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HASIL PENILAIAN SEJAWAT SEBIDANG ATAU *PEER REVIEW*
KARYA ILMIAH : JURNAL ILMIAH

Judul Jurnal Ilmiah (Artikel) : Synthesis of Tin Oxide Nanoparticles by Pulsed Laser Ablation Method Using Low-Energy Nd: YAG Laser as an Antibacterial Agent

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Identitas Jurnal Ilmiah :

- a. Nama Jurnal : Journal of Nano Research
- b. Nomor ISSN : 1661-9897, eISSN 1662-5250
- c. Vol, No., Bln Thn : Vol 68 No 1, Agustus 2021 Hal 114-122
- d. Penerbit : Trans Tech Publications
- e. DOI artikel (jika ada) : <https://doi.org/10.4028/www.scientific.net/JNanoR.68.114>
- f. Alamat web jurnal : <https://www.scientific.net/JNanoR.68.114>
- Alamat Artikel : <http://doc-pak.undip.ac.id/21363/6/14.pdf>
- g. Terindex : Scopus (Q3, SJR 0,24)

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d. Kelengkapan unsur dan kualitas penerbit (30%)	11,50	11,60	11,55
Total = (100%)			38,30
Nilai untuk Pengusul : $(40\% \times 38,30) / 2 = 7,66$			

Reviewer 1



Prof. Dr. Agus Subagio, S.Si., M.Si.
 NIP. 19710813 1995121001
 Unit Kerja: FSM Universitas Diponegoro
 Bidang Ilmu: Fisika

Semarang, 15 Mei 2023

Reviewer 2



Dr. Eng. Eko Hidayanto
 NIP. 197301031998021001
 Unit Kerja: FSM Universitas Diponegoro
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Total = (100%)	40			38,6
Nilai Pengusul = $(40\% \times 38,6) / 2 = 7,72$				

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1. Kesesuaian dan kelengkapan unsur isi jurnal:

Isi artikel sesuai dan memuat kelengkapan unsur-unsur isi jurnal yang terdiri dari abstrak, pendahuluan, metode, hasil dan pembahasan, kesimpulan serta daftar pustaka.

2. Ruang lingkup dan kedalaman pembahasan:

Artikel membahas sifat antibakteri tin oxide yang disintesis menggunakan metode ablasi laser pulsa dalam medium kitosan. Sifat antibakteri tin oxide diujikan pada gram negative e. coli dan gram positif subtilis dengan berbagai konsentrasi. Hasil yang dipresentasikan dalam artikel menunjukkan kedalaman ruang lingkup dan pembahasan yang sangat baik untuk aplikasi nanopartikel sebagai agen antibakteri.

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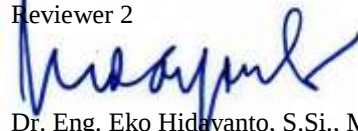
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Semarang, 16 Mei 2023

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Dr. Eng. Eko Hidayanto, S.Si., M.Si.

NIP. 197301031998021001

Unit Kerja : Fisika

Bidang Ilmu: Fakultas Sains dan Matematika

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- Ruang lingkup dan kedalaman pembahasan:**
Pada artikel dibahas sifat antibakteri tin oxide yang disintesis menggunakan metode ablasi laser pulsa dalam medium kitosan. Hasil yang dipresentasikan dalam artikel menunjukkan kedalaman ruang lingkup dan pembahasan yang sangat baik untuk aplikasi nanopartikel sebagai agen antibakteri. Paper ini juga dilengkapi dengan referensi pada bagian pembahasan untuk menguatkan diskusi.
- Kecukupan dan kemutakhiran data/informasi dan metodologi:**
Metode yang digunakan standar menggunakan metode ablasi laser pulsa dalam medium kitosan dengan data yang disajikan mudah dipahami dan informatif secara visual sehingga sangat baik dan mendukung hasil penelitian. Referensi yang digunakan juga cukup baik.
- Kelengkapan unsur dan kualitas terbitan:**
Artikel diterbitkan dalam jurnal internasional bereputasi terindeks scopus Q3 dengan SJR 0,24. Artikel tersebut memiliki unsur-unsur yang lengkap dan memiliki kualitas internasional serta isi jurnal sudah cukup lengkap dan kualitas penerbitan yang baik.

