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Graphene-cobalt phthalocyanine based on optoelectronic device for solar panel tracking systems

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Abstract

The photoconducting properties of graphene-cobalt phthalocyanine organic semiconductor photodiodes were investigated. GO doped cobalt phthalocyanine (CoPc) thin films were prepared with various graphene oxide (GO) contents. The electrical properties of the diodes were analyzed by using current-voltage and capacitance/conductance-voltage measurements. The reverse current of the diodes increases with the increasing illumination intensity. The transient photocurrent, photocapacitance, and photoconductance measurements of the diodes were also investigated. The photocurrent, capacitance and conductance increase after illuminating and returns to original value after turning off the illumination. Graphene-cobalt phthalocyanine based on optoelectronic device exhibited both a photodiode and photocapacitor behavior under solar light illumination. (C) 2015 Elsevier B.V. All rights reserved.

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