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# Photo Electrical Response in Graphene Based Resistive Sensor

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**Abstract :** Graphene, which consists of a single layer of carbon atoms in a honeycomb lattice, is an interesting potential optoelectronic material because of graphene's high carrier mobility, zero bandgap, and electron–hole symmetry. Graphene can absorb light and convert it into a photocurrent over a wide range of the electromagnetic spectrum, from the ultraviolet to visible and infrared regimes. Over the last several years, a variety of graphene-based photodetectors have been reported, such as graphene transistors, graphene-semiconductor heterojunction photodetectors, graphene based bolometers. It is also reported that there are several physical mechanisms enabling photodetection: photovoltaic effect, photo-thermoelectric effect, bolometric effect, photogating effect, and so on. In this work, we report a simple approach for the realization of graphene based resistive photo-detection devices and the measurements of their photoelectrical response. The graphene were synthesized directly on the glass substrate by novel growth method patented in our lab. Then, the metal electrodes were deposited by thermal evaporation on it, with an electrode length and width of 1.5 mm and 300 µm respectively, using Co to fabricate simple graphene based resistive photosensor. The measurements show that the graphene resistive devices exhibit a photoresponse to the illumination of visible light. The observed re-sistance response was reproducible and similar after many cycles of on and off operations. This photoelectrical response may be attributed not only to the direct photocurrent process but also to the desorption of oxygen. Our work shows that the simple graphene resistive devices have potential in photodetection applications.

**Keywords :** graphene, resistive sensor, optoelectronics, photoresponse
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