ScienceDirect

View PDF

Access through your institution

Purchase PDF

Ceramics International

Volume 45, Issue 18, Part B, 15 December 2019, Pages 24982-24998

Interaction of nanoscale damages with static and dynamic contact induced damages in alumina: A novel approach using nanoindentation

Manjima Bhattacharya [a, c] ✉, Anoop kumar Mukhopadhyay [a, b] ✉

Access through **your institution**

Purchase PDF

Abstract

The present work makes novel usage of the well-known nanoindenation (NI) technique to study how the nanohardness (H) and Young's modulus (E) are affected due to variations in the loading rates ranging from 1 to 1000 mN s^{-1} for a pressureless sintered alumina of intermediate e.g., 8 μm grain size and 91% relative density. The same NI technique is also utilized to understand how the presence of microindentation induced radial cracks affect H and E when the nanoindents are at different angular orientations of 0°, 30°, 45° and 90° with respect to the aforesaid radial cracks. Finally, the study is also extended towards using the NI technique to understand how H and E of the same alumina are influenced by the presence of the dynamic contact induced scratch grooves created at normal loads in the range of 2–15 N. Based on the experimentally measured data, extensive usage of

Access through **your institution**

Purchase PDF

known nanoindenation (NI) technique to study how the nanohardness (H) and Young's modulus (E) are affected due to variations in the loading rates ranging from 1 to 1000 $mN\,s^{-1}$ for a pressureless sintered alumina of intermediate e.g., 8 μm grain size and 91% relative density. The same NI technique is also utilized to understand how the presence of microindentation induced radial cracks affect H and E when the nanoindents are at different angular orientations of 0°, 30°, 45° and 90° with respect to the aforesaid radial cracks. Finally, the study is also extended towards using the NI technique to understand how H and E of the same alumina are influenced by the presence of the dynamic contact induced scratch grooves created at normal loads in the range of 2–15 N. Based on the experimentally measured data, extensive usage of Field Emission Scanning Electron Microscopy (FESEM) and stress magnitude estimations; the nature of the deformation and mode of damage

Purchase PDF

alumina are influenced by the presence of the dynamic contact induced scratch grooves created at normal loads in the range of 2–15 N. Based on the experimentally measured data, extensive usage of Field Emission Scanning Electron Microscopy (FESEM) and stress magnitude estimations; the nature of the deformation and mode of damage interaction evolution are found to be linked to the nanoscale plasticity events related to localized shear stress developed underneath the nanoindenter, the angular orientations of the nanoindents with respect to the direction of propagation of the radial cracks due to statistically induced contact damage, the magnitude and location of residual tensile stresses developed during scratching as well as the spatial density of micro-cracks underneath the scratch grooves. Finally, the implications of the present results in futuristic development of impact damage resistant alumina ceramic are also discussed.

Access through **your institution**

Purchase PDF

Ceramics International

Volume 45, Issue 18, Part B, 15 December 2019, Pages 25034-25043

A critical note on nanoscale plasticity in 20 ZTA ceramics

Payel Maiti [a], Manjima Bhattacharya [a, b], Pradip Sekhar Das [a, c], Jiten Ghosh [a], Anoop Kumar Mukhopadhyay [a, d]

[a] Advanced Mechanical and Materials Characterization Division, CSIR-Central Glass and Ceramic Research Institute, Kolkata, 700032, India

[b] Department of Engineering Science and Humanities, Siliguri Institute of Technology, Techno India Group, Hill Cart Road, P.O. Sukna, Siliguri, 734009, India

[c] Fuel Cell and Battery Division, CSIR-Central Glass and Ceramic Research Institute, Kolkata, 700032, India

[d] Department of Physics, School of Basic Sciences, Faculty of Science, Manipal University Jaipur, Jaipur, 303007, Rajasthan, India

Access through **your institution**

Purchase PDF

Ceramics International

Volume 45, Issue 18, Part B, 15 December 2019, Pages 25034-25043

A critical note on nanoscale plasticity in 20 ZTA ceramics

Payel Maiti [a], Manjima Bhattacharya [a, b], Pradip Sekhar Das [a, c], Jiten Ghosh [a], Anoop Kumar Mukhopadhyay [a, d]

[a] Advanced Mechanical and Materials Characterization Division, CSIR-Central Glass and Ceramic Research Institute, Kolkata, 700032, India

[b] Department of Engineering Science and Humanities, Siliguri Institute of Technology, Techno India Group, Hill Cart Road, P.O. Sukna, Siliguri, 734009, India

[c] Fuel Cell and Battery Division, CSIR-Central Glass and Ceramic Research Institute, Kolkata, 700032, India

[d] Department of Physics, School of Basic Sciences, Faculty of Science, Manipal University Jaipur, Jaipur, 303007, Rajasthan, India

FEEDBACK

Access through **your institution**

Purchase PDF

Abstract

The present work reports the very first observations on initiation of nanoscale plastic events in 20 ZTA (Zirconia Toughened Alumina) ceramics. The nanomechanical properties as well as the intrinsic contact deformation resistance of the present ZTA ceramic are studied here as a function of low loads (i.e., 10–1000 mN). Here we report for the very first time, the detailed mechanisms on the genesis of '*micro pop-in*' events that characterize the nanoscale plasticity initiation in the 20 ZTA ceramics. These new results along with field emission scanning electron microscopy (FESEM) based evidences confirm that the combined contributions from the maximum shear stress generated underneath the nanoindenter, the formations of shear bands and localized microcracking play significant roles in the initiation of nanoscale plastic events in the 20 ZTA ceramics.

ScienceDirect

View PDF

Access through your institution

Purchase PDF

Ceramics International

Volume 45, Issue 7, Part A, May 2019, Pages 8204-8215

Micro pop-in issues in nanoindentation behaviour of 10 ZTA ceramics

Payel Maiti [a], Ammar Eqbal [b], Manjima Bhattacharya [a, 1], Pradip Sekhar Das [a], Jiten Ghosh [a], Anoop Kumar Mukhopadhyay [a, c]

[a] Advanced Mechanical and Materials Characterization Division, CSIR-Central Glass and Ceramic Research Institute, Kolkata 700032, India

[b] Department of Ceramic Engineering, National Institute of Technology, Rourkela, Odisha 769008, India

[c] Department of Physics, Manipal University Jaipur, Jaipur 303007, Rajasthan, India

View **PDF**

Access through **your institution**

Purchase PDF

Abstract

Here we report for the very first time, the detailed mechanisms of the formation of 'micro pop-in' events observed during nanoindentation at 10–1000 mN load in a 10 ZTA (i.e., 10 vol% zirconia toughened alumina) ceramic. Explicit analysis of the experimental results backed up by comprehensive Field Emission Scanning Electron Microscopy (FESEM) based evidences suggests that the maximum shear stress (τ_{max}) generated underneath the nanoindenter, the formations of shear bands and localized microcrackings play significant role in the initiation of nanoscale plastic events in the present ZTA ceramic.

View PDF

Access through your institution

Purchase PDF

Effect of molecular structure on dielectric and electro-optic properties of chiral liquid crystals based on lactic acid derivatives

Barnali Barman [a], Banani Das [b], Malay Kumar Das [a] ✉, Věra Hamplová [c], Alexej Bubnov [c]

[a] Department of Physics, University of North Bengal, 734 013 Siliguri, West Bengal, India

[b] Department of Physics, Siliguri Institute of Technology, Siliguri, India

[c] Institute of Physics, Czech Academy of Sciences, 18221 Prague, Czech Republic

View **PDF**

Access through **your institution**

Purchase PDF

Abstract

Self-assembling behaviour of a few lactic acid derivatives with several ester linkage groups in the molecular core has been studied. The *molecular structure–physical property* correlations has been discussed in the light of the temperature dependences of the static permittivity, dielectric anisotropy, spontaneous polarization, response time and torsional bulk viscosity for eight chiral ferroelectric liquid crystalline compounds. Depending on the molecular structure these compounds exhibit the chiral nematic (N*) phase, the paraelectric orthogonal smectic A* (SmA*) phase and the ferroelectric tilted smectic C*(SmC*) phase being thermally stable over relatively broad temperature range. The temperature behaviour of the spontaneous polarization clearly confirms the second order nature of the SmA*-SmC* phase

the paraelectric orthogonal smectic A* (SmA*) phase and the ferroelectric tilted smectic C*(SmC*) phase being thermally stable over relatively broad temperature range. The temperature behaviour of the spontaneous polarization clearly confirms the second order nature of the SmA*-SmC* phase transition and the first order nature of the N*-SmC* phase transition. The effect of temperature and molecular configuration on the polarization and on the dispersion anchoring energy coefficients has been established. The obtained results are discussed in order to contribute to the *structure – property* relationship for the specific class of soft organic materials which can be used for design of smart multifunctional liquid crystalline mixtures aimed for optoelectronic and photonic applications.

MDPI

Open Access Article

Dielectric Properties of Chiral Ferroelectric Liquid Crystalline Compounds with Three Aromatic Rings Connected by Ester Groups

by Malay Kumar Das [1,*], Barnali Barman [1], Banani Das [2], Věra Hamplová [3] and Alexey Bubnov [3]

[1] Department of Physics, University of North Bengal, Siliguri 734013, West Bengal, India

[2] Department of Physics, Siliguri Institute of Technology, Siliguri 734013, India

[3] Institute of Physics of the Czech Academy of Sciences, 18221 Prague, Czech Republic

* Author to whom correspondence should be addressed.

Crystals **2019**, *9*(9), 473;
https://doi.org/10.3390/cryst9090473

Received: 12 August 2019 / Revised: 1 September 2019 / Accepted: 7 September 2019 / Published: 10 September 2019

Abstract

The tilted ferroelectric SmC* phase of three structurally different series having three aromatic rings in the core structure connected by ester groups with different end alkyl chain lengths, all of which are derived from lactic acid, have been observed by broadband dielectric spectroscopy. Introduction of structural variations within the liquid crystalline compounds has led to the formation of chiral nematic N*, or the paraelectric orthogonal SmA* phase at higher temperatures. The dielectric spectra strongly depend both on the temperature as well as the specific molecular structure of the self-assembling compounds possessing the ferroelectric polar order. The results reveal a strong Goldstone mode in the ferroelectric SmC* phase with ~kHz relaxation frequency. In the SmC* phase, the real and imaginary parts of the complex permittivity increase up to certain temperature near the SmC*-N*/SmA* transition and then decrease with increasing temperature, perhaps due to the disruption of the molecular domains at the onset of the SmA*/N* phase transition. The dielectric strength attains a maximum value in the SmC* phase and then decreases near the SmA*/N* phase transition. The dielectric strength is also influenced by the lengths of the alkyl chain and the nature of the connecting unit of the constituent molecules. The relaxation time and the relaxation frequency are found to vary with the molecular structure of the studied ferroelectric compounds. View Full-Text

INDERSCIENCE PUBLISHERS
Linking academia, business and industry through research

A survey on big data: an emerging imparity and revolution in digital world

by Anupam Mukherjee; Sourav De; Siddhartha Bhattacharyya

International Journal of Hybrid Intelligence (IJHI), Vol. 1, No. 2/3, 2019

Abstract: Size of the heterogeneous data is increasing rapidly at an electrifying speed. But we cannot handle this massive amount of unstructured data in traditional database, most of the data in the digital universe is unstructured. Big data analytics provides better computational power and efficient mechanism to handle this situation. This paper attempts to offer a survey report of big data, which changes rapidly of high volume, velocity, verity. In this paper we discuss some of the major challenges with a focus on big data characteristics followed by a conceptual framework of big data. This survey paper also focuses on the complexity of medical images and data mining problems.

Online publication date:: Tue, 12-Nov-2019

Research article Available online www.ijsrr.org ISSN: 2279–0543

International Journal of Scientific Research and Reviews

Detection of disease and Prediction of Post Risk Level from DNA Sequence Using Pattern Matching and GA, A Proposed System

Das Sucharita[1*]

Dept. of Computer Science and Engineering, Siliguri Institute of Technology, Siliguri WB India
Email: sdsucharita@rediffmail.com Mob. +919434458486

ABSTRACT:

Pattern matching algorithm finds the occurrences of a small sequence called pattern in a larger sequence text, takes an essential responsibility in bioinformatics and parallel in medical science. In this paper I have proposed a system that will find the occurrences of infected genes in any sample of human gene sequence. KMP string matching algorithm is being used as sequence matcher. Depending upon the frequency of occurrence of the pattern the disease will be leveled. Along with detecting the stage of the infection the proposed system will be played an important role in detection of upcoming growth for expected cell mutation.

KEYWORDS: DNA sequence, String Matching, KMP Algorithm, Genetic Algorithm.

***Corresponding Author**

Mrs. Sucharita Das

Department of Computer Science and Engineering
Siliguri Institute of Technology, Sukna, Siliguri
Darjeeling-734009, WB, India
Email: sdsucharita@rediffmail.com

Computational Intelligence in Pattern Recognition pp 487-496 | Cite as

Elastic Window for Multiple Face Detection and Tracking from Video

Authors Authors and affiliations

Aniruddha Dey, Satadal Chakraborty,

Debaditya Kunduand, Manas Ghosh

Conference paper

First Online: 18 August 2019

922

Downloads

Part of the Advances in Intelligent Systems and Computing book series (AISC, volume 999)

Abstract

This paper deals with an efficient method for the detection and tracking of multiple moving faces from a video sequence. Appropriate detection of multiple faces from a video sequence is a challenging task due to the different combination of noise, illuminations, pose, and locations of the human face which is likely to differ from one frame to another. This paper presents a unique technique for multiple face detection from a video sequence. In this study, our major objective is to detect and track locations of multiple faces from video using elastic window. Additionally, the face tracking system includes the tracking of face motion. Firstly, for each pixel, local entropy is calculated by considering a 3×3 window for detecting the face edges. Subsequently, Gaussian filtering technique is used to eliminate the undesired

sequence. In this study, our major objective is to detect and track locations of multiple faces from video using elastic window.

Additionally, the face tracking system includes the tracking of face motion. Firstly, for each pixel, local entropy is calculated by considering a 3×3 window for detecting the face edges. Subsequently, Gaussian filtering technique is used to eliminate the undesired edges. In this context, it may be noted that a video frame passes through a number of preprocessing steps in order to eliminate the background noise to realize the thin binary image consisting of face boundaries. The human face from video sequences can be tracked by calculating the scalar and vector distances of four corner points between two adjacent frames. The movement of corner points represents the position and location change of the face in the upcoming frame. The presented method has been tasted on several video database and obtained efficient detection and tracking of multiple faces from the video sequences.

IEEE Xplore®

Institutional Sign In

All

ADVANCED SEARCH

Need Full-Text
access to IEEE Xplore for your organization?
CONTACT IEEE TO SUBSCRIBE ›

The Influence of Feed Probes on the Modes of Circular Sector Microstrip Antennas : An Investigation

Publisher: IEEE

Cite This

Sudip Kumar Ghosh ; ABHIJYOTI GHOSH ; SUBHRADE...

International Journal of
Engineering Trends and Technology
Scholarly Peer-reviwed Research Publishing Journal

Automatic Vehicle Accident Detection and Messaging System Using GPS and GSM Module

International Journal of Engineering Trends and Technology (IJETT)
© 2019 by IJETT Journal
Volume-67 Issue-8
Year of Publication : 2019
Authors : Jayati Routh, Arshiya das , Piyashi Kundu , Madhubarsha Thakur
doi> 10.14445/22315381/IJETT-V67I8P211

Citation

MLA Style: Jayati Routh, Arshiya das , Piyashi Kundu , Madhubarsha Thakur*"Automatic Vehicle Accident Detection and Messaging System Using GPS and GSM Module"* International Journal of Engineering Trends and Technology 67.8 (2019): 69-72.

APA Style: Jayati Routh, Arshiya das , Piyashi Kundu , Madhubarsha Thakur. Automatic Vehicle Accident Detection and Messaging System Using GPS and GSM Module *International Journal of Engineering Trends and Technology*, 67(8), 69-72.

Abstract

The Rapid growth of technology and infrastructure has made our lives easier. The advent of technology has also increased the traffic hazards and the road accidents take place frequently which causes huge loss of life and property because of the poor emergency facilities. Our project will provide an optimum solution to this draw back. According to this project, when a vehicle meets with an accident, the Micro electro mechanical system (MEMS) sensor will detect the signal and this signal will be analyzed by Arduino. The Arduino sends the alert message through the GSM Module including the location to police control room or a rescue team. So, the police can immediately trace the location through the GPS Module, after receiving the information. Then after confirming the location necessary action will be taken. The aim of this work is to automatically detect an accident and alert the nearest hospital or medical services about the exact location of the accident.

View PDF

Access through your institution

Purchase PDF

Energy

Volume 181, 15 August 2019, Pages 709-723

An approach for long term economic operations of competitive power market by optimal combined scheduling of wind turbines and FACTS controllers

Subhojit Dawn, Prashant Kumar Tiwari, Arup Kumar Goswami

Electrical Engineering Department, National Institute of Technology Silchar, India

Received 4 April 2018, Revised 15 January 2019, Accepted 30 May 2019, Available online 3 June 2019.

View **PDF**

Access through **your institution**

Purchase PDF

Abstract

Wind farm integration with existing main electricity grid is very difficult due to the uncertainty of wind speed, which affects the balancing nature of electrical system. In current competitive power market, it is very challenging to maintain the quality of delivered power to the customers and also maximization of profit for delivered power after integration of such type of intermittent renewable energy sources. This paper presents an efficient optimization approach to achieve the maximum social welfare and profit of consumers as well as maximum profit of generation companies, by minimizing the adverse effect of imbalance cost which is the product of uncertain wind penetration. The optimal placement of Thyristor Controlled Series Compensator (TCSC) &

Access through **your institution**

Purchase PDF

competitive power market, it is very challenging to maintain the quality of delivered power to the customers and also maximization of profit for delivered power after integration of such type of intermittent renewable energy sources. This paper presents an efficient optimization approach to achieve the maximum social welfare and profit of consumers as well as maximum profit of generation companies, by minimizing the adverse effect of imbalance cost which is the product of uncertain wind penetration. The optimal placement of Thyristor Controlled Series Compensator (TCSC) & Unified Power Flow Controller (UPFC) devices, with optimal wind generator placement has been incorporated in the proposed method. The real time data for actual and forecasted wind speed has been collected from different identified places of India. Modified IEEE 14 bus and modified IEEE 30 bus test systems are considered in this work for validating and analyzing the effectiveness of the proposed approach.

FEEDBACK

ScienceDirect

Download

Energy Strategy Reviews

Volume 23, January 2019, Pages 178-199

Review

Wind power: Existing status, achievements and government's initiative towards renewable power dominating India

Subhojit Dawn ... Rajesh Panda

Show more

Outline | Share Cite

https://doi.org/10.1016/j.esr.2019.01.002

Get rights and content

Under a Creative Commons license open access

Abstract

Wind power has shown enormous potential in capacity addition and substantial use throughout the world during the last few decades. From the very last era of the 1990s, wind energy has re-emerged and framed as a major source of renewable power generation. The worldwide wind power installed capacity has been doubled in every three years over the last decades of the 20th century. This paper demonstrates the important aspects along with the promotion policies which are adopted by the Indian government for enlarging the country's own energy security by proper utilization of available renewable energy sources. In India's perspective, wind power is not only used for power generation but also to provide the energy in a cost-effective manner. The details of India's entire power generation, demand, and contributions of various renewable sources are also comprised in this study. The present scenario of wind power potential in India has been also compared with the other leading countries in the world.

Access through **your institution**

Purchase PDF

Volume 110, September 2019, Pages 548-564

A two step approach for improvement of economic profit and emission with congestion management in hybrid competitive power market

Prashant Kumar Tiwari, Manash Kumar Mishra, Subhojit Dawn

Electrical Engineering Department, National Institute of Technology Silchar, Assam, India

Received 25 November 2018, Revised 10 February 2019, Accepted 21 March 2019, Available online 30 March 2019.

Access through **your institution**

Purchase PDF

Abstract

Integration of renewable energy with conventional energy sources is very challenging due to the uncertain nature of renewable energy, which creates imbalance and congestion in the system. Moreover, every market participant/player in deregulated power market wants to achieve the economic benefits within critical system constraints like congestion. Therefore, this paper presents a simple, efficient and reliable two-step optimization strategy to solve the congestion problem along with maximization of system profit, minimization of system generation cost, congestion cost and emission by optimal placement & numbers of Thyristor Controlled Series Compensator (TCSC) along with wind generators in a deregulated power market. Two new indices i.e. 'Congestion Detection Index (CDI)' and 'Index of Total Congestion Cost (ITCC)' have been proposed towards faster

Access through **your institution**

Purchase PDF

Thyristor Controlled Series Compensator (TCSC) along with wind generators in a deregulated power market. Two new indices i.e. 'Congestion Detection Index (CDI)' and 'Index of Total Congestion Cost (ITCC)' have been proposed towards faster identification and reduction of system congestion effectively. The pool & bilateral deregulated market model has been considered for this study. The maximum system profit has been considerably achieved after optimal placement of wind generator and TCSC(s) in the system. The effectiveness of the proposed approach has been analyzed and tested in modified IEEE 14 bus and modified IEEE 118 bus test system. The proposed approach has been compared with the existing related approach for congestion mitigation, and better results have been achieved from the proposed approach.

