| CRITERION 3<br>Research, Innovations and Extension | 3.4 Research Publication and Awards |
|---|---|
| **3.4.3: Number of research papers per teachers in the journal notified on UGC website during last five years** | |

# RESEARCH PUBLICATIONS 2019

Proceedings of the 3rd International Conference on I-SMAC IoT in Social, Mobile, Analytics and Cloud, I-SMAC 2019

December 2019, Article number 9032625, Pages 496-500

3rd International Conference on I-SMAC (IoT in Social, Mobile, Analytics and Cloud), I-SMAC 2019; Palladam; India; 12 December 2019 through 14 December 2019; Category numberCFP19OSV-ART; Code 158464

# Motion Artifact Removal for Bio Signals using Regularized Autoencoder(Conference Paper)

Evangelin, D., Ithayarani, P., Jebastin, J.N.S.

View additional authors
Save all to author list

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View additional affiliations

## Abstract

The advancements in wireless communication technology and micro electro mechanical system (MEMS) based sensor technology led to the rise of body area communication in healthcare field. The bio signals acquired through this on-body communication mainly suffers from motion artifacts caused by shadowing due to the body shape and body movement. These noises may lead to wrong prediction on data. Therefore, it is important to consider denoising the bio signals in order to perform accurate diagnosis and analysis. This paper proposes regularized denoising autoencoder (DAE) to reconstruct the clean signal from its noisy form. Here two regularization terms L1 and L2 which updates the cost function to avoid over fitting problem. This paper proves that L1 is better than L2 in terms of recovering the signal quality and it is measured by Signal to Noise Ratio (SNR). The dataset used here are taken from a neurokit a python tool box for statistics and neurophysiological signal processing. © 2019 IEEE.

## Author keywords

artifact | bio signals | body area communication | DAE | MEMS

## Indexed keywords

Engineering controlled terms: Cost functions | Internet of things | Learning systems | MEMS | Signal reconstruction

Engineering uncontrolled terms: Body area communications | Body movements | Micro electromechanical system (MEMS) | Motion artifact | Over fitting problem | Regularization terms | Sensor technologies | Wireless communication technology

Engineering main heading: Signal to noise ratio

**ISBN:** 978-172814365-1
**Source Type:** Conference Proceeding
**Original language:** English

**DOI:** 10.1109/I-SMAC47947.2019.9032625
**Document Type:** Conference Paper
**Publisher:** Institute of Electrical and Electronics Engineers Inc.

# Document details - Highly Selective and Sensitive Sensing of Toxic Mercury Ions Utilizing Carbon Quantum Dot-Modified Glassy Carbon Electrode





International Journal of Environmental Research

Volume 13, Issue 6, 1 December 2019, Pages 1015-1023

## Highly Selective and Sensitive Sensing of Toxic Mercury Ions Utilizing Carbon Quantum Dot-Modified Glassy Carbon Electrode(Article)

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### Abstract

In this paper, a novel synthesis of 1 nm sized metal-free carbon quantum dots (CQDs) and their electrochemical application vis-à-vis mercury (Hg) sensing have been demonstrated. The characterization of synthesized CQDs was done by FT-IR, HR-TEM, XRD and UV–Vis analysis. Furthermore, the CQD-modified electrode shows an excellent sensing ability toward deleterious Hg ion even when 600-fold of excess of interfering ions such as $Cu^{2+}$, $Pb^{2+}$, $Cd^{2+}$, $Na^{+}$, $K^{+}$, $Mg^{2+}$, $Ba^{2+}$, $Bi^{2+}$, $Fe^{2+}$, $Zn^{2+}$ and $Hg^{2+}$ are present. A wide linearity range (0.5–300 nM) and the lowest limit of detection (2.5 nM) are exhibited by the proposed sensor with potential scanning from – 0.7 to + 0.7 V vs Ag/AgCl at a scan rate of 20 mV. In addition, the CQD-modified electrode displays an outstanding recovery results toward Hg in various real water samples. This study promotes new possibilities of designing various electrochemical sensors based on CQD nanocomposite. 

### Author keywords

Carbon quantum dots | Cyclic voltammetry | Differential pulse voltammetry | Electrochemical Sensing | Mercury

### Indexed keywords

GEOBASE Subject Index: electrochemical method | electrode | FTIR spectroscopy | ion exchange | mercury (element) | sensitivity analysis | toxicity

**ISSN:** 17356865
**Source Type:** Journal
**Original language:** English
**DOI:** 10.1007/s41742-019-00236-2
**Document Type:** Article
**Publisher:** Springer International Publishing

Prakash, P.; Department of Chemistry, Thiagarajar College, Madurai, Tamil Nadu, India;



### SciVal Topic Prominence

Topic:

Prominence percentile:

### Cited by 11 documents

Jose, J. , Prakash, P. , Jeyaprabha, B.

Principle, design, strategies, and future perspectives of heavy metal ion detection using carbon nanomaterial-based electrochemical sensors: a review

*(2023) Journal of the Iranian Chemical Society*

Mathew, S. , Rose Chacko, A. , Korah, B.K.

Green synthesized carbon quantum dot as dual sensor for Fe(II) ions and rational design of catalyst for visible light mediated abatement of pollutants

*(2022) Applied Surface Science*

Korah, B.K. , John, N. , John, B.K.

Carbon dots as a fluorescent ink and dual-mode probe for the efficient detection of doxycycline and Hg(II) ions

*(2022) Journal of Materials Research*

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# Document details - Analysis of solar energy technology in leading countries





International Journal of Power Electronics and Drive Systems

Volume 10, Issue 4, December 2019, Pages 1995-2004

## Analysis of solar energy technology in leading countries(Article)(Open Access)

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### Abstract

In the present generation energy plays a vital role in our world and for human life it´s very important factor. There is a methodical meeting taking place regarding the conservation of energy and every time there is a review in the agenda. Energy demand and supply were endeavored by these countries. To rectify these problems, there should be more research in the generation of energy with the greater efficiency and try to use energy in more efficient manner. Solar energy remains as the most prominent source of energy as it is cost effective and environmentally friendly. Reviews convey that solar energy systems will play a major role in the power generations. As per present scenario there is a great importance to the solar energy using photovoltaic systems. Photovoltaic systems exhibit an important role for solar energy production. 

### Author keywords

Clean Energy | Photovoltaic systems | Renewable energy | Solar energy

**ISSN:** 20888694
**Source Type:** Journal
**Original language:** English
**DOI:** 10.11591/ijpeds.v10.i4.pp1995-2004
**Document Type:** Article
**Publisher:** Institute of Advanced Engineering and Science

Kaliappan, K.; Departement of Electrical and Electronics Engineering, Sreenidhi Institute of Science and Technology, Ghatkesar, Yamnampet, Hyderabad, India;

# Document details - External equitable domination in graphs





International Journal of Advanced Science and Technology

Volume 28, Issue 16, 21 November 2019, Pages 1247-1252

## External equitable domination in graphs(Article)

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### Abstract

This paper aims at the study of a new concept called external equitability. Properties like independence, excellence, domination etc are coupled with external equitability and a detailed study is made. © 2019 SERSC.

**ISSN:** 20054238
**Source Type:** Journal
**Original language:** English
**Document Type:** Article
**Publisher:** Science and Engineering Research Support Society



### SciVal Topic Prominence

Topic:

Prominence percentile:

# Document details - High-strength hybrid particulate-fibre polymer composites: The role of process temperature on the mechanical strength





Materials Research Express

Volume 6, Issue 12, 20 November 2019, Article number 125313

## High-strength hybrid particulate-fibre polymer composites: The role of process temperature on the mechanical strength(Article)

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### Abstract

In this study, hybrid particulate-fibre reinforced polymer matrix composites were demonstrated as a high-strength and lightweight engineering material. The natural fibre, sisal, reinforced polymer composite is well known for its good performance in industrial applications. The mechanical strength of such sisal fibre composites were further improved by incorporating Teakwood particulates. Such particulates are composed of cellulosic and hemi-cellulosic molecules and crystallinity index of 33%, as evidenced by Fourier Transform Infrared Spectroscopy (FTIR) and x-ray diffraction (XRD) respectively. The hybrid composite samples were fabricated at varying particulate weight content (%) and different processing temperatures via compression molding technique. It is found that the processing temperature greatly influences the mechanical properties of the composite. A hybrid composite material processed at 80 °C shows the highest tensile and flexural strength of 33.2 MPa and 48.4 MPa, respectively, for the particulate content of 15 wt%. In fact, the presence of teakwood particulates facilitates arresting the propagation of cracks due to the applied load and thus improves the mechanical strength. 

### Author keywords

composites | mechanical properties | response surface method | scanning electron microscopy | simulated annealing | sisal fibre

### Indexed keywords

Engineering controlled terms: Composite materials | Compression molding | Crystallinity | Fiber reinforced plastics | Fibers | Fourier transform infrared spectroscopy | Mechanical properties | Particles (particulate matter) | Polymer matrix composites | Processing | Reinforcement | Scanning electron microscopy | Simulated annealing | Strength of materials | Temperature | Tensile strength

Engineering uncontrolled terms: Compression-molding technique | Fibre reinforced polymer matrix composite | Hybrid composite materials | Light-weight engineering | Processing temperature | Reinforced polymer composites | Response surface method | Sisal fibre

Engineering main heading: Particle reinforced composites

# Document details - Synergism between sodium molybdate and binary inhibitor (BHI + Zn<sup>2+</sup>) on corrosion inhibition of mild steel in aqueous medium containing 60 ppm Cl<sup>-</sup> ion





Materials Research Express

Volume 6, Issue 11, 6 November 2019, Article number 1165g6

## Synergism between sodium molybdate and binary inhibitor (BHI + $Zn^{2+}$) on corrosion inhibition of mild steel in aqueous medium containing 60 ppm $Cl^-$ ion(Article)

Vennila, T., Muneeswaran, T., Manjula, M., Stalin, B., Vairamuthu, J.

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View additional affiliations

### Abstract

The synergism between sodium molybdate and binary inhibitor (1-benzyl-3-hydroxy 1-H-indazole (BHI) +$Zn^{2+}$) system on the corrosion inhibition efficacy of mild steel in an aqueous medium containing 60 ppm chloride ion was analyzed by means of gravimetric and electrochemical spectroscopic measurements. The effect of temperature, and immersion time on the corrosion behavior of mild steel has also been studied. The formed defensive layer on the mild steel surface was analysed in Fourier transforms infrared (FT-IR) spectroscopy and atomic force microscopy (AFM). The results show that ligands adsorbed on the metal surface. The experimental results of the adsorption study shows that the compound follows Langmuir, Temkin and Freundlich adsorption isotherms. The calculated $G°_{ads}$ value (-20.264 kJ $mol^{-1}$) supports the mechanism of physical adsorption. Using the temperature dependent inhibition efficiency experimental data, the activation energy and thermodynamic parameters were derived. The calculated Tafel constants suggest that the inhibitors are mixed type. The scanning electron microscopic (SEM) images showed that the roughness and the deep cracks of the metal surface are reduced significantly by the inhibitor system. 

### Author keywords

adsorption isotherm | corrosion inhibition | electrochemical impedance spectroscopy | Mild steel | synergism

### Indexed keywords

Engineering controlled terms: Activation energy | Adsorption | Adsorption isotherms | Atomic force microscopy | Carbon steel | Chlorine compounds | Corrosion inhibitors | Corrosive effects | Electrochemical corrosion | Electrochemical impedance spectroscopy | Fourier transforms | Low carbon steel | Sodium

Engineering uncontrolled terms: Corrosion inhibition | Effect of temperature | Freundlich adsorption isotherms | Scanning electron microscopic | Spectroscopic measurements | synergism | Temperature dependent | Thermodynamic parameter

Engineering main heading: Steel corrosion

# Document details - Effect of aspect ratio and volume fraction of steel fibers in strength properties of geopolymer concrete





International Journal of Innovative Technology and Exploring Engineering

Volume 9, Issue 1, November 2019, Pages 3314-3320

## Effect of aspect ratio and volume fraction of steel fibers in strength properties of geopolymer concrete(Article)(Open Access)

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[c]St. Joseph College of Engineering, Chennai, Tamilnadu, India

### Abstract

In this present study, a trail has been conducted to examine the influence of dissimilar aspect ratio and diverse volume fractions of steel fibers in GPC under various curing exposures on the fresh and mechanical properties. Meanwhile, the major strength performance of concrete such as compressive strength, split tensile, flexural, workability and microstructure properties were also studied. From the test results, it was revealed that in the heat curing method, there was just a low augmentation in the compressive strength at 28 years old days when compared with ambient curing condition. Then again, a radical increment in the compressive strength was recognized at 3 days on account of thermal curing because of the elevated polymerization process. The microstructure investigation illustrated that the FA and GGBS particles reacted with the alkaline activator solution and formed a denser structure in the heat curing process when compared with the room-cured specimens because of the unreacted particles present in it. The X-ray diffraction pattern shows that the geopolymer particles are crystalline in nature. It was observed that the strength properties were increases with the augment in aspect ratio (Ar) and high percentage volume of steel fibers. © BEIESP.

### Author keywords

Fibers | Mechanical properties | Microstructure | Polymerization

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**Source Type:** Journal
**Original language:** English
**DOI:** 10.35940/ijitee.A9178.119119
**Document Type:** Article
**Publisher:** Blue Eyes Intelligence Engineering and Sciences Publication

# Document details - Cotton leaf disease detection using texture and gradient features





International Journal of Engineering and Advanced Technology

Volume 9, Issue 1, October 2019, Pages 700-703

## Cotton leaf disease detection using texture and gradient features(Article) (Open Access)

Sabah Afroze, A., Parisa Beham, M., Tamilselvi, R., Seeni Mohamed Aliar Maraikkayar, S.M., Rajakumar, K.

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[b]Department of CSE, Sethu Institute of Technology, Virudhunagar, Kariapatti, Tamilnadu 630615, India

### Abstract

The detection of cotton leaf disease is a very important factor to prevent serious outbreak. Most cotton diseases are caused by fungi, bacteria, and insects. A new method is proposed for careful detection of diseases and timely handling to prevent the crops from heavy losses. A disease due to bacteria, insects and fungus occurs in the cotton leaves in the range of about 80-95%. In the proposed work, first the group of infected leaves and normal leaves are collected and the image preprocessing is done using Adaptive histogram equalization for enhancing the contrast. In feature extraction phase, texture and gradient feature are extracted using Local Binary Pattern (LBP), Histogram of Oriented Gradient (HOG) and Differential of Gaussian (DOG). K-Nearest neighbor classifier is applied to classify the leaf image as a unaffected or an affected leaf. A cotton leaf database is internally created to evaluate the efficacy of our algorithm. The validate results show that the proposed method achieved higher classification accuracy in lower computational time. © BEIESP.

### Author keywords

Adaptive histogram | Cotton leaf diseases | Gradient feature | KNN classifier | Texture feature

**ISSN:** 22498958
**Source Type:** Journal
**Original language:** English
**DOI:** 10.35940/ijeat.F9083.109119
**Document Type:** Article
**Publisher:** Blue Eyes Intelligence Engineering and Sciences Publication

# Document details - Evaluation of anticorrosive behaviour of ZnO nanotetra-pods on a AZ91-grade Mg alloy





Bulletin of Materials Science

Volume 42, Issue 5, 1 October 2019, Article number 221

## Evaluation of anticorrosive behaviour of ZnO nanotetra-pods on a AZ91-grade Mg alloy(Article)(Open Access)

Brindha, R., Ajith, S.S.R., Nandhini, M., Selvam, M., Subannajui, K., Khotmungkhun, K., Sakthipandi, K.

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### Abstract

Highly cross-linked zinc oxide (ZnO) with the nanorod morphology of tetra-pods was successfully prepared using a microwave irradiation (MWI) technique. In comparison with the available conventional techniques, the MWI technique has the advantage of producing different morphological structures with high purity and in a shorter reaction time. These tetra-pods consist of a ZnO core in the zinc blende from which four ZnO arms emerge in the wurtzite structure. In this investigation, the effects of irradiation times and the growth mechanism of ZnO nanotetra-pods were discussed. The structural, morphological and optical properties of ZnO nanorods were investigated by field emission scanning electron microscopy, X-ray diffraction, an ultra violet visible spectrometry and energy-dispersive spectroscopy. The electrochemical corrosion behaviours of an AZ91-grade Mg alloy and a ZnO/PN nanotetra-pod-coated Mg alloy were investigated. The Tafel plot revealed that the corrosion of Mg drastically decreased on coating with a thin layer of ZnO nanotetra-pods and PN (Mg/PN/ZnO) compared to Mg in a KOH electrolyte. © 2019, Indian Academy of Sciences.

### Author keywords

corrosion studies | Microwave irradiation | optical properties | structural properties | ZnO nanotetra-pods

### Indexed keywords

Engineering controlled terms: Corrosive effects | Electrochemical corrosion | Electrolytes | Energy dispersive spectroscopy | Field emission microscopes | II-VI semiconductors | Irradiation | Magnesium alloys | Microwave irradiation | Nanorods | Optical emission spectroscopy | Optical properties | Potassium hydroxide | Scanning electron microscopy | Structural properties | Zinc oxide | Zinc sulfide

Engineering uncontrolled terms: Conventional techniques | Corrosion studies | Field emission scanning electron microscopy | Growth mechanisms | Morphological structures | Nanorod morphologies | Ultra violet visible spectrometry | Wurtzite structure

Engineering main heading: Zinc alloys

# Document details - Internet of image things-discrete wavelet transform and Gabor wavelet transform based image enhancement resolution technique for IoT satellite applications





Cognitive Systems Research

Volume 57, October 2019, Pages 46-53

## Internet of image things-discrete wavelet transform and Gabor wavelet transform based image enhancement resolution technique for IoT satellite applications(Article)

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### Abstract

In image processing, image enhancement is a vital processing chore. The image enhancement can improve the image quality by removing either blur or any kind of noise in the image. Image enhancement technique is utilized in many applications, such as medical, satellite, agriculture, oceanography and so on. This paper focuses on the IoT satellite applications. Most of the satellite images are essential to have high resolution satellite images, low resolution images are majorly affected by absorption, scattering, spatial resolution and spectral resolution issues. For better resolution of these kinds of issued images, Discrete Wavelet Transform (DWT) based interpolation method, combination of DWT and stationary wavelet transform (SWT) methods, bicubic interpolation methods are utilized. However, DWT with SWT method is failed avoid distorted in the resultant images, the bicubic interpolation method is quite complex and cannot give a clear image. DWT based interpolation method lose linear features and unwanted oscillations are occurred and edges data is lost. Therefore, DWT and Gabor technique is proposed to overcome existing method issues. DWT is decomposed into multiple sub-bands; GWT is employed to minimize the loss of information in wavelet domain. The advantages of the GWT are less complexity, remove the noise, and also sharp the image. The proposed method of the PSNR, MSE is compared with existing methods by using the different satellite images. © 2018 Elsevier B.V.

### Author keywords

Discrete Wavelet Transform (DWT) | Singular Value Decomposition (SVD) Transform | Stationary wavelet transform (SWT)

### Indexed keywords

Engineering controlled terms: Discrete wavelet transforms | Gabor filters | Image compression | Internet of things | Interpolation | Medical imaging | Satellites | Signal reconstruction | Singular value decomposition | Wavelet decomposition

Engineering uncontrolled terms: Bicubic interpolation | Gabor wavelet transforms | High resolution satellite images | Interpolation method | Low resolution images | Resolution techniques | Satellite applications | Stationary wavelet transforms

Engineering main heading: Image enhancement

# Document details - A trusted fuzzy based stable and secure routing algorithm for effective communication in mobile adhoc networks





Peer-to-Peer Networking and Applications

Volume 12, Issue 5, 13 September 2019, Pages 1076-1096

## A trusted fuzzy based stable and secure routing algorithm for effective communication in mobile adhoc networks(Article)

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### Abstract

Mobile Ad-hoc Networks have distinct characteristics namely lack of centralized control and management, severe resource constraints in terms of energy level of nodes, computing power, frequent mobility and frequent change of topology. This dynamic nature of mobile adhoc networks lead to additional overhead in the provision of secured and stable routing. In order to address these issues, we propose a new integrated approach for secure routing approach in this paper which is made of two new algorithms called as the Trust based Next Forwarding Node Selection algorithm and Fuzzy Based Stable and Secure Routing algorithm that makes use of the trust based node selection procedure for providing efficient routing performance. The main contribution of this newly proposed node selection procedure is that this technique uses trust values to isolate the malicious nodes from the routing process in order to enhance the security. Hence, this proposed stable and secured routing technique performs reliable routing by selecting only trusted nodes with high residual energy and link stability. Another contribution of this work is the development of a Fuzzy Inference System which is used to handle uncertainty in the selection of trusted nodes and to identify the stable routes by performing qualitative analysis on trust values and link properties. From the implementation and testing carried out in this research work, it has been observed and proved that this proposed secured routing algorithm is capable of increasing the network performance in terms of improved packet delivery ratio, reduction in delay as well as false positive rate when compared with related secure routing algorithms.


### Author keywords

Fuzzy inference system | Fuzzy logic | Link stability | Malicious nodes | Mobile Adhoc networks (MANETs) | Residual energy level | Routing | Security | Trust value

### Indexed keywords

Engineering controlled terms: Fuzzy inference | Fuzzy logic | Fuzzy systems | Integrated control | Mobile security | Network security | Routing algorithms | Uncertainty analysis | Well testing

Engineering uncontrolled terms: Fuzzy inference systems | Link stability | Malicious nodes | Mobile adhoc network (MANETs) | Residual energy | Routing | Security | Trust values

Engineering main heading: Mobile ad hoc networks

# Document details - Evaluation of recast layer and parametric optimization of EDM process on aluminium based HMMCs using grey relational analysis





Materials Research Express

Volume 6, Issue 10, 4 September 2019, Article number 1065A6

## Evaluation of recast layer and parametric optimization of EDM process on aluminium based HMMCs using grey relational analysis(Article)

Senthilkumar, T.S., Muralikannan, R.

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[b]Department of Mechanical Engineering, Sethu Institute of Technology, Kariapatti , Tamil Nadu, 626 115, India

### Abstract

Metal Matrix Composites (MMCs) have a distinct property such as superior strength, higher elastic modules, augmented wear resistance, decreased weight, and high thermal conductivity as compared to the unreinforced alloy. Due to these superior properties MMCs are difficult for machining in conventional process. Hence, an advanced machining process namely Electrical discharge machining (EDM) process was utilized. In this existent work, an optimization technique called grey relational analysis is employed by optimizing the input process parameters to expose the optimal condition for enhancing the machinability and surface quality of aluminium based hybrid metal matrix composites (HMMCs) during Electrical Discharge Machining (EDM) process. The HMMCs is machined by EDM technique by scrutinizing the input parameters such as peak current (A), pulse on time (μs) and gap voltage (v) under $L_{27}$ orthogonal array. A response table was exposed to indicate the optimum conditions of the individual parameter. The ANOVA results designates that peak current is the most contributing parameter for all the samples. Finally, a verification test is conducted to authorize the optimal conditions which were derived from the response table. Further the surface effects of the machined surface such as recast layer and machined surface at the circumferential area are analysed. The recast layer is developed on the machined surface at high peak current and pulse on time. At high pulse on time, extreme heat energy was generated which increases the irregular surface on the circumferential area. © 2019 IOP Publishing Ltd.

### Author keywords

Anova | Edm | Hmmcs | Peak current (a) | Pulse on time ( s) | Recast layer | Tic

### Indexed keywords

Engineering controlled terms: Aluminum | Analysis of variance (ANOVA) | Electric discharge machining | Electric discharges | Metallic matrix composites | Wear resistance

Engineering uncontrolled terms: Electrical discharge machining | Grey relational analysis | High thermal conductivity | Hmmcs | Hybrid metal matrix composites | Peak currents | Pulse on-time | Recast layer

Engineering main heading: Quality control

# Document details - Smart automation technique to collect dry and wet waste using iot module: To achieve our ‘sbm’ mission





International Journal of Innovative Technology and Exploring Engineering

Volume 8, Issue 11 Special issue 2, September 2019, Pages 309-314

## Smart automation technique to collect dry and wet waste using iot module: To achieve our ‘sbm’ mission(Article)(Open Access)

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[b]Dept. of Civil, Chaitanya Bharathi institute of Technology, Hyderabad, Telangana, India
[c]Dept. of ECE, Pallavi Engineering college, Ranga reddy district, Hyderabad, Telangana, India

### Abstract

The global waste production in now a days is increasing at a rapid rate, it is predicated that it will give rise to 28 billion tonnes per year by 2051, one-third of the whole global Asian continent is majorly contributed by India and china. The Main objective of the proposed method is to achieve clean India mission abbreviated as SBM. To make our urban and rural areas surrounding to be clean without any dry and wet waste. So our proposed method is designed to collect dry and wet Waste using IOT and embedded system Technology. The government has provided two dustbins in every place to dump the waste, one for dry waste and other for wet waste. The sensors node is kept inside the dustbins. When it becomes full it sends the signal to the Transmitter node. After Receiving the signal from sensor node, it updates details area and location in the common cloud IOT database. Then it sends the information to particular Location vehicle Driver to collect the waste.in the vehicle it has separate provision to collect dry and wet wate using conveyor belt and h-bridge motor driver circuit. After collecting the waste it updates the information to the common cloud database system. node. ©BEIESP.

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**Source Type:** Journal
**Original language:** English

**DOI:** 10.35940/ijitee.K1049.09811S219
**Document Type:** Article
**Publisher:** Blue Eyes Intelligence Engineering and Sciences Publication

# Document details - Role of TiC and h-BN particles on morphological characterization and surface effects of Al 4032 hybrid composites using EDM process





Journal of Mechanical Science and Technology

Volume 33, Issue 9, 1 September 2019, Pages 4255-4264

## Role of TiC and h-BN particles on morphological characterization and surface effects of Al 4032 hybrid composites using EDM process(Article)

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### Abstract

Aluminum based hybrid metal matrix composites (HMMCs) are utilized in myriad of applications owing to their attractive properties such as low weight to high strength ratio, enriched mechanical and thermal properties over other conventional materials. In this work, the consequence of TiC and h-BN particles on morphological characterization and surface effects of aluminium based HMMCs during electrical discharge machining (EDM) process is discussed. The HMMCs are fabricated by varying the wt. % of TiC and then EDM is done by examining the input parameters such as peak current (A), pulse on time (μs) and gap voltage (v) under $L_{27}$ orthogonal array method. The performance and surface effects of the machined surface are evaluated after completing the EDM process. The MRR appears to surge with the rise in the peak current and decays with increasing the wt. % of TiC particles. Although by amplifying the wt. % of TiC particles, the size of the craters and the voids is augmented on the machined surface. Furthermore, as the peak current upsurges, the microhardness of the machined samples are augmented. © 2019, KSME & Springer.

### Author keywords

EDM | Gap voltage (v) | HMMCs | Microhardness | MRR | Peak current (A) | Pulse on time (μs) | TiC

### Indexed keywords

Engineering controlled terms: Aluminum | Aluminum alloys | Boron nitride | Electric discharge machining | Electric discharges | Hybrid materials | Metallic matrix composites | Microhardness | Titanium carbide

Engineering uncontrolled terms: Electrical discharge machining | Gap voltage | HMMCs | Hybrid metal matrix composites | Mechanical and thermal properties | Morphological characterization | Peak currents | Pulse on-time

Engineering main heading: Titanium compounds



**ISSN:** 1738494X
**Source Type:** Journal
**Original language:** English

**DOI:** 10.1007/s12206-019-0822-z
**Document Type:** Article
**Publisher:** Korean Society of Mechanical Engineers

# Document details - Effect of praseodymium doping on the phase transitions of barium orthoferrites





Physica B: Condensed Matter

Volume 568, 1 September 2019, Pages 42-50

## Effect of praseodymium doping on the phase transitions of barium orthoferrites(Article)

Sakthipandi, K., Ahilandeswari, E., Sabha Afroze, A., Arunachalam, M., Hossain, A., P.Thamilmaran

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View additional affiliations

### Abstract

In this article, an effort was made to explore the properties of praseodymium-substituted barium orthoferrites with a better performance in absorption of microwaves. Orthoferrites with $BaPr_xFe_{2-x}O_4$ ($0 \le x \le 0.1$) were prepared using an ultrasound-assisted sonochemical reactor. In this study, ultrasonic technique was used for the preparation and characterization of $BaPr_xFe_{2-x}O_4$ ($0 \le x \le 0.1$) materials. X-ray diffraction (XRD) pattern was used to determine the structural properties such as phase purity and crystallite parameters. Analysis of the XRD pattern indicated that the prepared $BaPr_xFe_{2-x}O_4$ ferrites have orthorhombic structure with the Bb21 m space group. The temperature-dependent AC susceptibility ($\chi_{ac}$) and in situ ultrasonic measurements were carried out to explore the Curie temperature of the $BaPr_xFe_{2-x}O_4$ samples. Magnetic properties of the prepared $BaPr_xFe_{2-x}O_4$ orthoferrites showed narrow M – H hysteresis loops. The coercivity of barium-based samples was found to increase with praseodymium substitution whereas the remenance and saturation magnetization decreased. 

