

Web of Science

Search

Search Results

My Tools

Search History

Marked List

Full Text from Publisher

Look Up Full Text



Save to EndNote online

Add to Marked List

36 of 512

Dynamic charge transport in pentacene and zinc oxide thin-film transistors: Dark and UV illumination conditions

By: Mansouri, S (Mansouri, S.)^[1]; Bourguiga, R (Bourguiga, R.)^[1]; Al-Ghamdi, AA (Al-Ghamdi, A. A.)^[2]; Al-Hazmi, F (Al-Hazmi, Faten)^[2]; Al-Hartomy, OA (Al-Hartomy, Omar A.)^[2,3]; El-Tantawy, F (El-Tantawy, Farid)^[4]; Yakuphanoglu, F (Yakuphanoglu, F.)^[5]

[View ResearcherID and ORCID](#)

SYNTHETIC METALS

Volume: 162 Issue: 17-18 Pages: 1681-1688

DOI: 10.1016/j.synthmet.2012.06.024

Published: OCT 2012

[View Journal Impact](#)

Abstract

The electronic charge transport of thin film transistors (TFTs) based on pentacene and zinc oxide semiconductors was studied. A mathematical model is presented based on the variable range hopping (VRH) transport theory. Using the VRH model, the expression of source drain current is established under dark and under UV illumination (365 nm) in linear regime for drain bias V-D = 2 V and 2 V, when we used pentacene and zinc oxide, respectively, at 300 K. All electrical key parameters of TFTs based on pentacene and zinc oxide were extracted. A good agreement between theoretical model and experimental measurement, transfer characteristics was obtained under dark and UV illumination conditions. Finally, we give a simple small-signal equivalent circuit to the organic and inorganic thin film transistor. (c) 2012 Elsevier B.V. All rights reserved.

Keywords

Author Keywords: Organic-inorganic TFTs; VRH model; Dynamic charge transport model; Effect of UV illumination

KeyWords Plus: CURRENT-VOLTAGE CHARACTERISTICS; FIELD-EFFECT TRANSISTORS; LIGHT-EMITTING-DIODES; EXTRACTING PARAMETERS; ORGANIC TRANSISTORS; ANALYTICAL-MODEL; EFFECT MOBILITY; ANALYTIC MODEL; ZNO; CONDUCTIVITY

Author Information

Reprint Address: Mansouri, S (reprint author)

- + Fac Sci Bizerte, Grp Phys Composants & Dispositifs Nanometr, Lab Phys Mat Struct & Proprietes, Jarzouna Bizerte 7021, Tunisia.

Addresses:

- + [1] Fac Sci Bizerte, Grp Phys Composants & Dispositifs Nanometr, Lab Phys Mat Struct & Proprietes, Jarzouna Bizerte 7021, Tunisia
- + [2] King Abdulaziz Univ, Dept Phys, Fac Sci, Jeddah, Saudi Arabia
- [3] Tabuk Univ, Dept Phys, Fac Sci, Tabuk 71491, Saudi Arabia
- + [4] Suez Canal Univ, Dept Phys, Fac Sci, Ismailia, Egypt
- + [5] Firat Univ, Dept Phys, Fac Sci, TR-23169 Elazig, Turkey

E-mail Addresses: mansourislah@yahoo.fr

Funding

Funding Agency	Grant Number
Tunisian Ministry of High Education	

[View funding text](#)

Citation Network

4 Times Cited
44 Cited References
[View Related Records](#)

[Create Citation Alert](#)

(data from Web of Science Core Collection)

All Times Cited Counts

4 in All Databases
4 in Web of Science Core Collection
0 in BIOSIS Citation Index
0 in Chinese Science Citation Database
0 in Data Citation Index
0 in Russian Science Citation Index
0 in SciELO Citation Index

Usage Count

Last 180 Days: 2
Since 2013: 23
[Learn more](#)

Most Recent Citation

Jouili, A. Characterization and Modeling of Nano-organic Thin Film Phototransistors Based on 6,13(Triisopropylsilylethynyl)-Pentacene: Photovoltaic Effect . JOURNAL OF ELECTRONIC MATERIALS, APR 2017.

[View All](#)

This record is from:
Web of Science Core Collection
- Science Citation Index Expanded

Suggest a correction

If you would like to improve the quality of the data in this record, please [suggest a correction](#).

Publisher

ELSEVIER SCIENCE SA, PO BOX 564, 1001 LAUSANNE, SWITZERLAND

Categories / Classification

Research Areas: Materials Science; Physics; Polymer Science

Web of Science Categories: Materials Science, Multidisciplinary; Physics, Condensed Matter; Polymer Science

Document Information

Document Type: Article

Language: English

Accession Number: WOS:000309488200031

ISSN: 0379-6779

Journal Information

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

Impact Factor: [Journal Citation Reports](#)

Other Information

IDS Number: 015ZY

Cited References in Web of Science Core Collection: **44**

Times Cited in Web of Science Core Collection: **4**