Tidal Energy As Emergent Energy Source: A Review

International Journal of Computational Intelligence & IoT, Vol. 2, No. 1, 2019

6 Pages
Posted: 20 Mar 2019

Subhojit Dawn
Siliguri Institute of Technology - Department of Electrical Engineering

Sadhan Gope
Mizoram University

Arup Das
Mizoram University

Debashish Bhowmik
Tripura Institute of Technology Narsingarh - Electrical Engineering Department

Indrajit Koley
Siliguri Institute of Technology

Date Written: March 19, 2019

Arup Das
Mizoram University

Debashish Bhowmik
Tripura Institute of Technology Narsingarh - Electrical Engineering Department

Indrajit Koley
Siliguri Institute of Technology

Date Written: March 19, 2019

Abstract

Due to the high degradation of coal and fossil fuel, moving from conventional energy sources to renewable energy sources is not the option, it is a necessity if we don't want to sacrifice our comfort in terms of using electrical energy based equipment / machinery. Now a day, wind and solar energy have already shown their enormous potential as energy sources throughout the world, but there are some other renewable sources i.e. geothermal, biofuel, biogas, biomass, hydropower (small), tidal power etc. which can stand their positions in the competitive market of renewable energy (with wind and solar energy). This paper exhibits the present scenario, availability and future potential of tidal energy in Indian power sector as well as India's positions about the application of tidal energy in the global power sector.

Springer Link Search Menu

International Conference on Innovation in Modern Science and Technology

ICIMSAT 2019: Intelligent Techniques and Applications in Science and Technology pp 173-187 | Cite as

Integration of Solar and Wind Energy for Uninterruptible Power Supply

Authors Authors and affiliations

Rubi Kumari, Shreya Shree Das, Subhojit Roy

Conference paper

First Online: 03 March 2020

368

Downloads

Part of the Learning and Analytics in Intelligent Systems book series (LAIS, volume 12)

Abstract

Now days electricity has become the most demandable thing for the human beings. Due to continuous depletion of the conventional energy resources the demand for the use of nonconventional energy resources has increased. In the present paper we have used non-conventional energy resources i.e. solar energy and wind energy for generating uninterrupted power supply for the consumers. This paper comprises of combination of two sources of energy that will provide uninterrupted power supply to the system. Solar panels and wind turbines together have been used for converting the respective energies to the electrical energy. In this paper generation of electrical energy by combining two non-renewable sources at minimal cost and by not affecting the natural environment.

Springer Link Search Menu

International Conference on Innovation in Modern Science and Technology

ICIMSAT 2019: Intelligent Techniques and Applications in Science and Technology pp 960-967 | Cite as

Modified Boost Converter for Increased Voltage Gain Applicable for Multiple Renewable Source

Authors Authors and affiliations

Aamir Haider, Rubi Kumari, Moumi Pandit, K. S. Sherpa

Conference paper

First Online: 03 March 2020

372

Downloads

Part of the Learning and Analytics in Intelligent Systems book series (LAIS, volume 12)

Abstract

The Design of a new step up DC-DC converter is proposed in this paper which provides better voltage gain than conventional converter. The proposed converter has the advantages of simple structure with single switch and extended voltage gain. The design and operation of the proposed converter are discussed in details. Further double-input topology of boost converter, which is intended to be used for renewable power sources. In the proposed converter; the two inputs have the ability to supply the load simultaneously or individually. A Simulink model of the proposed converter along with a prototype model has been presented in this paper.

Springer Link Search Menu

International Conference on Innovation in Modern Science and Technology

ICIMSAT 2019: Intelligent Techniques and Applications in Science and Technology pp 173-187 | Cite as

Integration of Solar and Wind Energy for Uninterruptible Power Supply

Authors Authors and affiliations

Rubi Kumari, Shreya Shree Das, Subhojit Roy

Conference paper

First Online: 03 March 2020

368

Downloads

Part of the Learning and Analytics in Intelligent Systems book series (LAIS, volume 12)

Abstract

Now days electricity has become the most demandable thing for the human beings. Due to continuous depletion of the conventional energy resources the demand for the use of nonconventional energy resources has increased. In the present paper we have used non-conventional energy resources i.e. solar energy and wind energy for generating uninterrupted power supply for the consumers. This paper comprises of combination of two sources of energy that will provide uninterrupted power supply to the system. Solar panels and wind turbines together have been used for converting the respective energies to the electrical energy. In this paper generation of electrical energy by combining two non-renewable sources at minimal cost and by not affecting the natural environment.

Springer Link Search Menu

International Conference on Innovation in Modern Science and Technology

ICIMSAT 2019: Intelligent Techniques and Applications in Science and Technology pp 173-187 | Cite as

Integration of Solar and Wind Energy for Uninterruptible Power Supply

Authors Authors and affiliations

Rubi Kumari, Shreya Shree Das, Subhojit Roy

Conference paper

First Online: 03 March 2020

368

Downloads

Part of the Learning and Analytics in Intelligent Systems book series (LAIS, volume 12)

Abstract

Now days electricity has become the most demandable thing for the human beings. Due to continuous depletion of the conventional energy resources the demand for the use of nonconventional energy resources has increased. In the present paper we have used non-conventional energy resources i.e. solar energy and wind energy for generating uninterrupted power supply for the consumers. This paper comprises of combination of two sources of energy that will provide uninterrupted power supply to the system. Solar panels and wind turbines together have been used for converting the respective energies to the electrical energy. In this paper generation of electrical energy by combining two non-renewable sources at minimal cost and by not affecting the natural environment.

IET Image Processing / Volume 13, Issue 8 / p. 1349-1363

Research Article | Free Access

Influence of shape and texture features on facial expression recognition

Asit Barman ✉, Paramartha Dutta

First published: 29 May 2019
https://doi.org/10.1049/iet-ipr.2018.5481
Citations: 6

Abstract

Shape and texture features provide a novel framework for expression recognition by using salient landmarks based triangle initialisation and identification of texture regions. Detection of effective landmarks is achieved by well-known appearance-based model to form a grid. Accordingly, several

Abstract

Shape and texture features provide a novel framework for expression recognition by using salient landmarks based triangle initialisation and identification of texture regions. Detection of effective landmarks is achieved by well-known appearance-based model to form a grid. Accordingly, several triangles are identified within the grid with respect to the nose landmark reference point. These salient landmarks are also used to find the texture regions. Normalised shape and texture signatures are derived from triangles and texture regions. Stability indices are determined from shape and texture signatures which are also exploited as significant features for recognition of facial expressions. Statistical measures such as range, moment, skewness, kurtosis, and entropy are used to supplement the feature set. Individual and combined features are fed into multilayer perceptron and deep belief network (DBN) network to classify different expression categories encompassing anger, sadness, fear, disgust, surprise, and

respect to the nose landmark reference point. These salient landmarks are also used to find the texture regions. Normalised shape and texture signatures are derived from triangles and texture regions. Stability indices are determined from shape and texture signatures which are also exploited as significant features for recognition of facial expressions. Statistical measures such as range, moment, skewness, kurtosis, and entropy are used to supplement the feature set. Individual and combined features are fed into multilayer perceptron and deep belief network (DBN) network to classify different expression categories encompassing anger, sadness, fear, disgust, surprise, and happiness. The authors investigated the performance of their proposed system on Cohn–Kanade, JAFFE, MMI, MUG, and Wild face benchmark databases. Thorough experimentation establishes the performance superiority of the proposed methodology over other existing competitors. Combining features is also validated through extensive results and analyses.

Springer Link Search Menu

Computational Intelligence in Pattern Recognition pp 487-496 | Cite as

Elastic Window for Multiple Face Detection and Tracking from Video

Authors Authors and affiliations

Aniruddha Dey, Satadal Chakraborty,

Debaditya Kunduand, Manas Ghosh

Conference paper

First Online: 18 August 2019

922

Downloads

Part of the Advances in Intelligent Systems and Computing book series (AISC, volume 999)

Abstract

This paper deals with an efficient method for the detection and tracking of multiple moving faces from a video sequence. Appropriate detection of multiple faces from a video sequence is a challenging task due to the different combination of noise, illuminations, pose, and locations of the human face which is likely to differ from one frame to another. This paper presents a unique technique for multiple face detection from a video sequence. In this study, our major objective is to detect and track locations of multiple faces from video using elastic window. Additionally, the face tracking system includes the tracking of face motion. Firstly, for each pixel, local entropy is calculated by considering a 3×3 window for detecting the face edges. Subsequently, Gaussian filtering technique is used to eliminate the undesired

Additionally, the face tracking system includes the tracking of face motion. Firstly, for each pixel, local entropy is calculated by considering a 3×3 window for detecting the face edges. Subsequently, Gaussian filtering technique is used to eliminate the undesired edges. In this context, it may be noted that a video frame passes through a number of preprocessing steps in order to eliminate the background noise to realize the thin binary image consisting of face boundaries. The human face from video sequences can be tracked by calculating the scalar and vector distances of four corner points between two adjacent frames. The movement of corner points represents the position and location change of the face in the upcoming frame. The presented method has been tasted on several video database and obtained efficient detection and tracking of multiple faces from the video sequences.

ScienceDirect

View PDF

Access through your institution

Purchase PDF

Applied Soft Computing

Volume 77, April 2019, Pages 88-105

Facial expression recognition using distance and texture signature relevant features

Asit Barman [a], Paramartha Dutta [b]

[a] Department of Computer Science & Engineering and Information Technology, Siliguri Institute of Technology, Darjeeling, 734009, India

[b] Department of Computer & System Sciences, Visva-Bharati University, Santiniketan, 731235, India

Access through **your institution**

Purchase PDF

Abstract

Distance and texture characteristics among the landmark points reflected in human faces are important features in so far as the recognition of human faces is concerned. In this article we consider (i) normalized distance signature obtained from Active Appearance Model (AAM) based grid, (ii) normalized texture signature derived from salient landmarks within the grid, (iii) stability indices arising out of these signatures and (iv) relevant statistical measures as the set of features for training of artificial neural models such as Multilayer Perceptron (MLP), Radial Basis Function Network (RBF), Nonlinear AutoRegressive with eXogenous input (NARX) and Convolutional Neural Network (CNN) to achieve the task of recognition of facial expressions. The Cohn-Kanade (CK+), Japanese Female Facial Expression (JAFFE), MMI and MUG benchmark databases are used to conduct

Access through **your institution**

Purchase PDF

for training of artificial neural models such as Multilayer Perceptron (MLP), Radial Basis Function Network (RBF), Nonlinear AutoRegressive with eXogenous input (NARX) and Convolutional Neural Network (CNN) to achieve the task of recognition of facial expressions. The Cohn-Kanade (CK+), Japanese Female Facial Expression (JAFFE), MMI and MUG benchmark databases are used to conduct the experiments and the results obtained justify the effectiveness of the proposed procedure. The combined distance-texture (D-T) signature is found to perform convincingly better than the distance signature and texture signature individually. The effectiveness of the proposed technique based on combined D-T signature is substantiated by its extremely encouraging performance compared to other existing arts.

Access through **your institution**

Purchase PDF

Materials Chemistry and Physics
Volume 199, 15 September 2017, Pages 322-328

Anomalous electrical conductivity in selenite glassy nanocomposites

Arun Kr Bar [a, b], Koyel Bhattacharya [c], Ranadip Kundu [b, d], Debasish Roy [b], Sanjib Bhattacharya [d]

Access through **your institution**

Purchase PDF

Abstract

CuI doped selenite glass-nanocomposite system has been prepared using melt-quenching route. Their microstructure and electrical transport properties have been studied. It is observed from X-ray diffraction (XRD) study that the size of $CuSeO_3$ nanocrystallite is found to be almost same, but the variation of selenium oxide nanoparticles does not follow any trend. Fourier transform infrared spectra (FT-IR) reveal that major bands are attributed to the Se—O stretching vibration. We have investigated the electrical conductivity of these glass-nanocomposites in a wide frequency and temperature range. Dc conductivity show thermally activated anomalous nature, which may be explained from their structural point of view. Ac conductivity data have been analyzed using a power law model. It has been observed that mobile ion

Access through **your institution**

Purchase PDF

temperature range. Dc conductivity show thermally activated anomalous nature, which may be explained from their structural point of view. Ac conductivity data have been analyzed using a power law model. It has been observed that mobile ion concentration is independent of temperature. Conductivity relaxation time has been calculated from the modulus formalism and shows thermally activated nature. The nature of variation of corresponding activation energy indicates that ionic relaxation starts for higher CuI content. A schematic model has been proposed to explain the transformation of chains into clusters in the compositions and formation of more bridging Se—O—Se bonds, which results an enhancement of ionic conductivity of the present glass-nanocomposite system.

Homestay-Based Tourism - A Tool for Socio Economic Upliftment of Host Communities in Hilly Region of Rural Darjeeling District Of West Bengal: An Analytical Study

Shomnath Dutta

Assistant Professor, Department of MBA

Siliguri Institute of Technology (SIT); H C Road, Darjeeling, W Bengal

ABSTRACT

Homestay being the upcoming model of community based rural tourism aims to promote households to earn income from tourism directly as an extended form of local people involvement in tourism where the tourists experience an excellent opportunity to share, see and feel the diverse ethnic lifestyle, local culture and tradition. The present study dealt with the homestay operations in 'Queen of Hills'- Darjeeling Hills in developing stage. The inadequate traditional tourist accommodation infrastructure around the main town contrary to heavy footfall of tourists almost across all the seasons has made Homestays the only solution to the problem of over congestion of tourists. This research article aims to investigate the contribution of home-stays as instrumental for boosting the socio-economic well-being of rural communities of Darjeeling hills, based on the exploratory & cross sectional form of descriptive research contribution of home-stays as instrumental for boosting the socio-economic well-being of rural communities and made use of chiefly primary data. Data were collected from the 100 home-stays chosen randomly from rural Darjeeling divided into five promising zones. Descriptive analysis, Pearson Correlation and Chi-square test of significance were used to analyse the data using SPSS. It is found that majority of respondents have managed their household expenditure from the income of home-stay entities since income is the strongest motivator for local folk to participate in the homestay business and it was considered by most as a significant contributor to their socio-economic upliftment.

Key words: Homestay business, Socio-economic Development, Community Participation, Darjeeling

I. INTRODUCTION

Homestay is a new concept in tourism and hospitality industry. The homestay is a tourism product which was introduced to give a chance to the tourist to stay with selected local family and experience their daily lifestyle and learn their cultures. The home-stay seeks to draw tourists away from the dean & bustle of the posh and crowded areas to the rural tranquility full of natural surroundings, with clean, comfortable and budget-friendly fooding & lodging. In home-stay tourism, visitors spend ample time with the rural, ethnic family observing their customs, values and culture, which give them the opportunity to feel the taste of rural life

ACS Publications
Most Trusted. Most Cited. Most Read.

RETURN TO ISSUE

< PREV ARTICLE NEXT >

CRYSTAL GROWTH & DESIGN

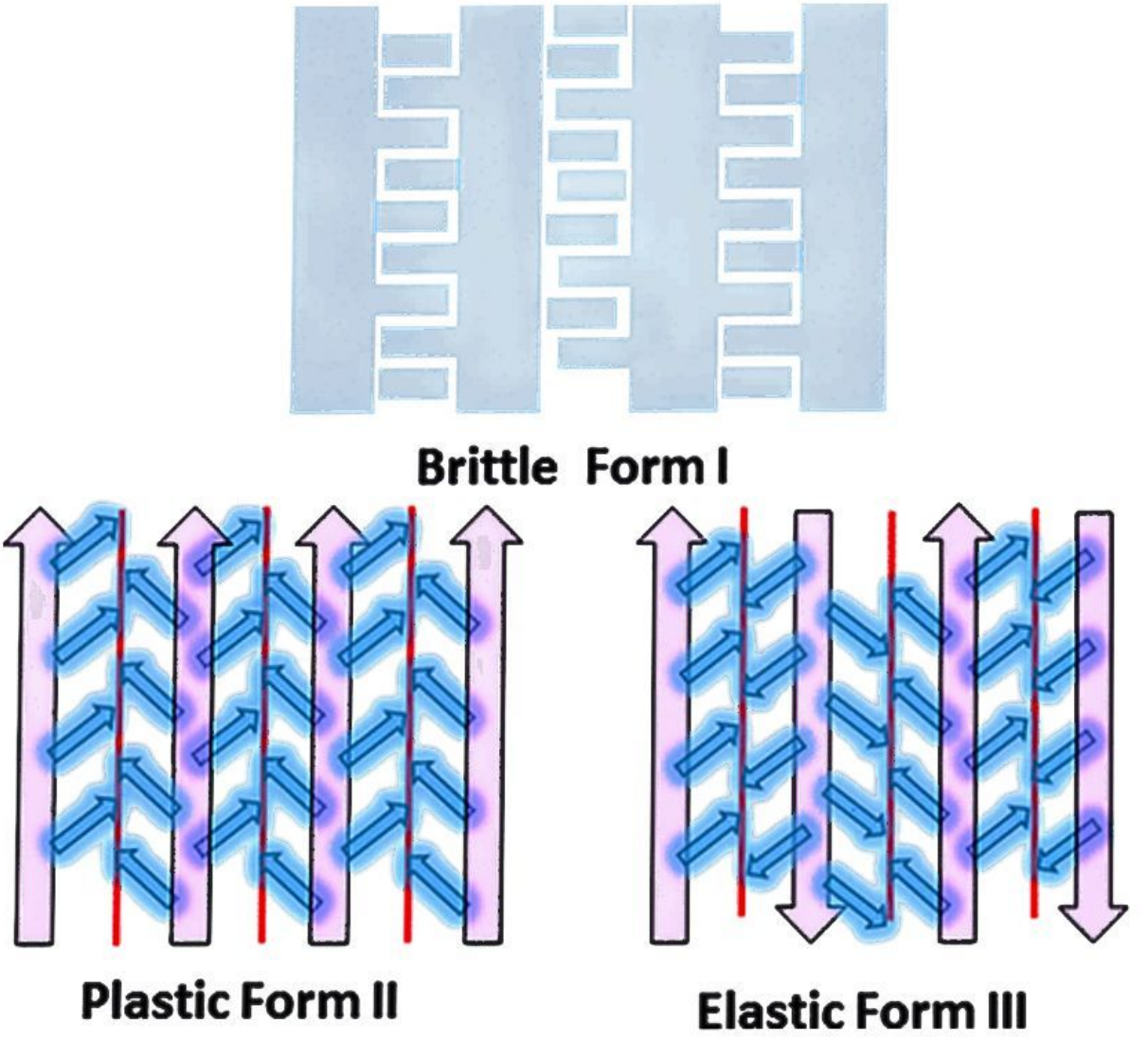
Get e-Alerts

Rationalizing Distinct Mechanical Properties of Three Polymorphs of a Drug Adduct by Nanoindentation and Energy Frameworks Analysis: Role of Slip Layer Topology and Weak Interactions

K. Bal Raju, Subham Ranjan, V. S. Vishnu, Manjima Bhattacharya, Biswajit Bhattacharya, Anoop K. Mukhopadhyay, and C. Malla Reddy*

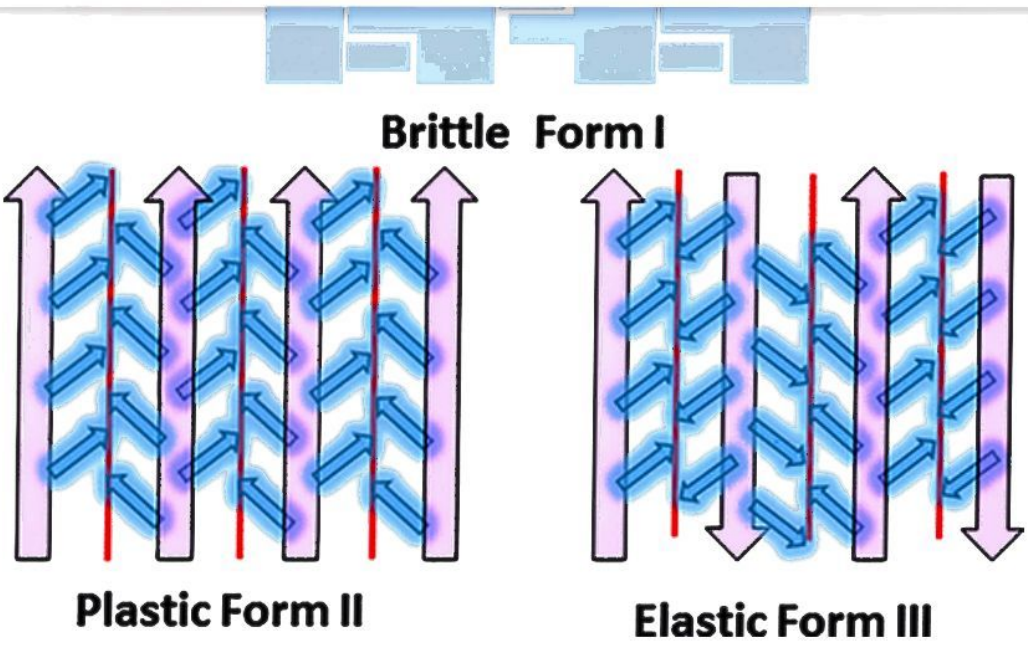
SUBJECTS: Crystals, Plastics, Layers,

Abstract



Three concomitant polymorphs of 3-((4-chlorophenyl)imino)indolin-2-one, a Schiff's base, are identified and sorted based on morphology and mechanical response of their crystals. Form I grows as blocks and shows brittle fracture, Form II has long

CRYSTAL GROWTH & DESIGN



Three concomitant polymorphs of 3-((4-chlorophenyl)imino)indolin-2-one, a Schiff's base, are identified and sorted based on morphology and mechanical response of their crystals. Form I grows as blocks and shows brittle fracture, Form II has long needles and shows plastic bending, and Form III also has long needles and shows elastic bending under similar qualitative mechanical deformation tests. Furthermore, the brittle Form I was found to exhibit thermosalient behavior (jumping) when heated on a hot plate. The distinct mechanical behavior of the three forms is rationalized by analyzing intermolecular interaction energies from energy

interaction energies from energy frameworks analysis, slip layer topology, Hirshfeld surface analysis, and nanoindentation. The quantitative nanoindentation studies unveiled that Form III has higher elastic modulus and stiffness than Forms I and II, while the hardness was lowest for the plastic Form II. Despite high structural similarity in Forms II (plastic) and III (elastic), the *E* of elastic Form III was found to be 3 orders of magnitude higher than that of plastic Form II crystals, which is attributed to the subtle differences in interaction energies and slip layer topology in the two cases. Consideration of slip layer topology and interaction energies from the structures are very useful for rationalizing mechanical properties, but may not be always sufficient, and one may also need to know the topology of the potential energy surface of the slip layers for understanding the distinct mechanical behavior.