### Author keywords

Curie temperature | Magnetic properties | Orthoferrites | Structural properties

### Indexed keywords

Engineering controlled terms: Curie temperature | Magnetic materials | Magnetic properties | Magnetic susceptibility | Praseodymium | Saturation magnetization | Sonochemistry | Structural properties | Ultrasonic testing | X ray diffraction

Engineering uncontrolled terms: Ac susceptibility | Crystallite parameters | Orthoferrites | Orthorhombic structures | Phase purity | Sonochemical reactors | Temperature dependent | Ultrasonic techniques

Engineering main heading: Barium

### Funding details

| Funding sponsor | Funding number | Acronym |
|---|---|---|
| Science and Engineering Research Board<br>See opportunities by SERB | SR/FTP/PS-068/2014 | SERB |

# Document details - Structural, morphological and optomagnetic properties of GO/Nd/Cu-Mn ferrite ternary nanocomposite





Ceramics International

Volume 45, Issue 13, September 2019, Pages 16138-16146

## Structural, morphological and optomagnetic properties of GO/Nd/Cu-Mn ferrite ternary nanocomposite(Article)

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### Abstract

Graphene oxide (GO)/neodymium (Nd)/$Cu_{0.5}Mn_{0.5}Fe_2O_4$ ternary nanocomposite was prepared by sonochemical method and modified Hummer's method. The crystal structure and structural parameter of $Cu_{0.5}Mn_{0.5}Fe_2O_4$ (CMF) nanoferrites were changed with the addition of $Nd^{3+}$ and GO. Raman active modes of the GO and ferrite system were observed from Raman spectra. The surface oxidation state (C 1s, O 1s, Cu 2p, Mn 2p, Fe 2p, and Nd 3 d) and their respective binding energies of the prepared nanocomposite were discussed. Different surface morphologies were acquired for CMF, $Cu_{0.5}Mn_{0.5}Fe_{1.85}Nd_{0.15}O_4$ (CMNF), GO, and GO/$Cu_{0.5}Mn_{0.5}Fe_{1.85}Nd_{0.15}O_4$ (GCMNF) ferrite nanocomposites. The absorption of the Cu-Mn nanoferrite (red region) shifted into the blue region with the addition of $Nd^{3+}$ and GO. The magnetic parameters were changed with doping of Nd into CMF and GO in CMNF nanoferrite. It was found that the high anisotropy energy values of the CMNF and GCMNF ferrite nanocomposites could be used for electromagnetic wave-absorbing application. © 2019

### Author keywords

Graphene oxide | Nanocomposite | Optomagnetic property | Rare-earth | Structure property | Surface property

### Indexed keywords

Engineering controlled terms: Binary alloys | Binding energy | Copper alloys | Crystal structure | Electromagnetic waves | Ferrite | Graphene | Graphene oxide | Manganese alloys | Nanocomposites | Rare earths | Sonochemistry | Surface properties

Engineering uncontrolled terms: Magnetic parameters | Optomagnetic property | Raman active modes | Sonochemical method | Structural parameter | Structure property | Surface oxidations | Ternary nanocomposites

Engineering main heading: Structural properties

### Funding details

Funding text

R. R acknowledges that a part of the work (characterization only) was carried out at the CeNSE, under INUP, at IISc, which was sponsored by DeitY, MCIT, Government of India .

# Document details - PVA-doped NiNd<sub>x</sub>Fe<sub>2-</sub><sub>x</sub>O<sub>4</sub> nanoferrites: Tuning of dielectric and magnetic properties



Journal of Magnetism and Magnetic Materials

Volume 485, 1 September 2019, Pages 105-111

## PVA-doped $NiNd_xFe_{2-x}O_4$ nanoferrites: Tuning of dielectric and magnetic properties(Article)

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### Abstract

Polyvinyl alcohol (PVA)-blended spinel phase $NiNd_xFe_{2-x}O_4$ nanoferrites were successfully prepared with a different composition (x = 0.01, 0.03, 0.05, 0.07, and 0.09). The spinel cubic structure was revealed from X-ray diffraction pattern. These nanoferrites showed insulating behavior with an enhanced energy bandgap when compared with PVA-unblended nanoferrites. The obtained dielectric loss and real and complex dielectric constants were in the microwave region (frequency ~2.9–5.95 GHz). Pseudocapacitance and resistive behavior were explored from impedance analysis. The magnetization hysteresis plot of nanoferrites showed a soft ferromagnetic nature. It was found that reduction in saturation magnetization of $NiNd_xFe_{2-x}O_4$ nanoferrites obtained by PVA doping has the strong microwave absorption capacity. © 2019 Elsevier B.V.

### Author keywords

Coercivity | Dielectric property | Nanoferrites | Saturation magnetization

### Indexed keywords

Engineering controlled terms: Coercive force | Dielectric losses | Dielectric properties | Iron compounds | Neodymium compounds | Nickel compounds

Engineering uncontrolled terms: Complex dielectric constant | Dielectric and magnetic properties | Impedance analysis | Magnetization hysteresis | Microwave absorption | Nano-ferrites | Poly (vinyl alcohol) (PVA) | Soft ferromagnetic

Engineering main heading: Saturation magnetization

### Funding details

| Funding sponsor | Funding number | Acronym |
|---|---|---|
| Ministry of Communication and Information Technology | | MCIT |
| Department of Information Technology, Ministry of Communications and Information Technology | | DIT |

# Document details - An automated and hybrid method for cyst segmentation in dental X-ray images





Cluster Computing

Volume 22, 1 September 2019, Pages 12179-12191

## An automated and hybrid method for cyst segmentation in dental X-ray images(Article)

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### Abstract

The dental X-ray image has poor contrast and uneven exposure which results in the lack of reliable separation between various parts of teeth, which makes the segmentation of cyst very tedious. A unique hybrid automated technique has been proposed to detect and extract the cystic region using circularly symmetric isophote properties and fast marching method.The isophote curvature is the curve connecting the same intensity pixels. Each Isophote curvature line has an isocenter associated with it. Among them, the isocenter which is having a maximum response in the isophote center map to be concluded as the most likely estimate for locating the cystic region. This Maximum IsoCenter (MIC) is the seed point to the model-based segmentation of fast marching method. The fast marching algorithm (FMM) is like Dijkstra's algorithm, and it follows the shortest path from seed area, where the information flows outward only. It works systematically to make it fast, and it is a one-pass method because each point is touched only once mainly. This fast marching method extracts the cystic region boundary very effectively and efficiently. This two-stage hybrid method is an automated, robust, and fast method for solving the complex problem of cyst segmentation. The average execution time calculated is 2.8 s and the accuracy achieved is 95%. The performance outcomes show that the proposed segmentation technique has the high correlation with the manual method. Therefore, the combination of model-based and feature based segmentation of the dental X-ray images has great potential in diagnosis of dental diseases and plays a significant role in the development of automated systems. The automated segmentation computerizes or automates the diagnostic method so that huge number of patients can be monitored with the same assured accuracy. High-speed computers are helpful in attaining fast and precise results. To extend the patient care to remote areas, the faster communication is possible by computer networks 

### Author keywords

Computer aided detection | Cyst boundary extraction | Dental X-ray images | Fast marching method | Isophote curvature automated dental cyst detection

### Indexed keywords

Engineering controlled terms: Automation | Computer aided diagnosis | Medical computing | X ray analysis

Engineering uncontrolled terms: Boundary extraction | Computer aided detection | Dental X-ray image | Fast marching methods | Isophotes

Engineering main heading: Image segmentation

# Document details - Achieving energy efficiency using novel scalar multiplication based ECC for android devices in Internet of Things environments





Cluster Computing

Volume 22, 1 September 2019, Pages 12021-12028

## Achieving energy efficiency using novel scalar multiplication based ECC for android devices in Internet of Things environments(Article)

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### Abstract

In the era of Internet of Things (IoT) infrastructure, Secured information transfer is necessitated between mobile and internet based services in IoT environments. As IoT environment connected to heterogeneous network, they become vulnerable to attacks and hence it is required for secured mechanism for data transfer. Moreover, when secured cryptographic algorithms are employed in mobile phones, battery consumption plays a major role. The IoT environment associated with proposed algorithm can be used to interlink humans and enable the use of a communication channel to bring forth inter machine interaction. The encryption procedures used here makes sure that the major concerns of authentication uniqueness, confidentiality and privacy of the users are maintained. This implies that the users and the service providers can implement the system security measures that have been proposed. Research is still being conducted to improve the architecture and implementation strategies in a real time environment. In order to solve those issues, this paper proposes a novel scalar point-multiplication which gives low energy consumed snippet based on elliptic curve cryptography (ECC) that provides same level of security and also keeps low energy consumption by speeding up the computation time. The performance evaluation with the key size of 14 and 16 bits reveals that the proposed algorithm can be fast and saves the battery life than the other conventional ECC algorithms. 

### Author keywords

Battery lifetime | Cryptography | Elliptic curve cryptography | Energy consumption | Mobile device | Security

### Indexed keywords

Engineering controlled terms: Android (operating system) | Cryptography | Data transfer | Electric batteries | Energy efficiency | Energy utilization | Geometry | Heterogeneous networks | Mobile devices | Mobile security | Public key cryptography

Engineering uncontrolled terms: Battery lifetime | Cryptographic algorithms | Elliptic curve cryptography | Elliptic Curve Cryptography (ECC) | Implementation strategies | Internet of Things (IOT) | Scalar point multiplication | Security

Engineering main heading: Internet of things

# Document details - Influence of filler wires and high velocity oxygen fuel coating on the structural properties of Inconel 600 and Nickel alloy 800 HT dissimilar joints using autogenous cold metal transfer welding





Materials Research Express

Volume 6, Issue 10, 30 August 2019, Article number 106530

## Influence of filler wires and high velocity oxygen fuel coating on the structural properties of Inconel 600 and Nickel alloy 800 HT dissimilar joints using autogenous cold metal transfer welding(Article)

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### Abstract

The present study shows the effect of filler wire and Thermal Spray (TS) coating on the microstructure and tensile properties of dissimilar joints of Inconel 600 and Nickel alloy 800 HT using Autogenous Cold Metal Transfer (A-CMT) welding by employing ERNiCr-3 and ERNiCrMo-4 filler wires. Cold metal transfer welding was performed on dissimilar metals based on welding current (50-60 A), welding speed (200-300 mm $min^{-1}$) and arc distance (8-10 mm). Tensile properties studies were performed and resulted that the maximum yield strength of dissimilar weldments sample was 554 MPa. To improve the mechanical properties, a NiCrMo coating was applied on the welded surface and the tensile strength improved to 687 MPa. The failure analysis was performed using Comsol software and observed that all tensile failures were occurred in the heat affected zone which is accordance with the experimental tensile result. Hardness studies revealed that the TSC weld hardness was found to be better than the as-weldments which is acquainted due to the MoC and $Mo_2C$ reinforcement effect. The microstructure investigation of weldments and TS Coating samples were conducted in the fusion zone using Scanning Electron Microscopy (SEM), x-ray diffractometry and Transmission Electron Microscopy (TEM). Microstructure studies obviously showed the different faces of nickel carbide ($Ni_3C$) on the weld zone because of employing TS coating process. This study addressed the improvement of tensile and bending strength using suitable TSC. © 2019 IOP Publishing Ltd.

### Author keywords

bending studies | cold metal transfer welding | microstructure | tensile studies | thermal spray coating

### Indexed keywords

Engineering controlled terms: Bending strength | Carbides | Chromium alloys | Dissimilar metals | Fillers | Hardness | Heat affected zone | High resolution transmission electron microscopy | Laser beam welding | Metals | Microstructure | Nickel alloys | Nickel coatings | Nickel compounds | Oxygen | Scanning electron microscopy | Sprayed coatings | Ternary alloys | Wire | X ray diffraction analysis

# Document details - Thermogravimetric analysis of Calotropis procera fibers and their influence on the thermal conductivity and flammability studies of polymer composites





Materials Research Express

Volume 6, Issue 10, 28 August 2019, Article number 105341

## Thermogravimetric analysis of Calotropis procera fibers and their influence on the thermal conductivity and flammability studies of polymer composites(Article)

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[c]Department of Mechanical Engineering, Sethu Institute of Technology, Kariapatti Tamil Nadu, India

### Abstract

The aim of this present investigation is to determine the thermal stability of the Calotropis procera fibers and to study the thermal conductivity and flammability characteristics of Calotropis procera fibers reinforced polymer composites as a function of fiber loading. Thermogravimetric analysis conducted on the fibers show that the fibers are thermally stable and can withstand 200 °C. Composite samples are fabricated using 10, 20, 30 and 40 weight % of Calotropis procera fibers using epoxy as the matrix. Thermal conductivity studies conducted on the composite samples exemplify decrease in thermal conductivity on increasing the fiber loading with values lying between 0.146 and 0.137 W $m^{-1}$ $k^{-1}$ for varying weight % of the fibers. Underwriter's laboratory tests show no UL ratings for these samples and the rate of burning of the composites increases with increase in the weight % of the fibers in the matrix and the values range between 20.24 and 27.66 mm $min^{-1}$ for increasing weight % of fibers from 10 weight % to 40 weight %. Studies show that fibers can be used as polymeric reinforcements and the composites can be used for low temperature applications. © 2019 IOP Publishing Ltd.

### Author keywords

calotropis procera fibers | epoxy composites | rate of burning | thermal conductivity | thermo-gravimetric analysis | UL-94 vertical burning test

### Indexed keywords

Engineering controlled terms: Fibers | Gravimetric analysis | Low temperature effects | Polymers | Reinforced plastics | Reinforcement | Temperature | Thermodynamic stability | Thermogravimetric analysis

Engineering uncontrolled terms: Calotropis procera | Composite samples | Epoxy composite | Flammability characteristics | Low-temperature applications | Polymer composite | Reinforced polymer composites | Vertical burning tests

Engineering main heading: Thermal conductivity



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# Document details - Relative retrieval efficiency analysis of local binary pattern variants in color images





International Journal of Scientific and Technology Research

Volume 8, Issue 8, August 2019, Pages 1299-1305

## Relative retrieval efficiency analysis of local binary pattern variants in color images(Article)

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### Abstract

Content Based Image Retrieval (CBIR) technique is used to retrieve relevant images from the Image database based on image content in the query image. Feature extraction is the key process in Content Based Image Retrieval. Many CBIR systems are being developed as in the way of feature extraction techniques used in them. Image features such as color, texture and shape are symbolized as a result of feature extraction. There are many ways to represent the image features. The choice of feature representation is depended on the nature of image database and the intended applications. This article is aimed to experiment how texture oriented feature representation acts upon in color images. Recent studies depict that texture is effectively signified by Local patterns. The well-known local patterns such as local binary pattern (LBP), local tri-directional pattern (LTP) and local neighborhood intensity pattern (LNP) are considered in this work. The relative efficiency of above-mentioned local patterns is compared in the retrieval of color images. Wang database is taken for the experimentation and the color images are considered as a grey scale image by combining three color planes into a single plane. The experimental results conclude that the relative retrieval efficiency of local patterns is not same for the retrieval of color images as in the retrieval of texture images. 

### Author keywords

CBIR | Color images | Local binary pattern | Local neighborhood intensity pattern | Local tri-directional pattern | Precision | Recall | Wang database

**ISSN:** 22778616
**Source Type:** Journal
**Original language:** English
**Document Type:** Article
**Publisher:** International Journal of Scientific and Technology Research

# Document details - Electrophysiological analysis of agony and consciousness in comatose





International Journal of Engineering and Advanced Technology

Volume 8, Issue 6, August 2019, Pages 4256-4259

## Electrophysiological analysis of agony and consciousness in comatose(Article) (Open Access)

Maraikkayar, S.M.S.M.A., Tamilselvi, R., Afroze, A.S., Beham, M.P., Rajakumar, K.

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### Abstract

An Interface is developed between human brain and a digital world, called as brain-computer interface (BCI). In various applications, BCI is used nowadays in our day to day activities. The recent researches focus on the BCI communication for coma patients for their thought related activities. BCI is an unconventional method to ordinary communication and direct feedback system. Due to the presence of neural relations, there will be an existence of different rhythms for different brain states. In consistent, the rhythms produces a different waves portrayed by different amplitudes and frequencies. This proposed work deals with the different brain state analysis by the Electroencephalography (EEG) signals due to the neuronal reactions. EEG signal is acquired from the brainwave sensor and the signals are detached from the various noises. The time domain features are extracted in terms of various frequency ranges and the respective commands are classified for analyzing the state of the coma patients. The proposed work is analyzed in the software as it involves human interaction. © BEIESP.

### Author keywords

Agony | BCI | Cognitive state | Comatose | Electroencephalograph | FFT (Fast Fourier Transform)

**ISSN:** 22498958
**Source Type:** Journal
**Original language:** English

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**Document Type:** Article
**Publisher:** Blue Eyes Intelligence Engineering and Sciences Publication



### SciVal Topic Prominence

Topic:

Prominence percentile:

# Document details - Green energy: Modeling and simulation of thermoelectric generator for production of electricity from air conditioner waste heat





International Journal of Innovative Technology and Exploring Engineering

Volume 8, Issue 10, August 2019, Pages 1711-1714

## Green energy: Modeling and simulation of thermoelectric generator for production of electricity from air conditioner waste heat(Article)(Open Access)

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### Abstract

In this paper modeling and simulation of thermoelectric generator (TEG) modules is validated using MATLAB. The TEG model is developed with suitable mfiles and further the model is extended for generating electricity from waste heat liberated by air conditioners. These waste heat may lead to global warming and causes pollution. Hence this problem is addressed in this paper and thermoelectric generators are used to generate power. TEG is called a green technology as all parts are fixed and power produced is not wasted. Thermoelectric power generator converts waste heat in to electric energy. Hence thermoelectric power generation technique aids in the conversion of waste-heat energy into electrical power. So the economical wastage of thermal energy is avoided. The power production is abundant and also atmospheric pollution is avoided. As a result overall conversion efficiency of system is enhanced. The produced energy can be used for lighting a LED bulb, charging the mobile batteries. © BEIESP.

### Author keywords

Green energy Modeling Thermoelectric generator modules Waste heat

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**Source Type:** Journal
**Original language:** English

**DOI:** 10.35940/ijitee.J9029.0881019
**Document Type:** Article
**Publisher:** Blue Eyes Intelligence Engineering and Sciences Publication



### SciVal Topic Prominence

Topic:

Prominence percentile:

# Document details - Assessing mechanical properties of nfrpc material





International Journal of Innovative Technology and Exploring Engineering

Volume 8, Issue 10, August 2019, Pages 4375-4379

## Assessing mechanical properties of nfrpc material(Article)(Open Access)

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### Abstract

Inspiration for the contemporaneous work has come from the energy to grow sure transient compound ingredients for residential or mechanical applications abuse plant filaments and gums. The wide accessibility of strands has roused the occasion of normal grit compounds. This theory goes for acquainting new normal strands with be utilized as fillers in an exceedingly synthetic compound lattice, facultative generation of value effective, biodegradable and light-weight compounds for burden conveying structures. Abaca grit, one such kind, is well off in polyose, relatively modest and extremely advertised. During this examination, extraction of Abaca grit was appropriated and examinations on mechanical possessions were controlled by experimentation. Fillers were thought of as added substances. Their significant commitment was in bringing down the estimation of ingredients by substitution the dearer synthetic compound. Fillers will improve mechanical possesions. Fillers increment the bond between the rosin and grit. © BEIESP.

### Author keywords

Composite ingredients Fabrication Tensile examine

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**Document Type:** Article
**Publisher:** Blue Eyes Intelligence Engineering and Sciences Publication



### SciVal Topic Prominence

Topic:

Prominence percentile:

# Document details - Characterization and dynamic mechanical analysis of woven roven glass fiber/cerium-zirconium oxide epoxy nanocomposite materials





Materials Research Express

Volume 6, Issue 9, 12 July 2019, Article number 095057

## Characterization and dynamic mechanical analysis of woven roven glass fiber/cerium-zirconium oxide epoxy nanocomposite materials(Article)

Yamunadevi, V., Palaniradja, K., Thiagarajan, A., Ganeshan, P., Raja, K.

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View additional affiliations

### Abstract

Fibre-reinforced composites have found wide applications in many structural and engineering products in recent decades. In the present study, we have prepared a hybrid epoxy nano composite reinforced with woven roving glass fibre and cerium (IV)-zirconium (IV) oxide nanoparticles. The hand-lay method was employed for sample preparation. This fibre and nanoparticle reinforced polymer composite was studied for its mechanical and viscoelastic behaviour. These properties were studied at nanoparticle contents of 0.5, 1, and 1.5 wt%. Structural and morphological characterization was explored using X-ray Diffraction and Field emission scanning electron microscope. Mechanical strength analysis revealed increases in the tensile, flexural, and impact strength to the extent of 16.8%, 7.8%, and 13%, respectively. This increase is in accordance with the incorporation of nanoparticles. The storage modulus also improved with an increase in nano cerium(IV)-zirconium(IV) oxide content. These nano composites find applications in industries such as shipbuilding and aircraft panel manufacture under conditions such as elevated temperatures, corrosion, or heavy loads. © 2019 IOP Publishing Ltd.

### Indexed keywords

Engineering controlled terms: Corrosion | Fiber reinforced plastics | Glass fibers | Impact strength | Nanocomposites | Nanoparticles | Reinforcement | Scanning electron microscopy | Zirconia

Engineering uncontrolled terms: Elevated temperature | Engineering products | Fibre reinforced composites | Field emission scanning electron microscopes | Morphological characterization | Oxide nanoparticles | Reinforced polymer composites | Viscoelastic behaviour

Engineering main heading: Cerium compounds



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**Original language:** English

**DOI:** 10.1088/2053-1591/ab2f64
**Document Type:** Article
**Publisher:** Institute of Physics Publishing

# Document details - A new grouping method in selective assembly for minimizing clearance variation using TLBO





Applied Mathematics and Information Sciences

Volume 13, Issue 4, July 2019, Pages 687-697

## A new grouping method in selective assembly for minimizing clearance variation using TLBO(Article)

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View additional affiliations

### Abstract

Allowable variation from the nominal dimension that's tolerance of a component plays a vital role in selecting manufacturing process and functioning of the product while mating with other sub components and its manufacturing cost. Closer tolerance required secondary process which increases manufacturing cost in considerable amount. Selective assembly is a method where components are manufactured with wider tolerance, measured and partitioned into groups and the components in their corresponding groups are assembled together to form precision assemblies. This method reduces the cost involved in secondary operation but in the mean time the cost of measuring the components in additions with the existing random assembly process. A trade off between measuring cost of each components and secondary operation cost is the deciding factor in implementing the selective assembly techniques. Existing method mostly focuses on equal group numbers and equal group width either surplus parts or reducing the clearance variation or both. A new technique of variable group numbers according to their tolerance is suggested in this work and the precision assemblies are produced using the best bin combinations obtained using teaching-and learning-based optimization algorithm. The proposed method has been implemented on the existing problem and can able to produce close precision assemblies without any surplus parts with less manufacturing cost. It is established that the TLBO algorithm minimizes the clearance variation from 17.5 ym to 15ym in a linear assembly that consists of three gears in a gear box and from 17 m to 16 m in a ball bearing assembly in a single stage with zero surplus parts. © 2019 NSP.

### Author keywords

Clearance variation | Selective assembly | Surplus parts | Teaching Learning Based Optimization

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**Source Type:** Journal
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**DOI:** 10.18576/amis/130420
**Document Type:** Article
**Publisher:** Natural Sciences Publishing

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# Document details - Design issues of flexible antenna -A review





International Journal of Advanced Trends in Computer Science and Engineering

Volume 8, Issue 4, July 2019, Pages 1386-1394

## Design issues of flexible antenna -A review(Article)(Open Access)

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### Abstract

Recent years has been observed increasing attention from both academic and scientific communities in the field of flexible technology. Flexible antennas have found their importance, when conventional antenna performance is very low because of its peripheral environment. This survey reviews the development of flexible antennas, their design, substrate material used and addresses various bending conditions tested on the antenna finds many applications in military, satellite, medical and defense fields. The antenna should get adjustable to any kind of surfaces. The careful study had been done using current researches going on in the field of flexible antenna technology. Such antennas have merits of compactness, light weight, low profile, cheap and easy to fabricate. Even though there are more survey papers on flexible antenna is available, they are restricted only to particular issues only. So, in this review, a comprehensive survey has been provided which deals with all the issues and challenges of flexible antenna. Thus this review will find out the perfect solution of designing and bending issues of flexible antenna. All the designs presented are of the recent development in flexible technology. © 2019, World Academy of Research in Science and Engineering. All rights reserved.

### Author keywords

Antenna Bending Flexible Return loss Wearable

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**Source Type:** Journal
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**DOI:** 10.30534/ijatcse/2019/55842019
**Document Type:** Article
**Publisher:** World Academy of Research in Science and Engineering



### SciVal Topic Prominence

Topic:

Prominence percentile:

# Document details - The gas chromatography-mass spectrometry study of one ayurvedic pain relieving oil





Drug Invention Today

Volume 12, Issue 7, July 2019, Pages 1524-1527

## The gas chromatography-mass spectrometry study of one ayurvedic pain relieving oil "Mahamasha Thailam"(Article)

Mohammad, H., Prabhu, K., Rao, M.R.K., Sundram, L., Dinakar, S., Sathish Kumar, M., Vijayalakshmi, N.

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View additional affiliations

### Abstract

Objective: The aim of the study is to understand the efficacy of Ayurvedic medicine by subjecting it to gas chromatography-mass spectrometry (GC-MS) analysis. This knowledge could help in finding the molecules that are of medicinal importance. Materials and Methods: Mahamasha Thailam was bought from a Standard Ayurvedic vendor at Chennai and subjected to GC-MS analysis by standard procedures. Results: The GC-MS results indicated the presence of some important molecules such as n-Hexadecanoic acid, n-Decanoic acid, 2,6-Difluoro-3-methylbenzoic acid, 2,3-dichlorophenyl ester, propane, and 2-methoxy-2-methyl-, which have medicinal roles supporting the pain reliving role of Mahamasha Thailam. Conclusions: GC-MS results indicated that the medicinal roles of some of the important molecules augur well with the activity of Mahamasha thailam. The roles of some other molecules such as 1-Heptanol, 2,4-diethyl-, Cis-3-ethyl-endo-tricyclo[5.2.1.0(2.6)]decane, 3-Octyne, 2,2,7-trimethyl-, 1,3-Benzodioxole, 5,5′-(tetrahydro-1H,3H-furo[3,4-c]furan-1,4-diyl)bis-, [1S-(1.alpha.,3a.alpha.,4.beta.,6a.alpha.)]-, and 1,3-Dioxolane-2-methanol are not reported yet. 

