

# Web of Science

Search

Search Results

My Tools

Search History

Marked List

[Look Up Full Text](#)


Save to EndNote online

Add to Marked List

349 of 449

## Ferroelectric Bi<sub>3.25</sub>La<sub>0.75</sub>Ti<sub>3</sub>O<sub>12</sub> photodiode for solar cell applications

By: [Yakuphanoglu, F](#) (Yakuphanoglu, F.)<sup>[1,3]</sup>; [Tataroglu, A](#) (Tataroglu, A.)<sup>[2]</sup>; [Al-Ghamdi, AA](#) (Al-Ghamdi, Ahmed A.)<sup>[3]</sup>; [Gupta, RK](#) (Gupta, R. K.)<sup>[4]</sup>; [Al-Turki, Y](#) (Al-Turki, Yusuf)<sup>[5]</sup>; [Serbetci, Z](#) (Serbetci, Z.)<sup>[6]</sup>; [Bin Omran, S](#) (Bin Omran, Saad)<sup>[7]</sup>; [El-Tantawy, F](#) (El-Tantawy, Farid)<sup>[8]</sup>

[View ResearcherID and ORCID](#)

### SOLAR ENERGY MATERIALS AND SOLAR CELLS

Volume: 133 Pages: 69-75

DOI: 10.1016/j.solmat.2014.10.038

Published: FEB 2015

[View Journal Impact](#)

### Abstract

Bi<sub>3.25</sub>La<sub>0.75</sub>Ti<sub>3</sub>O<sub>12</sub> thin film was prepared on p-type silicon substrate by sol-gel spin coating method. The film indicates a ferroelectric behavior with a remanent polarization of similar to 18.2 μC/cm(2). Electronic parameters such as ideality factor and barrier height of the diode were calculated to be 3.80 and 0.75 eV, respectively. The photocurrent results in the reverse bias of the diode indicate that photocurrent under illumination is higher than the dark current. The diode exhibited a substantial visible-light photovoltaic effect. The capacitance-voltage and conductance-voltage measurements were carried out in the frequency range of 10 kHz-1 MHz. The observed decrease in the capacitance and increase in the conductance with the increasing frequency were explained on the basis of interface states. The interface states density of the structure was determined using Hill-Coleman method and observed to decrease with increasing frequency. The obtained results indicate that ferroelectric Bi<sub>3.25</sub>La<sub>0.75</sub>Ti<sub>3</sub>O<sub>12</sub>/P-type silicon junction is a new class of photoconductive devices with low-cost fabrication and high photoresponsivity. (C) 2014 Published by Elsevier B.V.

### Keywords

**Author Keywords:** Bi<sub>3.25</sub>La<sub>0.75</sub>Ti<sub>3</sub>O<sub>12</sub> thin film; Sol-gel method; Electrical properties; Frequency dependence

**KeyWords Plus:** SCHOTTKY-BARRIER DIODES; HIGH SERIES RESISTANCE; TITANATE THIN-FILMS; INTERFACE STATES; BISMUTH TITANATE; GEL METHOD; DIELECTRIC-PROPERTIES; EXCESS CAPACITANCE; OPTICAL-PROPERTIES; SI HETEROJUNCTION

### Author Information

**Reprint Address:** Gupta, RK (reprint author)

+ Pittsburg State Univ, Dept Chem, Pittsburg, KS 66762 USA.

#### Addresses:

- + [ 1 ] Firat Univ, Fac Sci, Dept Phys, TR-23169 Elazig, Turkey
- + [ 2 ] Gazi Univ, Fac Sci, Dept Phys, Ankara, Turkey
- + [ 3 ] King Abdulaziz Univ, Fac Sci, Dept Phys, Jeddah 21413, Saudi Arabia
- + [ 4 ] Pittsburg State Univ, Dept Chem, Pittsburg, KS 66762 USA
- + [ 5 ] King Abdulaziz Univ, Fac Engn, Dept Elect & Comp Engn, Jeddah 21413, Saudi Arabia
- + [ 6 ] Bingol Univ, Fac Arts & Sci, Dept Chem, Bingol, Turkey
- + [ 7 ] King Saud Univ, Coll Sci, Dept Phys & Astron, Riyadh 11451, Saudi Arabia
- + [ 8 ] Suez Canal Univ, Fac Sci, Dept Phys, Ismailia, Egypt

**E-mail Addresses:** [ramguptamsu@gmail.com](mailto:ramguptamsu@gmail.com)

### Funding

Funding Agency	Grant
----------------	-------

### Citation Network

18 Times Cited

48 Cited References

[View Related Records](#)

[Create Citation Alert](#)

(data from Web of Science Core Collection)

### All Times Cited Counts

18 in All Databases

18 in Web of Science Core Collection

1 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: 7

Since 2013: 83

[Learn more](#)

### Most Recent Citation

Baraz, Nalan. [Electric and Dielectric Properties of Au/ZnS-PVA/n-Si \(MPS\) Structures in the Frequency Range of 10-200 kHz](#). JOURNAL OF ELECTRONIC MATERIALS, JUL 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](#).

	Number
Deanship of Scientific Research (DSR) King Abdulaziz University, Jeddah, Saudi Arabia	

[View funding text](#)

### Publisher

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

### Categories / Classification

**Research Areas:** Energy & Fuels; Materials Science; Physics

**Web of Science Categories:** Energy & Fuels; Materials Science, Multidisciplinary; Physics, Applied

### Document Information

**Document Type:** Article

**Language:** English

**Accession Number:** WOS:000348015100011

**ISSN:** 0927-0248

**eISSN:** 1879-3398

### Journal Information

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

**Impact Factor:** [Journal Citation Reports](#)

### Other Information

**IDS Number:** AZ1RH

**Cited References in Web of Science Core Collection:** 48

**Times Cited in Web of Science Core Collection:** 18