Access through **your institution**

Purchase PDF

Ceramics International

Volume 44, Issue 8, 1 June 2018, Pages 8913-8921

Reversible, repeatable and low phase transition behaviour of spin coated nanostructured vanadium oxide thin films with superior mechanical properties

Dipta Mukherjee [a], Arjun Dey [b] ✉, A. Carmel Mary Esther [b], Debajyoti Palai [c], N. Sridhara [b], Parthasarathi Bera [d], Manjima Bhattacharya [a], A. Rajendra [b], Anand Kumar Sharma [b], Anoop Kumar Mukhopadhyay [a] ✉

Access through **your institution**

Purchase PDF

Abstract

Smooth, uniform and crystalline vanadium oxide thin films were deposited on quartz by spin coating technique with four different rpm i.e., 1000, 2000, 3000 and 4000 and subsequently post annealed at 350, 450 and 550 °C in vacuum. Transmission electron microscopy (TEM), Field emission scanning electron microscopy (FESEM) and X-ray diffraction (XRD) techniques were utilized for microstructural characterizations and phase analysis, respectively, for vanadium oxide powder and deposited film. Nanorods were observed to be grown after vacuum annealing. X-ray photoelectron spectroscopy (XPS) technique was utilized to study the elemental oxidation state of deposited vanadium oxide films. Thermo-optical and electrical properties such as solar transmittance (τ_s), reflectance (ρ_s), absorptance (α_s), infrared (IR) emittance (ε_{ir}) and sheet resistance (R_s) of different

Access through **your institution**

Purchase PDF

emittance (ε_{ir}) and sheet resistance (R_s) of different thin films were evaluated. Based on the optical characteristics the optimized condition of the film processing was identified to be spin coated at 3000 rpm. Subsequently, the nanoindentation technique was utilized to measure hardness and Young's modulus of the optimized film. The measured nanomechanical properties were found to be superior to those reported for sputtered vanadium oxide films. Finally, temperature dependent phase transition characteristics of optimized vanadium oxide films were studied by differential scanning calorimetry (DSC) technique. Reversible and repeatable phase transition was found to occur in the range of 44–48 °C which was significantly lower than the phase transition temperature (i.e., 68 °C) of bulk VO_2.

ScienceDirect

View PDF

Access through your institution

Purchase PDF

Ceramics International

Volume 44, Issue 8, 1 June 2018, Pages 9753-9772

Indentation size effect and energy balance issues in nanomechanical behavior of ZTA ceramics

Payel Maiti [a], Manjima Bhattacharya [a, b], Pradip Sekhar Das [a], Parukuttyamma Sujatha Devi [c], Anoop Kumar Mukhopadhyay [a]

Access through **your institution**

Purchase PDF

https://doi.org/10.1016/j.ceramint.2018.02.210

Get rights and content

Abstract

It is well known that physical, structural, mechanical as well as other functional properties change drastically at the nanoscale, thereby giving rise to size effects in all materials, especially ceramics. Therefore, it is extremely relevant today to understand the basic scientific issues involved in the development of size effects in materials, particularly ceramics which are characteristically brittle in nature. Hence, to be able to design better contact resistant ceramics; it is of significant importance to understand the genesis of indentation size effect (ISE) in the nanomechanical response of structural ceramics like zirconia toughened alumina (ZTA). Here we report the first-

View PDF

Access through your institution

Purchase PDF

ISE, the efficacies of existing models in explaining the same; were critically examined. Among existing models, the strain gradient plasticity model provided the real physical reason for the genesis of ISE in ZTA and hence, explained the data the best. Similarly, existing models were used to predict the variations in experimentally measured ratios of plastic to total energy spent in the nanoindentation process. The results showed that the Malzbender model predicted experimental data the best. This observation implied the best efficacy of the internally expanded cavity concept in explaining the nanoindentation response of the present ZTA ceramics. In addition, the other possible mechanisms of ISE in ZTA were discussed. Finally, the linkage of microstructural parameters to ISE in ZTA was explored.

Issue 66, 2018, Issue in Progress

From the journal:
RSC Advances

A facile synthesis methodology for preparation of Ag–Ni-reduced graphene oxide: a magnetically separable versatile nanocatalyst for multiple organic reactions and density functional study of its electronic structures†

Check for updates

Madhurya Chandel,[a] Priyanka Makkar,[a] Barun Kumar Ghosh,[a] Debabrata Moitra[a] and Narendra Nath Ghosh *[a]

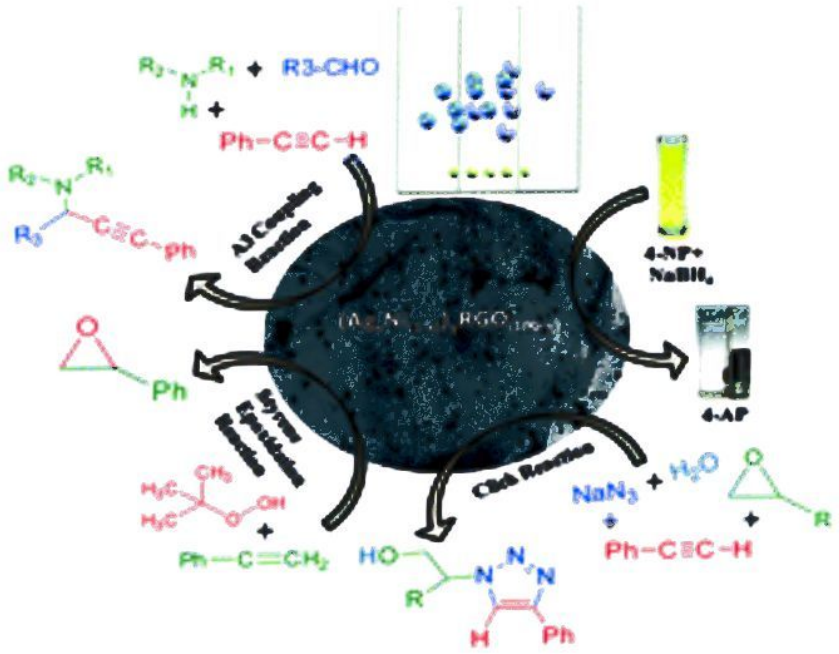
Author affiliations

Abstract

Abstract

Here, we report a simple '*in situ*' co-precipitation reduction synthesis method for the preparation of nanocatalysts composed of Ag, Ni nanoparticles, and reduced graphene oxide (RGO). First-principles calculations based on Density Functional Theory (DFT) were performed to obtain the electronic structures and properties of Ag–Ni-graphene superlattice and to understand the interfacial interactions which exist at the interface between Ag, Ni, and graphene. The catalytic performance of the synthesized catalysts $(Ag_xNi_{(1-x)})_yRGO_{(100-y)}$ were evaluated for four reactions (i) reduction of 4-nitrophenol (4-NP) in the presence of excess $NaBH_4$ in aqueous medium, (ii) A3 coupling reaction for the synthesis of propargylamines, (iii) epoxidation of styrene, and (iv) 'Click reaction' for the synthesis of 1,2,3-triazole derivatives. For all of these reactions the catalyst composed of Ag, Ni, and RGO, exhibited significantly higher catalytic activity than that of pure Ag, Ni, and RGO. Moreover, an easy magnetic recovery of this catalyst from the reaction mixture after completion of the catalytic reactions and the good reusability of the recovered catalyst is also reported here. To the best of our knowledge, this is the first time the demonstration of the versatile catalytic activity of

reduction of 4-nitrophenol (4-NP) in the presence of excess $NaBH_4$ in aqueous medium, (ii) A3 coupling reaction for the synthesis of propargylamines, (iii) epoxidation of styrene, and (iv) 'Click reaction' for the synthesis of 1,2,3-triazole derivatives. For all of these reactions the catalyst composed of Ag, Ni, and RGO, exhibited significantly higher catalytic activity than that of pure Ag, Ni, and RGO. Moreover, an easy magnetic recovery of this catalyst from the reaction mixture after completion of the catalytic reactions and the good reusability of the recovered catalyst is also reported here. To the best of our knowledge, this is the first time the demonstration of the versatile catalytic activity of $(Ag_xNi_{(1-x)})_yRGO_{(100-y)}$ towards multiple reactions, and the DFT study of its electronic structure have been reported.



Issue 49, 2018, Issue in Progress

From the journal:
RSC Advances

Synthesis of multifunctional $CuFe_2O_4$–reduced graphene oxide nanocomposite: an efficient magnetically separable catalyst as well as high performance supercapacitor and first-principles calculations of its electronic structures†

Check for updates

Madhurya Chandel,[a] Debabrata Moitra,[a] Priyanka Makkar,[a] Harshit Sinha,[a] Harshdeep Singh Hora[a] and Narendra Nath Ghosh *[a]

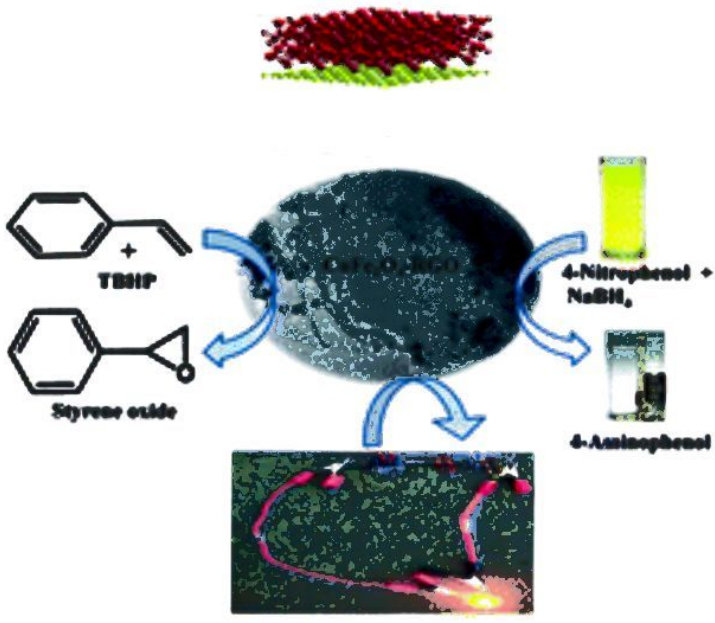
Author affiliations

Abstract

Abstract

Here, we report an '*in situ*' co-precipitation reduction based synthetic methodology to prepare $CuFe_2O_4$ nanoparticle–reduced graphene oxide ($CuFe_2O_4$–RGO) nanocomposites. First principles calculations based on Density Functional Theory (DFT) were performed to obtain the electronic structures and properties of $CuFe_2O_4$, graphene and $CuFe_2O_4$–graphene composites, and to understand the interfacial interaction between $CuFe_2O_4$ and graphene in the composite. The synergistic effect, which resulted from the combination of the unique properties of RGO and $CuFe_2O_4$ nanoparticles, was exploited to design a magnetically separable catalyst and high performance supercapacitor. It has been demonstrated that the incorporation of RGO in the composite enhanced its catalytic properties as well as supercapacitance performance compared with pure $CuFe_2O_4$. The nanocomposite with 96 wt% $CuFe_2O_4$ and 4 wt% RGO (96$CuFe_2O_4$–4RGO) exhibited high catalytic efficiency towards (i) reduction of 4-nitrophenol to 4-aminophenol, and (ii) epoxidation of styrene to styrene oxide. For both of these reactions, the catalytic efficiency of 96$CuFe_2O_4$–4RGO was significantly higher than that of pure $CuFe_2O_4$. The easy magnetic separation of 96$CuFe_2O_4$–4RGO from the reaction mixture and good reusability of the recovered catalyst also showed here.

wt% RGO ($96CuFe_2O_4$–4RGO) exhibited high catalytic efficiency towards (i) reduction of 4-nitrophenol to 4-aminophenol, and (ii) epoxidation of styrene to styrene oxide. For both of these reactions, the catalytic efficiency of $96CuFe_2O_4$–4RGO was significantly higher than that of pure $CuFe_2O_4$. The easy magnetic separation of $96CuFe_2O_4$–4RGO from the reaction mixture and good reusability of the recovered catalyst also showed here. $96CuFe_2O_4$–4RGO also demonstrated better supercapacitance performance than pure $CuFe_2O_4$. $96CuFe_2O_4$–4RGO showed specific capacitance of 797 F g^{-1} at a current density of 2 A g^{-1}, along with ~92% retention for up to 2000 cycles. To the best of our knowledge, this is the first investigation on the catalytic properties of $CuFe_2O_4$–RGO towards the reduction of 4-nitrophenol and the epoxidation reaction, and DFT calculations on the $CuFe_2O_4$–graphene composite have been reported.



ACS Publications
Most Trusted. Most Cited. Most Read.

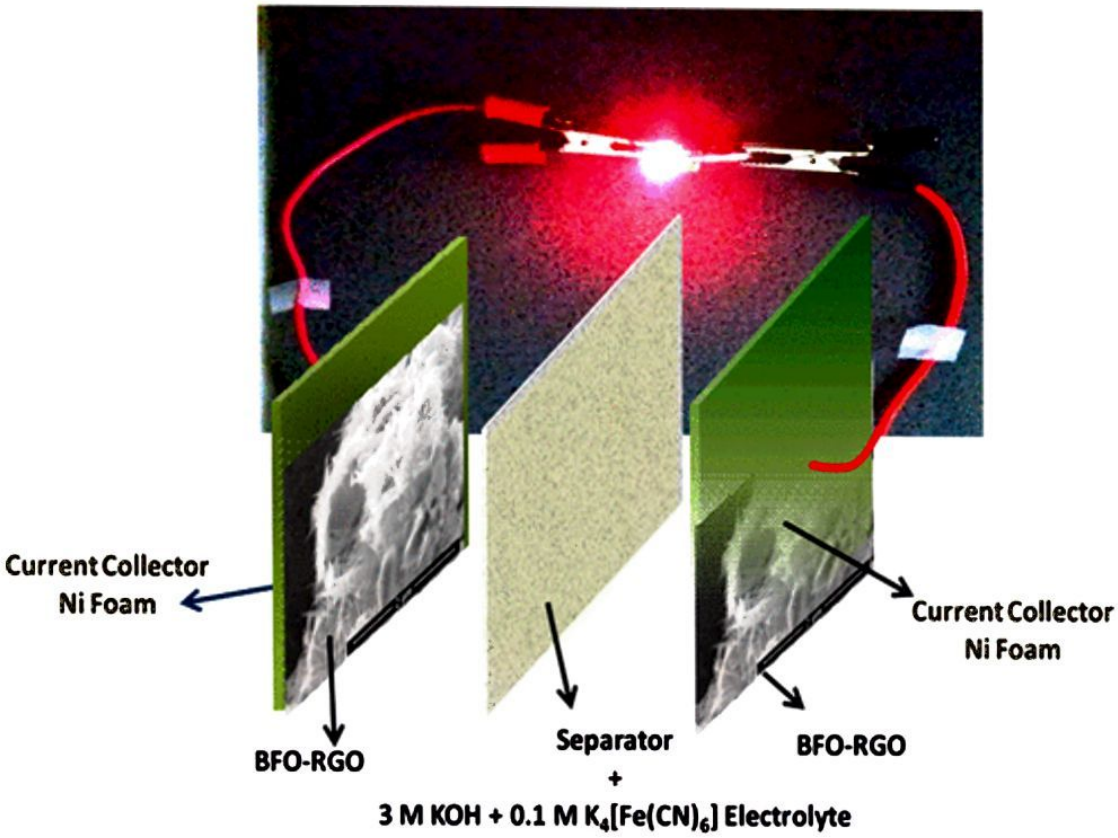
One-Dimensional $BiFeO_3$ Nanowire-Reduced Graphene Oxide Nanocomposite as Excellent Supercapacitor Electrode Material

Debabrata Moitra, Chayan Anand, Barun Kumar Ghosh, Madhurya Chandel, and Narendra Nath Ghosh*

View Author Information

Cite this: *ACS Appl. Energy Mater.* 2018, 1, 2, 464−474
Publication Date: January 31, 2018
https://doi.org/10.1021/acsaem.7b00097
Copyright © 2018 American Chemical Society
RIGHTS & PERMISSIONS

Abstract



In this work, we have reported a nanocomposite, composed of a $BiFeO_3$ nanowire and reduced graphene oxide (BFO-RGO), as an electrode material for a high-performance supercapacitor. A facile hydrothermal method was employed to prepare BFO-RGO nanocomposite. The electrochemical measurements were performed by cyclic voltammetry, galvanostatic charge/discharge measurements, and electrochemical

(BFO-RGO), as an electrode material for a high-performance supercapacitor. A facile hydrothermal method was employed to prepare BFO-RGO nanocomposite. The electrochemical measurements were performed by cyclic voltammetry, galvanostatic charge/discharge measurements, and electrochemical impedance spectroscopy. The specific capacitance of the BFO-RGO nanocomposite was 928.43 F g^{-1} at current density 5 A g^{-1}, which is superior to that of pure $BiFeO_3$. Additionally, this nanocomposite shows good cyclic stability, and ~87.51% of specific capacitance is retained up to 1000 cycles. It also exhibits a high charge density of 18.62 W h kg^{-1} when the power density is 950 W kg^{-1}. These attractive results suggest the potential of $BiFeO_3$ nanowire-RGO nanocomposite as an active material for the construction of a high-performance supercapacitor electrode. To the best of our knowledge, this is the first time the application of $BiFeO_3$ nanowire-RGO nanocomposite as a supercapacitor has been reported.

Barium Hexaferrite ($BaFe_{12}O_{19}$) Nanoparticles as Highly Active and Magnetically Recoverable Catalyst for Selective Epoxidation of Styrene to Styrene Oxide

Buy Article:
$107.14 + tax
(Refund Policy)
ADD T BUY N

Authors: Chandel, Madhurya; Ghosh, Barun Kumar; Moitra, Debabrata; Ghosh, Narendra Nath

Source: Journal of Nanoscience and Nanotechnology, Volume 18, Number 5, May 2018, pp. 3478-3483(6)
Publisher: American Scientific Publishers
DOI: https://doi.org/10.1166/jnn.2018.14625

Herein, we are reporting the use of pure single phase barium hexaferrite ($BaFe_{12}O_{19}$) nanoparticles as an efficient catalyst for epoxidation of styrene. $BaFe_{12}O_{19}$ nanocatalysts exhibit high conversion of styrene with excellent selectivity of styrene oxide formation. Easy method of preparation, capability of catalyzing the epoxide reaction of styrene to styrene oxide with excellent styrene conversion (~91%) and high styrene oxide selectivity (~86.5%), easy magnetic separation and very good reusability make the synthesized $BaFe_{12}O_{19}$ nanocatalyst an excellent catalyst for this reaction. To the best of our knowledge, this is the first time the use of BaFe12O19 as catalyst for this reaction has been reported.