### Author keywords

2,3-dichlorophenyl ester | 2,6-Difluoro-3-methylbenzoic acid | 2-methoxy-2-methyl- | Ayurvedic | Gas chromatography-mass spectrometry | Mahamasha Thailam | N- Decanoic acid | N-Hexadecanoic acid | Propane

### Indexed keywords

EMTREE drug terms: 2 methoxy 2 methyl | 2,3 dichlorophenyl ester | 2,6 difluoro 3 methylbenzoic acid | analgesic agent | ayurvedic drug | mahamasha thailam oil | n decanoic acid | n hexadecanoic acid | propane | unclassified drug

EMTREE medical terms: Article | drug efficacy | mass fragmentography

### Chemicals and CAS Registry Numbers:

propane, 74-98-6

**ISSN:** 09757619
**Source Type:** Journal
**Document Type:** Article
**Publisher:** JPR Solutions

# Document details - Neural network controlled primitive fault analysis and monitoring of wind turbine gear box





International Journal of Recent Technology and Engineering

Volume 8, Issue 2, July 2019, Pages 764-768

## Neural network controlled primitive fault analysis and monitoring of wind turbine gear box(Article)(Open Access)

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### Abstract

The problem considered in this paper is minimization of operational and maintenance costs of Wind Energy Conversion Systems (WECS). A continuous condition monitoring system is to be designed for reducing these costs. Hence preliminary identification of the degeneration of the generator health, facilitating a proactive response, minimizing downtime, and maximizing productivity is made possible. The inaccessibility of Wind generators situated at heights of 30m or more height also creates problem in condition monitoring and fault diagnosis. This opens up the research on condition monitoring and fault diagnosis in WECS (blades, drive trains, and generators). Therefore different type of faults, their generated signatures, and their diagnostic schemes are discussed in this paper. The paper aims in validating the application of neural networks for the analysis of wind turbine data, so that possible future failures may be predicted and rectified earlier. © BEIESP.

### Author keywords

Condition monitoring | Drive train | Generator | Primitive Fault diagnosis | Wind Energy Conversion Systems

**ISSN:** 22773878
**Source Type:** Journal
**Original language:** English

**DOI:** 10.35940/ijrte.B2404.078219
**Document Type:** Article
**Publisher:** Blue Eyes Intelligence Engineering and Sciences Publication

# Document details - The gas chromatography-mass spectrometry study of one ayurvedic pain relieving oil





Drug Invention Today

Volume 12, Issue 7, July 2019, Pages 1542-1546

## The gas chromatography-mass spectrometry study of one ayurvedic pain relieving oil "Karpooradi Thailam"(Article)

Mohammad, H., Prabhu, K., Rao, M.R.K., Sundram, L., Dinakar, S., Kumar, M.S., Vijayalakshmi, N.

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[b]Department of Industrial Biotechnology, Bharath Institute of Higher Education and Research, Chennai, Tamil Nadu 600 073, India
[c]Central Research Facility, Sri Ramachandra Medical College and Research Institute, Purur, Chennai, Tamil Nadu, India

View additional affiliations

### Abstract

Objective: The scientific validity of contemporary and alternative medicinal forms such as Ayurveda and Siddha is of prime importance in today's world. Materials and Methods: Gas chromatography-mass spectrometry (GC-MS) study of one pain relieving Ayurvedic oil, Karpooradi Thailam and to correlate its medicinal activity with the biomolecules present in it. Karpooradi Thailam was bought from a standard Ayurvedic vendor at Chennai and subjected to GC MS analysis by standard procedures. Results: The presence of some important biomolecules such as N Hexadacoinc acid, Chloroacetic acid, dodec-9-ynylester, n-Decanoic acid, Trichloroacetic acid, dodec-9-ynyl ester, Hexadecanoic acid, and 2-hydroxy-1-(hydroxymethyl) ethyl ester has biochemical properties which help in relief from pain and inflammation. Conclusions: The presence of these biomolecules having medicinal properties support the validity of skin treatment with Karpooradi Thaila. 

### Author keywords

2-hydroxy-1-(hydroxymethyl)ethyl ester | Ayurvedic | Chloroacetic acid | Dodec-9-ynyl ester | Dodec-9-ynylester | Gas chromatography-mass spectrometry | Hexadecanoic acid | Karpooradi Thailam | N Hexadacoinc acid | N-Decanoic acid | Trichloroacetic acid

### Indexed keywords

EMTREE drug terms: ayurvedic drug | chloroacetic acid | decanoic acid derivative | ester derivative | Karpooradi Thailam | oil | palmitic acid derivative | trichloroacetic acid | unclassified drug

EMTREE medical terms: analytic method | Article | Ayurveda | biochemical analysis | inflammation | mass fragmentography | pain

### Chemicals and CAS Registry Numbers:

chloroacetic acid, 14526-03-5, 79-11-8; trichloroacetic acid, 14357-05-2, 76-03-9

**ISSN:** 09757619
**Source Type:** Journal
**Original language:** English
**Document Type:** Article
**Publisher:** JPR Solutions

# Document details - Improvising reliability and security in multiple relay network using optimal scheduling





International Journal of Recent Technology and Engineering

Volume 8, Issue 2, July 2019, Pages 1243-1248

## Improvising reliability and security in multiple relay network using optimal scheduling(Article)(Open Access)

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### Abstract

In the real-time scenario involving wireless sensor networks, the data forwarding and data gathering procedures are taking place from the remote environment. With the involvement of heterogeneous architecture and multi-hop data transmission paths, there lies a serious threat for secured data communication. There may be chances of data attacks either from the inside intruder or from the external intruder. The problem of data flow attack by adding malicious information, viz. Data injection attack and outside arbitrary attack, viz. Byzantine attacks are found to be more dangerous and cause vulnerability for the wireless sensor network. So improving the reliability and security in multi-relay networks is very much essential. In this work, the practical approach of detecting data injection and Byzantine attacks using the proposed method of random network coding is performed. Then, as improvisation measure, the priority scheduling algorithm is implemented to effectively schedule the data transfer. Real-time packets with highest priority in the distribution queue are placed first in the processing mechanism. The remaining packets are arranged based on the position of the sensor nodes and are placed in separate queues. Least priority packets can obstruct the dispensation of their direct higher precedence packets after waitlisted for a certain number of time frames. Simulation results using the NS2 environment show that using the priority scheduling algorithm has good performance values in terms of the packet delivery ratio, throughput and delay. Also, the attack detection metrics such as false positive ratio and detection ratio are also improved when using the priority scheduling algorithm. Thus an improvised priority algorithm for an uplink scheduler in WSN is implemented to increase the performance and detection metrics. © BEIESP.

### Author keywords

Byzantine attack | Data injection attacks | Intruder attacks | Reliability | Scheduling | Security | Wireless sensor network

**ISSN:** 22773878
**Source Type:** Journal
**Original language:** English

**DOI:** 10.35940/ijrte.B1786.078219
**Document Type:** Article
**Publisher:** Blue Eyes Intelligence Engineering and Sciences Publication

# Document details - Damping, thermal and mechanical analyses of polycarbonate/cerium oxide composites for structural applications





International Polymer Processing

Volume 34, Issue 3, July 2019, Pages 324-329

## Damping, thermal and mechanical analyses of polycarbonate/cerium oxide composites for structural applications(Article)

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Department of Mechanical Engineering, Sethu Institute of Technology, Kariapatti, Tamilnadu, India

### Abstract

Polycarbonate (PC)/cerium (IV) oxide ($CeO_2$) composites are prepared by a melt-compounding method using a twin-screw extruder. The effect of the $CeO_2$ content on the damping property of the composites was investigated using scanning electron microscopy, dynamic mechanical analysis (DMA), and thermogravimetric analysis (TGA). In addition, the composites' mechanical properties were studied through tensile and impact tests. The DMA results revealed that the addition of $CeO_2$ (0.5 wt%) improved the damping property of the composite. TGA showed that the thermal stability was improved when the $CeO_2$ became 1 wt%. Mechanical tests revealed that both the tensile and impact strengths were substantially improved when 1 wt% $CeO_2$ was added. Finally, it can be concluded that the 0.5 wt% $CeO_2$-filled PC composite can be used as a structural damping material. © Carl Hanser Verlag, Munich Intern.

### Indexed keywords

Engineering controlled terms: Cerium oxide | Damping | Impact strength | Mechanical properties | Polycarbonates | Scanning electron microscopy

Engineering uncontrolled terms: Damping property | Dynamic mechanical analysis (DMA) | Melt-compounding | Oxide composites | Structural applications | Structural damping | Thermal and mechanical analysis | Twin screw extruders

Engineering main heading: Thermogravimetric analysis

**ISSN:** 0930777X
**CODEN:** IPPRE
**Source Type:** Journal
**Original language:** English

**DOI:** 10.3139/217.3723
**Document Type:** Article
**Publisher:** Carl Hanser Verlag

Karuppasamy, R.; Department of Mechanical Engineering, Sethu Institute of Technology, Kariapatti, Tamilnadu, India;

# Document details - An Efficient Melanoma Diagnosis Approach Using Integrated HMF Multi-Atlas Map Based Segmentation





Journal of Medical Systems

Volume 43, Issue 7, 1 July 2019, Article number 225

## An Efficient Melanoma Diagnosis Approach Using Integrated HMF Multi-Atlas Map Based Segmentation(Article)

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### Abstract

Melanoma is a life threading disease when it grows outside the corium layer of the skin. Mortality rates of the Melanoma cases are maximum among the skin cancer patients. The cost required for the treatment of advanced melanoma cases is very high and the survival rate is low. Numerous computerized dermoscopy systems are developed based on the combination of shape, texture and color features to facilitate early diagnosis of melanoma. The availability and cost of the dermoscopic imaging system is still an issue. To mitigate this issue, this paper presented an integrated segmentation and Third Dimensional (3D) feature extraction approach for the accurate diagnosis of melanoma. A multi-atlas method is applied for the image segmentation. The patch-based label fusion model is expressed in a Bayesian framework to improve the segmentation accuracy. A depth map is obtained from the Two-dimensional (2D) dermoscopic image for reconstructing the 3D skin lesion represented as structure tensors. The 3D shape features including the relative depth features are obtained. Streaks are the significant morphological terms of the melanoma in the radial growth phase. The proposed method yields maximum segmentation accuracy, sensibility, specificity and minimum cost function than the existing segmentation technique and classifier. 

### Author keywords

Depth features | Lesion color texture (LCT)–Streax (STR) | Melanoma diagnosis | Multi-atlas map | Patch-based label fusion

### Indexed keywords

EMTREE medical terms: Article | Bayes theorem | cancer diagnosis | cancer growth | diagnostic accuracy | diagnostic imaging | epiluminescence microscopy | feature extraction | growth curve | Hierarchical Continuous Max Flow Model | human | image reconstruction | image segmentation | melanoma | three dimensional imaging | two-dimensional imaging | automated pattern recognition | color | computer assisted diagnosis | image processing | melanoma | procedures | sensitivity and specificity

MeSH: Bayes Theorem | Color | Dermoscopy | Humans | Image Interpretation, Computer-Assisted | Image Processing, Computer-Assisted | Melanoma | Pattern Recognition, Automated | Sensitivity and Specificity

**ISSN:** 01485598
**CODEN:** JMSYD
**Source Type:** Journal
**DOI:** 10.1007/s10916-019-1315-4
**PubMed ID:** 31190229
**Document Type:** Article

# Document details - Functional insights of a molecular complex pyrazolium 3,5-dinitrobenzoate:3,5-dinitrobenzoic acid on infectious agents and ctDNA - A comparative biological screening and complementary theoretical calculations





Journal of Photochemistry and Photobiology B: Biology

Volume 196, July 2019, Article number 111497

## Functional insights of a molecular complex pyrazolium 3,5-dinitrobenzoate:3,5-dinitrobenzoic acid on infectious agents and ctDNA - A comparative biological screening and complementary theoretical calculations(Article)

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[b]Department of Chemical Engineering, Sethu Institute of Technology, Virudhunagar, Tamil Nadu 626 115, India

### Abstract

Systematic identification and quantification of active radical sites in a small molecule, pyrazolium 3,5-dinitrobenzoate:3,5-dinitrobenzoic acid as well as in the stable free radical (DPPH•) were carried out by Fukui functions calculation using DFT functional with B3LYP/6–311++G(d,p) level of basis set. Bioactive Lewis acid-base compound, pyrazolium 3,5-dinitrobenzoate:3,5-dinitrobenzoic acid (PDNB:DNBA) has been synthesized and crystallized by slow evaporation - solution method at 30 °C. Various functional groups and the structural arrangements were ascertained from spectral and XRD analyses, respectively. UV–vis spectral analysis was used to find out the stability of the anticipated drug for about 60 min using methanol as a solvent. Stabilization of the compound was linked to the presence of enormous N-H…O, O-H…O and C-H…O hydrogen bonding interactions identified through Hirshfeld surface analysis. Chemical stability and reactivity of the drug were validated from theoretical optimization and HOMO-LUMO analysis. Active nucleophilic, electrophilic and radical sites of PDNB:DNBA were also identified from molecular electrostatic potential analysis. Inhibition of growth of pathogens in screening experiments by the proposed drug attests its suitability in biological applications. Antioxidant activity of the compound, PDNB:DNBA, endorses its aptness for scavenging reactive radicals. Fluorimetry experiments confirm hyperchromism in DNA binding analysis proving groove mode of binding. Molecular docking explored the various modes of intermolecular interactions of the drug with microbes as well as DNA. © 2019

### Author keywords

Biological screening | Fukui functions calculation | Hirshfeld surface analysis | Molecular docking | XRD analysis

### Indexed keywords

EMTREE drug terms: chloroplast DNA | Lewis acid | methanol | nitrobenzoic acid derivative | pyrazolium 3,5 dinitrobenzoate | unclassified drug | 3,5-dinitrobenzoic acid | antioxidant | calf thymus DNA | DNA | nitrobenzoic acid derivative | pyrazole derivative

# Document details - An Effective Design of Wearable Antenna with Double Flexible Substrates and Defected Ground Structure for Healthcare Monitoring System





Journal of Medical Systems

Volume 43, Issue 7, 1 July 2019, Article number 186

## An Effective Design of Wearable Antenna with Double Flexible Substrates and Defected Ground Structure for Healthcare Monitoring System(Article)

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### Abstract

Due to the development of modern wearable mobile devices, the need of antenna with smaller size and internally flexible to fit becomes necessary. Miniaturization of Micro Strip Patch (MSP) antenna increases its employability for communication in different aspects. The use of flexible material for the fabrication of MSP antenna still improves its use for Wireless Body Area Networks (WBAN) which includes devices for monitoring systems in military, surveillance and medical applications. The devices designed specifically in Industrial Scientific Medical (ISM) band are used for communication in these applications. Defected Ground Structure (DGS) is adopted as an emerging technique for improving the various parameters of microwave circuits, that is, narrow bandwidth, cross-polarization, low gain, and so forth. In this paper, the design of compact micro strip patch antenna using different flexible substrate materials with DGS is proposed to resonate the antenna at 2.45GHz ISM band which can be used as biomedical sensors. Felt and Teflon with dielectric constant 1.36 and 2.1respectively are chosen as flexible substrate material among various flexible materials like cotton, rubber, paper, jeans etc. Using CST studio suite software, the designed antenna is simulated and the fabricated antenna is tested with Vector Network Analyzer (VNA). The performance parameters like return loss, gain, directivity and Voltage Standing Wave Ratio (VSWR) of the antenna are analyzed. © 2019, Springer Science+Business Media, LLC, part of Springer Nature.

### Author keywords

CST software | Defected ground structure | Directivity | Felt | Flexible dielectric materials | Gain | ISM band | Return loss | Teflon | VNA | WBAN

### Indexed keywords

EMTREE medical terms: Article | dielectric constant | health care | human | interpersonal communication | microwave radiation | miniaturization | polarization | software | devices | electronic device | equipment design | physiologic monitoring | wireless communication

MeSH: Equipment Design | Humans | Monitoring, Physiologic | Wearable Electronic Devices | Wireless Technology



**ISSN:** 01485598
**CODEN:** JMSYD
**Source Type:** Journal
**Original language:** English

**DOI:** 10.1007/s10916-019-1306-5
**PubMed ID:** 31101989
**Document Type:** Article
**Publisher:** Springer New York LLC

# Document details - Effectual light-harvesting and electron-hole separation for enhanced photocatalytic decontamination of endocrine disruptor using Cu <sub>2</sub> O/BiOI nanocomposite





Journal of Photochemistry and Photobiology A: Chemistry

Volume 380, 1 July 2019, Article number 111860

## Effectual light-harvesting and electron-hole separation for enhanced photocatalytic decontamination of endocrine disruptor using Cu $_2$ O/BiOI nanocomposite(Article)

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[b]Department of Civil Engineering, Sethu Institute of Technology, Virudhunagar, Tamil Nadu 626 115, India

### Abstract

Any body system controlled by hormones (or endocrine) can be spoilt by hormone disruptors. Bisphenol A (BPA) is a notorious endocrine disruptor, found in the inside coating of infant formula cans, plastic food containers and plastic bottles. This hazardous BPA causes breast malignancy, thyroid tumor, and prostate cancer. More importantly it induces hormonal imbalance resulting in sexual growth problems such as male-feminization and female-masculinization. Hence, its destruction from food, water and environment is very much required. Amongst the techniques employed for the degradation of perilous pollutant such as BAP, an effective technique is photocatalysis, in which the key issue is the development of materials with high photocatalytic efficiency. The fast recombination of light-produced electron-hole pairs, trivial surface area and deprived visible light utilization are the major negatives associated with any photocatalyst. These issues have been overcome here with the aid of one-step assembled oxygen vacancy-rich semiconductor, dicopper oxide doped iodo(oxo)bismuthine (Cu $_2$ O/BiOI). The as-prepared nanocomposite behaves in an outstanding way for the photocatalytic destruction of BPA (99.9%) under visible light irradiation. A suitable reaction mechanism has been recommended for the photocatalysis. This work, by and large, kindles new visions for achieving high-performance photocatalysis which will be very much useful for environmental remediation. © 2019 Elsevier B.V.

### Author keywords

Bisphenol A | Degradation | Dicopper oxide | Iodo(oxo)bismuthine | Nano composite | Photocatalyst

**ISSN:** 10106030
**CODEN:** JPPCE
**Source Type:** Journal
**Original language:** English

**DOI:** 10.1016/j.jphotochem.2019.111860
**Document Type:** Article
**Publisher:** Elsevier B.V.

Prakash, P.; Department of Chemistry, Thiagarajar College, Madurai, Tamil Nadu, India;

# Document details - Removal of salt and pepper noise from images using hybrid filter (HF) and fuzzy logic noise detector (FLND)





Concurrency and Computation: Practice and Experience

Volume 31, Issue 12, 25 June 2019, Article number e4501

## Removal of salt and pepper noise from images using hybrid filter (HF) and fuzzy logic noise detector (FLND)(Conference Paper)

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### Abstract

Image restoration is the practice of removing or reducing the degradation. Degradation occurs due to image acquisition, out of focus, and image transfer over the internet. Image restoration tries to recover images that have been degraded. The restored image is not an original image; it is an approximation of the actual image. Image restoration is the preprocessing task done before other image processing tasks such as image segmentation, image compression, etc. This research implements a restoration algorithm using hybrid filter (HF) and fuzzy logic noise detector (FLND) for the removal of impulse noise from images. The proposed technique consists of two stages. In the first stage, we split the image into a number of windows, and each window applies the hybrid filter (Mean Filter and Adaptive Median Filter). The output from the first stage is given as an input to the second stage in which FLND generates the fuzzy rules, the rules used to classify the pixel as noisy and noise free. If the pixel is considered as noisy pixel, then it is restored by median filter. The noise-free pixels were left unchanged. Increasing the (peak-signal-to noise ratio) PSNR of an image is the foremost objective of this research work. The proposed method is evaluated on standard lena image and the PSNR value at different noise level are presented in this research paper. The results are compared with Mean Filter (MF), Adaptive Median Filter (AMF), Weighted Median Filter (WMF), Decision-Based Filter (DBF), Weighted Fuzzy Mean Filter (WFM), Adaptive Fuzzy Mean Filter (AFM) and Wavelet Filter (WF). The drawbacks in existing methods are rectified in our proposed method. It suppresses noise, protects image characteristics, and also increases visual quality and PSNR value. © 2018 John Wiley & Sons, Ltd.

### Author keywords

fuzzy logic noise detector | Image restoration | peak-signal-to noise ratio

### Indexed keywords

Engineering controlled terms: Adaptive filtering | Adaptive filters | Computer circuits | Digital image storage | Fuzzy filters | Fuzzy inference | Fuzzy logic | Image compression | Image reconstruction | Image segmentation | Impulse noise | Median filters | Pixels | Restoration | Salt removal | Signal to noise ratio

Engineering uncontrolled terms: Adaptive median filter | Adaptive Median Filter (AMF) | Image characteristics | Noise detectors | Peak signal to noise ratio | Restoration algorithm | Salt-and-pepper noise | Weighted median filter

Engineering main heading: Image denoising



**ISSN:** 15320626 **DOI:** 10.1002/cpe.4501

# Document details - A simple multi-feature based stereoscopic medical image retrieval system





Polish Journal of Medical Physics and Engineering

Volume 25, Issue 2, 1 June 2019, Pages 127-130

## A simple multi-feature based stereoscopic medical image retrieval system(Article)(Open Access)

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[c]Department of ECE, Sethu Institute of Technology, Pulloor, Kariapatti, India

### Abstract

This paper describes a method of retrieving stereoscopic medical images from the database that consists of feature extraction, similarity measure, and re-ranking of retrieved images. This method retrieves similar images of the query image from the database and re-ranks them according to the disparity map. The performance is evaluated using the metrics namely average retrieval precision (APR) and average retrieval rate (ARR). According to the performance outcomes, the multi-feature based image retrieval using Mahalanobis distance measure has produced better result compared to other distance measures namely Euclidean, Minkowski, the sum of absolute difference (SAD) and the sum of squared absolute difference (SSAD). Therefore, the stereo image retrieval systems presented has high potential in biomedical image storage and retrieval systems. © 2019 K.A. Shaheer Abubacker et al., published by Sciendo 2019.

### Author keywords

average retrieval precision | average retrieval rate | disparity map | feature extraction | similarity measure | stereoscopic image retrieval

### Indexed keywords

EMTREE medical terms: article | feature extraction | image retrieval | information retrieval

**ISSN:** 14254689
**Source Type:** Journal
**Original language:** English
**DOI:** 10.2478/pjmpe-2019-0017
**Document Type:** Article
**Publisher:** Sciendo

Abubacker, K.A.S.; Anna University, Chennai, Tamilnadu, India;



### SciVal Topic Prominence

Topic:

Prominence percentile:

# Document details - Evaluation of fracture risk condition using bone mineral content and standard deviation





International Journal of Innovative Technology and Exploring Engineering

Volume 8, Issue 8, June 2019, Pages 899-902

## Evaluation of fracture risk condition using bone mineral content and standard deviation(Article)

Nazia Fathima, S.M., Tamilselvi, R., Parisa Beham, M.

Department of Electronics & Communication Engineering, Sethu Institute of Technology, Tamil Nadu, India

### Abstract

Bone is a most important anatomical structure in human body and a challenge in the medical world is the concern in the bone density called as osteoporosis. This disease in the bone is detected by medical image techniques. The main objective of this paper is to measure the bone mineral density (BMD) from X-ray images and thereby, evaluate the value of T-score, with an emphasis on scaling of images of DXA and X-ray for the measurement of BMD and T-score. The anticipated method comprises the succeeding steps: Region of Interest(ROI) of the bone region from X-ray and DXA images, Calculation of BMD using scale factor, Evaluation of T-score value and finally, the risk condition of bone. © BEIESP.

### Author keywords

BMD DXA Osteoporosis Scaling factor T-score X-ray images

**ISSN:** 22783075
**Source Type:** Journal
**Original language:** English

**Document Type:** Article
**Publisher:** Blue Eyes Intelligence Engineering and Sciences Publication

# Document details - Effective implementation of padlet ICT tool for engineering education





International Journal of Innovative Technology and Exploring Engineering

Volume 8, Issue 8, June 2019, Pages 1586-1590

## Effective implementation of padlet ICT tool for engineering education(Article)

Malathi, M., Paramasivam, C., Sangeetha, S., Gospeline Christiana, S., Nagalakshmi, K.

[a]Department of Computer Science and Engineering, Sethu Institute of Technology, Madurai, Tamilnadu, India
[b]Thiagarajar College of Engineering, Madurai, India

### Abstract

This paper work consolidates the outcomes from the effective implementation of padlet ICT tool for two subjects namely 14ME360 Geometric Modeling and 15UIT503 Graphics and Multimedia for undergraduate engineering, III semester Mechanical Engineering and V semester Information Technology students. It was observed that most of the students are welcoming the use of ICT tools in teaching when compared to conventional method of “chalk-and-talk”. This is due to development of digital technologies for class room discussions. Out of many ICT tools, here padlet features are used to customize for teaching learning process and the same was implemented. Now-a-days the most of students are driven by technology. One of the important aspects of padlet wall is the availability of “Android App” for mobile use. Also, the usage of this padlet wall is more simple and effective. We have observed that while implementing ICT tools for teaching learning activities; it should be simple and less numbers of hyperlinks. During the initial phase of this padlet implementation, the students are more reluctant to use this tool. But, within two years, most of the students are used this padlet wall because its simplicity. The different features of padlet and its customization process are given in detail. Finally, the effectiveness of this tool was observed with two different branches of engineering students. The corresponding findings are reported in spite of room for improvements due to the qualitative nature of teaching learning process. © BEIESP.

### Author keywords

Engineering education | ICT tools | Padlet | Teaching learning process

**ISSN:** 22783075
**Source Type:** Journal
**Original language:** English
**Document Type:** Article
**Publisher:** Blue Eyes Intelligence Engineering and Sciences Publication



### SciVal Topic Prominence

Topic:

Prominence percentile:

# Document details - Color textured feature based image retrieval using local binary pattern with hyper plane thresholding





International Journal of Innovative Technology and Exploring Engineering

Volume 8, Issue 8, June 2019, Pages 912-918

## Color textured feature based image retrieval using local binary pattern with hyper plane thresholding(Article)

Callinschristiyana, C., Mathinakani, M., Punitha, M.P., Priyadharsini, K.

Sethu Institute of Technology

### Abstract

The color image retrieval is a dynamic research area for more than a few decades as to access the images from the outsized image database. The color feature extraction and representation is the vital task in color image retrieval. Among the various color feature representation methods, the retrieval performance of Local Binary Pattern meant for color images (LBPC) is more as it combines color and texture features. LBPC utilizes the definition of hyper_plane to threshold the color pixel as either '0' or '1'. The definition of hyper_plane is derived using different normal vectors. This work considers this factor and design LBPC based image retrieval system with three hyper_plane normal vectors; Local average Normal, Center Normal, Mean Normal. Experimental results show that the LBPC with Local average Normal vector hyper_plane and LBPC with Mean Normal vector hyper_plane are yielding the same retrieval efficiency. The performance of Center Normal vector hyper_planed LBPC is low as compared to other two. This work proposed that the LBPC can be extracted using either Local average Normal vector hyper_plane or Mean Normal vector hyper_plane for the efficient retrieval of color images. © BEIESP.

### Author keywords

Color image | Content_Based Image Retrieval | Hyper_plane normal vector | LBP | MAP | Precision | Recall | Wang Database

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**Source Type:** Journal
**Original language:** English
**Document Type:** Article
**Publisher:** Blue Eyes Intelligence Engineering and Sciences Publication



### SciVal Topic Prominence

Topic:

Prominence percentile:

# Document details - Trust aware svm based ids for mitigating the malicious nodes in manet





International Journal of Innovative Technology and Exploring Engineering

Volume 8, Issue 8, June 2019, Pages 185-197

## Trust aware svm based ids for mitigating the malicious nodes in manet(Article)

Rajeswari, A.R., Kulothungan, K., Ganapathy, S., Kannan, A.