Semarang, 16 Mei 2023

Reviewer 1

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Qona'ah, Ana; Nurhasanah, Iis; Khumaeni, Ali

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^a Department of Physics, Faculty of Science and Mathematics, Diponegoro University, Semarang, 50275, Indonesia

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(2022) *Results in Engineering*

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Abstract

Tin oxide nanoparticles (SnNPs) are very useful to be employed as an antibacterial agent for both gram-positive and gram-negative bacteria. In this present work, the synthesis of SnNPs was successfully carried out using the neodymium yttrium aluminum garnet (Nd:YAG) laser with a wavelength of 1064 nm, pulse duration of 7 ns, and a laser frequency of 10 Hz. Experimentally, a pulse Nd:YAG laser was

directed and focused on a high-purity tin (Sn) metal, immersed in various liquid media including pure water and ethylene glycol. A brownish colloidal colour was produced both in pure water and ethylene glycol liquid media. Characterizations of tin oxide nanoparticles were made using UV-Vis, EDX, FTIR, and TEM. UV-Vis characterization produced absorbance values in pure water and ethylene glycol media of 1.314 a.u. and 1.119 a.u., respectively. TEM images show that the shape of tin oxide nanoparticles produced is spherical. Measurement of nanoparticle size distribution was made using image-J software and the average diameter of nano-size in the ethylene glycol medium is 12.55 nm, which is smaller than the size in the pure water of 19.98 nm. The EDX spectrum analysis results show that there are only Sn and O atoms in colloidal tin oxide nanoparticles (SnNPs). FTIR results show the formation of tin oxide (SnO₂) species at the wavenumber of 629.03 cm⁻¹. The produced colloidal SnNPs were then applied as an antibacterial agent of E. coli using the disk diffusion method. Results certified that various concentrations of SnNPs of 10 ppm, 20 ppm, and 30 ppm gain the diameter of inhibition zone (DIZ) in sequencing 50 mm, 6.75 mm, and 9.50 mm. Based on these experimental results, it shows that the higher the concentration of SnNPs given, the greater the ability to degrade and inhibit bacteria. © 2021 Trans Tech Publications Ltd, Switzerland.

Author keywords

antibacterial agent; Nd:YAG laser; pulse laser ablation method; Tin oxide nanoparticles

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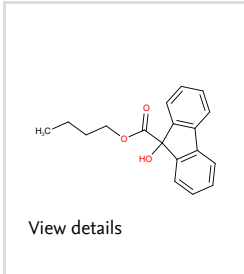
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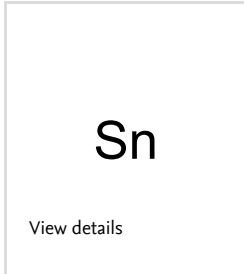


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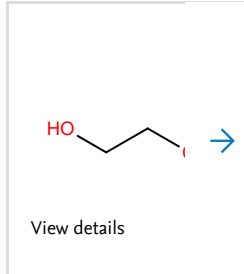


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Abstract

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Optical Properties of PVA Films Doped with Gold-Graphene Nanocomposite Synthesized by Pulsed Laser Ablation

Maljai, Roya  ; Sari, Amir Hossein  ; Dorrnian, Davoud 

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^a Laser Lab., Plasma Physics Research Center, Science and Research Branch, Islamic Azad University, Tehran, **Iran**

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Abstract

In this research optical properties of synthesized gold-graphene/polyvinyl alcohol (AuG/PVA) nanocomposite have been investigated. Gold and graphene nano colloidal solution (NCS) synthesized by laser ablation method individually. The resulting NCS were characterized by UV-Vis absorption spectroscopy, scanning electron microscopy (SEM), and transmission electron microscopy (TEM). PVA/Au and PVA/AuG with different concentration of AuG were mixed to form polymeric films via solution casting. Doped polymeric films were analyzed by FTIR and spectrophotometer analyses. The results show that by increasing of AuG concentration, the band gap energy of the PVA films significantly enhanced and other optical parameters such as refraction and extinction coefficients remarkably changed. © 2021 Trans Tech Publications Ltd, Switzerland.

Author keywords

gold-graphene; laser ablation; nano colloidal solution; optical properties; PVA film

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SUBMIT PAPER

Note from Nobel Laureate Professor Sir H. W. Kroto who will be in our hearts and memories.

RECENT VOLUME

As Chemistry and Physics at one borderline and Chemistry and Biology at the other become indistinguishable so crossdisciplinary research is leading to the fascinating “new” overarching field of Nanoscience and Nanotechnology (N&N). Ingenious strategies for the creation of molecules and extended atomic structures with complex exactly-specified infrastructures and function are being developed – basically nanoscale devices that “do things” are now being created. New experimental approaches which focus on how atoms assemble are leading to the production of novel nanostructures and research is focusing on the control of self-assembly processes ie the bottom-up approach to the production of materials with advanced function. This new approach is leading to novel advanced materials with exciting new applications. Fascinating fundamental insights into formation mechanisms are being revealed and nanoscale devices, which parallel devices in standard engineering are now being created. This new journal, Journal of Nano Research, has been born at the ideal moment and is set to become a leading source of N&N research, essentially the “Frontier Chemistry of the 21st Century”. Breakthroughs are presently being realised which are generating a paradigm shift in synthetic chemical assembly techniques. On the horizon are applications ranging from civil engineering to advanced molecular electronics so promising to transform our everyday technology as well as basic economics.