Keywords: Barium Hexaferrite Nanoparticles; Magnetic Separation; Styrene Epoxidation

Document Type: Research Article

Affiliations: Nano-Materials Laboratory, Department of Chemistry, Birla Institute of Technology and Science, Pilani K. K. Birla Goa Campus, Zuarinagar, Goa 403726, India

Publication date: 1 May, 2018

Synthesis of Various Ferrite (MFe_2O_4) Nanoparticles and Their Application as Efficient and Magnetically Separable Catalyst for Biginelli Reaction

Buy Article:
$107.14 + tax
(Refund Policy)
ADD T BUY N

Authors: Chandel, Madhurya [1] ; Ghosh, Barun Kumar [1] ; Moitra, Debabrata [1] ; Patra, Manoj Kumar [2] ; Vadera, Sampat Raj [2] ; Ghosh, Narendra Nath [1] ;
Source: Journal of Nanoscience and Nanotechnology, Volume 18, Number 4, April 2018, pp. 2481-2492(12)
Publisher: American Scientific Publishers
DOI: https://doi.org/10.1166/jnn.2018.14345

Herein, we reports the application of various spinel ferrite nanoparticles, MFe_2O_4 (M = Co, Ni, Cu, Zn), as efficient catalyst for Biginelli reaction. All ferrite nanoparticles were synthesized using a novel aqueous solution based method. It was observed that, the catalytic activity of the ferrite nanoparticles followed the decreasing order of $CoFe_2O_4$ > $CuFe_2O_4$ > $NiFe_2O_4$ > $ZnFe_2O_4$. The most important feature of these ferrite nanocatalysts is that, these nanoparticles can directly be used as catalyst and no surface modification or functionalization is required. These ferrite nanoparticles are easily separable from reaction mixture after reaction by using a magnet externally. Easy synthesis methodology, high catalytic activity, easy magnetic separation and good reusability make these ferrite nanoparticles attractive catalysts for Biginelli reaction.

Keywords: Biginelli Reaction; Ferrites Nanoparticles; Magnetic Separation; Reusability

Document Type: Research Article

Affiliations: 1: Nano-Materials Laboratory, Department of Chemistry, Birla Institute of Technology and Science, Pilani K. K. Birla Goa Campus, Zuarinagar, Goa 403726, India **2:** Defence Laboratory, Jodhpur 342011, India

Publication date: 1 April, 2018

A Multi-Level Integrator with Programming Based Boosting for Person Authentication Using Different Biometrics

Sumana Kundu, Goutam Sarker, **Journal of Information Processing Systems** Vol. 14, No. 5, pp. 1114-1135, Oct. 2018

doi> *10.3745/JIPS.02.0094*

Keywords: Accuracy, Back Propagation Learning, Biometrics, HBC, F-score, Malsburg Learning, Mega-Super-Classifier, MOCA, Multiple Classification System, OCA, Person Identification, Precision, Recall, RBFN, SOM, Super- Classifier

Fulltext: PDF Full Text PubReader

Abstract

A multiple classification system based on a new boosting technique has been approached utilizing different biometric traits, that is, color face, iris and eye along with fingerprints of right and left hands, handwriting, palm-print, gait (silhouettes) and wrist-vein for person authentication. The images of different biometric traits were taken from different standard databases such as FEI, UTIRIS, CASIA, IAM and CIE. This system is comprised of three different super-classifiers to individually perform person identification. The individual classifiers corresponding to each super-classifier in their turn identify different biometric features and

Abstract

A multiple classification system based on a new boosting technique has been approached utilizing different biometric traits, that is, color face, iris and eye along with fingerprints of right and left hands, handwriting, palm-print, gait (silhouettes) and wrist-vein for person authentication. The images of different biometric traits were taken from different standard databases such as FEI, UTIRIS, CASIA, IAM and CIE. This system is comprised of three different super-classifiers to individually perform person identification. The individual classifiers corresponding to each super-classifier in their turn identify different biometric features and their conclusions are integrated together in their respective super-classifiers. The decisions from individual superclassifiers are integrated together through a mega-super-classifier to perform the final conclusion using programming based boosting. The mega-super-classifier system using different super-classifiers in a compact form is more reliable than single classifier or even single super-classifier system. The system has been evaluated with accuracy, precision, recall and F-score metrics through holdout method and confusion matrix for each of the single classifiers, super-classifiers and finally the mega-super-classifier. The different performance evaluations are appreciable. Also the learning and the recognition time is fairly reasonable. Thereby making the system is efficient and effective.

Springer Link Search Log in

ORIGINAL ARTICLE | Published: 10 March 2018

An IoT-based waste management system monitored by cloud

Debajyoti Misra ✉, Gautam Das, [...]Debaprasad Das

Journal of Material Cycles and Waste Management
20, 1574–1582 (2018) | Cite this article

1176 Accesses | **17** Citations | **1** Altmetric | Metrics

Abstract

Clever solid waste bin is important to create a well-organized and dynamic waste management system. This paper presents the novel way of carrying out an

Abstract

Clever solid waste bin is important to create a well-organized and dynamic waste management system. This paper presents the novel way of carrying out an integrated sensing system which automates the solid waste management process. The proposed smart waste bin is based on ultrasonic-level sensor and various gas sensors which automatically sense the hazardous gases and the maximum limit of waste. The approach is unique and uses cloud and mobile app-based monitoring. Two important features of work are it not only checks the maximum waste level of the bin but also checks various stinky gases. The other part of the work is conveying the information to the responsible authority.

maximum waste level of the bin but also checks various stinky gases. The other part of the work is conveying the information to the responsible authority. This unique approach takes the assistance of cloud sever because of its advantages in field of usability, accessibility and disaster recovery. The information can be linked with municipality web server for immediate action. The waste bins are tracked by a unique number which represents its location. The eccentric technique gives all information related to physical condition of a particular bin and can easily reach the corresponding authority. The whole information is interconnected with a cloud-based web-information system at the host server.

Li-Fi: A Full-Fledged Wireless Communication Technology

April 2016 · International Journal of Science and Research (IJSR) 5(4)

Authors:

Samson Damilola Fabiyi
University of Strathclyde

Download full-text PDF

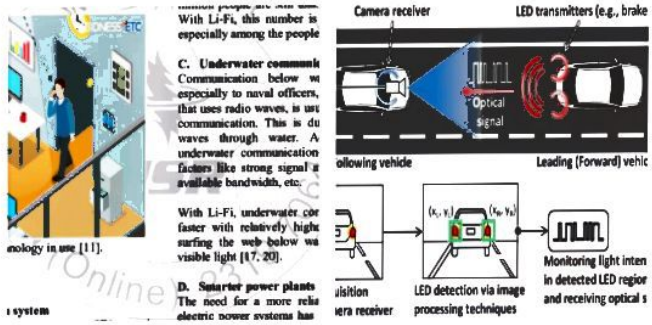
Citations (1) References (15) Figures (2

Abstract and Figures

Li-Fi, an acronym for light fidelity, is a new wireless communication technology put forward by Harald Haas from the University of Edinburgh. Until the evolution of Li-Fi, Wi-Fi (wireless fidelity) has been tipped by experts to be a potential replacement for cabled-communication. However, Wi-Fi has fallen short of this expectation due to certain loopholes and

Abstract and Figures

Li-Fi, an acronym for light fidelity, is a new wireless communication technology put forward by Harald Haas from the University of Edinburgh. Until the evolution of Li-Fi, Wi-Fi (wireless fidelity) has been tipped by experts to be a potential replacement for cabled-communication. However, Wi-Fi has fallen short of this expectation due to certain loopholes and limitations. This paper presents Li-Fi as a technology which has given wireless communication a broad edge over its wired counterpart. Li-Fi was extensively compared with Wi-Fi. Key advantages of Li-Fi over Wi-Fi were highlighted. Some of the applications of Li-Fi identified include: vehicular communication system, underwater communication, internet of things (IOT), smarter power plants, pipeline monitoring and green information technology. It has been projected that by 2018, Li-Fi technology market will reach $6,138.02 million. Due to its capability to provide a relatively easier, cheaper, faster and more secure communication, Li-Fi has been branded as a cutting edge technology with a prospect of replacing Wi-Fi. Li-Fi is a full-fledged wireless communication technology that leaves users with no room for any excuse to resort to the outdating cabled-communication.



Block diagram of a typical Li-... V2V communicati...

An Approach for System Risk Assessment and Mitigation by Optimal Operation of Wind Farm and FACTS Devices in a Centralized Competitive Power Market

Publisher: IEEE

Cite This

Subhojit Dawn ; Prashant Kumar Tiwari ; Arup ...

Sign In or Purchase

2
Paper
Citations

493
Full
Text Views

Abstract | Authors | Figures | Refere

Abstract:A high-speed degradation in the raw materials of the conventional energy sources

Abstract:A high-speed degradation in the raw materials of the conventional energy sources forces the whole world toward the use of renewable energy as electrical sources. Renewable energy is not only used for fulfillment of the rapidly increased electricity demands, but also minimizes the system economic risks in competitive power markets. This paper proposes a simple and efficient approach for curtailing the system risk in the deregulated power systems. The optimal placement and operation of wind generators and flexible alternating current transmission system (FACTS) devices are determined, which ensure considerable profit and social welfare achievements by minimizing the system economical risk. Two new indices named marginal pricing index and marginal congestion index have also been proposed to identify the most critical buses and lines in terms of pricing and MVA flows, respectively. These indices help place the wind generators and FACTS devices optimally. The value-at-risk (VaR) and conditional-value-at-risk (CVaR) have also been incorporated as risk assessment tools in the considered systems. The relation between VaR and CVaR with social welfare and generation cost has also been highlighted in this work. The modified IEEE 14-bus and practical 39-Bus New England systems have been considered for validating the effectiveness of the proposed approach. **View less**

Feedback

IET Renewable Power Generation / Volume 12, Issue 10
/ p. 1189-1202

Research Article | Free Access

Efficient approach for establishing the economic and operating reliability via optimal coordination of wind–PSH–solar-storage hybrid plant in highly uncertain double auction competitive power market

Subhojit Dawn ✉, Prashant Kumar Tiwari, Arup Kumar Goswami

First published: 29 June 2018
https://doi.org/10.1049/iet-rpg.2016.0897
Citations: 13

Abstract

Subhojit Dawn ✉, Prashant Kumar Tiwari, Arup Kumar Goswami

First published: 29 June 2018
https://doi.org/10.1049/iet-rpg.2016.0897
Citations: 13

Abstract

This study presents a two-stage competent and efficient approach for optimal operation of wind–pumped-storage-hydro (PSH)–solar–thermal-storage hybrid power plant to get maximum system revenue and profit along with maintaining the grid frequency. The wind speed is predicted for a deregulated market and accordingly, the wind plants are committed to supplying the demand. The operation of PSH, battery and solar power are considered in order to minimise the

operation of PSH, battery and solar power are considered in order to minimise the adverse effect of imbalance cost which comes into the picture due to the mismatch between actual and predicted wind power. The proposed operating strategy for the complex hybrid plant helps to reduce the uncertainty of renewable power sources in an economical manner. Two new energy levels associated with pumped storage, i.e. PE_{opt} and PE_{low} and four energy levels associated with the battery, i.e. BE_{max}, BE_{opt}, BE_{low} and BE_{min} have been considered in this work to show the robustness of the proposed strategy. The proposed approach is implemented and compared using Mi-Power, bat algorithm, particle swarm optimisation algorithm, genetic algorithm and cuckoo search algorithm. Modified IEEE 14-bus system is used to validate the effectiveness of the proposed approach. The bilateral contracts with a double auction bidding model for the competitive power market are also considered for the implementation.

Access through **your institution**

Purchase PDF

Volume 108, August 2017, Pages 230-243

An approach for efficient assessment of the performance of double auction competitive power market under variable imbalance cost due to high uncertain wind penetration

Subhojit Dawn ... Arup Kumar Goswami

Show more

Outline | Share Cite

https://doi.org/10.1016/j.renene.2017.02.061

Get rights and content

Access through **your institution**

Purchase PDF

Abstract

Wind power integration in an existing power system needs more attention due to its uncertain nature. If a difference creates between the actual and forecasted wind speeds and the power delivery contract is signed between the Generation Companies (GENCOs) and Distribution Companies (DISCOs) as per the forecasted speed, then the GENCOs may be awarded or penalized by the Independent System Operator (ISO) for their surplus or deficit power supply. This paper proposes an approach to assess the uncertainties of wind speed of the wind integrated electrical system within a completely deregulated environment. In this work, twelve spots in India have been chosen randomly for the application of the proposed approach and to verify the outcome of the proposed approach. The real time data for actual wind speed (AWS) and forecasted wind speed (FWS) of all selected spots have been also con
imbalance cost due to mismatch

FEEDBACK

Access through **your institution**

Purchase PDF

(DISCOs) as per the forecasted speed, then the GENCOs may be awarded or penalized by the Independent System Operator (ISO) for their surplus or deficit power supply. This paper proposes an approach to assess the uncertainties of wind speed of the wind integrated electrical system within a completely deregulated environment. In this work, twelve spots in India have been chosen randomly for the application of the proposed approach and to verify the outcome of the proposed approach. The real time data for actual wind speed (AWS) and forecasted wind speed (FWS) of all selected spots have been also considered. The imbalance cost due to mismatch between the forecasted and actual wind speeds is evaluating by formulation of surplus charge rate and deficit charge rate. Modified IEEE 14-bus and modified IEEE 30-bus systems are considered for analyzing the effectiveness of the proposed approach.

Review on Power Quality Issues and Its Solution For Better Electrical Reliability In Power System.

International Journal of Computational Intelligence & IoT, Vol. 2, No. 2, 2019

4 Pages
Posted: 21 Mar 2019

Rubi Kumari
Siliguri Institute of Technology

Nirban Chakraborty
Siliguri Institute of Technology

Shreya Shree Das
Siliguri Institute of Technology

Date Written: March 19, 2019

Abstract

The demand for the electrical energy has increased at a

Shreya Shree Das
Siliguri Institute of Technology

Date Written: March 19, 2019

Abstract

The demand for the electrical energy has increased at a rapid speed and it is still growing with a fast pace. Due to this there has been a rapid increase in the number of Power Plants. These electrical distributions have led to large losses because of varying load demands, lack of reactive power compensation techniques and many more. The main purpose of improving the power quality in the transmission lines is to provide continuous power at constant sinusoidal voltage and frequency. But, practically the power distribution system comprises of loads which are non-linear in nature and ultimately leads to poor power quality in the system. This review paper explains about the various sources, causes that leads to poor power quality and its solution in practical life.

Suggested Citation >

Show Contact Information >

Springer Link Search Menu

Advances in Power Systems and Energy Management pp 465-476 | Cite as

Adaptive PI Control of STATCOM for Stability Improvement of Power System

Authors Authors and affiliations

Rubi Kumari, Chitrangada Roy

Chapter

First Online: 28 November 2017

967

Downloads

Part of the Lecture Notes in Electrical Engineering book series (LNEE, volume 436)

Abstract

Abstract

The power system today has become a very complicated network with thousands of generating stations, distribution and load centres which are interconnected through power transmission lines. So, the sudden increase of load in order to meet the demand leads to voltage instability in the power system. For overbear the steady-state control difficulties in power systems, Flexible Alternating Current Transmission Systems (FACTS) controllers came into use. Among various FACTS controllers, Static Shunt Compensators shortly termed as STATCOM are efficient enough to provides instantaneous requirement of reactive power support to maintain stability of voltage in the power system. The STATCOM with proportional integral (PI) controllers act as a trail-and-error approach because the PI controller parameters are not fixed. This paper proposes a new control method where PI controllers will self-adjust their control parameters at the time of any disturbances or

support to maintain stability of voltage in the power system. The STATCOM with proportional integral (PI) controllers act as a trail-and-error approach because the PI controller parameters are not fixed. This paper proposes a new control method where PI controllers will self-adjust their control parameters at the time of any disturbances or variation in the load so that the performance of the power system will match the desired response, despite of any change in the operating conditions. The projected work was enforced in MATLAB/SIMULINK.

Keywords

Static synchronous compensator (STATCOM)

State-space vector pulse width modulation (SVPWM)

Flexible alternating current transmission system (FACTS)

Voltage source converter (VSC)

Springer Link Search Menu

Advances in Power Systems and Energy Management
pp 355-365 | Cite as

Modeling of the State Space Vector PWM (SVPWM) Based STATCOM for Voltage Improvement in the Transmission Line

Authors Authors and affiliations

Rubi Kumari, Chitrangada Roy

Chapter
First Online: 28 November 2017

939
Downloads

Part of the Lecture Notes in Electrical Engineering book series (LNEE, volume 436)

Abstract

In the present era, the increase in population has led to the increase of load as a result the generated voltage is not equal to the received voltage. This has affected the stability of the power system. Flexible Alternating Current Transmission Devices shortly termed as FACTS devices came into use for better voltage regulation and stability in the power system. A Static Synchronous Compensators (STATCOM) is the most effective device among all the other FACTS devices. This paper explains about the State Space Vector Pulse Width Modulation (SVPWM) technique used for generating pulses in the STATCOM to maintain the voltage stability of transmission line in more efficient way. The proposed STATCOM model is able to compensate the voltage dip at 0.6 s transient time due to addition of load in the system. The entire project has been conducted in the MATLAB software

Review on Power Quality Issues and Its Solution For Better Electrical Reliability In Power System.

International Journal of Computational Intelligence & IoT, Vol. 2, No. 2, 2019

4 Pages
Posted: 21 Mar 2019

Rubi Kumari
Siliguri Institute of Technology

Nirban Chakraborty
Siliguri Institute of Technology

Shreya Shree Das
Siliguri Institute of Technology

Date Written: March 19, 2019

Abstract

The demand for the electrical energy has increased at a rapid speed and it is still growing with a fast pace. Due to this there has been a rapid increase in the number of

Shreya Shree Das
Siliguri Institute of Technology

Date Written: March 19, 2019

Abstract

The demand for the electrical energy has increased at a rapid speed and it is still growing with a fast pace. Due to this there has been a rapid increase in the number of Power Plants. These electrical distributions have led to large losses because of varying load demands, lack of reactive power compensation techniques and many more. The main purpose of improving the power quality in the transmission lines is to provide continuous power at constant sinusoidal voltage and frequency. But, practically the power distribution system comprises of loads which are non-linear in nature and ultimately leads to poor power quality in the system. This review paper explains about the various sources, causes that leads to poor power quality and its solution in practical life.

Suggested Citation >

Show Contact Information >

Level of service for on-street parking

March 2017 · KSCE Journal of Civil Engineering

DOI:10.1007/s12205-017-1538-1

Project: On-street parking demand estimation in urban CBD

Authors:

Debasish Das
JIS COLLEGE OF ENGINEERING

Mokaddes Ali Ahmed
National Institute of Technology, Silchar

Download full-text PDF

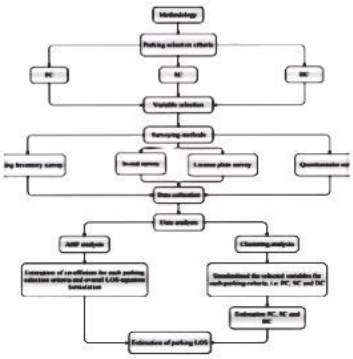
Citations (6) References (25) Figures (1

Abstract and Figures

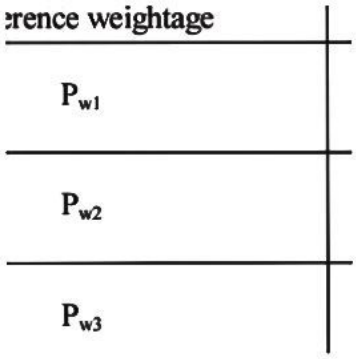
Parking of vehicle is one of the most important issues

Abstract and Figures

Parking of vehicle is one of the most important issues of the urban transportation system in any Central Business District (CBD). A sharp rise in vehicular ownership and insufficient transit system give rise to the huge on-street parking demand leading to a reduction in effective carriageway width, flow speed, creating unnecessary congestion, etc. The problems can be controlled by providing an efficient parking system. The present study aims to estimate the Level of Service (LOS) of on-street parking. LOS is calculated based on three parking selection criteria, viz. Parking Characteristic (PC), Safety Characteristic (SC) and Design Characteristic (DC). Four CBDs of Kolkata Metropolitan Area (KMA) are selected as a case study area. The overall LOS equation is formulated by Analytic Hierarchy Process (AHP). Cluster analysis and Zero dimension process are used to standardize the variables to designated LOS. Various surveys are carried out for data collection. The data are analyzed using SPSS. Finally, the overall LOS for on-street parking is estimated for all the selected CBDs.