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[b]Department of Information Science and Technology, Anna University, CEG Campus, Chennai, India
[c]School of Computing Science and Engineering, VIT University-Chennai Campus, Chennai, India

### Abstract

MANET is dynamic in nature, openness, infraturestureless and no centralized monitoring and controlling unit. Due to these unique characteristic features, MANET is subjected to various security threats caused by the malicious nodes. A system that observes the unwanted attacks caused by the malicious nodes is defined as Intrusion Detection System. The major responsibility of IDS is to detect attacks from the network. In this paper, we propose a Trust Aware SVM based Intrusion Detection System (TASVM-IDS) with an objective to detect and isolate the malicious nodes. The proposed system consists of the following modules, namely feature extraction module, trust estimation module, classification module and decision making model. In this paper, a novel feature extraction algorithm, namely Linear Correlation Coefficient Based Feature Extraction (LCCBFE) algorithm is proposed with an aim to minimize the training time and to enhance the lifetime of the system. The trust level node is estimated by utilizing the behavior analysis and residual energy level of nodes. Thus, we have proposed a new Behavior Analysis Based Trust Algorithm (BABT) algorithm to compute the trust level of nodes in the network. Finally, SVM based classifier is used to classify the nodes into a trustworthy, untrustworthy or malicious node based upon the measured trust level of the nodes. Simulation results proves that the proposed TASVM-IDS can successfully mitigate malicious node and gives better results when compared to SVM and ELM. © BEIESP.

### Author keywords

Data preprocessing | Intrusion Detection System

**ISSN:** 22783075
**Source Type:** Journal
**Original language:** English

**Document Type:** Article
**Publisher:** Blue Eyes Intelligence Engineering and Sciences Publication

# Document details - Design of flexible slot antenna using different substrate materials for UWB applications





International Journal of Innovative Technology and Exploring Engineering

Volume 8, Issue 8, June 2019, Pages 894-898

## Design of flexible slot antenna using different substrate materials for UWB applications(Article)

Pandimadevi, M., Tamilselvi, R., Saba Afroze, A., Beham, M.P.

ECE Department, Sethu Institute of Technology, Pulloor, 626115, India

### Abstract

Utilization of Flexible antennas for the development of wearable devices have been extensively increased due to less weight, high performance, compact design and easy fabrication. The proposed antenna is designed with circular patch with slot using different flexible substrate materials. The various antenna parameters of all the designed structure were checked, correlated and analyzed. Ultra Wide Band (UWB) frequency range of 3.1-10.6 GHz was selected as operating frequency. The results show that proposed antenna with jute material as substrate has shown better results in return loss, VSWR, Gain and Directivity both in flat and on-body bending conditions. Results demonstrate the suitability of these flexible antennas for on-body wireless communications. © BEIESP.

### Author keywords

Bandwidth Bending Flexible Ultra wide band Wearable



**ISSN:** 22783075
**Source Type:** Journal
**Original language:** English

**Document Type:** Article
**Publisher:** Blue Eyes Intelligence Engineering and Sciences Publication

# Document details - Enhanced dual authentication and key management scheme for data authentication in vehicular ad hoc network





Computers and Electrical Engineering

Volume 76, June 2019, Pages 94-110

## Enhanced dual authentication and key management scheme for data authentication in vehicular ad hoc network(Article)

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[c]Computer Science and Engineering, KLN College of Information Technology, Madurai, India

### Abstract

Vehicular Ad hoc Network has vehicles communicating with processing units. The end devices need to be secured for transmitting data in authenticated mode. However there are challenges including intrusion, routing overhead and delayed communication. Since vehicles are exposed to attacks, security mechanisms are to be deployed. In this article, a mechanism for enhancing security in communication using elliptical curve cryptography (ECC) and Diffie–Hellman key exchange protocol with Bilinear map mechanism is employed. The proposed enhanced dual authentication (EDA) with key management scheme has been compared with dual authentication and results have been presented. The performance parameters evaluated are delay, drop count, dropping ratio, jitter, normalized routing overhead, packet delivery ratio, and throughput. From results, it can be inferred that EDA model increases the amount of trust in terms of integrity and authentication. © 2019 Elsevier Ltd

### Author keywords

Authentication | Delay | Packet dropping ratio | Packet loss, security | Throughput | Vehicular ad hoc network

### Indexed keywords

Engineering controlled terms: Authentication | Information management | Network security | Packet loss | Throughput

Engineering uncontrolled terms: Delay | Elliptical curve cryptographies | Key exchange protocols | Key management schemes | Normalized routing overheads | Packet delivery ratio | Packet dropping ratio | Performance parameters

Engineering main heading: Vehicular ad hoc networks



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**CODEN:** CPEEB
**Source Type:** Journal
**Original language:** English

**DOI:** 10.1016/j.compeleceng.2019.03.007
**Document Type:** Article
**Publisher:** Elsevier Ltd

# Document details - Investigation of tensile, flexural and impact properties of Neem-Indian almond hybrid fiber based epoxy composites





Materials Research Express

Volume 6, Issue 8, 24 May 2019, Article number 085322

## Investigation of tensile, flexural and impact properties of Neem-Indian almond hybrid fiber based epoxy composites(Article)

Shankarganesh, P.S.P., Muralikannan, R., Selvabharathi, R., Karuppasamy, R.

[a]Department of Mechanical Engineering, S.Veerasamy Chettiar College of Engineering and Technology, Puliyangudi, India
[b]Department of Mechanical Engineering, Sethu Institute of Technology, Pulloor, Kariapatti, Tamil Nadu 626 115, India

### Abstract

Composite materials are used in place of conventional material as they reduce the weight of the structure and increase the strength. Hybrid composite consists of two or more reinforcing fillers of different properties. In this investigation, a Tri layer Hybrid composites of Neem and Indian almond fruit fiber were prepared using hand layup method. Neem was used in outer layer and Indian almond fruit fiber was used in inner layer and vice versa while fabricating the hybrid composites. The tensile, flexural and impact properties of prepared hybrid composites were studied. The results displayed that the tensile and flexural properties of hybrid composite made with Neem as outer layer increased by 6.8% & 5.5% respectively compared to that of hybrid composite made with Indian almond fruit fiber as outer layer. The improvement of tensile and flexural properties was due to the presence of high strength Neem fiber at outer most layers. Moreover, the impact strength of hybrid composite made with Indian almond fruit fiber as outer layer exhibited better impact strength (5.1 kJ $m^{-2}$) compared to the impact strength of hybrid composite made with Neem fiber as outer layer. The impact strength enhanced due to the surface cracks of Indian almond fruit fiber as it absorbs more impact energies while loading and finally improved the impact strength of hybrid composite. 

### Author keywords

hybrid composite | Indian almond fruit fiber | mechanical properties | natural fiber | Neem fiber

### Indexed keywords

Engineering controlled terms: Bending strength | Fibers | Fruits | Glass ceramics | Mechanical properties | Natural fibers

Engineering uncontrolled terms: Conventional materials | Epoxy composite | High strength | Hybrid composites | Impact property | Reinforcing fillers | Surface cracks | Tensile and flexural properties

Engineering main heading: Impact strength

**ISSN:** 20531591
**Source Type:** Journal
**Original language:** English

**DOI:** 10.1088/2053-1591/ab20f7
**Document Type:** Article
**Publisher:** Institute of Physics Publishing

# Document details - Experimental investigation on corrosion behavior of friction surfaced mild steel with aluminum alloy 5083-Cadmium composite





Materials Research Express

Volume 6, Issue 8, 22 May 2019, Article number 086587

## Experimental investigation on corrosion behavior of friction surfaced mild steel with aluminum alloy 5083-Cadmium composite(Article)

Prince Sahaya Sudherson, D., Peter Anandkumar, P., Jinu, G.R., Arun Balasubramanian, K., Vettivel, S.C.

[a]Department of Mechanical Engineering, Cape Institute of Technology, Levengipuram, Tamilnadu Kanyakumari, India
[b]Department of Mechanical Engineering, V v College of Engineering, Tisiyanvilai, Tamilnadu, India
[c]Department of Mechanical Engineering, University College of Engineering, Nagercoil, Tamilnadu, Kanyakumari, India

View additional affiliations

### Abstract

The effect of friction surfacing on mild steel substrate using aluminium alloy 5083-Cadmium composite is investigated at corrosive environment. Friction surfacing process is carried out on the mild steel substrate using the modified lathe setup. Friction surfaced samples are subjected to heat treatment at 100, 150 and 200 °C to analysis the effect of heat treatment. Corrosion specimens are prepared and subjected to immersion and pitting test as per the standard. The results are analyzed by using weight loss method and the samples are examined using Scanning Electron Microscope. The corrosion results confirm that the friction surfaced mild steel has higher corrosion resistance than the mild steel substrate and heat treated friction surfaced samples. The corrosion rate is higher in low pH solution due to its acidic nature. When comparing the corrosion rate among the heat treated and untreated coated samples, the unheated friction surfaced samples are having low corrosion rate as compared to the heat treated. © 2019 IOP Publishing Ltd.

### Author keywords

Friction surfacing | immersion corrosion test | mild steel | pitting corrosion test

### Indexed keywords

Engineering controlled terms: Aluminum alloys | Aluminum corrosion | Carbon steel | Corrosion rate | Corrosion resistance | Corrosive effects | Friction | Friction welding | Heat resistance | Heat treatment | Low carbon steel | Pitting | Scanning electron microscopy

Engineering uncontrolled terms: Corrosion behavior | Corrosive environment | Effect of heat treatments | Experimental investigations | Friction surfacing | Immersion corrosion tests | Mild steel substrates | Weight loss method

Engineering main heading: Steel corrosion



**ISSN:** 20531591
**Source Type:** Journal
**Original language:** English
**DOI:** 10.1088/2053-1591/ab1de9
**Document Type:** Article
**Publisher:** Institute of Physics Publishing

# Document details - Influence of high-velocity oxygen fuel spraying and plasma nitriding on microstructure properties of iron-nickel-chromium alloy using hybrid surface heat treatment





Materials Research Express

Volume 6, Issue 8, 22 May 2019, Article number 086584

## Influence of high-velocity oxygen fuel spraying and plasma nitriding on microstructure properties of iron-nickel-chromium alloy using hybrid surface heat treatment(Article)

Ganapathy Srinivasan, R., Selvabharathi, R., Palani, S., Karuppasamy, R.

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[b]Department of Mechanical Engineering, Sethu Institute of Technology, Pulloor, Kariapatti, Tamil Nadu, 626115, India

### Abstract

In this investigation, an attempt has been made to develop the surface hardness of iron-nickel-chromium alloy (alloy20) and the analysis on the micro structure and mechanical properties were performed. The surface modification of alloy20 was performed using HVOF (High-Velocity Oxygen Fuel) coating, plasma nitriding (PN) processes and hybrid coating (HVOF combined with PN) on 2 mm thickness plate. The HVOF thermal spray coating was performed at 450 °C using Molybdenum and the PN process was done at 500 °C for 12 h to strengthen the surface material. The microstructure and mechanical properties were investigated by x-ray diffractometry (XRD), Scanning Electron Microscopy (SEM), Transmission Electron Microscopy (TEM) techniques, tensile and bending. The result showed that the hybrid surface treatment enhanced the surface hardness of base material by 18%, tensile strength reached to 826 MPa which is 21% greater than that of base material, residual stress and corrosion rate decreased by 5 and 6% respectively compared to base material. Further, a transformation/diffusion model has been used and correlated with experimental hardness value and concluded that both the experimental and theoretical values displayed similar trend. The present investigation concluded that the formation of expanded austenite reduced the development of $Cr_2N$ and this led to the better results of hardness, tensile and bending strength. 

### Author keywords

microstructure | Nickel-iron-chromium alloy | nitrogen phase composition | surface modification

### Indexed keywords

Engineering controlled terms: Aluminum nitride | Bending strength | Chromium compounds | Corrosion rate | Hardness | High resolution transmission electron microscopy | HVOF thermal spraying | Iron alloys | Microstructure | Nickel alloys | Nitriding | Nitrogen plasma | Oxygen | Plasma applications | Scanning electron microscopy | Sprayed coatings | Surface treatment | Tensile strength | X ray diffraction analysis

Engineering uncontrolled terms: High velocity oxygen fuel spraying | High velocity oxygen fuels | Hybrid surface treatment | Iron nickel chromium alloys | Microstructure and mechanical properties | Microstructure properties | Nickel irons | Thermal spray coatings

Engineering main heading: Chromium alloys

# Document details - Counterfeit currency detection based on fluorescence in HSV color space





International Journal of Recent Technology and Engineering

Volume 8, Issue 1, May 2019, Pages 15-18

## Counterfeit currency detection based on fluorescence in HSV color space(Article)

Alex, D.S., Subramanian, P., Subashini, S., Kumaresan, T., Stalin, B.

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[b]Dept. of CSE, Sri Indu College of Engineering and Technology, Hyderabad, Telangana, India
[c]Dept. of CSE, Sethu Institute of Technology, Madurai, Tamilnadu, India

View additional affiliations

### Abstract

Fake currency notes are so perfect nowadays that it is very tough to differentiate them from original currency notes. Due to technological advancements, it has become very easy for counterfeiter's to imitate all the characteristics of the original currency except the illumination or glow that occurs when the currency notes are induced to UV radiation. The proposed approach is based on this selective feature of color illumination which can be identified when the captured image is converted into HSV color space. Histogram equalization is done in HSV color space which collectively performs noise reduction, filtering and sharpening to enhance image quality for effective use in applications. The original currency will have high intensity color values compared to the fake currency that can be verified by using the thresholding technique. Thus, the proposed method is very simple, efficient and time saving. © BEIESP.

### Author keywords

Color space | Fake Currency | Histogram equalization | HSV (Hue, Saturation and value) | Threshold

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**Original language:** English
**Document Type:** Article
**Publisher:** Blue Eyes Intelligence Engineering and Sciences Publication

Alex, D.S.; Dept. of IT, Guru Nanak Institute of Technology, Hyderabad, Telangana, India;



### SciVal Topic Prominence

Topic:

Prominence percentile:

# Document details - A survey on modeling and coverage analysis of heterogeneous network





International Journal of Recent Technology and Engineering

Volume 8, Issue 1, May 2019, Pages 524-531

## A survey on modeling and coverage analysis of heterogeneous network(Article)

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### Abstract

The next generation networks have undergone thriving advances under the modification of existing cellular networks in order to support high data rates with optimal coverage. This survey is intended as an accessible in giving a keynote to how to model and analyze coverage using stochastic geometry in a heterogeneous cellular network. In order to study the coverage performance in downlink Heterogeneous network (HetNet), Poisson distribution of Base stations is made an assumption. In the first part of this paper, a review of the probabilistic model for deploying of cellular base stations is discussed. In the second part, downlink coverage probability analysis is made for several cell association schemes such as Maximum Signal to Interference plus Noise Ratio (SINR), a nearest base station (BS) association (NBA) and maximum received Power association (MRPA). In connection with the scenario, a toy example is given to deploy hetnet through various Poisson processes. The probabilistic analysis of estimating SINR values provides the network performance characteristics (Randomness, Tractability and accuracy) as functions of parameters. A clear understanding of this modeling approach by identifying a clear classification is presented. Furthermore, the strength and weakness of the given models and comparison of quality parameters are outlined. © BEIESP.

### Author keywords

Cell association schemes | Heterogeneous networks | Poisson process | Stochastic geometry

**ISSN:** 22773878
**Source Type:** Journal
**Original language:** English
**Document Type:** Article
**Publisher:** Blue Eyes Intelligence Engineering and Sciences Publication



### SciVal Topic Prominence

Topic:

Prominence percentile:

# Document details - Functionalized Mesoporous Carbon Nanostructures for Efficient Removal of Eriochrome Black-T from Aqueous Solution





Journal of Chemical and Engineering Data

Volume 64, Issue 4, 11 April 2019, Pages 1305-1321

## Functionalized Mesoporous Carbon Nanostructures for Efficient Removal of Eriochrome Black-T from Aqueous Solution(Article)

Veerakumar, P., Jeyapragasam, T., Surabhi, S., Salamalai, K., Maiyalagan, T., Lin, K.-C.

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View additional affiliations

### Abstract

Acid-functionalized mesoporous carbons (AF-MPCs) have been synthesized and used as adsorbents for removal of an azo dye, Eriochrome Black-T (EBT), from aqueous solution. To generate acid surface functionalities, mesoporous carbons (MPCs) were treated with sulfuric acid. Characterization of the samples was analyzed by XRD, Raman spectra, $N_2$ adsorption-desorption, FE-TEM, TGA, and FT-IR studies. The adsorption studies were carried out under various parameters, such as pH, adsorbent dosage, contact time, initial dye concentration solution temperature, and salt concentration. The results showed that the EBT adsorption onto samples was affected by the pH of solution; the maximum EBT ion adsorption took place at pH 1; and the adsorption uptake was increased with an increase in the initial dye concentration. Moreover, the mechanism of adsorption was investigated using kinetic, diffusion, and isotherm models. The best fit was obtained by the Langmuir model with high correlation coefficients ($R^2$ = 0.9463) with a maximum monolayer adsorption capacity of 117.0 $mg \cdot g^{-1}$. The adsorbed anionic EBT dye molecules were eluted by ethanol solvent with the recovery percentage of 98%. Moreover, this study demonstrates that AF-MPCs can be successfully used as a low-cost adsorbent for the removal of EBT from aqueous solutions. 

### Indexed keywords

Engineering controlled terms: Azo dyes, Carbon, Dyes, Mesoporous materials, Monolayers, Organic solvents

Engineering uncontrolled terms: Correlation coefficient, Eriochrome black T, Initial dye concentration, Low-cost adsorbents, Monolayer adsorption, Recovery percentages, Solution temperature, Surface functionalities

Engineering main heading: Adsorption

### Funding details



| Funding sponsor | Funding number | Acronym |
|---|---|---|
| Ministry of Science and Technology, Taiwan | NSC 102-2113-M-002-009-MY3 | MOST |



### Cited by 25 documents

Veerakumar, P. , Hung, S.-T. , Hung, P.-Q.

Synthesis of Activated Porous Carbon from Red Dragon Fruit Peel Waste for Highly Active Catalytic Reduction in Toxic Organic Dyes

*(2023) Catalysts*

Khan, Z. , Ali, F. , Said, A.

Polyethylene glycol capped copper ferrite porous nanostructured materials for efficient photocatalytic degradation of bromophenol blue

*(2022) Environmental Research*

Karim, S. , Ahmad, N. , Hussain, D.

Active removal of anionic azo dyes (MO, CR, EBT) from aqueous solution by potential adsorptive capacity of zinc oxide quantum dots

*(2022) Journal of Chemical Technology and Biotechnology*

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### SciVal Topic Prominence

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Prominence percentile:

# Document details - Investigations of Doping of Sn with Ag <sub>2</sub> O as a Thin Film on Glass Plate for Morphological Studies





Iranian Journal of Science and Technology, Transaction A: Science

Volume 43, Issue 2, 4 April 2019, Pages 627-638

## Investigations of Doping of Sn with Ag $_2$ O as a Thin Film on Glass Plate for Morphological Studies(Article)

Nivetha, S., Ayeshamariam, A., Srinivasan, M.P., Punithavelan, N., Perumalsamy, R., Jayachandran, M.

[a]Research and Development Centre, Bharathidasan University, Tiruchirappalli, 620024, India
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View additional affiliations

### Abstract

The Sn-doped silver oxide (Ag $_2$ O) thin film deposited on well-cleaned microscopic glass plates by Jet Nebulizer Technique was reported in this work. The coated thin film was annealed at 200 and 400 °C temperatures, respectively. The XRD investigation on the thin film at three different temperatures have been carried out and their results showed that, the maximum peak intensity of (200) plane was observed at 400 °C than rest of the two samples. In addition to that, it was also found that, the annealing process has certainly improved the crystallization of the film particularly at 400 °C. The SEM and TEM results confirmed that the particle size in the range of 30–50 nm. The peaks corresponding to the Ag and O in EDAX spectrum ensure the film is purely made up of nano-Ag $_2$ O and the presence of Sn was also confirmed by its respective peak. Additionally, vibrational analysis and Raman spectroscopy was carried out in this work to confirm the modes of vibration of the NPs. Sensitivity analyses was carried out to test the sensing capacity of the powder. © 2017, Shiraz University.

### Author keywords

Ag $_2$ O | EDAX | SEM | TEM | Thin film

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**Source Type:** Journal
**Original language:** English
**DOI:** 10.1007/s40995-017-0416-5
**Document Type:** Article
**Publisher:** Springer International Publishing

Ayeshamariam, A.; Research and Development Centre, Bharathidasan University, Tiruchirappalli, India;



### SciVal Topic Prominence

Topic:

Prominence percentile:

# Document details - Reaction/diffusion equation with Michaelis-Menten kinetics in microdisk biosensor: Homotopy perturbation method approach





International Journal of Electrochemical Science

Volume 14, Issue 4, 1 April 2019, Pages 3777-3791

## Reaction/diffusion equation with Michaelis-Menten kinetics in microdisk biosensor: Homotopy perturbation method approach(Article)

Swaminathan, R., Lakshmi Narayanan, K., Mohan, V., Saranya, K., Rajendran, L.

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[b]Department of Mathematics, Sethu Institute of Technology, Kariyapati, Tamilnadu, India
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View additional affiliations

### Abstract

This paper presents the non steady state model of a microdisk enzyme based biosensor where the enzyme reacts directly on the electrode itself. The model is based on diffusion equation containing a non-linear term related to Michaelis-Menten kinetics of enzymatic reaction. We have reported for the first time the utilization of new approaches of the homotopy perturbation method (HPM) to solve nonlinear partial differential equations in microdisk biosensor. Our analytical solution was also compared with numerical solutions and satisfactory agreement was noted. The influence of various parameters on the concentration are also discussed. © 2019 The Authors.

### Author keywords

Biosensors | Chemical sciences | Homotopy perturbation method | Mathematical model | Nonlinear equation

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**DOI:** 10.20964/2019.04.13
**Source Type:** Journal
**Document Type:** Article
**Original language:** English
**Publisher:** Electrochemical Science Group

Rajendran, L.; Department of Mathematics, AMET (Deemed to be University), Chennai, Tamilnadu, India;

# Document details - Water-suspended graphene as electrolyte additive in zinc-air alkaline battery system





Ionics

Volume 25, Issue 4, 1 April 2019, Pages 1699-1706

## Water-suspended graphene as electrolyte additive in zinc-air alkaline battery system(Article)

Kumar, K.K., Brindha, R., Nandhini, M., Selvam, M., Saminathan, K., Sakthipandi, K.

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[b]Department of Chemistry, Kongunadu Arts and Science college, Coimbatore, India
[c]Department of Physics, Sethu Institute of Technology, Kariapatti, Tamil Nadu 626 115, India

### Abstract

Zinc-air (Zn-air) batteries possess high-energy density due to surplus air involved in reduction reaction at air cathode and are an important energy source used for automobiles and grid storage. In this study, the scope of improvements in the efficiency of Zn-air batteries are investigated through addition of water-soluble graphene (WSG) as a corrosion inhibitor in 1 M KOH electrolyte. Phase and microstructure analysis for the synthesized WSG shows the formation of few layers of graphene due to the presence of an intense XRD peak of carbon at 26.3° and the flake-like structure confirmed by SEM. The discharge capacity, corrosion behavior, and electrochemical impedance analysis performed on conventional Zn-air battery shows improved performance when tested with WSG as an additive in 1 M KOH electrolyte. Results from short-circuit test show that immersion of WSG in 1 M KOH electrolyte increased the current density from 20.3 to 26.43 $mAcm^{-2}$. Whereas, galvanostatic discharge measurement reveals that Zn-air battery in WSG added with 1 M KOH electrolyte has a specific discharge capacity of ~ 212.6 $mAhg^{-1}$ higher than that obtained in 1 M KOH electrolyte (~ 160.4 $mAhg^{-1}$).Overall, the WSG-based Zn-air battery shows good self-discharge capacity and higher electrochemical activity during discharge holds promise as an electrolyte additive for Zn-air system. 

### Author keywords

Corrosion resistance | Discharge | Electrochemical property | Graphene | Zinc-air battery

### Indexed keywords

Engineering controlled terms: Additives | Corrosion resistance | Corrosive effects | Discharge (fluid mechanics) | Electric discharges | Electrochemical corrosion | Electrochemical properties | Electrolytes | Graphene | Potassium hydroxide | Zinc

Engineering uncontrolled terms: Electrochemical activities | Electrochemical impedance analysis | Electrolyte additives | Flake-like structures | Galvanostatic discharge | High energy densities | Phase and microstructures | Specific discharge capacity

Engineering main heading: Zinc air batteries



SciVal Topic Prominence

Topic:

Prominence percentile:

# Document details - Nano-structured manganese promoted ferrous catalyst synthesized by incipient wetness impregnation method: Synthesis and characterization





Materials Letters

Volume 240, 1 April 2019, Pages 55-58

## Nano-structured manganese promoted ferrous catalyst synthesized by incipient wetness impregnation method: Synthesis and characterization(Article)

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[b]Department of Chemical Engineering, Sethu Institute of Technology, Kariapatti, Tamil Nadu 626 115, India
[c]Centre for Waste Management, Sathyabama Institute of Science and Technology, Chennai, Tamil Nadu 600 119, India

View additional affiliations

### Abstract

$Al_2O_3$ supported ferrous catalyst promoted by manganese was successfully designed and developed by incipient wetness impregnation method. The synthesized compound was effectively characterized by various analytical techniques such as X-ray Diffraction (XRD), Scanning Electron Microscopy (FESEM-EDX) studies, Porosimetry analysis and Thermo Gravimetric Analysis (TGA). SEM images showed that the obtained particles are irregular in shape with extensive particle agglomeration. Furthermore, BET analysis revealed that the nanoparticles have a surface area of 53.66 $m^2 g^{-1}$ with an average adsorption pore diameter of 91.1464 Å. The average crystallite size of the nanoparticle ranges from 19 to 20 nm was examined by XRD analysis. © 2019 Elsevier B.V.

### Author keywords

Catalyst | Nanoparticles | Porous materials | Thermal properties | Wet impregnation method

### Indexed keywords

Engineering controlled terms: Alumina | Aluminum oxide | Catalysts | Crystallite size | Gravimetric analysis | Impregnation | Manganese | Nanoparticles | Porous materials | Scanning electron microscopy | Thermodynamic properties | Thermogravimetric analysis | X ray diffraction

Engineering uncontrolled terms: Incipient wetness impregnation method | Nano-structured | Particle agglomerations | Pore diameters | Surface area | Synthesis and characterizations | Wet impregnation method | XRD analysis

Engineering main heading: Nanocatalysts

**ISSN:** 0167577X
**CODEN:** MLETD
**Source Type:** Journal
**Original language:** English

**DOI:** 10.1016/j.matlet.2018.12.115
**Document Type:** Article
**Publisher:** Elsevier B.V.

# Document details - Classification of MR brain images for detection of tumor with transfer learning from pre-trained CNN models





2019 International Conference on Wireless Communications, Signal Processing and Networking, WiSPNET 2019

March 2019, Article number 9032811, Pages 508-511

2019 International Conference on Wireless Communications, Signal Processing and Networking, WiSPNET 2019; SSN InstitutionsChennai; India; 21 March 2019 through 23 March 2019; Category numberCFP19D52-ART; Code 158510

## Classification of MR brain images for detection of tumor with transfer learning from pre-trained CNN models(Conference Paper)

Prakash, R.M., Kumari, R.S.S.

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[b]Mepco Schlenk Engineering College, Department of Electronics and Communication Engineering, Sivakasi, India

### Abstract

Magnetic resonance imaging is one of the non-invasive imaging techniques widely employed to diagnose brain diseases. Early diagnosis and treatment of brain tumors is essential. It is a time consuming process for the radiologists to manually classify MR brain images into normal and images with tumors. In this paper, an automated method based on Convolutional Neural Network (CNN) is proposed for detection of tumor in brain images. The CNN model pre-trained on the huge image database of ImageNet, is used to train the input brain images. The high level features extracted are given as input to the fully connected layer followed by softmax activation. The method is tested on MR brain images from database of Harvard medical school. An analysis is done with utilization of three pre-trained models - VGG16, ResNet and Inception. It is able to achieve an accuracy of 100% on the experimented database. Also, from the results, it is inferred that data augmentation improves classification accuracy. © 2019 IEEE.

