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Aluminium phthalocyanine chloride thin films for temperature sensing

By: Chani, MTS (Chani, Muhammad Tariq Saeed)^[1]; Asiri, AM (Asiri, Abdullah M.)^[1,2]; Karimov, KS (Karimov, Kh. S.)^[3,4]; Niaz, AK (Niaz, Atif Khan)^[3]; Khan, SB (Khan, Sher Bhadar)^[1,2]; Alamry, KA (Alamry, Khalid. A.)^[2]

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CHINESE PHYSICS B

Volume: 22 Issue: 11

Article Number: 118101

DOI: 10.1088/1674-1056/22/11/118101

Published: NOV 2013

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Abstract

This study presents the fabrication and temperature sensing properties of sensors based on aluminium phthalocyanine chloride (AlPcCl) thin films. To fabricate the sensors, 50-nm-thick electrodes with 50- μ m gaps between them are deposited on glass substrates. AlPcCl thin films with thickness of 50-100 nm are deposited in the gap between electrodes by thermal evaporation. The resistance of the sensors decreases with increasing thickness and the annealing at 100 degrees C results in an increase in the initial resistance of sensors up to 24%. The sensing mechanism is based on the change in resistance with temperature. For temperature varying from 25 degrees C to 80 degrees C, the change in resistance is up to 60%. Simulation is carried out and results obtained coincide with experimental data with an error of +/-1%.

Keywords

Author Keywords: temperature sensor; thin films; annealing; aluminium phthalocyanine chloride

KeyWords Plus: SENSORS; CELLS

Author Information

Reprint Address: Chani, MTS (reprint author)

King Abdulaziz Univ, Ctr Excellence Adv Mat Res, Jeddah 21589, Saudi Arabia.

Organization-Enhanced Name(s)

King Abdulaziz University

Addresses:

[1] King Abdulaziz Univ, Ctr Excellence Adv Mat Res, Jeddah 21589, Saudi Arabia

Organization-Enhanced Name(s)

King Abdulaziz University

[2] King Abdulaziz Univ, Fac Sci, Dept Chem, Jeddah 21589, Saudi Arabia

Organization-Enhanced Name(s)

King Abdulaziz University

[3] GIK Inst Engn Sci & Technol, Topi 23640, Pakistan

[4] Phys Tech Inst, Dushanbe 734063, Tajikistan

E-mail Addresses: tariq_chani@yahoo.com

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Funding

Funding Agency	Grant Number
Center of Excellence for Advanced Materials Research (CEAMR), King Abdulaziz University, Jeddah	CEAMR-434-03

[View funding text](#)

Publisher

IOP PUBLISHING LTD, TEMPLE CIRCUS, TEMPLE WAY, BRISTOL BS1 6BE, ENGLAND

Categories / Classification

Research Areas: Physics

Web of Science Categories: Physics, Multidisciplinary

Document Information

Document Type: Article

Language: English

Accession Number: WOS:000327485400098

ISSN: 1674-1056

eISSN: 1741-4199

Journal Information

Table of Contents: [Current Contents Connect](#)

Impact Factor: [Journal Citation Reports](#)

Other Information

IDS Number: 258UY

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