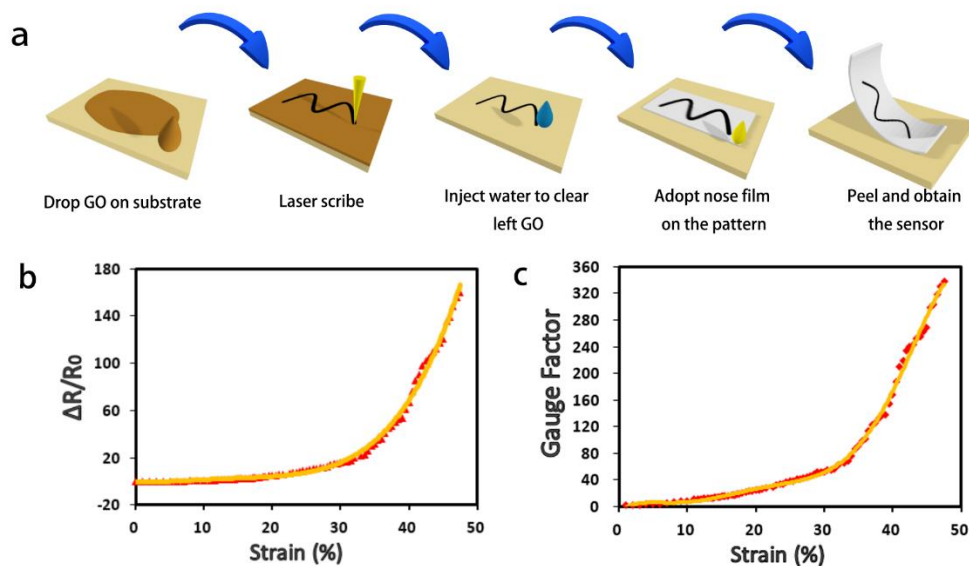


Figure 1: a) Schematic illustration for the fabrication process of the laser scribed graphene based transfer sensor. b) The relationship between relative resistance and tensile strain. c) The relationship between gauge factor and tensile strain

## References

- [1] Yancong Q, Yunfan W, He T, et al.: Multilayer Graphene Epidermal Electronic Skin. ACS Nano, Vol. 12, No. 9, pp. 8839-8846, 2018.
- [2] Wan S, Zhu Z, Yin K, et al. : A Highly Skin-Conformal and Biodegradable Graphene-Based Strain Sensor. Small Methods, Vol. 2, No. 10, 2018.