### Author keywords

Brain tumor. | Classification | Convolutional Neural Network | Transfer learning

### Indexed keywords

Engineering controlled terms: Brain mapping | Convolutional neural networks | Database systems | Diagnosis | Magnetic resonance imaging | Transfer learning | Tumors

Engineering uncontrolled terms: Automated methods | Classification accuracy | Data augmentation | Early diagnosis | Harvard Medical School | High-level features | Image database | Non-invasive imaging

Engineering main heading: Image classification



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**Source Type:** Conference Proceeding
**Original language:** English
**DOI:** 10.1109/WiSPNET45539.2019.9032811
**Document Type:** Conference Paper
**Publisher:** Institute of Electrical and Electronics Engineers Inc.

# Document details - Performance Study of Fetal ECG Mining and Heart Rate Measurement





2019 International Conference on Data Science and Communication, IconDSC 2019

March 2019, Article number 8817050

2019 International Conference on Data Science and Communication, IconDSC 2019; Bangalore; India; 1 March 2019 through 2 March 2019; Category numberCFP19S26-ART; Code 151620

## Performance Study of Fetal ECG Mining and Heart Rate Measurement(Conference Paper)

Sabah Afroze, A., Tamilselvi, R., Parisa Beham, M., Maraikkavar, S.M.S.M.A., Rajakumar, K.

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### Abstract

Arena of electrocardiography (ECG)has been in presence for over a span, however regardless of noteworthy progresses in grown clinical electrocardiography, information analysis methods and advanced devices, the examination of unborn ECGs is silent in bud stage. This picture is, somewhat because of an absence of accessibility of unique databases, incompletely because of the abstemiously minimal signal and noise factor of the ECG signal derived from the fetus is contrasted with the maternal ECG which is measured by the electrodes and partially due to the fewer data of the clinical information, in relation to fetal cardiac function and improvement. Motivated by this above issues, in this paper we survey a scope of various preprocessing, extraction and assessment of Heart rate for unborn ECG examination that have been produced in the recent forty eons, and confer about their deficiencies and plusses. © 2019 IEEE.

### Author keywords

Electrodes | Electromyogram (EMG)and Power Line Interferences | Fetal ECG (FECG) | Heart Rate (HR)

### Indexed keywords

Engineering controlled terms: Electrodes | Heart

Engineering uncontrolled terms: Cardiac functions | Clinical information | Fetal ECG | Heart rates | Maternal ECG | Noise factor | Performance study | Powerline interference

Engineering main heading: Electrocardiography

**ISBN:** 978-153869319-3
**Source Type:** Conference Proceeding
**Original language:** English
**DOI:** 10.1109/IconDSC.2019.8817050
**Document Type:** Conference Paper
**Publisher:** Institute of Electrical and Electronics Engineers Inc.

# Document details - Implementation of Environment Parameters Monitoring in a Manufacturing Industry using IOT





2019 5th International Conference on Advanced Computing and Communication Systems, ICACCS 2019

March 2019, Article number 8728365, Pages 858-862

5th International Conference on Advanced Computing and Communication Systems, ICACCS 2019; Coimbatore; India; 15 March 2019 through 16 March 2019; Category numberCFP19YAF-ART; Code 148637

## Implementation of Environment Parameters Monitoring in a Manufacturing Industry using IOT(Conference Paper)

Gayathri, K.

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### Abstract

To Design and develop a low cost real-time monitoring, alert to workers, notified data of polluted area has been checked for the immediate surroundings. A various parameter such as Air Quality, Temperature Humidity, and Sound intensity sensors with PIC controller which collects and upload data into the cloud using ESP8266 Wi-Fi module. Then transmit to the cloud platform using MQTT protocol to perform Digital Dashboard on Smartphone checks anomaly notification and alert to the user through a web page. If the industry doesn't take any step to reduce the pollution within a certain period, the pollution control board will shut down the industrial electricity power until they pay a penalty amount of polluting the city according to the government rules and regulation. © 2019 IEEE.

### Author keywords

DHT11 temperature humidity sensor | ESP8266 Wi-Fi | Internet of Things | LM393 noise sensor) | Monitoring Sensors (MQ-135 gas sensor | MQTT protocol | PIC | Ubidots cloud

### Indexed keywords

Engineering controlled terms: Air quality | Humidity control | Internet protocols | Pollution control | Websites | Wi-Fi | Wireless local area networks (WLAN)

Engineering uncontrolled terms: Manufacturing industries | Monitoring sensors | Noise sensors | Parameters monitoring | Real time monitoring | Rules and regulations | Temperature humidity | Temperature-humidity sensors

Engineering main heading: Internet of things

**ISBN:** 978-153869533-3
**Source Type:** Conference Proceeding
**Original language:** English
**DOI:** 10.1109/ICACCS.2019.8728365
**Document Type:** Conference Paper
**Publisher:** Institute of Electrical and Electronics Engineers Inc.

# Document details - Combination of Novel Converter Topology and Improved MPPT Algorithm for Harnessing Maximum Power from Grid Connected Solar PV Systems





Journal of Electrical Engineering and Technology

Volume 14, Issue 2, 1 March 2019, Pages 733-746

## Combination of Novel Converter Topology and Improved MPPT Algorithm for Harnessing Maximum Power from Grid Connected Solar PV Systems(Article)

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### Abstract

It is a difficult task to utilize the power from the solar PV connected to utility grid effectively due to its lower efficiency. Hence, a new power electronic topology with maximum power point tracking (MPPT) algorithm is needed to reduce the losses thereby obtaining the maximum power from solar PV system. Direct energy transfer is implemented to transfer the rated solar power to the utility grid, the rest is fed to the converter and used for DC loads. In this work, a reversed buck-boost converter topology with parallel power processing concept is used efficiently and a multiple perturbation and observation (MP&O) based MPPT algorithm is proposed to achieve the global maximum power point (GMPP). And also boost inverter topology is employed by which the power from PV is supplied to the utility grid. The proposed method is simulated using MATLAB/SIMULINK and implemented in hardware. The simulation and experimental results of the proposed MP&O technique provide maximum AC power as well as DC power even in low irradiance and partial shading conditions of the solar PV array compared to the existing techniques. 

### Author keywords

Buck-boost converter | Maximum power point tracking | Photovoltaic | Utility grid

### Indexed keywords

Engineering controlled terms: DC-DC converters | Electric current regulators | Electric currents | Energy transfer | MATLAB | Maximum power point trackers | Photovoltaic cells | Solar energy | Topology

Engineering uncontrolled terms: Buck boost converter | Direct energy transfers | Electronic topologies | Maximum Power Point Tracking | Multiple perturbations | Parallel power processing | Photovoltaic | Utility grids

Engineering main heading: Electric power transmission networks



**ISSN:** 19750102
**Source Type:** Journal
**Original language:** English

**DOI:** 10.1007/s42835-018-00075-9
**Document Type:** Article
**Publisher:** Korean Institute of Electrical Engineers

# Document details - Xsitray: A database for the detection of osteoporosis condition





Biomedical and Pharmacology Journal

Volume 12, Issue 1, March 2019, Pages 267-271

## Xsitray: A database for the detection of osteoporosis condition(Article) (Open Access)

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### Abstract

In the medical era, health of a bone is accessed by the bone mineral density (BMD) test. Bone fracture risk in the humans are estimated or evaluated by the BMD test. The test statement recognizes the presence of signs of presence of the frequent occurring disease in the bone called as osteoporosis. In the earlier stage, the challenge in the BMD measurement is that traditional x-rays are used with a step wedge made from an aluminum or ivory phantom. At each step of the phantom with the known densities, bone content present is intended by a illustration assessment of the density present in the bone. Effectiveness in the value and feasibility in the X-rays compared to cutting-edge methods divulge the potential for novel medical relevance among the investigators. So it is obligatory to enclose a customary database in X-Ray images for the young bud researchers to capture up the dealings to the advance stage by accurate examination of the medical results of the images. The projected X-Ray database is termed XSITRAY, characterizes an early attempt to offer a group of X-Ray images of Spine, Femur, Clavicle, Extremity & Ankle, Extremity & Hand and Knee bones. The details such as age, gender and unique Id of the patient are interpreted in the database. 

### Author keywords

Ankle BMD Femur bone Knee X-Ray database XSITRAY

### Indexed keywords

EMTREE medical terms: adult Article body mass bone densitometry bone density bone metabolism bone tissue computer assisted tomography dual energy X ray absorptiometry female fracture human male nuclear magnetic resonance imaging ossification osteoporosis photon absorptiometry positron emission tomography

**ISSN:** 09746242
**Source Type:** Journal
**Original language:** English
**DOI:** 10.13005/bpj/1637
**Document Type:** Article
**Publisher:** Oriental Scientific Publishing Company

Parisa Beham, M.; Department of CSE, Sethu Institute of Technology, Tamilnadu, India;

# Document details - Evaluation of mechanical and thermal properties of tamarind seed filler reinforced vinyl ester composites





Journal of Vinyl and Additive Technology

Volume 25, March 2019, Pages E114-E128

## Evaluation of mechanical and thermal properties of tamarind seed filler reinforced vinyl ester composites(Article)

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[b]Department of Mechanical Engineering, ULTRA College of Engineering and Technology, Madurai, Tamil Nadu 625107, India
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View additional affiliations

### Abstract

This article deals with the usage of tamarind seed filler (TSF) as reinforcement in vinyl ester (VE) composites. The composite plates have been fabricated by compression molding machine with TSFs of varying wt% from 5 to 50 as reinforcement material, and their properties such as tensile, flexural, impact, hardness, water absorption, heat deflection tests, and thermogravimetric analysis are studied. The mechanical properties of TSF reinforced VE composites are optimum at 15 wt% filler. The tensile strength and flexural strength of TSF-VE composites are estimated to be around 34.1 and 121 MPa, respectively. The better impact strength of TSF-VE composites is found to be 14.02 kJ/m $^2$ , and barcol hardness can hold a value up to 42.33. Thermo gravimetric analysis and heat deflection test of TSF reinforced VE composite have improved the thermal stability. The fiber matrix interaction of the fractured mechanical testing specimen has been analyzed by scanning electron microscope. The TSF-VE composites are used to fabricate the wheel hubcap of heavy-duty buses, bus seat backrest cover, and silencer guard of the motorcycle. J. VINYL ADDIT. TECHNOL., 25:E114–E128, 2019. © 2019 Society of Plastics Engineers. © 2019 Society of Plastics Engineers

### Indexed keywords

Engineering controlled terms: Compression molding, Esters, Fillers, Gravimetric analysis, Hardness, Impact strength, Mechanical properties, Mechanical testing, Plastic products, Reinforcement, Scanning electron microscopy, Tensile strength, Water absorption, Water hardness

Engineering uncontrolled terms: Composite plates, Fiber-matrix interaction, Heat deflection, Heavy duty, Mechanical and thermal properties, Reinforcement materials, Vinyl esters, Vinylester composites

Engineering main heading: Thermogravimetric analysis

**ISSN:** 10835601
**CODEN:** JVATF
**Source Type:** Journal
**Original language:** English

**DOI:** 10.1002/vnl.21701
**Document Type:** Article
**Publisher:** John Wiley and Sons Ltd

# Document details - Neodymium doped on the manganese–copper nanoferrites: analysis of structural, optical, dielectric and magnetic properties





Journal of Materials Science: Materials in Electronics

Volume 30, Issue 5, 1 March 2019, Pages 4473-4486

## Neodymium doped on the manganese–copper nanoferrites: analysis of structural, optical, dielectric and magnetic properties(Article)

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### Abstract

Mixed manganese–neodymium–copper (Mn–Nd–Cu) nanoferrites were synthesized using the sonochemical method. The X-ray diffraction (XRD) pattern showed a cubic spinel structure and lattice parameters were determined from the XRD spectra. Fourier transform infrared spectra were used to characterize the chemical bond of tetrahedral and octahedral sites in the spinel ferrites. The surface morphology and elemental composition were analyzed by scanning electron microscopes coupled with energy-dispersive X-ray spectroscopy, which showed spherical elongated agglomeration with desired elemental peak. The optical bandgap energies increased with the inclusion of $Nd^{3+}$, which was investigated using the UV-diffuse reflectance spectrum. The dielectric parameter decreased with an increase in frequency. The relatively low AC conductivity values were obtained for the Mn–Nd–Cu nanoferrites. The magnetic hysteresis curve showed that low coercivity indicates that the prepared nanoferrites had a soft magnetic material with ferromagnetic nature. The enhanced optical bandgap, decreased dielectric loss, and low coercivity of NMC4 indicated that the prepared nanoferrites could be used in electronic devices at a super high frequency. 

### Indexed keywords

Engineering controlled terms: Coercive force, Copper, Dielectric losses, Energy dispersive spectroscopy, Energy gap, Magnetic materials, Manganese, Optical band gaps, Scanning electron microscopy, Sonochemistry, X ray diffraction

Engineering uncontrolled terms: Cubic spinel structure, Dielectric and magnetic properties, Elemental compositions, Energy dispersive X ray spectroscopy, Fourier transform infrared spectra, Magnetic hysteresis curves, Optical band gap energy, UV diffuse reflectance

Engineering main heading: Magnetism

### Funding details


| Funding sponsor | Funding number | Acronym |
|---|---|---|
| Science and Engineering Research Board See opportunities by SERB | SR/FTP/ PS-068/2014 | SERB |

# Document details - Speckle noise removal in SAR images using Multi-Objective PSO (MOPSO) algorithm





Applied Soft Computing Journal

Volume 76, March 2019, Pages 671-681

## Speckle noise removal in SAR images using Multi-Objective PSO (MOPSO) algorithm(Article)

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### Abstract

SAR images are inherently affected by speckle noise, and although attempts made earlier to remove speckle succeeded, there is still the challenge of preserving the edges of images. This is due to the smoothing effect of most of the earlier algorithms that work on thresholding coefficients in the transform domain. There exists a trade-off between denoising and the ability to preserve edges in selecting a suitable threshold. Estimation of an optimal threshold is a major concern and is compounded by the requirement for concurrent smoothing of noise and preservation of structural/edge information in an image. Considering the search for an optimal threshold as exhaustive and the requirements as contradictory, we model this as a Multi-Objective Particle Swarm Optimization (MOPSO) task and propose a MOPSO framework for despeckling an SAR image using a Dual-Tree Complex Wavelet Transform (DTCWT) in the frequency domain. Two counteractive reference metrics, such as Peak Signal-to-Noise Ratio (PSNR) and Mean Structural Similarity Index Metric (MSSIM), and non-reference metrics such as the alpha-beta (αβ) and Despeckling Evaluation Index (DEI) have been used as the objective functions of MOPSO. An optimal threshold derived from this multi-objective optimization is chosen for despeckling the SAR images. The proposed solution has been found to outperform state-of-the-art filters such as Lee, Kaun, Frost and SAR-BM3D filters. Also, the proposed MOPSO framework superior than the competing optimization technique Multi-Objective Evolutionary Algorithm (MOEA) based on Differential Evolution (DE) framework for despeckling. © 2018 Elsevier B.V.

### Author keywords

Dual tree complex wavelet transforms | MOPSO | No reference metric | SAR image | Speckle noise

### Indexed keywords

Engineering controlled terms: Economic and social effects | Frequency domain analysis | Image coding | Image compression | Image denoising | Image quality | Image segmentation | Multiobjective optimization | Partial discharges | Particle swarm optimization (PSO) | Signal to noise ratio | Speckle | Synthetic aperture radar | Wavelet transforms

Engineering uncontrolled terms: Dual-tree complex wavelet transform | MOPSO | No-reference metric | SAR Images | Speckle noise

Engineering main heading: Radar imaging



**ISSN:** 15684946
**Source Type:** Journal
**DOI:** 10.1016/j.asoc.2018.12.030
**Document Type:** Article

# Document details - The external and internal influences on the tuning of the properties of perovskites: An overview





Ceramics International

Volume 45, Issue 4, March 2019, Pages 4152-4166

## The external and internal influences on the tuning of the properties of perovskites: An overview(Review)

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### Abstract

Perovskite-type materials become multipurpose class of compounds based on systematic studies of structure and numerous properties. Further the variation of properties can be tuned by adding or substitution of second anionic species such as halide, nitride, hydride etc. The different charges, covalencies, sizes, and new modes of local coordination offer convenient ways to further control carrier doping, magnetism, conductivity, and even chemical reactivity. This review aims to discuss the different effects of hypothetical and experimental methods that can modify the properties of perovskites for suitable device applications. This review will provide a clear idea to experienced researchers about the different methods adopted to tune the properties of perovskite. A brief description of comprehensive modification procedures will enable an understanding of alternative ways of tuning the properties of perovskite. © 2018 Elsevier Ltd and Techna Group S.r.l.

### Author keywords

Doping effect | Perovskite | Synthesis condition | Tuning properties

### Indexed keywords

Engineering controlled terms: Ceramic materials

Engineering uncontrolled terms: Device application | Different effects | Doping effects | Experimental methods | Local coordination | Synthesis conditions | Systematic study | Tuning properties

Engineering main heading: Perovskite

### Funding details

| Funding sponsor | Funding number | Acronym |
|---|---|---|
| Science and Engineering Research Board<br>See opportunities by SERB | SR/FTP/PS-068/2014 | SERB |

Funding text

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# Document details - Multi Response Optimization of Fabrication Parameters of Carbon Fiber-Reinforced Aluminium Laminates (CARAL): By Taguchi Method and Gray Relational Analysis





Polymer Composites

Volume 40, Issue S2, March 2019, Pages E1041-E1048

## Multi Response Optimization of Fabrication Parameters of Carbon Fiber-Reinforced Aluminium Laminates (CARAL): By Taguchi Method and Gray Relational Analysis(Article)

Muthu Chozha Rajan, B., Senthil Kumar, A., Sornakumar, T., Senthamaraikannan, P., Sanjay, M.R.

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View additional affiliations

### Abstract

In this article, the fabrication parameters of carbon fiber-reinforced aluminium laminates (CARAL) were optimized using gray relational analysis. CARAL were fabricated by hand layup technique as per the control factors and levels designed using Taguchi's $L_9$ orthogonal array. The control factors are layer thickness, orientation, and matrix. The CARAL were fabricated with different layer thickness, orientation and matrix. Flexural and Impact tests were carried out using universal testing machine and impact testing machine.Using gray relational analysis, the optimum levels of parameters have been identified and significant contributions of parameters were determined by analysis of variance. The significant fabrication parameters layer thickness and matrix influence the multi-response characteristics such as flexural strength and impact energy. POLYM. COMPOS., 40:E1041–E1048, 2019. © 2018 Society of Plastics Engineers. © 2018 Society of Plastics Engineers

### Indexed keywords

Engineering controlled terms: Aluminum, Impact testing, Reinforcement, Taguchi methods

Engineering uncontrolled terms: Carbon fiber reinforced, Different layers, Fabrication parameters, Gray relational analysis, L9 orthogonal arrays, Layer thickness, Multiresponse optimization, Universal testing machines

Engineering main heading: Fabrication

**ISSN:** 02728397
**CODEN:** PCOMD
**Source Type:** Journal
**Original language:** English

**DOI:** 10.1002/pc.24815
**Document Type:** Article
**Publisher:** John Wiley and Sons Inc.

# Document details - Physicochemical properties of new cellulosic fiber extracted from Carica papaya bark





Journal of Natural Fibers

Volume 16, Issue 2, 17 February 2019, Pages 175-184

## Physicochemical properties of new cellulosic fiber extracted from Carica papaya bark(Article)

Saravana Kumaar, A., Senthilkumar, A., Sornakumar, T., Saravanakumar, S.S., Arthanariesewaran, V.P.

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View additional affiliations

### Abstract

This article presents the characteristics of Carica papaya fibers (CPFs) extracted from the bark of the perennial papaya plant. Detailed chemical compositions of CPFs such as cellulose, lignin, ash, moisture, and wax contents were established and determined by using standard methods. Further, chemical groups, crystalline structure, surface roughness, and thermal stability of CPFs were examined using Fourier transform infrared analysis, X-ray diffraction, atomic force microscope, and thermogravimetric analysis, respectively. The physico-chemical properties of CPFs, crystallinity index (56.34%), cellulose content (38.71 wt. %), hemicellulose (11.8%), and density (943 kg/m $^3$ ) were compared to those properties of other natural fibers. The results suggest that the biodegradable CPFs can be used as a potential reinforcemnet in the polymer matrix composite structure. © 2017, © 2017 Taylor & Francis.

### Author keywords

AFM analysis | chemical analysis | FT-IR analysis | thermogravimetric analysis | XRD analysis

### Indexed keywords

Engineering controlled terms: Atomic force microscopy | Biodegradable polymers | Cellulose | Chemical analysis | Chemical stability | Natural fibers | Polymer matrix composites | Surface roughness | Thermodynamic stability | X ray diffraction

Engineering uncontrolled terms: AFM analysis | Chemical compositions | Crystalline structure | Crystallinity index | Fourier transform infra reds | FTIR analysis | Physicochemical property | XRD analysis

Engineering main heading: Thermogravimetric analysis

PaperChem Variable: Cellulose | Chemical Analysis | Crystallinity | Gravimetry | Natural Fibers | Thermal Analysis | X Ray Diffraction



**ISSN:** 15440478
**Source Type:** Journal
**Original language:** English
**DOI:** 10.1080/15440478.2017.1410514
**Document Type:** Article
**Publisher:** Taylor and Francis Inc.

# Document details - Synthesis, characterization and computation of potassium doped calcium hydroxide nanoparticles and nanotubes





International Journal of Mechanical and Production Engineering Research and Development

Volume 9, Issue 1, February 2019, Article number IJMPERDFEB201943, Pages 441-448

## Synthesis, characterization and computation of potassium doped calcium hydroxide nanoparticles and nanotubes(Article)(Open Access)

Nandhini, D., Subashchandrabose, S., Ramesh, P., Mohan Radheep, D., Sakthipandi, K.

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[c]Department of Physics, Sethu Institute of Technology, Kariapatti, Tamil Nadu, India

### Abstract

Potassium doped calcium hydroxide [Ca(OH)2:K] nanoparticles were synthesized by simple precipitation method. The powder x-ray diffraction pattern of the sample was studied, to investigate the crystalline nature of the sample. The shape and size of the nanoparticles were measured by scanning electron microscopic (SEM). The functional groups presented in the synthesized particles were recorded and analysed in the spectral region of 4000-400cm-1by Fourier-transform infrared spectroscopy. Optical Properties of [Ca(OH)2:K] were determined by ultraviolet visible spectrometer in the range of 190 – 800 nm. In addition that to study insight of the Ca(OH)2 nano material, a nanotube was constructed and studied a quantum chemical calculations to predict the geometry, Dynamic and band gap properties. © TJPRC Pvt. Ltd.

### Author keywords

Potassium Doped Calcium Hydroxide | Structural Properties & Optical Properties

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**Source Type:** Journal
**Original language:** English

**DOI:** 10.24247/ijmperdfeb201943
**Document Type:** Article
**Publisher:** Transstellar Journal Publications and Research Consultancy Private Limited (TJPRC)



Topic:

Prominence percentile:

# Document details - Highly enhanced electrochemical performance of novel based electrode materials for supercapacitor applications - An overview





International Journal of Electrochemical Science

Volume 14, Issue 2, 1 February 2019, Pages 1634-1648

## Highly enhanced electrochemical performance of novel based electrode materials for supercapacitor applications - An overview(Short Survey)(Open Access)

Ramachandran, R., Chen, T.-W., Chen, S.-M., Raja, P., Fernandez, C., Rani, S.D., Gajendran, P., Raju, G., Baskar, T., Jeyapragasam, T.

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View additional affiliations

### Abstract

The research and recent progress of electrochemical energy storage devices applied to various applications during the past two decayed are reviewed. Different electrode materials (carbon-based materials, metal oxides, conducting polymers, metal nanoparticles and nanocomposites), can be used as the most important features for supercapacitors. Recently, research efforts of supercapacitor electrodes have been used to increase the specific capacitance and its cyclic stability. In this review designate current efforts energy storage preparation methods, materials and different morphological structure for electrochemical capacitor applications. The principle of design, extended surface area, improve the capacitance properties and long-durability of the electrochemical capacitor are discussed. © 2019 The Authors.

### Author keywords

Electrochemical properties | Electrode stability | Morphology | Nanocomposite | Ultracapacitors

**ISSN:** 14523981
**Source Type:** Journal
**Original language:** English
**DOI:** 10.20964/2019.02.75
**Document Type:** Short Survey
**Publisher:** Electrochemical Science Group

Chen, S.-M.; Electroanalysis and Bioelectrochemistry Lab, Department of Chemical Engineering and Biotechnology, National Taipei University of Technology, No.1, Section 3, Chung-Hsiao East Road, Taipei, Taiwan;


Topic:

Prominence percentile:

# Document details - Effect of post weld heat treatment and TiAlSiN coating on the tensile strength of autogenous plasma arc welding of duplex/ super austenitic stainless steels





Journal of Manufacturing Processes

Volume 38, February 2019, Pages 135-147

## Effect of post weld heat treatment and TiAlSiN coating on the tensile strength of autogenous plasma arc welding of duplex/ super austenitic stainless steels(Article)

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### Abstract

The present study shows the effect of post weld heat treatment (PWHT) and TiAlSiN coating on tensile, bending strength, hardness and corrosion of Duplex Stainless Steel (DSS) and Super Austenite Stainless Steel (SASS) joined materials in plasma arc welding. Direct aging PWHT process was conducted for 32 h at 918 °C on DSS - SASS materials. The hardness value reduced at the heat affected zone of PWHT samples due to the formation of pentagonal and hexagonal precipitates. TiAlSiN coating was applied in dissimilar material at 450 °C by Physical Vapor Deposition (PVD) process with pressure 3.0 x $10^{-3}$ Pa. In case of TiAlSiN coated sample, the tensile failures occurred at the SASS where as in case of DSS - SASS, PWHT the tensile failure occurred at the fusion zone. This investigation also showed the exhaustive mechanical property relationships of Autogeneous Plasma Arc (A-PA) weldments conducted on the fusion zone based on the process of DSS - SASS, PWHT and TiAlSiN coating by employing scanning electron microscopy, X-ray diffractometry and transmission electron microscopy techniques. Potentio dynamic polarization studies were carried out on both dissimilar and coated samples in 3.5% NaCl solution environment and the results showed that the corrosion resistance of coated samples was improved. When compared with DSS - SASS and PWHT samples, the absence of CrN in TiAlSiN coated materials resulted in high tensile strength and an increase in elongation at fracture surface compared to the coated samples. © 2019

### Author keywords

Corrosion | Micro structure | Post weld heat treatment | Tensile strength | TiAlSiN coating

### Indexed keywords

Engineering controlled terms: Austenitic stainless steel | Bending strength | Chromium compounds | Coated materials | Corrosion | Corrosion resistance | Corrosion resistant coatings | Electric arc welding | Hardness | Heat affected zone | Heat treatment | High resolution transmission electron microscopy | Physical vapor deposition | Plasma welding | Scanning electron microscopy | Sodium chloride | Steel corrosion | Transmission electron microscopy | Weld decay | X ray diffraction analysis

Engineering uncontrolled terms: 3.5% nacl solutions | Austenite stainless steel | Duplex stainless steel | Hardness and corrosion | High-tensile strength | Post weld heat treatment | Super-austenitic stainless steels | TiAlSiN coatings

Engineering main heading: Tensile strength

# Document details - Effect of Tool Wear on Machining GFRP and AISI D2 Steel Using Alumina Based Ceramic Cutting Tools





Silicon

Volume 11, Issue 1, 1 February 2019, Pages 153-158

## Effect of Tool Wear on Machining GFRP and AISI D2 Steel Using Alumina Based Ceramic Cutting Tools(Article)

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### Abstract

The alumina based ceramic cutting tools are used to machine glass fibre reinforced plastic (GFRP) composite material and AISI D2 steel. The machining studies were conducted using Ti[C,N] mixed alumina based ceramic cutting tool (CC650) and SiC whisker reinforced alumina based ceramic cutting tool (CC670). Machining process was performed at different cutting speeds at constant feed rate and depth of cut and the flank wear of the cutting tools were measured. From the machining studies, the wear behaviour of the cutting tool are studied and compared with reference to the work material. Very smooth wear land was observed while machining GFRP composite whereas, ridges and groves were observed while machining steel using alumina based ceramic cutting tools. The hard metal chips produced during machining has induced to undergo the severe in changes on machining D2 steel. Based on the flank wear, tool face fibre / matrix chip has prone to maximum wear of 0.4mm compared to machining a metal. On machining AISI D2 steel the machining has reduced one fold (1:2) than the GFRP composite material. In summary, Ti[C,N] mixed alumina cutting tool performance better on machining AISI D2 steel and SiC whisker reinforced alumina cutting tool for machining GFRP composite. © 2018, Springer Science+Business Media B.V., part of Springer Nature.