Note from the editors:

Nanoscience and nanotechnology brought up an unprecedented excitement in the scientific and engineering communities, especially the last decade. The recent revolutionary advances in nanoscale phenomena open exciting, new avenues for research and discovery. The Journal of Nano Research (JNanoR) is a new venue for publishing

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University of Edinburgh, Institute for Materials and Processes, School of Engineering; Sanderson Building, the King's Buildings, Edinburgh, United Kingdom, EH9 3FB;

Prof. Alan Kin Tak Lau

Swinburne University of Technology, Faculty of Science, Engineering and Technology; John Street, Hawthorn, Australia, VIC 3122;

Prof. Harry F. Tibbals

University of Texas, Southwestern Medical Center at Dallas, Department of Materials Science and Engineering; Engineering Laboratory Building, Room 229, 501 West First St., Arlington, USA, TX 76019;

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University of Science and Technology Beijing, Department of Material Physics and Chemistry, School of Material Science and Engineering; 30 Xueyuan Road, Haidian District, Beijing, China, 100083;

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Paper Title	Page
<u>Hollow Graphitic Carbon Nanospheres Synthesized by Rapid Pyrolytic Carbonization</u>	1
Authors: Cheng Zhang, Qing Shan Gao, Lu Yun Jiao, Laura Bogen, Nicole Forte, Elizabeth Nestler Abstract: Hollow graphitic porous carbon nanosphere (CNS) materials are synthesized from polymerization of resorcinol (R) and ...more	
<u>MXene Based Palm Oil Methyl Ester as an Effective Heat Transfer Fluid</u>	17
Authors: Dieter Rahmadiawan, Navid Aslfattahi, Nasruddin Nasruddin, Rahman Saidur, A. Arifutzzaman, Hussein A. Mohammed Abstract: In this research, MXene (Ti_3C_2) nanoflakes are implanted for the first time with Palm oil methyl ester (POME) to improve the ...more	

Indium Gallium Zinc Oxide FinFET Compared with Silicon FinFET

103

Authors: Unopa Matebesi, Nonfo M.J. Ditshego

Abstract: Indium gallium zinc oxide fin-field effect transistor (IGZO FinFET) characteristics are investigated and then compared with Zinc ...[more](#)

Synthesis of Tin Oxide Nanoparticles by Pulsed Laser Ablation Method Using Low-Energy Nd: YAG Laser as an Antibacterial Agent

114

Authors: Ana Qona'ah, **lis Nurhasanah**, Ali Khumaeni

Abstract: Tin oxide nanoparticles (SnNPs) are very useful to be employed as an antibacterial agent for both gram-positive and gram- ...[more](#)

Optical Properties of PVA Films Doped with Gold-Graphene Nanocomposite Synthesized by Pulsed Laser Ablation

123

Authors: Roya Maljaei, Amir Hossein Sari, Davoud Dorrnian

Abstract: In this research optical properties of synthesized gold-graphene/polyvinyl alcohol (AuG/PVA) nanocomposite have been ...[more](#)

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Zhang, Cheng^a ; Gao, Qingshan^b ; Jiao, Luyun^a ; Bogen, Laura^a ; Forte, Nicole^a ;Nestler, Elizabeth^a

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^a Department of Chemistry, Long Island University (Post), Brookville, 11548, NY, United States^b School of Applied Chemistry and Bioengineering, Weifang Engineering Vocational College, Shandong, Qingzhou, 262500, China

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Hollow graphitic porous carbon nanosphere (CNS) materials are synthesized from polymerization of resorcinol (R) and formaldehyde (F) in the presence of templating iron polymeric complex (IPC), followed by carbonization treatment. The effect of rapid heating in the carbonization process is investigated for the formation of hollow graphitic carbon nanospheres. The resulting CNS from rapid heating was characterized for its structure and properties by transmission electron microscope (TEM), x-ray diffraction (XRD), Raman spectroscopy, bulk conductivity measurement and Brunauer-Emmett-Teller (BET) surface area. Hollow graphitic CNS with reduced degree of agglomeration is observed under rapid heating during the carbonization process when compared to the CNS synthesized using the standard slow heating approach. © 2021 Trans Tech Publications Ltd, Switzerland.

Author keywords

agglomeration; carbon nanosphere (CNS); rapid pyrolytic carbonization

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Maljai, Roya  ; Sari, Amir Hossein  ; Dorrnian, Davoud 

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Abstract

In this research optical properties of synthesized gold-graphene/polyvinyl alcohol (AuG/PVA) nanocomposite have been investigated. Gold and graphene nano colloidal solution (NCS) synthesized by laser ablation method individually. The resulting NCS were characterized by UV-Vis absorption spectroscopy, scanning electron microscopy (SEM), and transmission electron microscopy (TEM). PVA/Au and PVA/AuG with different concentration of AuG were mixed to form polymeric films via solution casting. Doped polymeric films were analyzed by FTIR and spectrophotometer analyses. The results show that by increasing of AuG concentration, the band gap energy of the PVA films significantly enhanced and other optical parameters such as refraction and extinction coefficients remarkably changed. © 2021 Trans Tech Publications Ltd, Switzerland.

Author keywords

gold-graphene; laser ablation; nano colloidal solution; optical properties; PVA film

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