Methodology Flow Chart



. Calculation of Priority Vector

Survey Locations and...

IMPACT: International Journal of Research in Humanities, Arts and Literature (IMPACT: IJRHAL)
ISSN (P): 2347-4564; ISSN (E): 2321-8878
Vol. 6, Issue 12, Dec 2018, 403-408
© Impact Journals

A STUDY ON CRYPTOCURRENCY POTENTIAL IN INDIA

Shuvendu Dey, Paramita Choudhury & Santana Guha

Assistant Professor, Department of Business Administration, Siliguri Institute of Technology, Siliguri, West Bengal, India

Received: 18 Dec 2018 **Accepted:** 27 Dec 2018 **Published:** 31 Dec 2018

ABSTRACT

The recent boom in cryptocurrencies has gathered a lot of attention from everyone around the globe. The year 2017 saw a hefty rise in the value of Bitcoins making it a household name. However, this wasn't enough for India to accept it as a legal tender and the future of cryptocurrency in India is still uncertain. This study was conducted to understand the potential of Bitcoins in India. Bitcoin is a unique exchange mode compared to a typical bank as the transactions are verified by network nodes and written in a publicly distributed book called Blockchain. The price of the bit currency is variable and they are considered high-risk assets as transactions can be reimbursed but cannot be reversed. Bitcoin was born in January 2009 when Nakamoto Satoshi extracted the first block of the Bitco Block. Since then, many followers have made deals and received coins of little value. Countries around the world began to accept small currencies as legitimate forms of currency. But India has not legitimized the use of this call for a variety of reasons. The purpose of this document is to understand the recognition of the existence of bit currencies and to evaluate the potential of bit currencies in India

KEYWORDS: *Bitcoins, Cryptocurrency, Blockchain, India*

INTRODUCTION

The world came to know about cryptocurrency when Satoshi Nakamoto published a paper about a new type of currency called Bitcoins (Nakamoto, 2008). Therefore it can be surmised that Bitcoin was founded by the anonymous Satoshi Nakamoto in a white paper and released in 2009. A cryptocurrency is a digital asset intended as a medium of exchange that uses cryptography to secure its transactions, to control the creation of additional units, and to validate the transfer of assets. Bitcoin is a cryptocurrency and worldwide payment system. It is the first digital currency to work as a decentralized system works without any central bank control and the network is peer-to-peer with the transactions taking place between users without an intermediary. These transactions are confirmed by network nodes using cryptography and recorded in a public distributed ledger called a Blockchain.

Bitcoin transactions are considered unstable and the price of this currency is very volatile which increases or decreases without notice. Transactions made with cryptocurrency cannot be reversed and the person who receives the money can only make a refund. Hence, if deals are not made with people who are familiar and reliable, the money sent by people from their accounts is not guaranteed. Also, every bit currency transaction is stored on the network, and anyone can see the transaction and the balance, although the identity of the user behind a particular currency address is concealed unless the user discloses the information.

A STUDY ON OPPORTUNITIES AND CHALLENGES OF CRYPTOCURRENCY IN INDIA WITH SPECIAL REFERENCE TO BITCOIN

DR. ANIL KUMAR V.V[1] & SWATHY. P[2]

[1]Associate Professor and Head, Post Graduate Department of Commerce, N.S.S Hindu College, Changanassery, Kottayam, Kerala

[2]Research and Post Graduate Department of Commerce, St. Berchmans College Changanacherry, Kottayam, Kerala

Received: February 06, 2019 Accepted: March 13, 2019

ABSTRACT: *From a few years onwards cryptocurrencies and Bitcoin grab a hot topic in the financial industry. Cryptocurrency is a digital or virtual or internet currency that uses cryptography for security. Cryptocurrency has created unmatched changes in the financial market having both positive and negative contributions. The concept of cryptocurrency is a little hard to accept, but it is easy to use. It is considered difficult because it is entirely different from our conventional currencies that we people are using since ages.Bitcoin was created in the wake of the 2008 global financial crisis to operate outside of governments, central banks and financial institutions. Since then, Bitcoin's framework has challenged many regulators, as most of them struggled to find ways to bring it under control. This led to some countries banning it or making it illegal, while some others remained observant and the rest worked out ways to tax and regulate its operations. This is a conceptual papertries to studythe different aspects of cryptocurrencies, starting with their history, types, its working, advantages and disadvantages, challenges and opportunities. The study also tries to analyse the legal status of Bitcoin in India.*

Key Words: *: Cryptocurrency, Bitcoin, blockchain, Advantages, Disadvantages, Challenges.*

INTRODUCTION

The instruments used as exchange instruments to make the trade transactions as easy as possible according to the market needs have experienceda huge development and change. Those instruments used to intermediate the exchange of goods are known as money. Money as something that serves as a medium of exchange, an unit of accounting, and a store of value. Money is a medium of exchange in the sense that we all agree to accept it in making transactions. Merchants agree to accept money in exchange for their goods; employees agree to accept money in exchange for their labor. As a unit of accounting, money provides a simple device for identifying and communicating value. Money serves as a store of value in that it allows us to store the rewards of our labor or business in a convenient tool.From the era of barter to commodity money, metal and coins, to gold and silver, continuing by modern monetary systems and checks and ending with the latest global currency developments, such as introduction of cryptocurrencies known as Bitcoin and Ethereum and alike.. The introduction of cryptocurrencies has revolutionized the international payment system in a scale that just few years ago were unimaginable. A cryptocurrency is a digital or virtual currency that uses cryptography for security.In 1983, the American cryptographer DavidChaum conceived an anonymous cryptographic electronic money called e-cash. Later, in 1995, he implemented it through Digicash,an early form of cryptographic electronic payments which required user software in order to withdraw notes from a bank and designate specific encrypted keys before it can be sent to a recipient. This allowed the digital currency to be untraceable by the issuing bank, the government, or any third party.A cryptocurrency is difficult to counterfeit because of its security feature. A defining feature of a cryptocurrency is that it is not issued by any central authority. It is completely decentralized

OBJECTIVES OF THE STUDY

- To understand the concept of crypto currency, its working, its types and the top player Bitcoin.
- To study the advantages and drawbacks of Bitcoin.
- To analysethe legal status, challenges and opportunities of Bitcoin in India.

RESEARCH METHODOLOGY

This paper is purely based on secondary data referring to various sources such as journals, newspaper articles, websites and statutory reports.

Menu
SAGE journals
Search Accounts
Cart

Vision: The Journal of Business Perspective

Case Analysis I: Closed Tea Estates— A Case Study of the Dooars Region of West Bengal, India

Shuvendu Dey

First Published August 7, 2018 | Case Report

Check for updates

https://doi.org/10.1177/0972262918788227

Altmetric 0

IJEMR – November 2017 - Vol 7 Issue 11 - Online - ISSN 2249–2585 Print - ISSN 2249-8672

Park Tourists Behavioral Loyalty in India: A Study on Revisit Intention and Willingness to Recommend *Doors* as a Tourism Destination

*** Dr. Debasis Bhattacharya**
**** Dr. Shuvendu Dey**

* Associate Professor, Department of Commerce, University of North Bengal, Raja Rammohanpur, Siliguri-734013, India, Ph: 0353-2580992,
** Asst Professor, Department of Business Administration, Siliguri Institute of Technology, Salbari, Sukna, Siliguri-734009, India, Ph: 0353-2778000/2/4,

Abstract

Park tourism is a relatively new concept in tourism which may be considered as a purposeful travel to natural areas to comprehend the cultural and natural history of surroundings without disturbing the ecosystem. Park tourism is supposed to generate economic opportunities for the local people who do not have much option to enhance their economic condition. Like ecotourism, park tourism also promises the sustainable use of natural resources without degrading the natural environment. Growth in income and changing life style orientations has increased the demand for tourism, including nature-based tourism. There is a tremendous demand for nature based tourism in India though the scope is limited due to fragmented size of forest available for sustainable development of park tourism which is a form of ecotourism endeavor. The study conducted in the past revealed that in India a total of 590 protected areas cover less than five percent of total land area which are relatively smaller in size(average size is less than 300 square Km) and having a high density of population who are very poor.

A plethora of past studies in the field of destination satisfaction reveals that that visitor satisfaction is the basic factor behind the growth of tourism industries all over the world. Researchers and practitioners have focused a great deal to address various issues concerning the service quality, tourist satisfaction, behavioral intentions and satisfied tourist spreading positive word of mouth communication. However, there is a dearth of empirical research establishing the relationship between perceived service quality and satisfaction of visitors going to destinations surrounding parks and wildlife sanctuaries. This study investigates these service quality issues within the ecotourism initiatives adjoining the National Park and Wild Life Sanctuaries in the *Doors* region. This study included a questionnaire survey of visitors in the vicinity of *Gorumara* National Park. That data on visitors' satisfaction have been gathered by personally administering a questionnaire from tourists visiting different resorts surrounding the National Park and Wild Life Sanctuaries. The study makes several significant theoretical and managerial contributions. The key finding is that the behavioral intention to recommend the destination can be predicted as revealed by the magnitude of the goodness of fit of the multiple regression model. Similarly, it is interesting to note that the willingness to revisit the destination is significantly associated with the quality of holiday satisfaction perceived by the visitors. The Structural Equation Model (SEM) also corroborates the findings as reported above. Conclusions and managerial implications are also discussed to improve the quality of service delivered to enhance the image of the destination.

Key Words: Park, Tourism, Satisfaction, IPA, Behavioral Intentions, SEM

Access through **your institution**

Purchase PDF

Journal of Non-Crystalline Solids

Volume 452, 15 November 2016, Pages 169-175

Electrical relaxation and grain boundary effect in CdI_2 doped glass-nanocomposites

Arun Kr. Bar [a, b] ... Sanjib Bhattacharya [d]

Show more

Outline | Share Cite

https://doi.org/10.1016/j.jnoncrysol.2016.08.040

Get rights and content

Access through **your institution**

Purchase PDF

Abstract

Electrical relaxation in CdI_2 doped $Ag_2O–V_2O_5–ZnO$ glass-nanocomposites has been studied using complex modulus formalism. The conductivity formalism has been attempted to explain conductivity spectra due to leaving off of the conductivity in the lower frequency region. This lower frequency conductivity is not distinct due to grain boundary effect. The formation of grain boundary region causes the non-uniform motion of Ag^+ in the lower frequency region. Non-Debye type relaxation of Ag^+ has been analyzed by invoking Kohlrausch-Williams-Watts function. It is observed that relaxation time (τ_m) increases up to x = 0.1 and then decreases. Formation of grain boundary and Ag_3VO_4, $Zn_2V_2O_7$, $Ag_4V_2O_7$, CdV_2O_6 and $Cd_2V_2O_7$ nanocrystallites play important role in the variation of relaxation time. The stretched exponent (β) values indicate strong ion-ion interaction between

Access through **your institution**

Purchase PDF

formalism has been attempted to explain conductivity spectra due to leaving off of the conductivity in the lower frequency region. This lower frequency conductivity is not distinct due to grain boundary effect. The formation of grain boundary region causes the non-uniform motion of Ag^+ in the lower frequency region. Non-Debye type relaxation of Ag^+ has been analyzed by invoking Kohlrausch-Williams-Watts function. It is observed that relaxation time (τ_m) increases up to x = 0.1 and then decreases. Formation of grain boundary and Ag_3VO_4, $Zn_2V_2O_7$, $Ag_4V_2O_7$, CdV_2O_6 and $Cd_2V_2O_7$ nanocrystallites play important role in the variation of relaxation time. The stretched exponent (β) values indicate strong ion-ion interaction between mobile Ag^+ ions and a strong correlated motion, which makes the relaxation-process non-Debye type.

FEEDBACK

DURGA PUJA: Blending of Festive Rituals with Brand Building Exercise

Shomnath Dutta

Durga Puja for the Bengalis is much more than a festival. It is a carnival and an emotion that marks the time of happy tides. Families immerse themselves in this five-day gala of awesome food, pandal hopping, music and cultural evenings and welcoming Ma Durga back to her paternal home. Durga Puja is actually, the celebration of 'life' and the joy of 'living' more than anything else. It's like all the joys of this 'City of Joy'; Kolkata is out on its very streets. Durga Puja becomes an expression of the city itself & these pujas of Kolkata are thus not just an annual festival or the carnival of the city, nor are they even the most vivid symbols of Bengali culture. They are, in fact, the best exhibitions of creative spirit that manifests itself through the popular arts and they are also the most appropriate occasion to be in the city of joy and freedom, to soar high on the wings of human spirit that knows no bounds for four blessed days. Durga Puja today is, no doubt, commoditized primarily through corporate sponsorship and the heavy buying and selling that this annual festivity of Bengali Hindus involves. With this came the trend for giving awards to pujas in several separate categories (idol, decoration, artwork, lighting, music, crowd management, and so on) by the

ScienceDirect

View PDF

Access through your institution

Purchase PDF

Physica B: Condensed Matter

Volume 507, 15 February 2017, Pages 107-113

Microstructure, electrical conductivity and modulus spectra of CdI_2 doped nanocomposite-electrolytes

Ranadip Kundu [a, b] ... Sanjib Bhattacharya [a]

Show more

Outline | Share Cite

Access through **your institution**

Purchase PDF

Abstract

Ionic conductivity and dielectric behavior of Ag_2O–CdI_2–CdO nanocomposite system have been studied. X-ray diffraction has been carried out to obtain the crystallite sizes and the growth of CdO dispersed in glass-matrices. Total conductivity of them shows thermally activated nature. It is observed that total conductivity decreases and corresponding activation energy for conduction follows opposite behavior. The high-frequency ac conductivity may correspond to a nonrandom, correlated and sub-diffusive motion of Ag^+ ions. Conductivity relaxation time is found to increase. The nature of scaling of the conductivity as well as modulus spectra indicates that the electrical relaxation of Ag^+ is temperature independent but depends upon composition.

ScienceDirect

View PDF

Access through your institution

Purchase PDF

Journal of Non-Crystalline Solids

Volume 460, 15 March 2017, Pages 29-35

Formation of nano-phases and study of transition metal oxide doped glassy systems

Sanjib Bhattacharya [a] ... Debasish Roy [d]

Show more

Outline | Share | Cite

https://doi.org/10.1016/j.jnoncrysol.2017.01.020

Get rights and content

FEEDBACK

Access through **your institution**

Purchase PDF

Abstract

Glassy systems, $0.3V_2O_5$–$0.7(0.05\ A_mO_n$–$0.95\ ZnO)$ where, $A_mO_n = MoO_3$, Nd_2O_3, CdO, and SeO_2 respectively have been prepared by melt quenching route. Crystallite sizes of new phases $Zn_3V_2MoO_{11}$ and $Zn_{2.5}VMoO_8$, $NdVO_4$, $Cd_2V_2O_7$ and $ZnVSe_2O_7$ have been estimated from XRD studies. Average sizes of $ZnVSe_2O_7$ and $Zn_3V_2MoO_{11}$ are found to be maximum and minimum in SeO_2 and MoO_3 doped glassy systems respectively. Bond weakening in SeO_2 doped glassy system is maximum. More number of bond breaking may increase the more number of cluster formation and may offer high resistive path for electron or polaron conduction. The present glassy systems behave as an indirect gap semiconductor. The variation of dc conductivity data with reciprocal temperature indicates small polaron hopping conduction in transition metal oxide glassy system. The electrical measurement data also show that dc conductivity increases with increasing polaron radius. The th

FEEDBACK

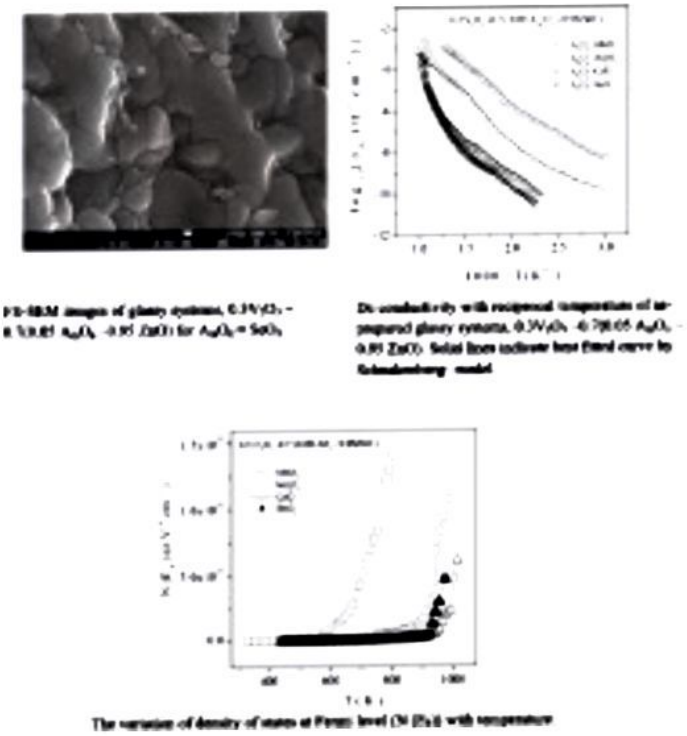
View **PDF**

Access through **your institution**

Purchase PDF

data also show that dc conductivity increases with increasing polaron radius. The threshold temperature (T_H) for sharply increasing density of states at Fermi level shows minimum for MoO_3 doped glassy system.

Graphical abstract



Download : Download high-res image (132KB)

Download : Download full-size image

Issue 14, 2017, Issue in Progress

Previous Next

From the journal:
RSC Advances

Positron annihilation studies and complementary experimental characterization of xAg_2O–$(1 - x)(0.3CdO$–$0.7MoO_3)$ metal oxide glass nanocomposites†

Check for updates

Ranadip Kundu, ‡*[a] Sanjib Bhattacharya,[b] Debasish Roy[a] and P. M. G. Nambissan[c]

Author affiliations

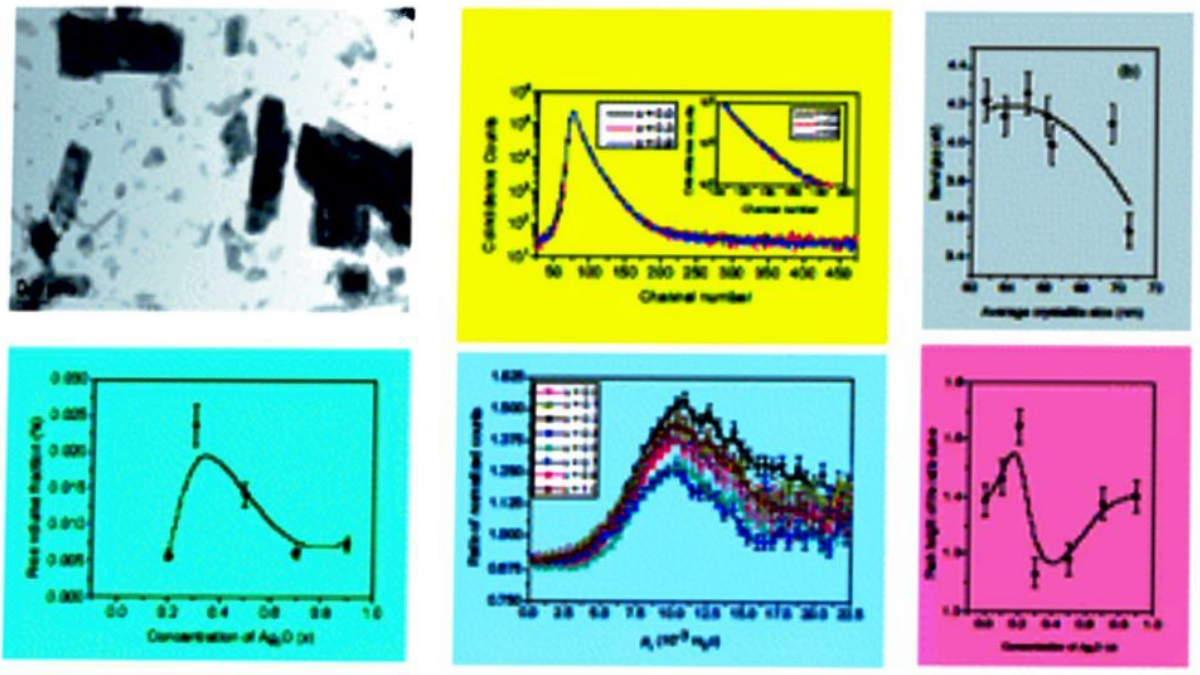
Abstract

Metal oxide nanocomposites of the composition xAg_2O–$(1$

Abstract

Metal oxide nanocomposites of the composition $x$$Ag_2O$–(1 – x)(0.3CdO–0.7MoO_3) were prepared by a melt-quenching method and were characterized by different experimental techniques like X-ray diffraction, high resolution transmission electron microscopy and optical absorption spectroscopy. X-ray diffraction showed sharp diffraction peaks indicating large crystallites but transmission electron microscope images also showed crystallites of nanometer dimensions in appreciable concentrations, which confirmed the nanocomposite structure of the samples. Although the lattice constants did not show significant changes with the increase in concentration (x) of Ag_2O, there is considerable relaxation of the growth-induced strain above x = 0.2. Interestingly this is also the concentration above which the optical band gap energy showed a mild decrease. One salient feature of this study is the use of positron annihilation spectroscopy for identifying and monitoring the structural defects such as vacancies and vacancy clusters as well as the free volume cavities during the change in concentration of Ag_2O. Positron lifetime measurements indicated trapping of positrons initially in the interfacial defects within the 0.3CdO–0.7MoO_3 nanocrystalline ensemble and then in

$0.3CdO–0.7MoO_3$ nanocrystalline ensemble and then in the free volume defects within the amorphous Ag_2O matrix. At higher Ag_2O concentrations, positron trapping appeared to take place within the Cd^{2+}-monovacancies in CdO and in the divacancies of neighbouring cationic and oxygen monovacancies in the α-MoO_3 and $CdMoO_4$ nanocrystallites. At $x = 0.1–0.2$, the effective positron trapping centres are translocated to the tetrahedral Mo^{6+}-monovacancies instead of the Cd^{2+}-monovacancies. The results of coincidence Doppler broadening spectroscopic measurements, which map the electron momentum distribution and its variations, indicated increasing trapping of positrons with increasing concentration of Ag_2O, which again is attributed to the trapping sites in the increasing number of nanocrystallites being formed.