### Author keywords

AISI D2 steel | Alumina cutting tool | GFRP | SEM micrograph | Tool wear

### Indexed keywords

Engineering controlled terms: Alumina | Aluminum oxide | Ceramic cutting tools | Composite materials | Crystal whiskers | Fiber reinforced plastics | Machining | Reinforcement | Silicon alloys | Silicon carbide | Steel fibers | Tool steel | Wear of materials

Engineering uncontrolled terms: AISI D2 | GFRP | GFRP composites | Machining Process | Machining steels | SEM micrographs | Tool performance | Tool wear

Engineering main heading: Cutting tools



**ISSN:** 1876990X
**Source Type:** Journal
**Original language:** English
**DOI:** 10.1007/s12633-018-9839-7
**Document Type:** Article
**Publisher:** Springer Netherlands

# Document details - Estimation of T-score and BMD values from X-ray images for detection of osteoporosis





ACM International Conference Proceeding Series

19 January 2019, Pages 220-224

3rd International Conference on Cryptography, Security and Privacy, ICCSP 2019 with Workshop 2019 the 4th International Conference on Multimedia and Image Processing, ICMIP 2019; University of MalayaKuala Lumpur; Malaysia; 19 January 2019 through 21 January 2019; Code 147274

## Estimation of T-score and BMD values from X-ray images for detection of osteoporosis(Conference Paper)

Nazia Fathima, S.M., Tamilselvi, R., Parisa Beham, M.

Sethu Institute of Technology, Pulloor, Kariapatti, India

### Abstract

Biomedical engineering concepts are related to biotechnology that is used for various healthcare purposes. Osteoporosis is a bone disease that is characterized by decrease in the Bone Mineral Density (BMD) which results in the fracture risk in the bone. Osteoporosis can be competently identified by computing various parameters like Bone mineral density (BMD), numerical features such as T-score and Z-score from various regions such as spine, femur etc. The proposed paper involves a challenge to relate digital image analysis methods to the evaluation of bone mineral density based on the X-ray images. In present scenario, more research is carried out in diagnosis of osteoporosis and it is a major challenging task in the medical field. So motivated by this, a X-Ray database is created and Images of spine, knee, hip and clavicle bones are considered for our study. Shock filter is included in the image preprocessing to improve the image intensity. The impact of image noise is investigated through the Peak Signal to Noise Ratio (PSNR) and thus demonstrating the necessity for image preprocessing before analysis. The Bone Mineral density can be realized by various segmentation methods such as Active Contour and Mean Shift segmentation. Both raw and segmented images are analyzed and results are compared for the detection of osteoporosis condition. Also the proposed work involves the calculation of T score and Z-score by the gold standard methods. The proposed method is validated in 78 subjects and the fracture risk condition is estimated. 

### Author keywords

BMD | Mean shift segmentation | Osteoporosis | T-score | X-ray images

### Indexed keywords

Engineering controlled terms: Biomedical engineering | Chromium compounds | Cryptography | Diagnosis | Diseases | Image analysis | Image enhancement | Image segmentation | Minerals | Numerical methods | Risk perception | Signal to noise ratio

Engineering uncontrolled terms: Bone mineral density | Digital image analysis | Mean-shift segmentation | Osteoporosis | Peak signal to noise ratio | Segmentation methods | T-score | X-ray image

Engineering main heading: Bone

# Document details - A hybrid technique for gender classification with SLBP and HOG features





Cluster Computing

Volume 22, 16 January 2019, Pages 11-20

## A hybrid technique for gender classification with SLBP and HOG features(Article)

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### Abstract

Gender classification from facial images plays a significant role in biometric technology viz. gender medicine, surveillance, electronic banking system and human computer interaction. However, it has many challenges due to variations of pose, expression, aging, race, make-up, occlusion and illumination. In the proposed system, spatially enhanced local binary pattern (SLBP) and histogram of oriented gradients (HOG) are extracted to classify the human gender with SVM classifier. This hybrid feature selection has increased the power of the proposed system due to its representation of texture micro-patterns and local shape by capturing the edge or gradient structure form the image. The gender classification accuracy is studied by using the local feature representation of the face images separately and also these features are concatenated to provide a better recognition rate. The combination of two different local descriptors provides good representation of face image and this is given to SVM classifier which classifies as male or female. Also, the proposed work is compared with other two traditional classifiers such as k-nearest neighbor and sparse representation classifier. The performance was evaluated on FERET and LFW database. The highest classification accuracy 99.1% is achieved on FERET database and 95.7% is achieved on LFW database by applying cubic SVM with fusion of SLBP and HOG features. © 2018, Springer Science+Business Media, LLC, part of Springer Nature.

### Author keywords

Face image processing | Gender classification | Gender medicine | Histogram of oriented gradients | Spatial local binary pattern

### Indexed keywords

Engineering controlled terms: Database systems | Graphic methods | Human computer interaction | Image classification | Nearest neighbor search

Engineering uncontrolled terms: Classification accuracy | Face image processing | Gender classification | Histogram of oriented gradients | Histogram of oriented gradients (HOG) | Hybrid feature selections | Local binary patterns | Sparse representation

Engineering main heading: Classification (of information)



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**Source Type:** Journal
**Original language:** English
**DOI:** 10.1007/s10586-017-1585-x
**Document Type:** Article
**Publisher:** Springer New York LLC

# Document details - Study of phase transition in Cu-doped La<sub>0.7</sub>Sr<sub>0.3</sub>MnO<sub>3</sub> perovskite manganite materials by ultrasonic technique





Materials Today: Proceedings

Volume 35, 2019, Pages 11-12

2019 International Conference on Exploring Nanostractures for Enchanced Power Conversion Efficiency of Solar Cells, ICENES 2019; Gandhigram Rural InstituteGandhigram; Indonesia; 7 January 2019 through 8 January 2019; Code 167196

## Study of phase transition in Cu-doped $La_{0.7}Sr_{0.3}MnO_3$ perovskite manganite materials by ultrasonic technique(Conference Paper)

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### Abstract

$La_{0.7}Sr_{0.3}Mn_{1-x}Cu_xO_3$ perovskite manganite materials with a composition of x = 0.05, 0.10 and 0.15 were obtained using solid state reaction technique. The measurement of ultrasonic velocity over a wide range of temperature reveals the short range ferromagnetic to the antiferromagnetic transition temperature ($T_C$) at 358, 341 and 328 K for the perovskites with the composition x = 0.05, 0.10 and 0.15 respectively. Turning of $T_C$ was achieved from 370 (x = 0) to 328 (x = 0.15) K which helps to obtain the new cathode materials for solid-oxide fuel cell.  Peer-review under responsibility of the scientific committee of the Exploring Nanostructures for Enhanced Power Conversion Efficiency of Solar Cells Conference.

### Author keywords

Curie temperature | Perovskite | Solid state reaction | Ultrasonic velocity | X-ray diffraction

### Indexed keywords

Engineering controlled terms: Cathodes | Copper compounds | Lanthanum compounds | Manganites | Solid oxide fuel cells (SOFC) | Strontium compounds | Ultrasonic testing | Ultrasonic velocity | X ray diffraction

Engineering uncontrolled terms: Antiferromagnetic transition temperature | Cu-doped | Ferromagnetics | Manganite materials | Measurement of ultrasonic | Perovskites manganites | Solid-state reaction techniques | Solid-state reactions | Ultrasonic techniques | X- ray diffractions

Engineering main heading: Perovskite

### Funding details

| Funding sponsor | Funding number | Acronym |
|---|---|---|
| Science and Engineering Research Board See opportunities by SERB | SR/FTP/PS-068/2014 | SERB |

# Document details - Preparation and characterization studies of TiO<sub>2</sub>doped ZrO<sub>2</sub>on ITO nanocomposites for optoelectronic applications





Materials Today: Proceedings

Volume 36, 2019, Pages 408-415

2018 NANOSMATAFRICA 2018; CapeTown; South Africa; 19 November 2018 through 23 November 2018; Code 166930

## Preparation and characterization studies of $TiO_2$doped $ZrO_2$on ITO nanocomposites for optoelectronic applications(Conference Paper)

Mohamed Saleem, A., Gnanasaravanan, S., Saravanakkumar, D., Rajasekar, S., Ayeshamariam, A., Jayachandran, M.

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View additional affiliations

### Abstract

In this present work, we have observed that the films deposited at 350°C are polycrystalline with two peaks at 2?=23.12° and 62.47° and they corresponds to the (101), (004), (200), (105), (211), (002), (116), (220) and (215) reflections of $TiO_2$-$ZrO_2$films indicating the presence of randomly oriented crystallites in nature. In order to under the FTIR spectroscopic results shows that the information about phase composition and the way in which oxygen is bound to metal ions. Therefore, the broad peaks at 1054$cm^{-1}$and 906$cm^{-1}$could be assigned to the deformation band in water and to the C-O stretching absorption in the bicarbonate and carbonate ions. However, a uniform size of $ZrO_2$particles are spherical in nature and size of the particles is in the nm regime despite agglomeration it can be observed that the sizes of the particles are of the order of 10nm respectively. 

### Author keywords

Nanocomposites | Optoelectronic | Solar cell applications | Thin film | $TiO_2$-$ZrO_2$films

### Indexed keywords

Engineering controlled terms: Film preparation | Metal ions | Metals | Nanocomposite films | Nanocomposites | TiO2 nanoparticles | Water absorption

Engineering uncontrolled terms: Characterization studies | Deformation band | FTIR | Metals ions | Optoelectronic applications | Polycrystalline | Solar-cell applications | Thin-films | TiO2-ZrO2film | ZrO 2 films

Engineering main heading: Titanium dioxide



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**Source Type:** Journal
**Original language:** English

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**Document Type:** Conference Paper
**Volume Editors:** Maaza M.,Ali N.
**Publisher:** Elsevier Ltd

# Document details - Optical, structural and electrical properties of AgSbO<sub>3</sub>nanotips prepared by thermal evaporation technique for thermoelectric effect applications





Materials Today: Proceedings

Volume 36, 2019, Pages 492-498

2018 NANOSMATAFRICA 2018; CapeTown; South Africa; 19 November 2018 through 23 November 2018; Code 166930

## Optical, structural and electrical properties of $AgSbO_3$nanotips prepared by thermal evaporation technique for thermoelectric effect applications(Conference Paper)

Mohamed Anwar, P., Muruganantham, S., Karunanithy, M., Benhaliliba, M., Ayeshamariam, A., Jayachandran, M., Kaviyarasu, K.

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[b]Department of Physics, National College (Autonomous), Thiruchirappalli, Tamilnadu, 620001, India
[c]Film Device Fabrication Characterization and Application FDFCA Research Group, USTOMB, Oran, 31130, Algeria

View additional affiliations

### Abstract

The silver antimonate ($AgSbO_3$) nanotips prepared by thermal evaporation technique at a constant substrate temperature with molybdenum boat for coating. It was characterized by X-ray diffraction pattern and revealed a polycrystalline structure. The crystallite size was nearly 56nm, using optical studies band gap values were measured by Taue plot its value comprises between 3.0eV and 4.2eV and absorption coefficient is decreasing within UV range. In oder to understand the Pseudo first (PFO) and second (PSO) order of kinetic of $AgSbO_3$crystal are studied. Thermoelectric measurement shows a decay of thermopower effect with an increase in temperature. AFM scanned pictures show texture which looks like nanotips growing along z axis. Pseudo first order and second order models for kinetic data fitting in order to determine the rate - limiting step was analyzed for our sample. 

### Author keywords

$AgSbO_3$ | FTIR spectroscopy | Nanotips | Pseudo first order | Thermal evaporation technique | Thermoelectric effect

### Indexed keywords

Engineering controlled terms: Crystallite size | Energy gap | Fourier transform infrared spectroscopy | Silver compounds | Tellurium compounds | Textures | Thermal evaporation

Engineering uncontrolled terms: Antimonate | Band-gap values | FTIR spectroscopy | Optical study | Polycrystalline structure | Pseudo-first-order | Structural and electrical properties | Substrates temperature | Thermal evaporation technique | X ray diffraction patterns

Engineering main heading: Antimony compounds

# Document details - Effect of Stir Casting Parameters on Properties of Cast Metal Matrix Composite





Materials Today: Proceedings

Volume 22, 2019, Pages 2606-2613

2nd International Conference on Materials Manufacturing and Modelling, ICMMM 2019; VIT UniversityVellore; India; 29 March 2019 through 31 March 2019; Code 159945

## Effect of Stir Casting Parameters on Properties of Cast Metal Matrix Composite(Conference Paper)

Ravichandran, M., Meignanamoorthy, M., Chellasivam, G.P., Vairamuthu, J., Kumar, A.S., Stalin, B.

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### Abstract

In the current investigation, aluminium matrix composite (AMC) was successfully fabricated by liquid melt method and the effect of stir casting (SC) parameters namely Temperature (Temperature), Stir Speed S (SS) and Stir Time (ST) on the properties was studied using Taguchi L9 orthogonal array experimental design. The melting temperature of SS and ST were selected as input parameters and the properties such as 'ρ', hardness and compressive strength (CS) were treated as responses. From signal to noise (SN) Ratio analysis, it is witnessed that the higher Temperature (850°C), S (600 rpm) and ST (15 min) is needed to attain the better Density (ρ), compressive strength (CS) and hardness of the composite. From the ANOVA analysis, SS and ST were determined as highly contributing parameters to disturb the properties of the composites. Additionally a confirmation test was carried out with the optimum parameter for validation of the Taguchi results © 2019 Elsevier Ltd.

### Author keywords

Aluminium metal matrix composite | Mechanical Properties | Process Parameters

### Indexed keywords

Engineering controlled terms: Hardness | Metallic matrix composites | Signal to noise ratio

Engineering uncontrolled terms: 'current | Aluminium matrix composites | Aluminum metal matrix composites | Cast metal matrix composites | Casting parameters | L9 orthogonal arrays | Liquid melt | Process parameters | Property | Stir casting

Engineering main heading: Compressive strength



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**Original language:** English

**DOI:** 10.1016/j.matpr.2020.03.391
**Document Type:** Conference Paper
**Volume Editors:** Yarlagadda P.K.D.V.,Jeyapandiarajan P.,Joel J.,Ill-Soo K.,Yan-Ling C.,Anthony Xavior M.

# Document details - The gas chromatography–mass spectrometry study of one medicinal plant, Aristolochia indica





Drug Invention Today

Volume 12, Issue 12, 2019, Pages 2919-2923

## The gas chromatography–mass spectrometry study of one medicinal plant, Aristolochia indica(Article)

Kumar, M.H., Prabhu, K., Rao, M.R.K., Sundram, R.L., Shil, S., Kumar, M.S., Vijayalakshmi, N.

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[c]Central Research Facility, Sri Ramachandra Medical College and Research, Institute, Chennai, Tamil Nadu, India

View additional affiliations

### Abstract

Objective: Verification of the herbal plants by latest scientific tools toward understanding the molecular mechanism underlying their medicinal role is the need of the hour. Methods: Gas chromatography–mass spectrometry study of water extracts of the leaves of one herbal plant, Aristolochia indica was undertaken by standard procedures and its medicinal activity was verified with the biomolecules present in it. Results: The presence of some important biomolecules such as 2-propenoic acid, ethenyl ester, oxalic acid, cyclobutyl ethyl ester, phosphoric acid, 2-chloroethenyl dimethyl ester, pentanoic acid, 2-methylcyclohexyl ester, cis-, butylphosphonic acid, butyl cyclohexylmethyl ester, octadecanoic acid, 2,3-dihydroxypropyl ester, acetic acid, cesium salt and 2-Fluoro-6-trifluoromethylbenzoic acid, 4-nitrophenyl ester, and some others indicate represents the medicinal roles of this plant as is reported ethnopharmacologically. Conclusions: The results and discussion above clearly indicate that the various molecules present in A. indica leaf extracts do have medicinal roles ascribed to it and further work in this regard is on. 

### Author keywords

2 | 2-chloroethenyl dimethyl ester | 2-methylcyclohexyl ester | 2-Propenoic acid | 3-dihydroxypropyl ester | Acetic acid | Aristolochia indica | Butyl cyclohexylmethyl ester | Butylphosphonic acid | Cis- | Cyclobutyl ethyl ester | Ethenyl ester | Gas chromatography–mass spectrometry | Octadecanoic acid | Oxalic acid | Pentanoic acid | Phosphoric acid

### Indexed keywords

EMTREE drug terms: 2 chloroethenyl dimethyl ester | 2 fluoro 6 trifluoromethylbenzoic acid | 2 methylcyclohexyl ester | 2,3 dihydroxypropyl ester | 4 nitrophenyl ester | acetic acid | acrylic acid | antiinflammatory agent | antipruritic agent | Aristolochia indica extract | butyl cyclohexylmethyl ester | butylphosphonic acid | cesium salt | cyclobutyl ethyl ester | ethenyl ester | oxalic acid | phosphoric acid | plant extract | plant medicinal product | stearic acid | unclassified drug | valeric acid

EMTREE medical terms: Aristolochia indica | Article | drug potency | mass fragmentography | molecular weight | nonhuman | plant leaf

### Chemicals and CAS Registry Numbers:

acetic acid, 127-08-2, 127-09-3, 64-19-7, 71-50-1; acrylic acid, 10344-93-1, 79-10-7; oxalic acid, 144-62-7; phosphoric acid, 7664-38-2; stearic acid, 57-11-4, 646-29-7; valeric acid, 10023-74-2, 109-52-4

# Document details - The gas chromatography–mass spectrometry study of one medicinal plant, Dodonaea viscosa var. Angustifolia





Drug Invention Today

Volume 12, Issue 8, 2019, Pages 1657-1661

## The gas chromatography–mass spectrometry study of one medicinal plant, Dodonaea viscosa var. Angustifolia(Article)

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View additional affiliations

### Abstract

Objective: The scientific validation of ethnopharmacologically important herbal plants by latest techniques is necessary to understand their medicinal efficacy. Methods: Gas chromatography–mass spectrometry study of one herbal plant, Dodonaea viscosa var. angustifolia was undertaken by standard procedures and its medicinal activity was verified with the biomolecules present in it. Results: The presence of some important biomolecules such as catechol, N-benzyl-2-phenethylamine, acetic acid, 4-oxocyclohexyl ester, 4-amino-3-mercapto-1,2,4-triazole, 1,1'-methylene-bis(di-2-propenylamine), inositol, alanine, N-methyl-N-methoxycarbonyl-, hexyl ester, 1,3-dioxolane, 2-methyl-2-pentyl-, cyclohexane, 1-methyl-3-(1-methylethenyl)-, cis-, phthalic acid, di(2,3-dimethylphenyl) ester, heptafluorobutyric acid, 2-naphthyl ester, and 2-fluoro-6-trifluoromethylbenzoic acid, 4-nitrophenyl ester has biochemical properties which represent the ethnomedicinal roles of this plant. Conclusions: The presence of these biomolecules having medicinal properties supports the validity of the medicinal roles of D. viscosa var. angustifolia. 

### Author keywords

1,1'-methylene-bis(di-2-propenylamine) | 4-amino-3-mercapto-1,2,4-triazole | 4-oxocyclohexylester | Aceticacid | Catechol | Dodonaea viscosa var. angustifolia | Gas chromatography–mass spectrometry | Inositol | N-benzyl-2-phenethylamine

### Indexed keywords

EMTREE drug terms: 1 methyl 3 (1 methylethenyl) | 1,1' methylene bis(di 2 propenylamine) | 2 chloropropionamide | 2 fluoro 6 trifluoromethylbenzoic acid | 2 methyl 2 pentyl | 2 naphthyl ester | 3 pentanone | 4 acetoxy 3 methoxystyrene | 4 amino 3 mercapto 1,2,4 triazole | 4 nitrophenyl ester | 4 oxocyclohexyl ester | acetic acid | acetic acid, 4 oxocyclohexyl ester | acetic acid, cesium salt | acetic acid, rubidium salt | alanine | benzamide, 2 fluoro n (2 fluorobenzoyl) n allyl | carbamic acid, monoammonium salt | catechol | cyclohexane | di(2,3 dimethylphenyl)ester | heptafluorobutyric acid | hexane, 3,3 dimethylhexane | inositol | n benzyl 2 phenethylamine | n methyl n methoxycarbonyl | phthalic acid | phthalic acid, di (2,3 dimethylphenyl)ester | plant extract | propane, 1 (chloromethoxy) 2 methylpropane | unclassified drug

# Document details - Design Implementation of Single Switch DC-DC Resonant Converter for Hybrid Vehicle





Proceedings of the 3rd International Conference on Inventive Systems and Control, ICISC 2019

January 2019, Article number 9036399, Pages 336-341

3rd International Conference on Inventive Systems and Control, ICISC 2019; JCT College of Engineering and TechnologyCoimbatore; India; 10 January 2019 through 11 January 2019; Category numberCFP19J06-ART; Code 158595

## Design Implementation of Single Switch DC-DC Resonant Converter for Hybrid Vehicle(Conference Paper)

Kanna, G.R.R., Muthulakshmi, K., Vinitha, S.R., Raja, R.M.S.

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[b]Sethu Institute of Technology, Department of Electrical and Electronics Engineering, Viruthunagar, India

### Abstract

In this paper, a innovate single-switch resonant DC-DC power converter for a hybrid vehicle with renewable energy generation operations for the hybrid vehicle are developed. This circuit Scheme combines a innovate resonant DC-DC converter with energy-blocking diode with zero-current switching (ZCS) and zero-voltage switching (ZVS). The output level of the innovate single-switch DC-DC resonant converter was filtered by using direct-current(DC) output blocking diode. To decrease the price of the control circuits. For power energy conversion only one active power switch was provided. The PWM at a constant duty cycle, the fixed switching frequency is used to control the active power switch. When the DC-DC resonant converter works at irregular conduction mode. At that time inductor current which travels through the resonant tank might reach the (ZCS) Zero Current Switching of the energy-blocking diode. The resonant tank consequently, a high energy modification efficiency is confirmed. Working propositions are analyses and derived are achieve for proposed resonant DC-DC converter under different working modes based on the equivalent circuit. The working principles of the resonant DC-DC converter were authenticated powered load system by employing a Photovoltaic (PV). Given properly selected circuit parameters, The ZVS can work with active power switch the planned topology of 97.3% can be obtained with measured energy conversion efficiency. © 2019 IEEE.

### Author keywords

Hybrid Vehicle | Renewable Energy | Single switch resonant converter | Total harmonic distortion

### Indexed keywords

Engineering controlled terms: Conversion efficiency | Diodes | Equivalent circuits | Hybrid vehicles | Renewable energy resources | Switching frequency | Zero current switching | Zero voltage switching

Engineering uncontrolled terms: Active power switches | Circuit parameter | Design implementation | Energy modification | Fixed switching frequency | Renewable energy generation | Resonant converters | Resonant dc-dc converter

Engineering main heading: DC-DC converters



**ISBN:** 978-153863950-4 **DOI:** 10.1109/ICISC44355.2019.9036399

# Document details - The gas chromatography-mass spectrometry study of Moringa oleifera seeds





Drug Invention Today

Volume 12, Issue 10, 2019, Pages 2172-2175

## The gas chromatography-mass spectrometry study of Moringa oleifera seeds(Article)

Rao, M.R.K., Vijayalakshmi, N., Prabhu, K., Sathish Kumar, M.

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[c]Department of Chemical Engineering, Sethu Institute of Technology, Virudhunagar, Tamil Nadu, India

### Abstract

Objective: There is an urgent need to substantiate scientifically the roles of contemporary and native medicinal practices. This exercise will open up a new class of drugs which could be cheap, easily affordable, and with less or no side effects. Moringa oleifera or drumstick is known to a wonder herbal plant and most of its parts are used to cure various ailments. The present study deals with the gas chromatography-mass spectrometry (GC-MS) analysis of M. oleifera seeds and to understand the molecules present therein. Methods: GC-MS was performed on the water extract of the dried seeds of the plant by standard procedures. Results: Some important biomolecules such as 2,5-dimethyl-4-hydroxy-3(2H)-furanone, p-cresol, l-Norvaline, N-ethoxycarbonyl-, nonyl ester, Pentanoic acid, 2-hydroxy-, ethyl ester, 1H-1,2,4-Triazole-1-carboxamide, 5-acetylamino-3-amino-, Ethyl 2-hydroxybenzyl sulfone, beta-l-Arabinopyranoside, methyl, tetradecanoic acid, 10,13-dimethyl-, methyl ester, cyclohexane, 1-isopropyl-1-methyl-, decanoic acid, 2-methyl-, 2-Methylthiolane, S,S-dioxide, 4-Methyl-2,4-bis(4'-trimethylsilyloxyphenyl)pentene-, 2,4(1H,3H)-Pyrimidinedione, 6-iodo-5-methyl-, 2-Fluoro-6-trifluoromethylbenzoic acid, and 4-nitrophenyl ester have medicinal roles comparable with the various medicinal activities of Moringa seed water extract. Conclusion: It is concluded that the Moringa seed is a potential candidate for drug designing for many diseases. 

### Author keywords

1H-1 | 2 | 2 | 2-hydroxy- | 4-Triazole-1-carboxamide | 5-Dimethyl-4-hydroxy-3(2H)-furanone | Drug design | Ethyl ester | Gas chromatography-mass spectrometry | L-Norvaline | Moringa oleifera | N-ethoxycarbonyl- | Nonyl ester | P-cresol | Pentanoic acid

### Indexed keywords

EMTREE drug terms: 1,2 dibromoethane | 1,3 dioxolane 2 methanol | 1h 1,2,4 triazole 1 carboxamide | 2 fluoro 6 trifluoromethylbenzoic acid | 2 methylthiolane | 2 pyrrolidinone | 2,5 dimethyl 4 hydroxy 3(2h) furanone | 4 methyl 2,4 bis(4' trimethylsilyloxyphenyl)pentene | 4 nitrophenyl ester | acetone | beta levo arabinopyranoside | cyclohexane derivative | decanoic acid | decanoic acid derivative | ethyl 2 hydroxybenzyl sulfone | Moringa oleifera extract | myristic acid derivative | norpipanone | norvaline | para cresol | phenol | phosphorus | propane | pyrazine derivative | resorcinol | silane derivative | sulfurous acid | unclassified drug | uracil | valeric acid

EMTREE medical terms: Article | chemical composition | mass fragmentography | Moringa oleifera | plant seed

# Document details - ZVS asymmetrical PWM full-bridge high voltage gain DC-DC converter controlled by ANFIS for energy harvesting applications





Control Engineering and Applied Informatics

Volume 21, Issue 4, 2019, Pages 51-58

## ZVS asymmetrical PWM full-bridge high voltage gain DC-DC converter controlled by ANFIS for energy harvesting applications(Article)

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[b]Department of Electrical and Electronics Engineering, Mepco Schlenk Engineering College, Sivakasi, Tamil Nadu, 626 005, India

### Abstract

Adaptive neuro-fuzzy inference system (ANFIS) controller for zero voltage switching (ZVS) asymmetrical pulse width modulated (APWM) full-bridge DC-DC converter with high voltage gain is proposed for energy harvesting applications. Converter has given continuous input current, low switching losses, higher efficiency and higher power density as a result of zero voltage switching. ANFIS controller has provided superior control to maintain constant converter output voltage for any one of energy harvesting applications. ANFIS controller performance has been compared with proportional integral (PI), fuzzy logic (FLC) and fuzzy proportional, integral and derivative (Fuzzy PID) controllers. Proposed system has been simulated using PSIM and MATLAB/Simulink tools boxes and results presented. Also, hardware prototype of proposed system with 1.6KW rating has been fabricated and tested. © 2019 Control Engineering and Applied Informatics Journal.

