

Web of Science

Search

Search Results

My Tools ▾

Search History

Marked List

34 of 455

Cobalt doped antimony oxide nano-particles based chemical sensor and photo-catalyst for environmental pollutants

By: Jamal, A (Jamal, Aslam)^[2,3]; Rahman, MM (Rahman, Mohammed M.)^[1,4]; Khan, SB (Khan, Sher Bahadar)^[1,4]; Faisal, M (Faisal, Mohd.)^[2,3]; Akhtar, K (Akhtar, Kalsoom)^[5,6]; Rub, MA (Rub, Malik Abdul)^[1,4]; Asiri, AM (Asiri, Abdullah M.)^[1,4]; Al-Youbi, AO (Al-Youbi, Abdulrahman O.)^[1,4]

[View ResearcherID and ORCID](#)

APPLIED SURFACE SCIENCE

Volume: 261 **Pages:** 52-58

DOI: 10.1016/j.apsusc.2012.07.066

Published: NOV 15 2012

[View Journal Impact](#)

Abstract

Cobalt doped antimony oxide nano-particles (NPs) have been synthesized by hydrothermal process and structurally characterized by utilizing X-ray diffraction (XRD), field emission scanning electron microscopy (FE-SEM) and Fourier transforms infrared spectrophotometer (FT-IR) which revealed that the synthesized cobalt antimony oxides (CoSb₂O₆) are well crystalline nano-particles with an average particles size of 26 +/- 10 nm. UV-visible absorption spectra (similar to 286 nm) were used to investigate the optical properties of CoSb₂O₆. The chemical sensing of CoSb₂O₆ NPs have been primarily investigated by I-V technique, where dichloromethane is used as a model compound. The analytical performance of dichloromethane chemical sensor exhibits high sensitivity (1.2432 μA cm⁻² mM⁻¹) and a large linear dynamic range (1.0 μM-0.01 M) in short response time (10 s). The photo catalytic activity of the synthesized CoSb₂O₆ nano-particles was evaluated by degradation of acridine orange (AO), which degraded 58.37% in 200 min. These results indicate that CoSb₂O₆ nano-particles can play an excellent research impact in the environmental field. (C) 2012 Elsevier B.V. All rights reserved.

Keywords

Author Keywords: CoSb₂O₆ nano-particles; Structural properties; Optical properties; Photo-catalytic degradation; Chemical sensing

KeyWords Plus: NANOPARTICLES

Author Information

Reprint Address: Khan, SB (reprint author)

King Abdulaziz Univ, Fac Sci, Dept Chem, POB 80203, Jeddah 21589, Saudi Arabia.

Organization-Enhanced Name(s)

King Abdulaziz University

Addresses:

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

Organization-Enhanced Name(s)

King Abdulaziz University

[2] Najran Univ, Fac Sci & Arts, CAMNE, Najran 11001, Saudi Arabia

[3] Najran Univ, Fac Sci & Arts, Dept Chem, Najran 11001, Saudi Arabia

[4] King Abdulaziz Univ, CEAMR, Jeddah 21589, Saudi Arabia

Organization-Enhanced Name(s)

Citation Network

18 Times Cited

16 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

3 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: 23

[Learn more](#)

Most Recent Citation

Din, Alaud. Fe₂O₃-Co₃O₄ nanocomposites based humidity and temperature sensors . JOURNAL OF MOLECULAR LIQUIDS, 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](#).

King Abdulaziz University

+ [5] Ewha Womans Univ, Dept Chem, Seoul 120750, South Korea

+ [6] Ewha Womans Univ, Div Nano Sci, Seoul 120750, South Korea

E-mail Addresses: drkhanmarwat@gmail.com

Publisher

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

Categories / Classification

Research Areas: Chemistry; Materials Science; Physics

Web of Science Categories: Chemistry, Physical; Materials Science, Coatings & Films; Physics, Applied; Physics, Condensed Matter

Document Information

Document Type: Article

Language: English

Accession Number: WOS:000310442500009

ISSN: 0169-4332

Other Information

IDS Number: 028SJ

Cited References in Web of Science Core Collection: 16

Times Cited in Web of Science Core Collection: 18