Title: Current–voltage modeling of graphene-based DNA sensor

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Abstract: Graphene is considered as an excellent biosensing material due to its outstanding and unique electronic properties such as providing large area detection, ultra-high mobility and ambipolar field-effect characteristic. In this paper, general conductance model of DNA sensor-based graphene is obtained, and the electrical performance of nanostructured graphene-based DNA sensor is evaluated by the current–voltage characteristic. As a result, by increasing the complementary DNA concentration, the drain current is going toward higher amounts