ScienceDirect

View PDF

Access through your institution

Purchase PDF

Materials Chemistry and Physics

Volume 199, 15 September 2017, Pages 322-328

Anomalous electrical conductivity in selenite glassy nanocomposites

Arun Kr Bar [a, b] ... Sanjib Bhattacharya [d]

Show more

Outline | Share Cite

https://doi.org/10.1016/j.matchemphys.2017.07.004

Get rights and content

Access through **your institution**

Purchase PDF

Abstract

CuI doped selenite glass-nanocomposite system has been prepared using melt-quenching route. Their microstructure and electrical transport properties have been studied. It is observed from X-ray diffraction (XRD) study that the size of $CuSeO_3$ nanocrystallite is found to be almost same, but the variation of selenium oxide nanoparticles does not follow any trend. Fourier transform infrared spectra (FT-IR) reveal that major bands are attributed to the Se—O stretching vibration. We have investigated the electrical conductivity of these glass-nanocomposites in a wide frequency and temperature range. Dc conductivity show thermally activated anomalous nature, which may be explained from their structural point of view. Ac conductivity data have been analyzed using a power law model. It has been observed that mobile ion concentration is independent of temperature.

Access through **your institution**

Purchase PDF

Se—O stretching vibration. We have investigated the electrical conductivity of these glass-nanocomposites in a wide frequency and temperature range. Dc conductivity show thermally activated anomalous nature, which may be explained from their structural point of view. Ac conductivity data have been analyzed using a power law model. It has been observed that mobile ion concentration is independent of temperature. Conductivity relaxation time has been calculated from the modulus formalism and shows thermally activated nature. The nature of variation of corresponding activation energy indicates that ionic relaxation starts for higher CuI content. A schematic model has been proposed to explain the transformation of chains into clusters in the compositions and formation of more bridging Se—O—Se bonds, which results an enhancement of ionic conductivity of the present glass-nanocomposite system.

ChemistrySelect / Volume 2, Issue 21 / p. 6100-6108

Full Paper

Study of Electrical Transport of Ag_2O – CdO – MoO_3 Glass-Nanocomposite-Semiconductor

Ranadip Kundu,Dr. Debasish Roy,
Dr. Sanjib Bhattacharya

First published: 27 July 2017
https://doi.org/10.1002/slct.201700255
Citations: 1

Read the full text > | About

Abstract

Two series of semiconducting glass-

Abstract

Two series of semiconducting glass-nanocomposites xAg_2O – (1-x) (0.1CdO – 0.9 MoO_3) and 0.3 Ag_2O – 0.7 (yCdO – (1-y) MoO_3) is prepared by melt-quenching route. The formation of Ag_2MoO_4, $Ag_2Mo_2O_7$ and $Ag_6Mo_{10}O_{33}$ nanocrystallites and CdO nanoparticles in glass-nanocomposites is confirmed by the study of X-ray diffraction (XRD) and field emission- scanning electron microscopic (FE-SEM). The Fourier transform infrared (FT-IR) spectra are being taken to find out stretching vibrations of monomeric tetrahedral orthomolybdate ion MoO_4^{2-} as well as stretching vibrations of $Mo_2O_7^{2-}$ ions. Micro-hardness of the as-prepared samples is found to increase with load and shows a maximum for a particular load for different methods (Vicker's and Knoop's) and different compositions. The dc conductivity is described based on the polaron hopping approach to a wide temperature range. The variable range hopping Mott's (Greave's) model is employed to analyze the conductivity data at low (high) temperatures. The frequency exponent data show that ac

is prepared by melt-quenching route. The formation of Ag_2MoO_4, $Ag_2Mo_2O_7$ and $Ag_6Mo_{10}O_{33}$ nanocrystallites and CdO nanoparticles in glass-nanocomposites is confirmed by the study of X-ray diffraction (XRD) and field emission- scanning electron microscopic (FE-SEM). The Fourier transform infrared (FT-IR) spectra are being taken to find out stretching vibrations of monomeric tetrahedral orthomolybdate ion MoO_4^{2-} as well as stretching vibrations of $Mo_2O_7^{2-}$ ions. Micro-hardness of the as-prepared samples is found to increase with load and shows a maximum for a particular load for different methods (Vicker's and Knoop's) and different compositions. The dc conductivity is described based on the polaron hopping approach to a wide temperature range. The variable range hopping Mott's (Greave's) model is employed to analyze the conductivity data at low (high) temperatures. The frequency exponent data show that ac conductivity is consistent with overlapping large polaron-tunnelling (OLPT) model at all temperature.

ScienceDirect

View PDF

Access through your institution

Purchase PDF

Physica B: Condensed Matter

Volume 507, 15 February 2017, Pages 107-113

Microstructure, electrical conductivity and modulus spectra of CdI_2 doped nanocomposite-electrolytes

Ranadip Kundu [a, b] ... Sanjib Bhattacharya [a]

Show more

Outline | Share Cite

Access through **your institution**

Purchase PDF

https://doi.org/10.1016/j.physb.2016.11.036

Get rights and content

Abstract

Ionic conductivity and dielectric behavior of Ag_2O–CdI_2–CdO nanocomposite system have been studied. X-ray diffraction has been carried out to obtain the crystallite sizes and the growth of CdO dispersed in glass-matrices. Total conductivity of them shows thermally activated nature. It is observed that total conductivity decreases and corresponding activation energy for conduction follows opposite behavior. The high-frequency ac conductivity may correspond to a nonrandom, correlated and sub-diffusive motion of Ag^+ ions. Conductivity relaxation time is found to increase. The nature of scaling of the conductivity as well as modulus spectra indicates that the electrical relaxation of Ag^+ is temperature independent but depends upon composition.

FEEDBACK

V2O5-MoO3-ZnO thick film resistors as highly selective trace level ethanol gas sensors

Publisher: IEEE

Cite This

Anindya Sundar Das ; Madhab Roy ; D. R. Patil ; Koyel...

Sign In or Purchase

55
Full
Text Views

Abstract: The Glass nanocomposite materials in the form of fine granular powders were synthesized by conventional melt quenching technique. Thick films of the synthesized powders were fabricated by screen printing technique, followed by firing at 100 ^{o} C, for 2 hours. Upon exposure to 50 ppm ethanol gas, due to oxidation or reduction reaction at the surface of the as prepared nanocomposite materials with the target gas, exchange of electrons take place thereby affecting the sensor's resistance greatly leading to drastic change in conductance. The glass nanocomposite of composition xV_2O_5-(1-x) ($0.05MoO_3$-0.95ZnO) where x = 0.95 (sample-C) was observed to most sensitive to ethanol at room temperature. The surface misfits, operating temperature, gas concentrations, etc. affect the microstructure and gas sensing performance of the sensing element. The quick response and fast recovery are the main features of this sensor. The microstructure of the as prepared glass nanocomposites was analyzed to study the gas response and selectivity of the sensor in the presence of ethanol and some other gases also. **View less**

Access through **your institution**

Purchase PDF

Construction and Building Materials

Volume 158, 15 January 2018, Pages 516-534

Intelligently designed fly-ash based hybrid composites with very high hardness and Young's modulus

Dipak Kr Chanda [a], Subhro Roy Chowdhury [b], Manjima Bhattacharya [a, c], Ashok Kumar Mandal [a], Nitai Dey [a], Anoop Kumar Mukhopadhyay [a]

Access through **your institution**

Purchase PDF

Abstract

Currently, India generates annually about 112 million tones of fly ash (FA), as an industrial waste from thermal power plants. As part of the global journey to convert waste to wealth here we report the intelligent design based synthesis of FA based hybrid composites with spectacular improvement in Young's modulus and nanohardness. The novel design approach utilized alkali activation as well as simultaneous reinforcements of the porous FA matrix with a layered white china clay (WCC) and chopped E glass fiber. The developed materials were subsequently characterized by nanoindentation technique, pH measurement, alkali dissolution, FESEM, etc. techniques to evolve the structure-property correlation. The optimized design and optimal alkali activation lead to achievements of about 233% and 545% enhancements in Young's modulus and hardness, respectively. These results are rationalized in terms of chemical analysis, Si:Al

Access through **your institution**

Purchase PDF

in Young's modulus and nanohardness. The novel design approach utilized alkali activation as well as simultaneous reinforcements of the porous FA matrix with a layered white china clay (WCC) and chopped E glass fiber. The developed materials were subsequently characterized by nanoindentation technique, pH measurement, alkali dissolution, FESEM, etc. techniques to evolve the structure-property correlation. The optimized design and optimal alkali activation lead to achievements of about 233% and 545% enhancements in Young's modulus and hardness, respectively. These results are rationalized in terms of chemical analysis, Si:Al ratio, presence of silicate network modifiers e.g., Na_2O and CaO, microstructure, density, extent of polymerization due to alkali activation, processing condition and elastic recovery as well as the ratio of energy spent in elastic and plastic deformations during the nanoindentation processes. Finally, a schematic model is proposed to explain the experimental observations.

FEEDBACK

Materials Research Express

PAPER

Transparent Al^{+3} doped MgO thin films for functional applications

Payel Maiti[1], Pradip Sekhar Das[1], Manjima Bhattacharya[2], Smita Mukherjee[1], Biswajit Saha[3], Awadesh Kumar Mullick[4] and Anoop Kumar Mukhopadhyay[1,5]

Published 14 August 2017 • © 2017 IOP Publishing Ltd

Materials Research Express, Volume 4, Number 8

Citation Payel Maiti *et al* 2017 *Mater. Res. Express* **4** 086405

218 Total downloads

PDF

Help

7

Abstract

The present work reports the utilization of a relatively simple, cost effective sol-gel technique based route to synthesize highly transparent, spin coated 4.1 at% Al^{+3} doped MgO thin films on quartz substrates. The films were characterized by XRD, XPS, Raman spectroscopy, and SIMS techniques. The microstructures were characterized by FESEM and TEM while the nanomechanical properties were assessed by the nanoindentation technique. Finally the optical transmittance was measured by UV–vis technique. The x-ray diffraction (XRD) study suggests the crystal facet (2 0 0) of MgO lattice to be distorted after incorporation of Al^{+3} into MgO lattice. From FESEM the doped films were found to have a dense microstructure with crystallite size of about 20 nm as revealed by the TEM studies. Nanoindentation measurements indicated drastic increase of elastic modulus for the Al^{+3} doped MgO thin films by ~73% compared to that of the pristine MgO thin films along with retaining the nanohardness at ~8 GPa. The

PDF
Help

technique. The x-ray diffraction (XRD) study suggests the crystal facet (2 0 0) of MgO lattice to be distorted after incorporation of Al^{+3} into MgO lattice. From FESEM the doped films were found to have a dense microstructure with a crystallite size of about 20 nm as revealed by the TEM studies. Nanoindentation measurements indicated drastic increase of elastic modulus for the Al^{+3} doped MgO thin films by ~73% compared to that of the pristine MgO thin films along with retaining the nanohardness at ~8 GPa. The transmittance of Al^{+3} doped MgO thin films in the visible range was significantly higher (~99%) than that of pristine MgO (~90%) thin films. The films also had a relatively higher refractive index about 1.45 as evaluated from the optical properties. The enhanced transmittance as well as the improved elastic modulus of Al^{+3} doped MgO thin films suggest its promising candidature in magnetic memory devices and as buffer layers of solar cells.

PDF
Help

Access through **your institution**

Purchase PDF

Journal of the Mechanical Behavior of Biomedical Materials

Volume 77, January 2018, Pages 267-294

Nano- and micro-tribological behaviours of plasma nitrided Ti6Al4V alloys

Aniruddha Samanta [a] ✉, Manjima Bhattacharya [b] ✉, Itishree Ratha [c] ✉, Himel Chakraborty [a, d] ✉, Susmit Datta [c] ✉, Jiten Ghosh [a] ✉, Sandip Bysakh [e] ✉, Monjoy Sreemany [a] ✉, Ramkrishna Rane [f] ✉, Alphonsa Joseph [f] ✉, Subroto Mukherjee [f] ✉, Biswanath Kundu [c] ✉, Mitun Das [c] ✉, Anoop K. Mukhopadhyay [a] ✉

Access through **your institution**

Purchase PDF

Abstract

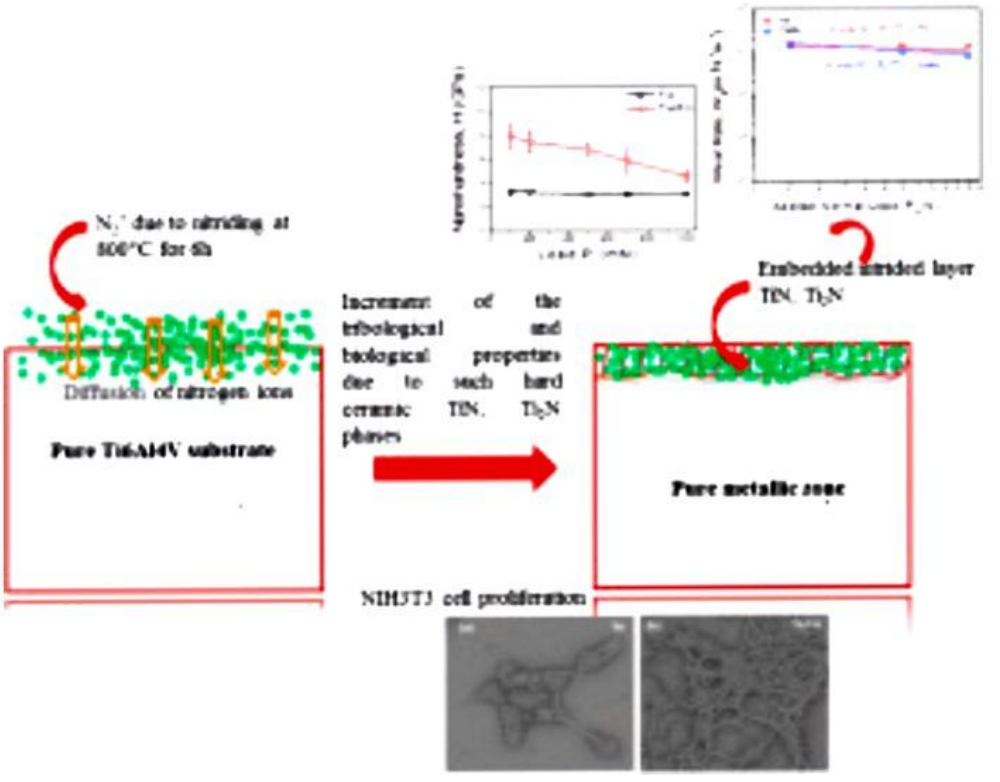
Plasma nitriding of the Ti-6Al-4V alloy (TA) sample was carried out in a plasma reactor with a hot wall vacuum chamber. For ease of comparison these plasma nitrided samples were termed as TAPN. The TA and TAPN samples were characterized by XRD, Optical microscopy, FESEM, TEM, EDX, AFM, nanoindentation, micro scratch, nanotribology, sliding wear resistance evaluation and in vitro cytotoxicity evaluation techniques. The experimental results confirmed that the nanohardness, Young's modulus, micro scratch wear resistance, nanowear resistance, sliding wear resistance of the TAPN samples were much better than those of the TA samples. Further, when the data are normalized with respect to those of the TA alloy, the TAPN sample showed cell viability about 11% higher than that of the TA alloy used in the present work. This happened due to the formation

Access through **your institution**

Purchase PDF

alloy layer zone (ENMALZ) having a finer microstructure characterized by presence of hard ceramic Ti_2N, TiN etc. phases in the TAPN samples, which could find enhanced application as a bioimplant material.

Graphical abstract



Download : Download high-res image (177KB)

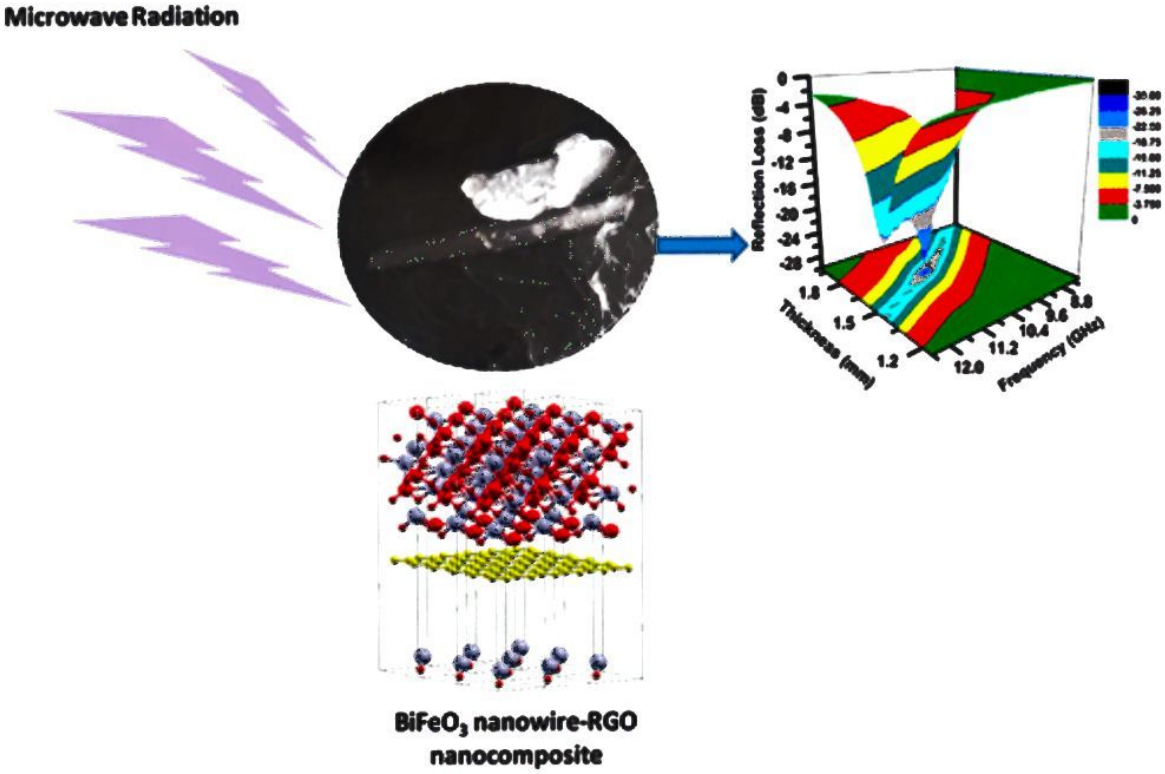
Download : Download full-size image

ACS Publications
Most Trusted. Most Cited. Most Read.