### Author keywords

Adaptive neuro-fuzzy inference system | DC-DC converter | High voltage gain | Pulse width modulation | Zero voltage switching

**ISSN:** 14548658
**Source Type:** Journal
**Original language:** English
**Document Type:** Article
**Publisher:** Control Engineering and Applied Informatics Journal



### SciVal Topic Prominence

Topic:

Prominence percentile:

# Document details - Parametric optimization of effect of ZnO nano particle on the mechanical properties of randomly oriented chicken feather fiber-reinforced vinyl ester composite





Journal of the Balkan Tribological Association

Volume 25, Issue 3, 2019, Pages 767-778

## Parametric optimization of effect of ZnO nano particle on the mechanical properties of randomly oriented chicken feather fiber-reinforced vinyl ester composite(Article)

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[c]Kalasalingam University, Krishnan Kovil, Tamilnadu 626126, India

### Abstract

In the present years, the materials engineers and scientists are trying to find a new cost effective novel material. The present contribution is aimed at finding the effect of addition of nano particle-nano particle Zinc Oxide (np-ZnO) on the mechanical properties of randomly orientated Chicken Feather Fiber (CFF)-reinforced Vinyl Ester (VE) composite. CFFs are reinforced with vinyl ester resin matrix for the best utilization of biological waste and to reduce the environmental pollution. Three different lengths (3, 6 and 9 mm) and contents (10, 20 and 30 wt%) of CFF and also three different levels (0.5, 1 and 1.5 wt%) of nano ZnO particles were used as reinforcements in VE resin matrix. Composite specimens were prepared by hand lay-up technique. Experiments were conducted according to Taguchi's design of experiments ($L_9$ orthogonal array) on the hybrid to reduce the number of experiments. Composite specimens for the mechanical tests are cut out from the prepared composite plates. The best combination of mechanical properties was obtained with a combination of CFF length (6 mm), content (20 wt%), and ZnO content (1.5 wt%). The results indicated that CFF length has the maximal effect on the mechanical properties of composites. 

### Author keywords

Chicken feather | Mechanical properties | Polymer composites | Taguchi method | Zinc oxide

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**Source Type:** Journal
**Original language:** English
**Document Type:** Article
**Publisher:** Scibulcom Ltd.

Sridhar, R.; Sethu Institute of Technology, Pulloor, Tamilnadu, India;


### SciVal Topic Prominence

Topic:

Prominence percentile:

# Document details - Assessment of BMD and statistical analysis for osteoporosis detection





Biomedical and Pharmacology Journal

Volume 12, Issue 4, 2019, Pages 1907-1914

## Assessment of BMD and statistical analysis for osteoporosis detection(Article) (Open Access)

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### Abstract

Biomedical engineering is one of the promising disciplines in engineering that deals with technology advancement in human health. Osteoporosis is a common metabolic disease categorized by decreased bone mass and increased liability to fractures. Bone densitometry is a broad term comprising the art and science of measuring the bone mineral content (BMC) and bone mineral density (BMD) of particular skeletal sites or the whole body. There are various methods to measure bone mineral density which differs based on the differential absorption of ionizing radiation or the sound waves. The methods are SPA (Single Photon Absorptiometry), DPA (Dual Photon Absorptiometry), SEXA (Single Energy X ray Absorptiometry), DEXA (Dual Energy X ray Absorptiometry), QCT (Quantitative Computed Tomography), QUS (Quantitative Ultra Sound) and RA (Radiographic absorptiometry). The DEXA test can measure the whole body but usually the lower spine and hips. A major disadvantage of DEXA is that currently there is a lack of standardization in bone and soft tissue measurements. Furthermore, for a given manufacturer, results may vary by the model of the instrument, the mode of operation or the version of the software used to analyze the data. In addition to that, DEXA scan images are only for the confirmation of correct positioning of the patient and correct placement of the regions of interest (ROI). Motivated by the above issues, this paper can pave a way for analysis in the measurement of BMD, measurement of T-score, and Z-score from the DEXA scan images. This proposed methodology includes segmentation algorithms such as k means clustering & mean -shift algorithm and comparison of the accuracy of algorithms. Also in addition, a novel mathematical analysis is also proposed to measure the T-score values in DEXA images with a new parameter 'S' from BMD values in order to detect the osteoporosis condition accurately. Published by Oriental Scientific Publishing Company © 2019

### Author keywords

Bone Mineral Density (BMD) | Osteoporosis and T Score | Segmentation

### Indexed keywords

EMTREE medical terms: Article | bone densitometry | bone density | bone mass | bone microarchitecture | bone mineral | bone scintiscanning | clinical assessment | clustering algorithm | computer assisted tomography | dual energy X ray absorptiometry | dual photon absorptiometry | entropy | female | human | image analysis | image segmentation | k means clustering | male | mathematical analysis | osteoporosis | patient positioning | photon absorptiometry | radiation absorption | single energy X ray absorptiometry | single photon absorptiometry | standardization | statistical analysis | ultrasound

# Document details - A systematic review of energy harvesting from biomechanical factors





Biomedical and Pharmacology Journal

Volume 12, Issue 4, 2019, Pages 2063-2070

## A systematic review of energy harvesting from biomechanical factors(Article) (Open Access)

Bajrang, C., Vaira Suganthi, G., Tamilselvi, R., Parisabeham, M., Nagaraj, A.

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### Abstract

Conversion of human mechanical energy to usable electrical energy may seem like something from science fiction for the earliest generation of electronical engineers. But owing to the recent scientific advancements, it is no longer just a fiction but a reality. Researchers are working hard-time to improvise this idea by making attractive advancements in the field every day. This particular advancement gets much attention because it seems to be the most likely candidate to limit the usage of batteries, which have become a paradigm in the commercial world. Harvesting human energy can eliminate the limitations of scientific advancements in the portable and implantable devices due to the usage of batteries as their power source. There are several methods by which energy can be harvested from human activities, including but not restricted to thermoelectric generation, piezoelectric generation and triboelectric generation. These biomechanical phenomena can be tamed for commercial electricity usage under various circumstances. This paper provides a detailed review on these methods and the advancements made so far by researchers all around the globe. Oriental Scientific Publishing Company © 2019

### Author keywords

Piezoelectric generation | Thermoelectric generation | Triboelectric generation

### Indexed keywords

EMTREE medical terms: article | attention | biomechanics | electricity | human | systematic review

**ISSN:** 09746242
**Source Type:** Journal
**Original language:** English
**DOI:** 10.13005/bpj/1840
**Document Type:** Article
**Publisher:** Oriental Scientific Publishing Company



Topic:

Prominence percentile:

# Document details - Machinery learning - Implication of blended learning for higher education students in down south India





Asian EFL Journal

Volume 25, Issue 52, 2019, Pages 67-78

## Machinery learning - Implication of blended learning for higher education students in down south India(Article)

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### Abstract

Blended learning represents a combination of face-to-face delivery and computermediated delivery. Further, it effectively contributes to the development of students to have better understanding of subjects. As per the psychological research, listening to any subject content is constant only for 20 min. Then a digression is unavoidable. This research paper attempts to develop the English listening skill of the students considering this constraint. This research paper provides a forum for the students to enhance their listening in English, using the tools available in blended learning, so as to equip them with standard comprehensive skills. This paper has the blended learning as a prototype and further stereotype is generated for the ESL students, especially higher education students in down south India, to equip them with good listening skills and to answer effectively the listening modules of the native speakers and to comprehend any listening audio with native accent without difficulty. This paper proves that the students achieve good results in listening when they are offered a blended learning forum. Instead of tightened class schedule the freedom of working using blended learning provides a different learning perspective especially in listening. 

### Author keywords

Blended learning | Face-face | Listening | Online | Vocabulary

**ISSN:** 17381460
**Source Type:** Journal
**Original language:** English

**Document Type:** Article
**Publisher:** Asian E F L Journal Press

# Document details - Effect of hybrid reinforcement at stirred zone of dissimilar aluminium alloys during friction stir welding





Metallurgical Research and Technology

Volume 116, Issue 6, 2019, Article number 631

## Effect of hybrid reinforcement at stirred zone of dissimilar aluminium alloys during friction stir welding(Article)

Ashok Kumar, R., Raghav, G.R., Nagarajan, K.J., Rengarajan, S., Suganthi, P., Vignesh, V.

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[b]St. Joseph's College of Engineering, Chennai, India
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View additional affiliations

### Abstract

The main objective of this work is to modify the mechanical as well as surface properties of weld nugget by the reinforcement of hybrid ceramic particles (alumina and silicon carbide). This is accomplished by combining friction stir welding (FSW) and friction stir processing (FSP) on dissimilar AA6101-T6 and AA1350 aluminium alloys. For this purpose, various levels of mixing proportions of $Al_2O_3$ & SiC particles are used with constant groove depth and width i.e. constant groove dimension. To evaluate the quality of joints, tensile, bending, micro-hardness, wear and microstructural studies are carried out. Among these, reinforcement of 100% alumina particles exhibits better mechanical and wear properties. On the other hand, reinforcement of 100% silicon carbide particles produces poor mechanical and wear properties. And also increment in percentage of reinforcement of alumina particles improves the mechanical and wear properties of weld nugget, when compared to increment in percentage of reinforcement of silicon carbide particles. © EDP Sciences, 2019.

### Author keywords

Alumina | Friction stir processing | Friction stir welding | Silicon carbide and reinforcement

### Indexed keywords

Engineering controlled terms: Alumina | Aluminum alloys | Aluminum oxide | Carbides | Ceramic materials | Friction | Microhardness | Reinforcement | Research laboratories | Silicon carbide | Wear of materials | Welds

Engineering uncontrolled terms: Alumina particles | Friction stir processing | Friction stir welding(FSW) | Hybrid reinforcements | Micro-structural | Mixing proportions | Percentage of reinforcements | Silicon carbide particles

Engineering main heading: Friction stir welding

**ISSN:** 22713646
**Source Type:** Journal
**Original language:** English
**DOI:** 10.1051/metal/2019062
**Document Type:** Article
**Publisher:** EDP Sciences

# Document details - Influence of kinetic parameters on Calotropis procera by TGA under pyrolytic conditions





Energy Sources, Part A: Recovery, Utilization and Environmental Effects

2019

## Influence of kinetic parameters on Calotropis procera by TGA under pyrolytic conditions

( Article in press )

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[c]Department of Mechanical Engineering, University College of Engineering, Anna University, Dindigul, India

### Abstract

Calotropis procera is a weed plant found profusely in waste lands that bears latex which is a rich source of liquid hydrocarbons. In this work, proximate and elemental composition of C. procera stem and whole plant were determined. The pyrolysis behavior was measured in an inert atmosphere at various heating rates of 5, 10, 20 and 30°C/min using thermo gravimetric analysis (TGA). The kinetic analysis was carried out on Direct Arrhenius method and the kinetic parameters were determined. The higher heating value of the stem and whole plant was 18.98 and 21.85 MJ/kg, respectively. Both biomass presented high volatile matter and low ash, content. The nitrogen and sulfur contents of the biomass were very low. The maximum rate of mass loss is directly proportional to heating rate. FTIR spectra of bio mass samples showed the presence of alcohols, esters and phenol groups. The results of the properties and thermogravimetric analysis showed that C. procera stem and whole plant are potential feedstock for pyrolysis reactions. © 2019, © 2019 Taylor & Francis Group, LLC.

### Author keywords

Calotropis procera | FTIR | kinetic analysis | pyrolysis | thermogravimetric analysis

### Indexed keywords

Engineering controlled terms: Calorific value | Fourier transform infrared spectroscopy | Gravimetric analysis | Heating rate | Kinetic parameters | Pyrolysis

Engineering uncontrolled terms: Calotropis procera | Elemental compositions | FTIR | Higher heating value | Kinetic analysis | Liquid hydrocarbons | Potential feedstock | Pyrolytic condition

Engineering main heading: Thermogravimetric analysis



**ISSN:** 15567036
**Source Type:** Journal
**Original language:** English
**DOI:** 10.1080/15567036.2019.1677812
**Document Type:** Article
**Publisher:** Taylor and Francis Inc.

Ganeshan, P.; Department of Mechanical Engineering, Sethu Institute of Technology, Virudhunagar, TamilNadu, India;

# Document details - An obstacle detection and distance sensing algorithm for visually impaired persons





International Journal of Scientific and Technology Research

Volume 8, Issue 10, 2019, Pages 1534-1537

## An obstacle detection and distance sensing algorithm for visually impaired persons(Article)

Nachiar, T.S., Arunachalam, M., Hemalatha, P.R., Aghila, R., Subhalakshmi, R.T.

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View additional affiliations

### Abstract

Object detection and distance sensing is a major challenge for visually impaired persons. Earlier navigation systems are expensive and time consuming for usage in day-to-day life. Our proposed system uses Ultrasonic sensors which work on the principle of reflected sound waves. Whenever any obstacle is detected in ultrasonic sensor interfaced in the Specs of a person, camera capture the image. The image captured is compared with the images against a convolution neural network, which will be used to find the obstacles. This work aims at designing a cost-effective and more flexible navigation system for the visually impaired persons. © International Journal of Scientific and Technology Research. All rights reserved.

### Author keywords

Distance calculation | Distance sensing | Obstacle detection | Speech output | Ultrasonic sensor

**ISSN:** 22778616
**Source Type:** Journal
**Original language:** English
**Document Type:** Article
**Publisher:** International Journal of Scientific and Technology Research



### SciVal Topic Prominence

Topic:

Prominence percentile:

# Document details - A comparative study on energy efficient techniques in wireless sensor networks





Journal of Advanced Research in Dynamical and Control Systems

Volume 11, Issue 7 Special Issue, 2019, Pages 1116-1123

## A comparative study on energy efficient techniques in wireless sensor networks(Article)

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### Abstract

Wireless Sensor Networks (WSN) being the major thrust research focus area to address the related issues of quality-of-service (QoS) such as energy consumption, life time of network and packet overhead. Packet overhead leads to consume more energy that tends to performance degradation in QoS. This paper aims to provide the extracts of energy efficiency of wireless sensor networks. For suggesting improved performance on WSN, this survey consider articles that describes the effectiveness of forming clusters and cluster heads for forwarding the packets, portray the optimal load sharing algorithm using hopping of Base Station to enhance the life time of network, illustrate the significance of routing protocols to know the trustiest nodes, bring-in the sleep/wake mechanism for preserving the optimum energy and demonstrates with the discussion on cross-layer optimization to optimize the node usage. Finally this paper ends with the findings. 

### Author keywords

Base station | Cluster head | Load sharing | Optimization | Qos | Sleep/wake mechanism

**ISSN:** 1943023X
**Source Type:** Journal
**Original language:** English
**Document Type:** Article
**Publisher:** Institute of Advanced Scientific Research, Inc.



### SciVal Topic Prominence

Topic:

Prominence percentile:

# Document details - Performance analysis of various nanocontrast agents and CAD systems for cancer diagnosis





Current Medical Imaging Reviews

Volume 15, Issue 9, 2019, Pages 831-852

## Performance analysis of various nanocontrast agents and CAD systems for cancer diagnosis(Review)

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Department of Electronics and Communication Engineering, Sethu Institute of Technology, Pullur, Tamilnadu 626115, India

### Abstract

Background: Cancer is a disease which involves the abnormal cell growth that has the potential of dispersal to other parts of the body. Among various conventional anatomical imaging techniques for cancer diagnosis, Magnetic Resonance Imaging (MRI) provides the best spatial resolution and is noninvasive. Current efforts are directed at enhancing the capabilities of MRI in oncology by adding contrast agents. Discussion: Recently, the superior properties of nanomaterials (extremely smaller in size, good biocompatibility and ease in chemical modification) allow its application as a contrast agent for early and specific cancer detection through the MRI. The precise detection of cancer region from any imaging modality will lead to a thriving treatment for cancer patients. The better localization of radiation dose can be attained from MRI by using suitable image processing algorithms. As there are many works that have been proposed for automatic detection for cancers, the effort is also put in to provide an effective survey of Computer Aided Diagnosis (CAD) system for different types of cancer detection with increased efficiency based on recent research works. Even though there are many surveys on MRI contrast agents, they only focused on a particular type of cancer. This study deeply presents the use of nanocontrast agents in MRI for different types of cancer diagnosis. Conclusion: The main aim of this paper is to critically review the available compounds used as nanocontrast agents in MRI modality for different types of cancers. It also includes the review of different methods for cancer cell detection and classification. A comparative analysis is performed to analyze the effect of different CAD systems. © 2019 Bentham Science Publishers.

### Author keywords

CAD | Cancer | Contrast agents | MRI | Nano-MRI | Oncology

### Indexed keywords

EMTREE drug terms: contrast medium | nuclear magnetic resonance imaging agent

EMTREE medical terms: cancer classification | cancer diagnosis | computer assisted diagnosis | contrast enhancement | human | nonhuman | nuclear magnetic resonance imaging | Review

**ISSN:** 15734056
**Source Type:** Journal
**Original language:** English

**DOI:** 10.2174/1573405614666180924124736
**PubMed ID:** 32008531
**Document Type:** Review
**Publisher:** Bentham Science Publishers

Thanapandiyaraj, R.; Department of ECE, Sethu Institute of Technology, Pullur, Tamilnadu, India;

# Document details - Phonon Polariton Dispersion in Metal-Doped Nanocomposite Superlattice System





Journal of Optical Communications

2019

## Phonon Polariton Dispersion in Metal-Doped Nanocomposite Superlattice System

( Article in press ? )

Krishnamurthy, R., Revathy, V., Wilson, K.S.J., Taya, S.A., Amiri, I.S.

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View additional affiliations

### Abstract

Copper nanoparticles (Cu) anchored lithium niobate ($LiNbO_3$) nanostructures were prepared by a simple hydrothermal technique. The fine and sparse Cu nanoparticles were homogeneously dispersed over the surface of $LiNbO_3$. An effectual anchoring of Cu was evidenced from the acquired reflection planes in diffraction analysis, which clearly indicate the face-centered cubic structure of Cu. The UV-Visible spectrum of $LiNbO_3$ and $Cu/LiNbO_3$ nanocomposites were also studied. When the Cu nanoparticles were doped with $LiNbO_3/LiTaO_3$ superlattice system, the change in the dispersion relation was observed theoretically. The characteristics of the polariton dispersion variation with filling factor of Cu nanoparticles concentration were investigated systematically. The importance of the polariton modes in communication sector was analyzed and the occurrence of new modes on the polaritonic gap, where the propagation of the electromagnetic wave is forbidden, were obtained in the system due to the presence of copper nanoparticles. 

### Author keywords

Cu | dispersion | $LiNbO_3$ | nanoparticles | polariton

### Indexed keywords

Engineering controlled terms: Copper | Dispersion (waves) | Electromagnetic waves | Lithium compounds | Metal nanoparticles | Nanocomposites | Nanoparticles | Niobium compounds | Phonons | Photons

Engineering uncontrolled terms: Copper nanoparticles | Diffraction analysis | Dispersion relations | Face centered cubic structure | Hydrothermal techniques | LiNbO3 | Polariton dispersion | Polaritons

Engineering main heading: Copper compounds

**ISSN:** 01734911
**CODEN:** JOCOD
**Source Type:** Journal
**Original language:** English

**DOI:** 10.1515/joc-2019-0109
**Document Type:** Article
**Publisher:** De Gruyter

# Document details - Improving the performance of MPSOC based reconfiguration of smart grid architecture with fault tolerance





Journal of Advanced Research in Dynamical and Control Systems

Volume 11, Issue 3 Special Issue, 2019, Pages 1106-1113

## Improving the performance of MPSOC based reconfiguration of smart grid architecture with fault tolerance(Article)

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### Abstract

This paper presents a unique vision for the development of smart power grids and today's power system structure. It also portrays a reasonable picture about the different challenges that are confronted by the present day smart grid architectures used in transmission framework. In this paper the significance of restructuring the existing smart grid architecture using MPSoC with power system components. This paper reveals the fault tolerant methodology using MPSoC with self-diagnosis, which is essential for enhancing the proposed architecture for smart grid functionalities. This leads to reduce computational complexity of the existing architecture energy and power improves performance tradeoff. Using application-specific instructions for Heterogeneous MPSoC allows finding a good performance/energy tradeoff. As the system is designed with MPSoC modified smart grid architecture, the computational complexity of the proposed system architecture significantly improving the performance of the smart grid. © 2019, Institute of Advanced Scientific Research, Inc.. All rights reserved.

### Author keywords

Fault Tolerance | MPSoC | Reconfiguration | Smart Grid

**ISSN:** 1943023X
**Source Type:** Journal
**Original language:** English
**Document Type:** Article
**Publisher:** Institute of Advanced Scientific Research, Inc.

Vijayakumar, D.; Department of Electronics and Communication Engineering, CMR College of Engineering & Technology, Medchal Road, Kandlakoya, Hyderabad, India;


### SciVal Topic Prominence

Topic:

Prominence percentile:

# Document details - Hardware implementation of gamma Z-Source Inverter for photovoltaic cell applications





Journal of Computational and Theoretical Nanoscience

Volume 16, Issue 5-6, 2019, Pages 2550-2554

## Hardware implementation of gamma Z-Source Inverter for photovoltaic cell applications(Article)

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[b]Department of Electrical and Electronics Engineering, Sethu Institute of Technology, Tamilnadu, 626115, India

### Abstract

This paper focuses the hardware implementation of photovoltaic cell based gamma Z-Source Inverter (ZSI) for various solar power supply application. The power conversions of dc-to-ac, actodc, ac-to-ac, and dc-to-dc can be converted by the concept of gamma z-source inverter. The limitations of conventional boost converter interfaced with Voltage Source Inverter (VSI) and current source inverter (CSI) can be overcome by the gamma ZSI topology. By this new topology, PV cell energy is utilized properly with fuzzy controller circuit. Normally THD is high in the existing system of various inverters. But in the proposed system with fuzzy logic controller can maintain the reduced Total harmonic distortion (THD) and Electromagnetic interference (EMI) noise. Initially it designed by the matlab environment and later it applied by the hardware implementation using mamdani fuzzy model. Copyright © 2019 American Scientific Publishers All rights reserved.

### Author keywords

Electromagnetic interference | Total harmonic distortion

**ISSN:** 15461955
**Source Type:** Journal
**Original language:** English
**DOI:** 10.1166/jctn.2019.7930
**Document Type:** Article
**Publisher:** American Scientific Publishers

Karthick, N.; Department of Electronics and Electrical Engineering, Lovely Professional University, Punjab, India



### SciVal Topic Prominence

Topic:

Prominence percentile:

# Document details - Improved efficiency of direct torque controlled induction motor drive by golden section method





Revista Facultad de Ingenieria

Issue 91, 2019, Pages 31-42

## Improved efficiency of direct torque controlled induction motor drive by golden section method(Article)(Open Access)

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[b]Department of Electrical and Electronics Engineering, Solamalai College of engineering, Veerapanjan, Madurai, Tamil Nadu, India

### Abstract

A search control based energy loss minimization technique is proposed for Direct Torque Control (DTC) of three phase Induction Motor (IM) with Fuzzy Logic Controller (FLC) used in Electric Vehicles (EV). The performance parameters of the EV considered for analysis are Dynamic performance and Efficiency. DTC is used to achieve the excellent dynamic performance of the IM drive. FLC is employed to achieve accurate speed tracking and enhance the ruggedness against disturbance and uncertainties. Loss minimization using Golden section method is proposed to search optimum level of flux value for DTC of induction motor drive. This will lead to minimum core loss and enhanced efficiency of the system. The proposed work is simulated in MATLAB/SIMULINK. The simulation and experimental results are presented to validate the performance of the proposed loss minimization algorithm. © 2018 Revista Facultad de Ingenieria -redin.

### Author keywords

AC motor drive | Optimization technique | Reduced ripple | Soft computing | Space vector modulation

**ISSN:** 01206230
**DOI:** 10.17533/udea.redin.n91a04
**Source Type:** Journal
**Document Type:** Article
**Original language:** English
**Publisher:** Universidad de Antioquia

Santhi, M.; Department of Electrical and Electronics Engineering, Solamalai College of engineering, Veerapanjan, Madurai, Tamil Nadu, India;

# Document details - Adopting security checks in business transactions using formal-oriented analysis processes for entrepreneurial students





International Journal of Electrical Engineering Education

2019

## Adopting security checks in business transactions using formal-oriented analysis processes for entrepreneurial students

( Article in press ? )

Pandian, P.S.

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### Abstract

Developing custom software solutions from scratch for every project for engagement software service organizations that use a scalable proposition is inefficient, as it depends too heavily on UG and PG students who are willing to achieve as entrepreneurs. Creating and reusing software 'assets' is more scalable and profitable. One prevalent approach is to build a software solution that uses service-oriented architecture to compose software services for the processes involved in a business scenario. In this context, the key to reusing the assets is to support the proper mechanisms to incrementally refine existing software services as well as business processes. This study proposes a set of mechanisms called formal-oriented engineering, which is defined as a comprehensive formal approach for modelling end-to-end variability in service-oriented architecture-based solutions for the purpose of enhancing reusability and to support incremental refinement. This paper will describe a prototype based on a 'real world' example. The approach is applied to enhance students' knowledge of business security levels. Working with a real problem encourages student participation. © The Author(s) 2019.

### Author keywords

Entrepreneurial students | formal-oriented engineering | security check | service-oriented architecture for business-to-business solutions

### Indexed keywords

Engineering controlled terms: Information services | Quality of service | Reusability | Students

Engineering uncontrolled terms: Business scenario | Business security | Business to business | Business transaction | Security checks | Software services | Software solution | Student participation

Engineering main heading: Service oriented architecture (SOA)



**ISSN:** 00207209
**CODEN:** IJEEA
**Source Type:** Journal
**Original language:** English

**DOI:** 10.1177/0020720919852180
**Document Type:** Article
**Publisher:** SAGE Publications Inc.

# Document details - Age Invariant Face Recognition using Frangi2D Binary Pattern





ACM International Conference Proceeding Series

Volume Part F147765, 2019, Pages 8-13

2nd International Conference on Image and Graphics Processing, ICIGP 2019; Singapore; Singapore; 23 February 2019 through 25 February 2019; Code 147765

## Age Invariant Face Recognition using Frangi2D Binary Pattern(Conference Paper)

Afroze, S., Beham, M.P., Tamilselvi, R., Maraikkayar, S.M.S.M.A., Rajakumar, K.

Department of Electronics and Communication Engineering, Sethu Institute of Technology, Tamilnadu, 626115, India

### Abstract

The field of computer vision is devoted to discovering algorithms, data representations and computer architectures that embody the principles underlying visual capabilities. Computer vision is an interdisciplinary field that deals with how computers can be made for gaining high level understanding from digital images or videos. While very promising result has been shown on face recognition related problems, age invariant face recognition still relics a challenge. Facial appearance of a human varies over time, which results in substantial intra-class variations. In order to address this problem, we propose Frangi2D method for normalization, Linear Binary pattern (LBP) for feature extraction and Sparse Representation Classifier (SRC). Extensive results on a well-known public domain face aging dataset: MORPH. The experimental results show the superiority of our proposed method in age invariant face recognition. 

