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## Logarithmic organic photodetectors

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### Abstract

A novel photodetector of Al/GO:C8-BTBT/n-Si/Au with various graphene oxide (GO) contents has been investigated. The electrical properties of the diodes were characterized by current-voltage (I-V) and capacitance-voltage (C-V) measurements. The values of barrier height, ideality factor, and series resistance of the diodes were determined from I-V characteristic curves by using Norde's equations. The photocurrent properties of the diode were studied under various illumination intensities. The photoconducting mechanism of the diodes is controlled by the traps. The photoresponse properties of the diodes are increased with GO contents. The obtained results indicate that graphene oxide doped 2,7-dioctyl[1]benzothieno[3,2-b][1]benzothiophene/n-Si heterojunctions can be used as a photodetector for optoelectronic applications. (C) 2015 Elsevier B.V. All rights reserved.

### Keywords

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