Novel photosensor based on carbon nitride thin films

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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.

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