Electrical and Photoresponse Properties of CuFe1-xSnxO2/p-Si Photodiode

By: Al-Hazmi, FE (Al-Hazmi, Faten E.)[1,2]

View ResearcherID and ORCID

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Abstract

The electrical and photoresponse properties of Al/CuFe1-xSnxO2 (x = 0.03)/p-Si/Al diode were investigated using current voltage (I-V) and capacitance/conductance voltage measurements. The diodes exhibited a rectifying value with obtained electronic parameters. The barrier height value of the diode is increased with increasing temperature, while the ideality factor is decreased. The change in electronic parameters of the diode is explained on the basis of Schottky barrier height inhomogeneities at the interface. The value of C decreases with increasing frequency. The decrease was explained on the basis of interface states. The photoresponse properties of the diode was investigated under solar light and the diode exhibited a photodiode behavior at room temperature.

Keywords

Author Keywords: CuFe1-xSnxO2 Delafossite Oxide Film; Photodiode

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Author Information

Reprint Address: Al-Hazmi, FE (reprint author)

+ King Abdulaziz Univ, Fac Sci, Dept Phys, Jeddah 21589, Saudi Arabia.

Reprint Address: Al-Hazmi, FE (reprint author)

+ King Abdulaziz Univ, Adv Composites Synth & Applicat Grp, Jeddah 21589, Saudi Arabia.

Addresses:

+ [1] King Abdulaziz Univ, Fac Sci, Dept Phys, Jeddah 21589, Saudi Arabia

+ [2] King Abdulaziz Univ, Adv Composites Synth & Applicat Grp, Jeddah 21589, Saudi Arabia

E-mail Addresses: fialhazmi@kau.edu.sa

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