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Novel photosensor based on carbon nitride thin films

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MATERIALS LETTERS

Volume: 134 Pages: 149-151
 DOI: 10.1016/j.matlet.2014.07.103
 Published: NOV 1 2014
[View Journal Impact](#)

Abstract

Carbon nitride (C3N4) is gaining considerable research interest due to its unique electrical and optical properties. Herein, we report a sol-gel spin method for fabrication of Al/p-Si/C3N4/Au Schottky diode. The current-voltage (I-V) characteristics of the Schottky diode was investigated under dark and various light intensities. It was observed that the photocurrent of the Schottky diode increases with increase in light intensity. The transient photocurrent, capacitance, and conductance measurements were investigated. It was observed that the photocurrent, capacitance, and conductance highly depend on transient light. The photocurrent, capacitance, and conductance increases after illuminating the Schottky diode and returns to original value after turning off the illumination. The linear response of the photocurrent with light intensity suggests that carbon nitride based Schottky diode could be used as photosensor. (C) 2014 Elsevier B.V. All rights reserved.

Keywords

Author Keywords: Carbon nitride; Schottky diode; Ideality factor; Photosensor; Thin film
 KeyWords Plus: ELECTRICAL-PROPERTIES; SOLIDS

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Publisher

ELSEVIER SCIENCE BV, PO BOX 211, 1000 AE AMSTERDAM, NETHERLANDS

Categories / Classification

Research Areas: Materials Science; Physics
 Web of Science Categories: Materials Science, Multidisciplinary; Physics, Applied

Document Information

Document Type: Article
 Language: English
 Accession Number: WOS:000342245000039
 ISSN: 0167-577X

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eISSN: 1873-4979

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