

# 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

70 of 491

## The electrical characterization of ZnO/GaAs heterojunction diode

By: Soylyu, M (Soylyu, M.)<sup>[1]</sup>; Al-Ghamdi, AA (Al-Ghamdi, A. A.)<sup>[2]</sup>; Al-Hartomy, OA (Al-Hartomy, Omar A.)<sup>[2,3]</sup>; El-Tantawy, F (El-Tantawy, Farid)<sup>[4]</sup>; Yakuphanoglu, F (Yakuphanoglu, F.)<sup>[2,5]</sup>  
[View ResearcherID and ORCID](#)

### PHYSICA E-LOW-DIMENSIONAL SYSTEMS & NANOSTRUCTURES

Volume: 64 Pages: 240-245  
 DOI: 10.1016/j.physe.2014.08.001  
 Published: NOV 2014  
[View Journal Impact](#)

### Abstract

The electrical characteristics of sol-gel synthesized n-ZnO/p-GaAs heterojunction were reported. The values of barrier height and ideality factor for n-ZnO/p-GaAs heterojunction diode were determined to be 0.61 eV and 1.83, respectively. The I-V characteristics of the heterojunction diode exhibit a non-ideal behavior. The ideality factor which is greater than unity was attributed to the series resistance, interface states and interfacial layer. The modified Norde's function combined with conventional forward I-V method was used to obtain the parameters including the series resistance and barrier height (BH). The capacitance-voltage (C-V) measurements were performed in the range of 100 kHz to 1 MHz. The interface distribution profile (D-it) as a function of bias voltage was extracted from the C-V and G(adj)-V characteristics. The interface state density of n-ZnO/p-GaAs diode is of the order of 10(13) eV(-1) cm(-2). Also, the I-V characteristics of n-ZnO/p-GaAs heterojunction diode were investigated in the temperature range of 293-393 K. (C) 2014 Elsevier B.V. All rights reserved.

### Keywords

**Author Keywords:** Semiconductors; Nanofabrications; Electronic transport  
**KeyWords Plus:** INTERFACE-STATE DENSITY; LIGHT-EMITTING-DIODES; SCHOTTKY DIODES; THIN-FILMS; ZNO FILMS; N-TYPE; SEMICONDUCTOR; DEPOSITION; BARRIERS; INP

### Author Information

**Reprint Address:** Soylyu, M (reprint author)  
 Bingo Univ, Fac Sci & Arts, Dept Phys, Bingol, Turkey.  
**Addresses:**  
 [ 1 ] Bingo Univ, Fac Sci & Arts, Dept Phys, Bingol, Turkey  
 [ 2 ] King Abdulaziz Univ, Fac Sci, Dept Phys, Jeddah 21589, Saudi Arabia  
 [ 3 ] Univ Tabuk, Fac Sci, Dept Phys, Tabuk, Saudi Arabia  
 [ 4 ] Suez Canal Univ, Fac Sci, Dept Phys, Ismailia, Egypt  
 [ 5 ] Firat Univ, Fac Sci, Dept Phys, TR-23169 Elazig, Turkey

**E-mail Addresses:** [soylum74@yahoo.com](mailto:soylum74@yahoo.com)

### Funding

| Funding Agency      | Grant Number |
|---------------------|--------------|
| University of Tabuk | 4/1433       |

[View funding text](#)

### Publisher

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

### Citation Network

4 Times Cited  
 45 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: 1  
 Since 2013: 38  
[Learn more](#)

**Most Recent Citation**  
 Attia, A. A. Analysis of electrical properties of heterojunction based on ZnIn2Se4 . OPTICAL 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](#).

**Categories / Classification****Research Areas:** Science & Technology - Other Topics; Physics**Web of Science Categories:** Nanoscience & Nanotechnology; Physics, Condensed Matter**Document Information****Document Type:** Article**Language:** English**Accession Number:** WOS:000342955800040**ISSN:** 1386-9477**eISSN:** 1873-1759**Journal Information****Table of Contents:** [Current Contents Connect](#)**Impact Factor:** [Journal Citation Reports](#)**Other Information****IDS Number:** AQ6WY**Cited References in Web of Science Core Collection:** **45****Times Cited in Web of Science Core Collection:** **4**