### Author keywords

Age Invariant | Face recognition | Frangi 2D | Local binary pattern (LBP) | Sparse representation classifier (SRC)

### Indexed keywords

Engineering controlled terms: Computer architecture | Computer vision

Engineering uncontrolled terms: Age Invariant | Binary patterns | Data representations | Facial appearance | Interdisciplinary fields | Intra-class variation | Local binary patterns | Sparse representation

Engineering main heading: Face recognition

**ISBN:** 978-145036092-0
**Source Type:** Conference Proceeding
**Original language:** English

**DOI:** 10.1145/3313950.3313961
**Document Type:** Conference Paper
**Publisher:** Association for Computing Machinery

# Document details - Bioactivity of a radical scavenger bis(pyrazolium: P -toluenesulphonate) on ctDNA and certain microbes: A combined experimental and theoretical analysis





Toxicology Research

Volume 8, Issue 3, 2019, Pages 421-431

## Bioactivity of a radical scavenger bis(pyrazolium: P -toluenesulphonate) on ctDNA and certain microbes: A combined experimental and theoretical analysis(Article) (Open Access)

Balachandar, S., Sethuram, M., Muthuraja, P., Dhandapani, M.

[a]Post Graduate and Research Department of Chemistry, Sri Ramakrishna Mission Vidyalaya College of Arts and Science, Coimbatore, Tamil Nadu, 641 020, India
[b]Department of Chemical Engineering, Sethu Institute of Technology, Virudhunagar Tamil Nadu, 626 115, India

### Abstract

A small organic molecule, bis(pyrazolium p-toluenesulphonate) (BPPTS), was crystallized, characterized and used to scavenge free radicals in biological systems. SXRD and spectroscopic analyses were used to confirm the structure of BPPTS. Methanolic and ethanolic solutions of BPPTS were used to assess the stability of the proposed drug using the UV-vis spectrophotometric technique. Optimization of the molecular structure was carried out by DFT with B3LYP/6-311++G(d,p) level of basis set. MEP and Fukui functions that elaborate theoretically the predominant electrophilic, nucleophilic and radical sites in BPPTS were correlated with experimental biological screening. BPPTS exhibits strong activity against Bacillus subtilis and Escherichia coli, comparable with all other analyzed pathogens. The free radical scavenging activity of BPPTS was assessed by both experimental studies and theoretical calculations. The binding sites of DPPH, which can bind to BPPTS, were also predicted by Fukui functions. DNA binding of BPPTS in UV-vis studies revealed the groove mode of binding due to the occurrence of hyperchromism. The phenomenon of hyperchromism was established by the Hirshfeld surface analysis of BPPTS, which confirmed the presence of π···π interactions (2.4%). Molecular docking established a positive correlation between experimental bio-screening reports and simulated data. ADMET properties were also calculated. © 2019 The Royal Society of Chemistry and the Centre National de la Recherche Scientifique.

### Indexed keywords

EMTREE drug terms: antiinfective agent, antioxidant, bis(pyrazolium 4 toluenesulphonate), chloroplast DNA, ciprofloxacin, clotrimazole, unclassified drug

EMTREE medical terms: antimicrobial activity, antioxidant activity, Article, Aspergillus fumigatus, Aspergillus niger, Bacillus subtilis, binding site, bioinformatics, Candida albicans, chemical structure, computer model, controlled study, crystallization, density functional theory, DPPH radical scavenging assay, drug DNA binding, drug stability, electrophilicity, Escherichia coli, experimental study, in vitro study, molecular docking, nonhuman, nucleophilicity, priority journal, process optimization, Salmonella enterica serovar Paratyphi A, Staphylococcus aureus, static electricity, surface property, theoretical study, ultraviolet visible spectrophotometry

# Document details - Vibration and damping characteristics of hybrid (glass- jute/ sisal/ hemp) fiber reinforced polymer matrix composites to protect environment by natural fiber





Journal of the Balkan Tribological Association

Volume 25, Issue 1, 2019, Pages 142-151

## Vibration and damping characteristics of hybrid (glass- jute/ sisal/ hemp) fiber reinforced polymer matrix composites to protect environment by natural fiber(Article)

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### Abstract

In the present situation, the minimal percentage elimination of synthetic fibers as well leads to giving better environmental support.This study has been concentrated on the reduction of polymer materials and incorporation of natural fiber to determine the vibration in hybrid fiber reinforced polymer matrix composites. Three different natural fabric (jute, sisal and hemp), resin (vinlyester, epoxy and general purpose) and volume of natural fiber incorporation were involved for preparation of samples. An analysis was carried out to study the vibration performance hybrid fiber reinforced polymer matrix composites. Design of experiments was completed by Taguchi's approach to find the level influence of the type of synthetic resin, type of natural fabric and the volume of natural fabric of vibration behavior in the composites using the ANOVA technique. 

### Author keywords

Damping | Dynamic behavior | Glass and natural fiber hybrid composite | Multilayer hybrid composite | Natural frequency | Vibration modal

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**Source Type:** Journal
**Original language:** English
**Document Type:** Article
**Publisher:** Scibulcom Ltd.

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### SciVal Topic Prominence

Topic:

Prominence percentile:

# Document details - Accurate Classification of Cancer in Mammogram Images





Lecture Notes in Networks and Systems

Volume 65, 2019, Pages 71-77

## Accurate Classification of Cancer in Mammogram Images(Book Chapter)

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### Abstract

In the last decade, machine learning plays a vital role in the detection of breast cancer. Mammography is a proficient tool for early stage detection of breast cancer. In this work, a simple technique for breast cancer image classification in l mammogram images is proposed. Highly discriminant local binary patterns are extracted from the wavelet normalized mammogram images. K-nearest neighbor classifier is used to categorize the abnormal cancer cell images. A mammogram database is created to evaluate the efficacy of our algorithm. From the experimental results, the performance of our algorithms is comparatively good with very less computational time. © 2019, Springer Nature Singapore Pte Ltd.

### Author keywords

Benign and malignant | Cancer cell detection | K-NN classifier | LBP | Mammogram database

**ISSN:** 23673370
**Source Type:** Book Series
**Original language:** English
**DOI:** 10.1007/978-981-13-3765-9_8
**Document Type:** Book Chapter
**Publisher:** Springer

Parisa Beham, M.; Department of ECE, Sethu Institute of Technology, Virudhunagar, Tamil Nadu, India;

# Document details - Role of X-Rays in Assessment of Bone Mineral Density—A Review





Lecture Notes in Networks and Systems

Volume 65, 2019, Pages 51-59

## Role of X-Rays in Assessment of Bone Mineral Density—A Review(Book Chapter)

Nazia Fathima, S.M., Tamilselvi, R., Beham, M.P.

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### Abstract

Application of X-rays in healthcare applications is the energetic field involving more research challenges. The physician uses conventional or traditional X-ray images of the bone which is the majority used imaging modality to treat bone diseases, which disclose the potential for new medical applications. Inspired by the special characteristics, novelty and wide applications of X-ray, this work provides a comprehensive survey on the role of X-ray in the medical field. X-ray involves bone mineral density (BMD) measurement which is the conventional method to assess the fracture risk. Even though a lot of papers are describing the methods involved in X-ray, this paper explains the current trends with the advantages and disadvantages of X-ray in the medical field. Principles, fundamentals and characteristics of X-ray in the emerging area of biomedicine are also well described. The various recent works related to the principle, BMD measurement and analysis methods of X-ray are also discussed. © 2019, Springer Nature Singapore Pte Ltd.

### Author keywords

Bone mineral density (BMD) | Health care | Medical field | Osteoporosis | X-ray images

**ISSN:** 23673370
**Source Type:** Book Series
**Original language:** English

**DOI:** 10.1007/978-981-13-3765-9_6
**Document Type:** Book Chapter
**Publisher:** Springer

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### SciVal Topic Prominence

Topic:

Prominence percentile:

# Document details - Detection and Classification of Exudates and Non-exudates in Retinal Images





Lecture Notes in Networks and Systems

Volume 65, 2019, Pages 3-14

## Detection and Classification of Exudates and Non-exudates in Retinal Images(Book Chapter)

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### Abstract

The retina of human eye plays a key function in the vision, and it is a light-sensitive layer. The optics of eye produces an image figure in the retina. The various eye diseases like diabetic retinopathy, myopia, macular pucker, and macular hole have an effect on the retina. The retina is affected by these diseases which are vascular disease and cause vision mutilation and blindness. These diseases happen due to diabetics, aging, and nearsightedness. Exudates are the pathological condition of the retina. So the early detection of these is very important. In the paper, an efficient methodology like Otsu thresholding method and the K-means clustering method is proposed for the recognition of exudates. After detecting the exudates, various texture feature extraction processes are involved. Finally, the classification method is performed using Backpropagation Neural Networks (BPN). The main spotlight of the projected work is to develop algorithms for exudates recognition and categorization of retinal images in pathological or non-pathological, convalescing investigation of the fundus images. The experimental results acquired from the projected method of extracting the features and classification method exposed that non-diseased cases were recognized with 90% exactness while temperate and severe cases were 99% accurate. © 2019, Springer Nature Singapore Pte Ltd.

### Author keywords

Detection and classification | Diabetic retinopathy | Exudates | Neural networks | Retinal images

**ISSN:** 23673370
**Source Type:** Book Series
**Original language:** English
**DOI:** 10.1007/978-981-13-3765-9_1
**Document Type:** Book Chapter
**Publisher:** Springer

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### SciVal Topic Prominence

Topic:

Prominence percentile:

# Document details - Performance Analysis of Nanoparticles in Healthcare and Biomedical Applications





Lecture Notes in Networks and Systems

Volume 65, 2019, Pages 15-22

## Performance Analysis of Nanoparticles in Healthcare and Biomedical Applications(Book Chapter)

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### Abstract

Applications of nanoparticles in health care have recently turned into the most emerging research platforms, since the nanomaterials exhibit novel and superior properties than the conventional materials, which make it possible for new medical applications. Extensive biomedical applications are explored by the nanoparticles domains which are principally either purely organic or inorganic materials. Inspired by the unique characteristics, novelty, and wide applications of nanoparticles, this work provides a comprehensive survey on performance analysis of nanomaterials in biomedical applications. Analysis of new results, techniques, and characteristics of nanomaterials mainly in the area of biomedicine are well described. © 2019, Springer Nature Singapore Pte Ltd.

### Author keywords

Biomedical applications | Health care | Nanomaterials | Nanoparticles | Nanoprotectors | Nanosensitizers | Nanostructures

**ISSN:** 23673370
**Source Type:** Book Series
**Original language:** English
**DOI:** 10.1007/978-981-13-3765-9_2
**Document Type:** Book Chapter
**Publisher:** Springer

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### SciVal Topic Prominence

Topic:

Prominence percentile:

# Document details - Estimation of Face Pose Orientation Using Model-Based Approach





Lecture Notes in Networks and Systems

Volume 65, 2019, Pages 61-70

## Estimation of Face Pose Orientation Using Model-Based Approach(Book Chapter)

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### Abstract

In the domain of computer vision and pattern recognition, though there are numerous methods for face recognition, it is still remaining as a very challenging problem in real life applications. Face detection and recognition suffer from many problems which are caused by the variations in orientation, size, illumination, expression, and poses. This paper mainly revolves around face detection and oriented pose identification. The state-of-the-art Constrained Local Model (CLM) is applied to detect the face from any wild facial image. The extracted feature points are used to segregate the dominant parts of faces. From the dominant feature points, nose tip and eye points have been identified. Applying the geometrical parameters between the nose tip and eye points, the pose orientation of the wild face has been identified. This method is very simple and accurate. The performance evaluation has been done on unconstrained Essex database and internal wild database collected from internet. © 2019, Springer Nature Singapore Pte Ltd.

### Author keywords

CLM model | CLM search | Geometrical parameters | Pose estimation | Segregation

**ISSN:** 23673370
**Source Type:** Book Series
**Original language:** English
**DOI:** 10.1007/978-981-13-3765-9_7
**Document Type:** Book Chapter
**Publisher:** Springer

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### SciVal Topic Prominence

Topic:

Prominence percentile:

# Document details - Analysis of OSA syndrome from PPG signal using CART-PSO classifier with time domain and frequency domain features





CMES - Computer Modeling in Engineering and Sciences

Volume 118, Issue 2, 2019, Pages 351-375

## Analysis of OSA syndrome from PPG signal using CART-PSO classifier with time domain and frequency domain features(Article)(Open Access)

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### Abstract

Obstructive Sleep Apnea (OSA) is a respiratory syndrome that occurs due to insufficient airflow through the respiratory or respiratory arrest while sleeping and sometimes due to the reduced oxygen saturation. The aim of this paper is to analyze the respiratory signal of a person to detect the Normal Breathing Activity and the Sleep Apnea (SA) activity. In the proposed method, the time domain and frequency domain features of respiration signal obtained from the PPG device are extracted. These features are applied to the Classification and Regression Tree (CART)-Particle Swarm Optimization (PSO) classifier which classifies the signal into normal breathing signal and sleep apnea signal. The proposed method is validated to measure the performance metrics like sensitivity, specificity, accuracy and F1 score by applying time domain and frequency domain features separately. Additionally, the performance of the CART-PSO (CPSO) classification algorithm is evaluated through comparing its measures with existing classification algorithms. Concurrently, the effect of the PSO algorithm in the classifier is validated by varying the parameters of PSO. Copyright © 2019 Tech Science Press.

### Author keywords

Classification and regression tree classifier | Frequency domain features | Obstructive sleep apnea | Particle swarm optimization algorithm | Photoplethysmogram signal | Time domain features

### Indexed keywords

Engineering controlled terms: Classification (of information) | Data mining | Forestry | Frequency domain analysis | Particle swarm optimization (PSO) | Sleep research | Trees (mathematics)

Engineering uncontrolled terms: Classification and regression tree | Frequency domains | Obstructive sleep apnea | Particle swarm optimization algorithm | Photo-plethysmogram | Time domain features

Engineering main heading: Time domain analysis

**ISSN:** 15261492
**Source Type:** Journal
**Original language:** English
**DOI:** 10.31614/cmes.2018.04484
**Document Type:** Article
**Publisher:** Tech Science Press

# Document details - Statistical evaluation and performance analysis of electrical discharge machining (EDM) characteristics of hard Ti-6Al-2Sn-4Zr-2Mo alloy





Materials Research Express

Volume 6, Issue 5, 2019, Article number 056552

## Statistical evaluation and performance analysis of electrical discharge machining (EDM) characteristics of hard Ti-6Al-2Sn-4Zr-2Mo alloy(Article)

Perumal, A., Azhagurajan, A., Baskaran, S., Prithivirajan, R., Narayansamy, P.

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View additional affiliations

### Abstract

Nowadays, electrical discharge machining process is successfully employed to machining hard titanium alloys compared to other non-conventional machining processes. The generation high temperature is utilized to melt and vaporize the hard titanium alloy during electrical discharge machining. The process parameters are highly influenced on the machining performance and need to be studied for optimum results. In the present research, the hard Ti-6Al-2Sn-4Zr-2Mo alloy was machined by EDM process and machining characteristics such as material removal rate, tool wear rate and surface roughness were analyzed statistically to get the optimum performance. The experiments were carried out based on the Taguchi orthogonal array method. From the statistical analysis of experimental results, the most significant parameters were identified as peak current, pulse on time and voltage. In addition to that SEM analysis was used to characterize the machined surface. The results of SEM analysis indicated that craters, surface cracks, globules and recast layer present on the machined surface. 

### Author keywords

Electrical discharge machining | material removal rate | surface roughness | Taguchi method | titanium alloy

### Indexed keywords

Engineering controlled terms: Aluminum alloys | Cutting tools | Electric discharge machining | Electric discharges | Machining centers | Molybdenum alloys | Surface roughness | Taguchi methods | Tin alloys | Zircaloy

Engineering uncontrolled terms: Electrical discharge machining | Electrical discharge machining process | Machining characteristics | Machining performance | Material removal rate | Nonconventional machining | Statistical evaluation | Taguchi orthogonal arrays

Engineering main heading: Titanium alloys



ISSN: 20531591 DOI: 10.1088/2053-1591/ab06da

# Document details - Thermal degradation and lifetime estimation of polycarbonate-ceria composite for electronic applications





Materials Research Express

Volume 6, Issue 5, 2019, Article number 055316

## Thermal degradation and lifetime estimation of polycarbonate-ceria composite for electronic applications(Article)

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### Abstract

A Polycarbonate (PC)/Ceria ($CeO_2$) composite with 0.5 wt% $CeO_2$ was prepared using melt blending method. A Thermogravimetric analysis (TGA) was done on PC and PC-$CeO_2$. Based on the TGA results, the activation energy of PC-$CeO_2$ was calculated by three iso-conversional methods viz. Friedman, Kissinger and Ozawa-Flynn-Wall (OFW). The activation energy varied along the variation of extent of conversion (α) and increased as α increased. Based on the theoretical and experimental master plots y(α), an Avrami-Erofeev ($f(\alpha) = 3(1-\alpha)[-\ln(1-\alpha)]^{2/3}$ and $g(\alpha) = [-\ln(1-\alpha)]^{1/3}$) reaction model was selected to describe the thermal degradation mechanism of both PC and PC-$CeO_2$. Further, the lifetime estimation of PC-$CeO_2$ meets the demand in electronic applications. © 2019 IOP Publishing Ltd.

### Author keywords

degradation kinetics | lifetime estimation | polycarbonate | polymer composites | thermal stability

### Indexed keywords

Engineering controlled terms: Activation energy | Blending | Degradation | Polycarbonates | Thermodynamic stability | Thermogravimetric analysis

Engineering uncontrolled terms: Degradation kinetics | Electronic application | Iso-conversional method | Lifetime estimation | Melt-blending methods | Polymer composite | Reaction model | Thermal degradation mechanism

Engineering main heading: Cerium oxide



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**Source Type:** Journal
**Original language:** English

**DOI:** 10.1088/2053-1591/ab04fd
**Document Type:** Article
**Publisher:** Institute of Physics Publishing

# Document details - Dynamic eyes and mouth reinforced lbp histogram descriptors based on emotion classification in video sequences





Studies in Fuzziness and Soft Computing

Volume 374, 2019, Pages 185-209

## Dynamic eyes and mouth reinforced lbp histogram descriptors based on emotion classification in video sequences(Book Chapter)

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### Abstract

In the world of visual technology, classifying emotions from the face image is a challenging task. In the recent surveys, they have focused on capturing the whole facial signatures. But the mouth and eyes are the utmost vital facial components involved in classifying the emotions. This paper proposes an innovative approach to emotion classification using dynamic eyes and mouth signatures with high performance in minimum time. Initially, each eye and mouth image is separated into non-intersecting regions from this video sequences. The regions are further separated into small intersecting sub-regions. Dynamic reinforced local binary pattern signatures are seized from the sub-region of eyes and mouth in the subsequent frames which shows the dynamic changes of eyes and mouth aspects, respectively. In each sub-region, the dynamic eyes and mouth signatures are normalized using Z-score which is further converted into binary form signatures with the help of threshold values. The binary signatures are obtained for each pixel in a region on eyes and mouth computing histogram signatures. Concatenate the histogram signature which is captured from all the regions in the eye and mouth into a single enhanced signature. The discriminative dynamic signatures are categorized into seven emotions utilizing multi-class AdaBoost categorizer algorithm. © Springer Nature Switzerland AG 2019.

### Author keywords

Classification | Detection of facial components | Normalization | Signature extraction

**ISSN:** 14349922
**Source Type:** Book Series
**Original language:** English
**DOI:** 10.1007/978-3-030-03131-2_10
**Document Type:** Book Chapter
**Publisher:** Springer Verlag

Panneer Selvam, I.R.; Department of Computer Science and Engineering, Sethu Institute of Technology, Virudhunagar, India;



### SciVal Topic Prominence

Topic:

# Document details - Active contour based segmentation and classification for pleura diseases based on Otsu's thresholding and Support Vector Machine (SVM)





Asian Pacific Journal of Cancer Prevention

Volume 20, Issue 1, 1 January 2019, Pages 167-173

## Active contour based segmentation and classification for pleura diseases based on Otsu's thresholding and Support Vector Machine (SVM)(Article)(Open Access)

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### Abstract

Objective: Generally, lung cancer is the abnormal growth of cells that originates in one or both lungs. Finding the pulmonary nodule helps in the diagnosis of lung cancer in early stage and also increase the lifetime of the individual. Accurate segmentation of normal and abnormal portion in segmentation is challenging task in computer-aided diagnostics. Methods: The article proposes an innovative method to spot the cancer portion using Otsu's segmentation algorithm. It is followed by a Support Vector Machine (SVM) classifier to classify the abnormal portion of the lung image. Results: The suggested methods use the Otsu's thresholding and active contour based segmentation techniques to locate the affected lung nodule of CT images. The segmentation is followed by an SVM classifier in order to categorize the affected portion is normal or abnormal. The proposed method is suitable to provide good and accurate segmentation and classification results for complex images. Conclusion: The comparative analysis between the two segmentation methods along with SVM classifier was performed. A classification process based on active contour and SVM techniques provides better than Otsu's segmentation for complex lung images. © 2019 Asian Pacific Organization for Cancer Prevention.

### Author keywords

Active contour segmentation | Computer tomography | Lung | Otsu's thresholdin | SVM classifier

### Indexed keywords

EMTREE medical terms: algorithm | automated pattern recognition | comparative study | computer assisted diagnosis | diagnostic imaging | human | lung | lung tumor | pathology | pleura | pleura disease | procedures | support vector machine

MeSH: Algorithms | Humans | Lung | Lung Neoplasms | Pattern Recognition, Automated | Pleura | Pleural Diseases | Radiographic Image Interpretation, Computer-Assisted | Support Vector Machine



**ISSN:** 15137368
**Source Type:** Journal
**Original language:** English

**DOI:** 10.31557/APJCP.2019.20.1.167
**PubMed ID:** 30678428
**Document Type:** Article
**Publisher:** Asian Pacific Organization for Cancer Prevention

# Document details - U-net based segmentation and multiple feature extraction of dermascopic images for efficient diagnosis of Melanoma





Lecture Notes in Computational Vision and Biomechanics

Volume 31, 2019, Pages 81-101

## U-net based segmentation and multiple feature extraction of dermascopic images for efficient diagnosis of Melanoma(Book Chapter)

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### Abstract

Skin cancer is found to be one of the most common types of deadly cancers among human beings in recent years. Computational-based techniques are developed to support the dermatologists for the early diagnosis of skin cancer. Computational analysis of the skin lesions in the dermascopic images is a challenging task due to the difficulties such as low-level of contrast between the lesion and surrounding skin regions, irregular and vague lesion borders, artifacts and poor imaging conditions. This paper presents a U-Net based segmentation and multiple feature extraction of the dermascopic images for the efficient diagnosis of skin cancer. The input dermascopic image is preprocessed to remove the noise and hair in the skin image. Fast Independent Component Analysis (FastICA) is applied to the skin images for obtaining the melanin and hemoglobin components. The U-net segmentation is applied to the dermascopic image to separate the cancer region from the background of the skin image. Different features such as vascular features, color features, texture features, RGB features, and depth features are extracted from the segmented image. RVM classification is applied to classify the normal and abnormal images. With the efficient segmentation and extraction of multiple features, our proposed work yields better performance than the existing segmentation and feature extraction techniques. © Springer Nature Switzerland AG 2019.

### Author keywords

Independent component analysis | Melanoma | U-Net segmentation | Vascular features

**ISSN:** 22129391
**Source Type:** Book Series
**Original language:** English
**DOI:** 10.1007/978-3-030-04061-1_9
**Document Type:** Book Chapter
**Publisher:** Springer Netherlands

Roja Ramani, D.; Department of Information Technology, Sethu Institute of Technology, Pulloor, India;



### SciVal Topic Prominence

Topic:

Prominence percentile:

# Document details - Enhancing the geometric tolerance of aluminium hybrid metal matrix composite using EDM process





Journal of the Brazilian Society of Mechanical Sciences and Engineering

Volume 41, Issue 1, 1 January 2019, Article number 41

## Enhancing the geometric tolerance of aluminium hybrid metal matrix composite using EDM process(Article)

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### Abstract

A generous development of electrical discharge machining method has been stimulated in the province of metal matrix composites materials. In this extant work, the optimal condition for various output responses specifically circularity, cylindricity, perpendicularity and radial over cut are exposed by employing grey relational analysis procedure by optimizing the input process parameters alike pulse on time ($T_{on}$), peak current (I) and gap voltage (V). The Hybrid Metal Matrix Composite material is evolved by handling the stir casting approach and then machined by exploring the input parameters using $L_{27}$ orthogonal array. From the consequences of grey relational grade, a response table was discovered to elect the optimal conditions of the individual parameter. The most contributing input parameter is current with 69.08%, which is determined from the ANOVA table. Finally, the optimal conditions which were acquired from the response table are peak current of 12 A, pulse on time of 50 µs and gap voltage of 30 V and also verified through an authentication test which illustrated that optimal process parameters are competently improved by 0.1452 when compared to the predicted parameter. The machined surface is analysed using a scanning electron microscope. The results palpated that the peak current increases the number of microvoids and size of the crater was increased and the poor surface finish was achieved. © 2019, The Brazilian Society of Mechanical Sciences and Engineering.

### Author keywords

Circularity (CR) | Cylindricity (CY) | EDM | Gap voltage (V) and ANOVA | MMCs | Peak current (I) | Perpendicularity (PP) grey relational analysis | Pulse on time ($T_{on}$)

### Indexed keywords

Engineering controlled terms: Aluminum | Analysis of variance (ANOVA) | Electric discharge machining | Electric discharges | Materials handling | Scanning electron microscopy

Engineering uncontrolled terms: Circularity (CR) | Cylindricity | Gap voltage | Grey relational analysis | MMCs | Peak currents | Pulse on-time

Engineering main heading: Metallic matrix composites



**ISSN:** 16785878
**Source Type:** Journal
**Original language:** English

**DOI:** 10.1007/s40430-018-1553-2
**Document Type:** Article
**Publisher:** Springer Verlag

# Document details - Synthesis and characterization of CuO/ZnO/CNTs thin films on copper substrate and its photocatalytic applications





OpenNano

Volume 4, 2019, Article number 100025

## Synthesis and characterization of CuO/ZnO/CNTs thin films on copper substrate and its photocatalytic applications(Article)(Open Access)

Saravanakkumar, D., Oualid, H.A., Brahmi, Y., Ayeshamariam, A., Karunanaithy, M., Saleem, A.M., Kaviyarasu, K., Sivaranjani, S., Jayachandran, M.

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### Abstract

In this work, Jet nebulizer technique was used to prepare thin films of CuO (1%) doped with ZnO-carbon nanotubes (CuO/ZnO/CNTs). The morphology, surface roughness, surface pattern, and elemental composition of the thin films were examined by X-ray diffraction, scanning electron microscopy, atomic force microscopy, Raman analysis, PL emission and transmission electron microscopy, respectively. The photocatalytic activity of pure CuO/ZnO/CNTs was examined using the rate of degradation of Rhodamine-B (RhB) under the effect of UV-B irradiation. UV–Vis analysis revealed that the average crystal sizes were uniform with values of 24.89, 24.412, and 23.711 nm. The maximum absorptive energy of RhB was found to be at 551 nm. © 2018

### Author keywords

CuO/ZnO/CNTs | Jet nebulizer | Morphology | Rhb degradation and crystal size | Surface pattern photocatalytic | Surface roughness | Uv-b irradiation

### Indexed keywords

EMTREE drug terms: carbon nanotube | copper oxide | graphene oxide | nanocrystal | rhodamine B | zinc oxide

EMTREE medical terms: Article | atomic force microscopy | drug analysis | drug synthesis | electric conductivity | electric resistance | energy dispersive X ray spectroscopy | Fourier transform infrared spectroscopy | particle size | photocatalysis | photoluminescence | priority journal | Raman spectrometry | scanning electron microscopy | temperature | thermostability | transmission electron microscopy | ultraviolet B radiation | X ray diffraction

### Chemicals and CAS Registry Numbers:

copper oxide, 1344-70-3; rhodamine B, 81-88-9; zinc oxide, 1314-13-2

**ISSN:** 23529520
**Source Type:** Journal
**Original language:** English
**DOI:** 10.1016/j.onano.2018.11.001
**Document Type:** Article
**Publisher:** Elsevier Inc