Synthesis and Microwave Absorption Properties of $BiFeO_3$ Nanowire-RGO Nanocomposite and First-Principles Calculations for Insight of Electromagnetic Properties and Electronic Structures

Debabrata Moitra[†], Samyak Dhole[†], Barun Kumar Ghosh[†], Madhurya Chandel[†], Raj Kumar Jani[‡], Manoj Kumar Patra[‡], Sampat Raj Vadera[‡], and Narendra Nath Ghosh[*†]

Abstract



Here, we report a facile hydrothermal synthesis method to prepare $BiFeO_3$ nanowire-reduced graphene oxide (BFO-RGO) nanocomposites. The unique properties of 2-D reduced graphene oxide (RGO) and 1-D $BiFeO_3$ nanowires (BFO) were exploited to design nanocomposites to obtain high performing microwave absorber materials. The composite with 97 wt % BFO and 3 wt % RGO exhibited minimum reflection loss value of −28.68 dB at 10.68 GHz along with the effective absorption bandwidth (≥ −10 dB) ranging

were exploited to design nanocomposites to obtain high performing microwave absorber materials. The composite with 97 wt % BFO and 3 wt % RGO exhibited minimum reflection loss value of −28.68 dB at 10.68 GHz along with the effective absorption bandwidth (≥ −10 dB) ranging from 9.6 to 11.7 GHz when the absorber thickness was only 1.55 mm. First-principles calculations based on density functional theory (DFT) of BFO, graphene, and BFO-RGO nanocomposites were performed to obtain information about their electronic structures to interpret their complex permittivity and its derived properties. To the best of our knowledge, this is the first time investigations on microwave absorption properties of the $BiFeO_3$ nanowire and BFO-RGO nanocomposites have been reported, and this nanocomposite shows its potential to be used as a lightweight, high performing microwave absorber in the X-band region.

Springer Link Search Log in

Published: 23 February 2017

CuO Nanoparticle Immobilised Mesoporous TiO_2–Cobalt Ferrite Nanocatalyst: A Versatile, Magnetically Separable and Reusable Catalyst

Barun Kumar Ghosh, Debabrata Moitra, [...]Narendra Nath Ghosh

Catalysis Letters **147**, 1061–1076 (2017) | Cite this article

572 Accesses | **23** Citations | Metrics

Abstract

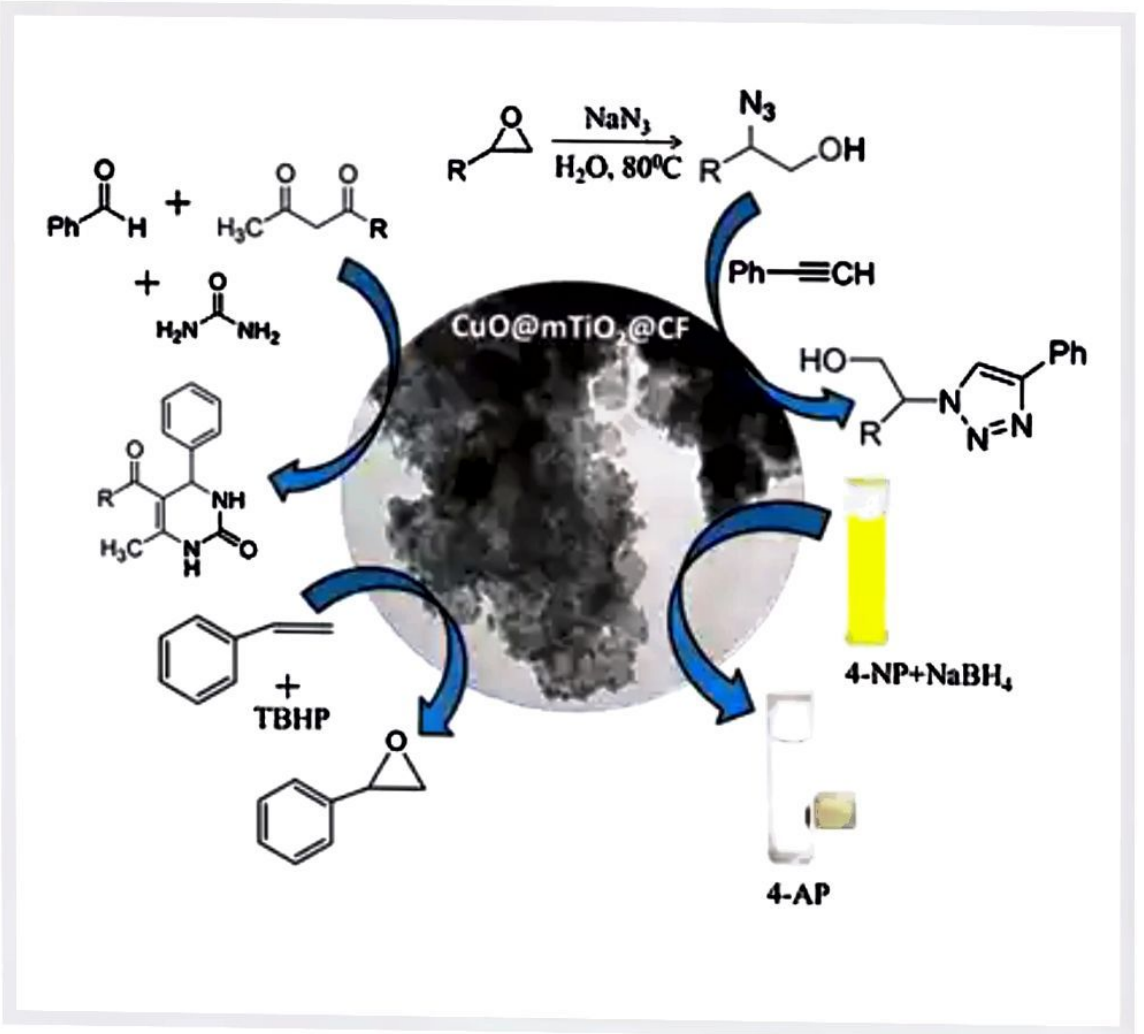
Here, synthesis and catalytic activity of a novel nanocatalyst (CuO@mTiO_2@CF), consisting of CuO nanoparticles,

Abstract

Here, synthesis and catalytic activity of a novel nanocatalyst (CuO@mTiO_2@CF), consisting of CuO nanoparticles, mesoporous titanium oxide and Cobalt ferrite have been reported for the first time. The catalyst was synthesized using a simple aqueous solution based chemical methodology. Synthesized CuO@mTiO_2@CF showed excellent catalytic activity towards various organic reactions such as (i) Epoxidation of styrene, (ii) Click reaction, (iii) Biginelli reaction, (iv) Reduction of 4-Nitrophenol and trifluralin in presence of excess $NaBH_4$. Moreover, this novel nanocatalyst offered easy magnetic separation after the catalysis reaction and excellent reusability. Easy synthesis methodology, versatility, good reusability and easy separation make the nanocatalyst

reaction, (iv) Reduction of 4-Nitrophenol and trifluralin in presence of excess $NaBH_4$. Moreover, this novel nanocatalyst offered easy magnetic separation after the catalysis reaction and excellent reusability. Easy synthesis methodology, versatility, good reusability and easy separation make the nanocatalyst attractive in the field of heterogeneous catalysis.

Graphical Abstract



ScienceDirect

Access through your institution

Get Access

Materials Research Bulletin

Volume 94, October 2017, Pages 361-370

Research paper

Ag nanoparticle immobilized mesoporous TiO_2-cobalt ferrite nanocatalyst: A highly active, versatile, magnetically separable and reusable catalyst

Barun Kumar Ghosh, Debabrata Moitra, Madhurya Chandel, Harshita Lulla, Narendra Nath Ghosh

Nano-Materials Lab., Department of Chemistry, Birla Institute of Technology and Science, Pilani K. K. Birla Goa Campus, Zuarinagar, Goa 403726, India

Access through your institution

Get Access

Abstract

Here, a simple method for preparation of a novel nanocatalyst, composed of Ag nanoparticle, mesoporous TiO_2 and $CoFe_2O_4$ nanoparticle, has been reported for three important reactions (i) epoxidation of styrene, (ii) reduction of 4-nitrophenol (4-NP) and (iii) photocatalytic degradation of Methylene Blue dye. The synthesized catalyst exhibited high catalytic activities towards all of these three reactions. For styrene epoxidation, ~98.1% conversion of styrene with ~94.5% selectivity of styrene oxide was observed within 10 h. This catalyst catalyzed the reduction of 4-nitrophenol within 4 min with $k_{app} = 1.08\ min^{-1}$. The catalyst also showed complete photodegradation of Methylene Blue within 60 min under visible light exposure. The catalyst was easily recovered from the reaction mixture by applying a permanent magnet externally. The recovered catalyst also showed excellent reusability. Easy synthesis methodology, versatile catalytic activity,

Access through your institution

Get Access

The catalyst also showed complete photodegradation of Methylene Blue within 60 min under visible light exposure. The catalyst was easily recovered from the reaction mixture by applying a permanent magnet externally. The recovered catalyst also showed excellent reusability. Easy synthesis methodology, versatile catalytic activity, easy separation and good reusability make this nanocatalyst attractive in the field of heterogeneous catalysis.

Graphical abstract

Download : Download high-res image (95KB)

Download : Download full-size image

Preparation of TiO_2/Cobalt Ferrite/Reduced Graphene Oxide Nanocomposite Based Magnetically Separable Catalyst with Improved Photocatalytic Activity

Buy Article:
$107.14 + tax
(Refund Policy)
ADD T BUY N

Authors: Ghosh, Barun Kumar; Moitra, Debabrata; Chandel, Madhurya; Ghosh, Narendra Nath

Source: Journal of Nanoscience and Nanotechnology, Volume 17, Number 7, July 2017, pp. 4694-4703(10)
Publisher: American Scientific Publishers
DOI: https://doi.org/10.1166/jnn.2017.13740

We report a simple synthetic route for the preparation of titanium dioxide (TiO_2), cobalt ferrite ($CoFe_2O_4$) nanoparticle and reduced graphene oxide (RGO) based nanocomposites $TiO_2/CoFe_2O_4$/RGO. This is the first time a non-hydrothermal technique is reported for preparation of $TiO_2/CoFe_2O_4$/RGO nanocomposites. Moreover, unlike other reported methods only water was used as reaction medium. Catalytic activity of synthesized nanocomposites towards degradation of various dyes, such as Methyl Orange, Rhodamine B, Methylene Blue under visible light were investigated. Catalysis reactions were monitored by using UV-vis spectroscopy. $TiO_2/CoFe_2O_4$/RGO exhibited its high capability to act as an excellent magnetically separable catalyst towards degradation of various dyes under visible light. The high catalytic activity and simple preparation methodology make $TiO_2/CoFe_2O_4$/RGO nanocomposites an attractive catalyst for degradation of hazardous organic dyes.

Keywords: Magnetic Separation; Organic Dyes; Photocatalysis; Reusability; TiO2

Document Type: Research Article

Optimisation of beam-column connections in precast concrete construction

January 2017 · International Journal of Civil Engineering and Technology 8(8):772-779

Authors:

P. Barma

Request full-text

To read the full-text of this research, you can request a copy directly from the author.

Citations (1)

Abstract

This investigation deals with the structural optimization of precast beam to column connections. It presents an up-to-date and most effective method

Abstract

This investigation deals with the structural optimization of precast beam to column connections. It presents an up-to-date and most effective method for precast connection in terms of stability and load carrying capacity in response to meet the growing interest of optimization in structural engineering field. Dry connections considered in this investigation are: Hidden Connection, Visible Connection and Connection with Corbel. Models for the precast connections are generated and are analysed with the help of computer aided software ANSYS 14.5. The precast connections are subjected to point loading and controlled reverse cyclic loading at the beam end. The results obtained from the analysis are graphically compared to get the most efficient method of precast connection in terms of maximum displacement, stress generated, strength, hysteretic behaviour and stiffness degradation. The best precast connection determined is then structurally optimised to increase its efficiency.

Level of service for on-street parking

March 2017 · KSCE Journal of Civil Engineering

DOI:10.1007/s12205-017-1538-1

Project: On-street parking demand estimation in urban CBD

Authors:

Debasish Das
JIS COLLEGE OF ENGINEERING

Mokaddes Ali Ahmed
National Institute of Technology, Silchar

Download full-text PDF

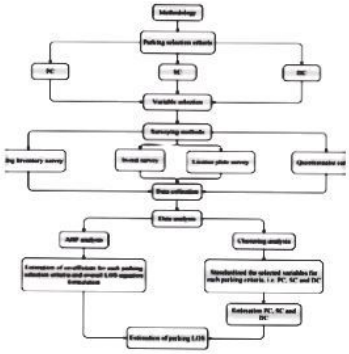
Citations (6) References (25) Figures (1

Abstract and Figures

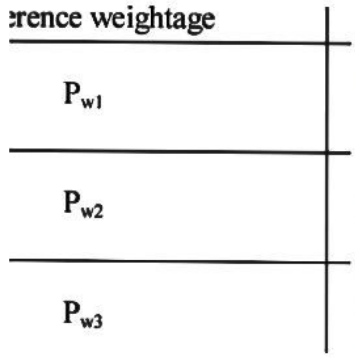
Parking of vehicle is one of the most important issues

Abstract and Figures

Parking of vehicle is one of the most important issues of the urban transportation system in any Central Business District (CBD). A sharp rise in vehicular ownership and insufficient transit system give rise to the huge on-street parking demand leading to a reduction in effective carriageway width, flow speed, creating unnecessary congestion, etc. The problems can be controlled by providing an efficient parking system. The present study aims to estimate the Level of Service (LOS) of on-street parking. LOS is calculated based on three parking selection criteria, viz. Parking Characteristic (PC), Safety Characteristic (SC) and Design Characteristic (DC). Four CBDs of Kolkata Metropolitan Area (KMA) are selected as a case study area. The overall LOS equation is formulated by Analytic Hierarchy Process (AHP). Cluster analysis and Zero dimension process are used to standardize the variables to designated LOS. Various surveys are carried out for data collection. The data are analyzed using SPSS. Finally, the overall LOS for on-street parking is estimated for all the selected CBDs.



Methodology Flow Chart



. Calculation of Priority Vector

Survey Locations and...

Article

Himadri Nath Moulick and Moumita Ghosh, Optimal Control Problem and Power- Efficient Medical Image Processing Using Puma ,International Journal of Modern Engineering Research (IJMER) , Vol. 3, Issue. 4, Jul-Aug. 2013 pp-2205-2214.

February 2018

Authors:

Moumita Ghosh
Siliguri Institute of Technology

International Journal of High Speed Electronics and Systems

| Vol. 26, No. 04, 1740022 (2017)

| Special Issue on 2017 Dev...

No Access

Influence on Characteristics of RTD Due to Variation of Different Parameters and Material Properties

Banasree Das and Manas Kumar Parai

https://doi.org/10.1142/S0129156417400225

Cited by: 2

< Previous Next >

About PDF/EPUB

Abstract

Abstract

In this paper, novel features offered by Resonant Tunneling Diode (RTD) are reviewed by simulating it under different conditions. GaAs/AlGaAs based RTD is used as the reference one to obtain the characteristics due to parametric variations. To fulfil this purpose a simple model of resonant electronic transport through a double-barrier structure is developed. I-V characteristics are studied by varying barrier parameters and well width. Different peak and valley currents are measured under these conditions. For the same set of parameters both symmetric and asymmetric cases are considered. Different materials of lower effective mass are also taken into

through a double-barrier structure is developed. I-V characteristics are studied by varying barrier parameters and well width. Different peak and valley currents are measured under these conditions. For the same set of parameters both symmetric and asymmetric cases are considered. Different materials of lower effective mass are also taken into consideration to improve Peak to Valley Ratio (PVR). The Indium (In) based materials are considered to compare the characteristics obtained from the conventional GaAs based RTD structure. All these proposed structures are simulated using Silvaco Atlas software.

ScienceDirect

View PDF

Access through your institution

Purchase PDF

Pattern Recognition Letters
Volume 145, May 2021, Pages 254-261

Facial expression recognition using distance and shape signature features

Asit Barman [a] ... Paramartha Dutta [b]

Show more

Outline | Share Cite

https://doi.org/10.1016/j.patrec.2017.06.018

Get rights and content

FEEDBACK

Access through **your institution**

Purchase PDF

Abstract

Distance and Shape signature features in human faces offer formidable significance in recognizing facial expressions. Identifying appropriate landmarks is a crucial as well as challenging issue in the field of expression recognition of human faces. Appearance model has been found useful to detect the salient landmarks on human faces. These salient landmarks induce a grid on the human face along with the formation of possible triangles joining the grid. Normalized distance and shape signatures are determined from the grid. Distance signature as well as shape signature find respective stability indices which play important role to recognize the facial expressions. Statistical measures such as range, moment, skewness, kurtosis and entropy are calculated from normalized distance and shape signature pair to supplement the feature set. This enhanced feature

Access through **your institution**

Purchase PDF

joining the grid. Normalized distance and shape signatures are determined from the grid. Distance signature as well as shape signature find respective stability indices which play important role to recognize the facial expressions. Statistical measures such as range, moment, skewness, kurtosis and entropy are calculated from normalized distance and shape signature pair to supplement the feature set. This enhanced feature set is fed into a Multilayer Perceptron (MLP) to arrive at different expression categories encompassing anger, sadness, fear, disgust, surprise and happy. We investigated our proposed system on Cohn-Kanade (CK+), JAFFE, MMI and MUG databases to conduct and validate our experiment and establish its performance superiority over other existing competitors.

International Journal of Business and General Management (IJBGM)
ISSN(P): 2319-2267; ISSN(E): 2319-2275
Vol. 6, Issue 4, Jun - Jul 2017; 9-20
© IASET

International Academy of Science, Engineering and Technology
Connecting Researchers; Nurturing Innovations

BAN ON MAGGI NOODLES IN INDIA: CONSUMER PERCEPTIONS TOWARDS THE QUALITY OF CORPORATE GOVERNANCE

DEBASIS BHATTACHARYA[1] & SHUVENDU DEY[2]

[1]Associate Professor, Department of Commerce, University of North Bengal, Raja Rammohanpur, Siliguri, West Bengal, India

[2]Assistant Professor & Mentor, Department of Business Administration, Siliguri Institute of Technology, Salbari, Sukna, Siliguri, West Bengal, India

ABSTRACT

Corporate social responsibility (CSR) is one of the most important notions in the corporate. In spite of the emerging research work conducted in the field of CSR it is really difficult to operationalize the construct and provide a reliable and valid measure to capture various dimensions of CSR. The aims of this study are very specific. First, it contributes to understanding the business case for CSR in developing countries by focusing on the consumer sentiments toward marketing concepts followed by the domestic as well as multinational firms. The second objective of the study is to develop a scale by conducting a comprehensive review of literature to generate pools of items to measure the recent ban on Maggi noodles in India. Nestle's star brand Maggi is facing the heat of ban in India since June, 2015. It was due to an episode that took place in the State of Uttar Pradesh where a few samples of Maggi instant nobles were found to contain lead and monosodium glutamate beyond the permissible limit. Tests were conducted in Government as well as in private laboratories, but the outcome of the test results revealed contradictory findings. In this paper an attempt has been made to construct a scale encompassing three main construct to measure the CSR practice of Nestle India. These are: advertising communication made by Nestle India mostly by celebrities having no idea about the ingredients present in the stuff which is basically targeted towards the kids and young adults, secondly, whether the common CSR norms were adhered to and lastly to investigate whether concern for consumers were given due respect. To capture these constructs a small scale was developed to examine the perception of the consumers who are mostly in the lower age category. The findings of the study reveal that Nestlé could be more responsive to the needs of the people and could control the desired quality norms since it has got nearly eighty percent market share in India. Various parametric and non-parametric tests have been employed to establish the validity and reliability of the scale. The results of factor analyses revealed the construct validity of the scale and the alpha values are also within the acceptable limit. The factor score regression reveals that the consumer will not spread positive word of mouth unless the product conforms to all safety norms. The impact of recent ban has also been found to affect the brand loyalty behavior of consumers. Managerial implication and scope for further studies has also been discussed for researchers working in this field.

KEYWORDS: CSR, Nestle, Maggi, Brand Loyalty, Marketing Concept

INTRODUCTION

It is quite interesting to recognize that the function and responsibility of business organizations towards the society have been a hot topic of discussion in the recent past. The mounting demands of businesses on the society at large

INTERNATIONAL JOURNAL OF MULTIDISCIPLINARY EDUCATIONAL RESEARCH
ISSN : 2277-7881; IMPACT FACTOR – 4.527; IC VALUE:5.16; ISI VALUE:2.286
VOLUME 6, ISSUE 6(3), JUNE 2017

SOFT SKILLS FOR TOUGH POLICING: A CHEMISTRY OF EFFICACY

Dr. D. R. Pratima Roy
Lecturer in English (HoD)
St. Joseph's Jr.Degree & PG College for Women
Kurnool (AP)

Abstract:

Never in the past was such a need of building a relationship between the cop and the public as it is now. Time and again there is police parading to instill confidence among the civilians, but with little result. Community-oriented policing requires a trust and understanding between the police and the members of the community, in which the former has to reach out to the latter through soft skills.

The paper argues that when the cops disseminate a thorough awareness of the public of their rights and privileges, and the role of police in positive assistance, they can dispel the myth that police are crime-fighters alone, and create a rapport to rally their support to make this world a better place to live in. A passing reference to the technological skills and soft skills of the cops of developed/advanced countries like the UK, the USA, Israel and the way they relate to the citizens, is made.

The paper examines the diverse equations between the police and the public, the prevalent skeptical attitude and a weird fear among people to approach the police, the stigma and the various phobias (astynomiaphobia, policophobia, etc) attached; lack of soft skills among most of the cops to connect and get across in finding a solution, and the all-round role of the Personnel that includes enforcement of law, the CSIs (Crime Scene Investigations) and forensic analysis, juvenile cognitive approaches. However complex and challenging be the police-services to the society, they can attain fruition only when they resort to the greatest human resource: SOFT SKILLS.

International Research Journal of Human Resources and Social Sciences
ISSN(O): (2349-4085) ISSN(P): (2394-4218)
Impact Factor: 5.414, Volume 4, Issue 10, October 2017
Website: www.aarf.asia, Email: editor@aarf.asia , editorsarf@gmail.com

A STUDY ON JOB INDUCED STRESS OF BPO EMPLOYEES: A BINARY LOGISTIC REGRESSION APPROACH

***Dr. Debasis Bhattacharya,**
Associate Professor, Department of Commerce,
University of North Bengal, Raja Rammohanpur, Siliguri-734013, India

****Shuvendu Dey,**
Asst Professor & Mentor, Department of Business Administration,
Siliguri Institute of Technology, Salbari, Sukna, Siliguri-734009, India

ABSTRACT

A large number of service provider companies are making relentless efforts for augmenting their [illegible] through customer-driven strategies to win new segments of the broader market for [illegible]. A firm's human resources can be a basis of its continued competitive [illegible] organizations have to develop suitable strategies to attract, inspire and [illegible] key of knowledge, skills and abilities. The results of the factor analysis amply demonstrate that the three factor solution is quite satisfactory considering the Eigen values, [illegible] of variance explained and the loadings of the original variables into various [illegible]. It has been observed from the logistic regression analysis that job supervision, job induced tension and intention to leave the organization can be used as predictors. The results of logistic regression are also found to be significant. The model can be used to categorise employees significantly based on their gender with a marginal misclassification error as revealed by various standard tests employed in logistic regression.

Key Words: [illegible] Stress, Intention to leave, Supervision, Factor Analysis, Logistic Regression

© Associated Asia Research Foundation (AARF)
[illegible] Indexed in the International Serial Directories

INTERNATIONAL JOURNAL OF MULTIDISCIPLINARY EDUCATIONAL RESEARCH
ISSN : 2277-7881; IMPACT FACTOR – 4.527; IC VALUE:5.16; ISI VALUE:2.286
VOLUME 6, ISSUE 6(3), JUNE 2017

SOFT SKILLS FOR TOUGH POLICING: A CHEMISTRY OF EFFICACY

Dr. D. R. Pratima Roy
Lecturer in English (HoD)
St. Joseph's Jr.Degree & PG College for Women
Kurnool (AP)

Abstract:

Never in the past was such a need of building a relationship between the cop and the public as it is now. Time and again there is police parading to instill confidence among the civilians, but with little result. Community-oriented policing requires a trust and understanding between the police and the members of the community, in which the former has to reach out to the latter through soft skills.

The paper argues that when the cops disseminate a thorough awareness of the public of their rights and privileges, and the role of police in positive assistance, they can dispel the myth that police are crime-fighters alone, and create a rapport to rally their support to make this world a better place to live in. A passing reference to the technological skills and soft skills of the cops of developed/advanced countries like the UK, the USA, Israel and the way they relate to the citizens, is made.

The paper examines the diverse equations between the police and the public, the prevalent skeptical attitude and a weird fear among people to approach the police, the stigma and the various phobias (astynomiaphobia, policophobia, etc) attached; lack of soft skills among most of the cops to connect and get across in finding a solution, and the all-round role of the Personnel that includes enforcement of law, the CSIs (Crime Scene Investigations) and forensic analysis, juvenile cognitive approaches. However complex and challenging be the police-services to the society, they can attain fruition only when they resort to the greatest human resource: SOFT SKILLS.

IOSR Journal of Business and Management (IOSR-JBM)
e-ISSN: 2278-487X, p-ISSN: 2319-7668. Volume 17, Issue 6.Ver. II (June. 2015), PP 43-48
www.iosrjournals.org

Analytical Study on Attitudinal Profile of the Customers towards Branded Tea and Competitive Position of Brooke Bond Red Label in North Kolkata Metropolis

Mr. Shomnath Dutta
Assistant Professor, Department of Business Administration
Siliguri Institute of Technology (A Unit of Techno India Group),
H.C Road, Methibari, PO: Sukna, Dist: Darjeeling, W Bengal (India)

Abstract: *Indian tea industry being an oldest labour-intensive organized sector with a contribution of nearly 30% of the global production, acts as nation's one of the major foreign exchange earner and employment generator. The Indian branded tea market is highly vibrant and one of the most penetrated product category with a large network of tea producers, retailers, distributors, auctioneers, exporters and packers. This article attempts to ventilate some interesting aspects of the branded tea market in India in the packed, tea bag and flavored tea segments and also investigates the profile of attitudinal preference shown by the customers of the branded (packaged) tea in North Kolkata area followed by comparative evaluation of the brand Brooke Bond Red Label relative to other rival brands available.*

Keywords: *Beverage product, Branded tea, Consumer attitude, Intrinsic factors*

I. Introduction

Tea that had been known in India as a medicinal plant got its unique utility as an energizer, stress-reliever after the British used to drink it for pleasure and established plantations in the 19th century. In 1824 tea plants were discovered by them in Assam and introduced the tea culture into India in 1836. Tea being one of the oldest as well as popular & cheapest beverages appears to be both competitive and challenging in terms of product and competition. The Indian branded tea market is highly vibrant and one of the most highly penetrated branded product category with a large network of tea producers, retailers, distributors, auctioneers, exporters and packers. India apart from being the largest consumer of tea worldwide (30 % of the global tea production[1]) has still modest per-capita consumption of 750 grams per person every year. With yearly 950 million kilograms of tea production over six lakh hectares of cultivation area across the country, India has ranked second largest after China in production. The Indian tea industry is likely to reach a turnover of Rs 33,000 crores by 2015, clocking a CAGR of 15 percent. The Indian Tea Industry because of its labour intensive nature contributes in employment generation and foreign exchange earnings. Although loose tea suppliers enjoy a lion's share, branded tea makers are fighting the race too in escalating their market share due to rising consumer incomes, quality consciousness and diversified flavoured tea production. It not only has a wide geographical spread but also has complex demographics, which lead to varied regional taste preferences creating challenges for any tea marketer. Branded Packet tea market dominated by HUL and Tata tea is highly populated by multiple brands, having a deep presence in both urban and rural market, together accounting 30-40% of the total packaged tea segment. The next major players - Duncan's, Eveready, Goodricke, GPI, Waghbakri, Girnar, Sapat, Dhunseri, Mohini, Society, Marvel etc. The study was undertaken with site visits for three festive months (October to December) in & around North Kolkata to measure the demand and satisfaction of tea-lovers. In the questionnaire some attributes like customers' requirement in terms of flavour, colour, taste, variety and availability of different pack-size offered by company were identified as motivational factors for increased sales & satisfaction to consumers. Since, in North Kolkata region Red Label tea encounters a stiff competition from Duncan's, Goodrick, Tata tea it was essential to know the feedback of customers so as to plan effective marketing and sales strategies in future and improve the quality of service to achieve better consumer satisfaction.

II. Branded Tea Market In India

Indians consider drinking tea as past time of the nation with highest share in the non-alcoholic beverages market in the country & contributing 4% of our national income from tea. As of 2013 India's total annual tea production was 1200 million kgs out of which 65%, used to come from the big tea gardens while the rest is small tea growers. According to ASSOCHAM report 2013, Assam produces more than half of India's tea sharing over 12% of the annual global tea yield. This state along with West Bengal have 8,500 tea estates and the southern states of Kerala, Karnataka and Tamil Nadu covers 5,500 tea estates. In case of packaged or

Log in | Register

Transactions of the Indian Ceramic Society ›

Volume 75, 2016 - Issue 2

64 Views | 5 CrossRef citations to date | 0 Altmetric

Original Articles

Structural and Optical Properties of V_2O_5-MoO_3-ZnO Glass-Nanocomposite System

Anindya Sundar Das, Madhab Roy, Debasish Roy, Satchidananda Rath & **Sanjib Bhattacharya**

Pages 120-125 | Received 09 Oct 2015, Accepted 02 Apr 2016, Published online: 21 Jul 2016

Download citation

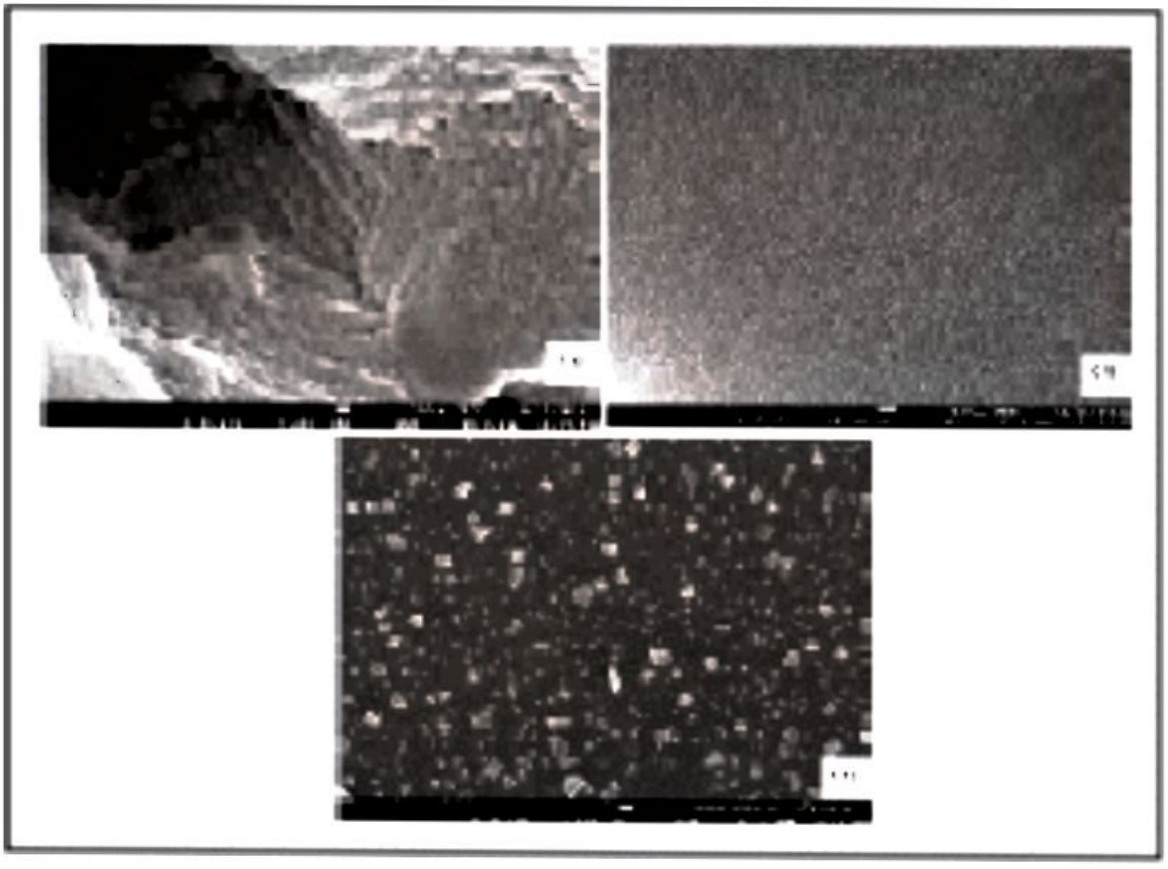
https://doi.org/10.1080/0371750X.2016.1175321

Check for updates

ABSTRACT

The present work points to highlight the physical, structural and the optical properties of some semiconducting V_2O_5-MoO_3-ZnO glass-nanocomposites using density, molar volume, X-ray diffraction (XRD), field effect scanning electron microscopy (FESEM), Fourier transform infrared spectroscopy (FTIR), Raman spectroscopy and UV-VIS absorption spectra. We have observed that addition of V_2O_5 increases (or decreases) the density (or molar volume) of the glassy system due to structural changes. Distribution of $Zn_3V_2MoO_{11}$, $Zn_{2.5}VMoO_8$ and $Zn_2V_2O_7$ nanoparticles has been confirmed from FESEM and XRD studies. It has been observed from FTIR spectra that the network structure depends upon isolated strongly deformed M oO_4 polyhedra and VO_4 metavanadate chains. Vibrations of MoO_6 octahedra, $Zn_2V_2O_6$, $Zn_2V_2O_7$, $Zn_3V_2MoO_{11}$ and VO_2 are observed from the Raman spectroscopic

VO_4 metavanadate chains. Vibrations of MoO_6 octahedra, $Zn_2V_2O_6$, $Zn_2V_2O_7$, $Zn_3V_2MoO_{11}$ and VO_2 are observed from the Raman spectroscopic studies. The fundamental UV-VIS absorption spectra have been analyzed, which indicates indirect transitions.



Keywords:

Semiconducting V_2O_5 doped zinc-molybdate glass-nanocomposites-

XRD | Raman spectroscopy | UV-VIS absorption | FESEM | FTIR

Access through **your institution**

Purchase PDF

Journal of Non-Crystalline Solids
Volume 452, 15 November 2016, Pages 169-175

Electrical relaxation and grain boundary effect in CdI_2 doped glass-nanocomposites

Arun Kr. Bar [a, b] ... Sanjib Bhattacharya [d]

Show more

Outline | Share Cite

https://doi.org/10.1016/j.jnoncrysol.2016.08.040

Get rights and content

Access through **your institution**

Purchase PDF

Electrical relaxation in CdI_2 doped Ag_2O–V_2O_5–ZnO glass-nanocomposites has been studied using complex modulus formalism. The conductivity formalism has been attempted to explain conductivity spectra due to leaving off of the conductivity in the lower frequency region. This lower frequency conductivity is not distinct due to grain boundary effect. The formation of grain boundary region causes the non-uniform motion of Ag^+ in the lower frequency region. Non-Debye type relaxation of Ag^+ has been analyzed by invoking Kohlrausch-Williams-Watts function. It is observed that relaxation time (τ_m) increases up to x = 0.1 and then decreases. Formation of grain boundary and Ag_3VO_4, $Zn_2V_2O_7$, $Ag_4V_2O_7$, CdV_2O_6 and $Cd_2V_2O_7$ nanocrystallites play important role in the variation of relaxation time. The stretched exponent (β) values indicate strong ion-ion interaction between mobile Ag^+ ions and a strong correlated motion, which makes the relaxation-process non-Debye type.

FEEDBACK

ScienceDirect

View PDF

Access through your institution

Purchase PDF

Journal of the Mechanical Behavior of Biomedical Materials

Volume 65, January 2017, Pages 584-599

Research Paper

Nanotribological response of a plasma nitrided bio-steel

Aniruddha Samanta [a], Himel Chakraborty [a], Manjima Bhattacharya [a], Jiten Ghosh [a], Monjoy Sreemany [a], Sandip Bysakh [b], Ramkrishna Rane [c], Alphonsa Joseph [c], Ghanshyam Jhala [c], Subroto Mukherjee [c], Mitun Das [d], Anoop K. Mukhopadhyay [a]

Access through **your institution**

Purchase PDF

https://doi.org/10.1016/j.jmbbm.2016.09.017

Get rights and content

Abstract

AISI 316L is a well known biocompatible, austenitic stainless steel (SS). It is thus a bio-steel. Considering its importance as a bio-prosthesis material here we report the plasma nitriding of AISI 316L (SS) followed by its microstructural and nanotribological characterization. Plasma nitriding of the SS samples was carried out in a plasma reactor with a hot wall vacuum chamber. For ease of comparison these plasma nitrided samples were termed as SSPN. The experimental results confirmed the formations of an embedded nitrided metal layer zone (ENMLZ) and an interface zone (IZ) between the ENMLZ and the unnitrided bulk

Access through **your institution**

Purchase PDF

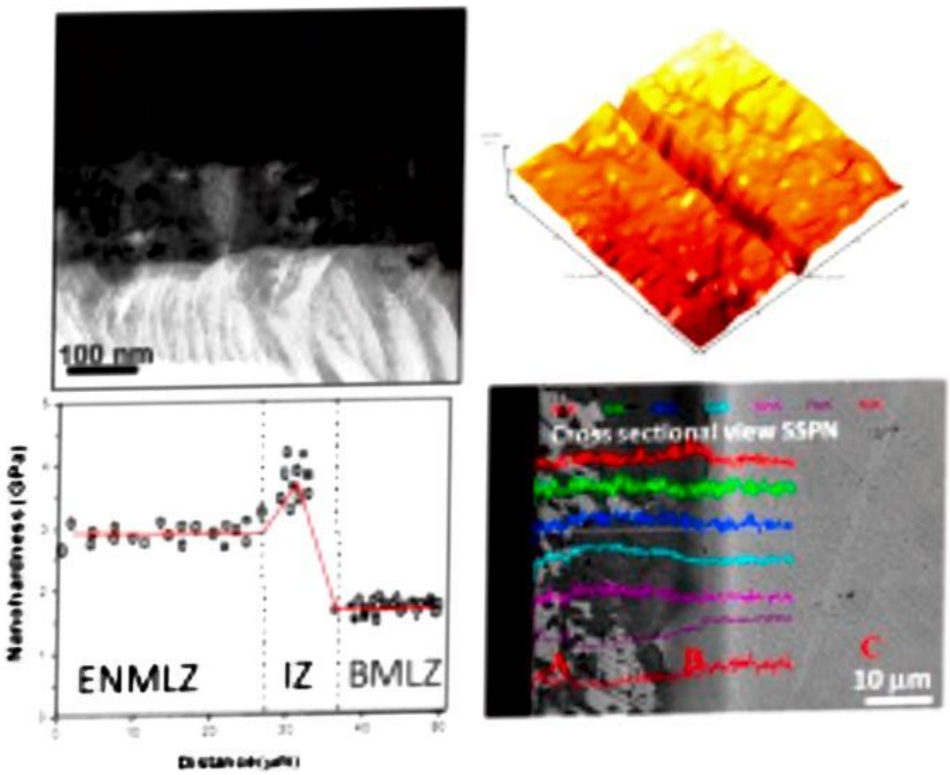
followed by its microstructural and nanotribological characterization. Plasma nitriding of the SS samples was carried out in a plasma reactor with a hot wall vacuum chamber. For ease of comparison these plasma nitrided samples were termed as SSPN. The experimental results confirmed the formations of an embedded nitrided metal layer zone (ENMLZ) and an interface zone (IZ) between the ENMLZ and the unnitrided bulk metallic layer zone (BMLZ) in the SSPN sample. These ENMLZ and IZ in the SSPN sample were richer in iron nitride (FeN) chromium nitride (CrN) along with the austenite phase. The results from nanoindentation, microscratch, nanoscratch and sliding wear *studies* confirmed that the static contact deformation resistance, the microwear, nanowear and sliding wear resistance of the SSPN samples were much better than those of the SS samples. These results were explained in terms of structure–property correlations.

Access through **your institution**

Purchase PDF

deformation resistance, the microwear, nanowear and sliding wear resistance of the SSPN samples were much better than those of the SS samples. These results were explained in terms of structure–property correlations.

Graphical abstract



Download : Download high-res image (223KB)

Download : Download full-size image

ScienceDirect

View PDF

Access through your institution

Purchase PDF

Journal of the Mechanical Behavior of Biomedical Materials

Volume 56, March 2016, Pages 229-248

Research Paper

Nanomechanical responses of human hair

Aniruddha Samanta [a, 1], Manjima Bhattacharya [a, 1], Srikanta Dalui [a], Megha Acharya [c], Pradip Sekhar Das [a], Dipak Kr. Chanda [a], Saikat Deb Acharya [a], Sankar Kalidas Sivaraman [b], Shekhar Nath [b], Ashok Kumar Mandal [a], Jiten Ghosh [a], Anoop Kumar Mukhopadhyay [a] [2]

Access through **your institution**

Purchase PDF

Abstract

Here we report the first ever studies on nanomechanical properties e.g., nanohardness and Young's modulus for *human hair of Indian origin*. Three types of hair samples e.g., virgin hair samples (VH), bleached hair samples (BH) and Fe-tannin complex colour treated hair samples (FT) with the treatment by a proprietary hair care product are used in the present work. The proprietary hair care product involves a Fe-salt based formulation. The hair samples are characterized by optical microscopy, atomic force microscopy, field emission scanning electron microscopy, energy dispersive X-ray spectroscopy (EDAX) genesis line map, EDAX spot mapping, nanoindentation, tensile fracture, and X-ray diffraction techniques. The nanoindentation studies are conducted on the cross-sections of the VH, BH and FT hair samples.

Access through **your institution**

Purchase PDF

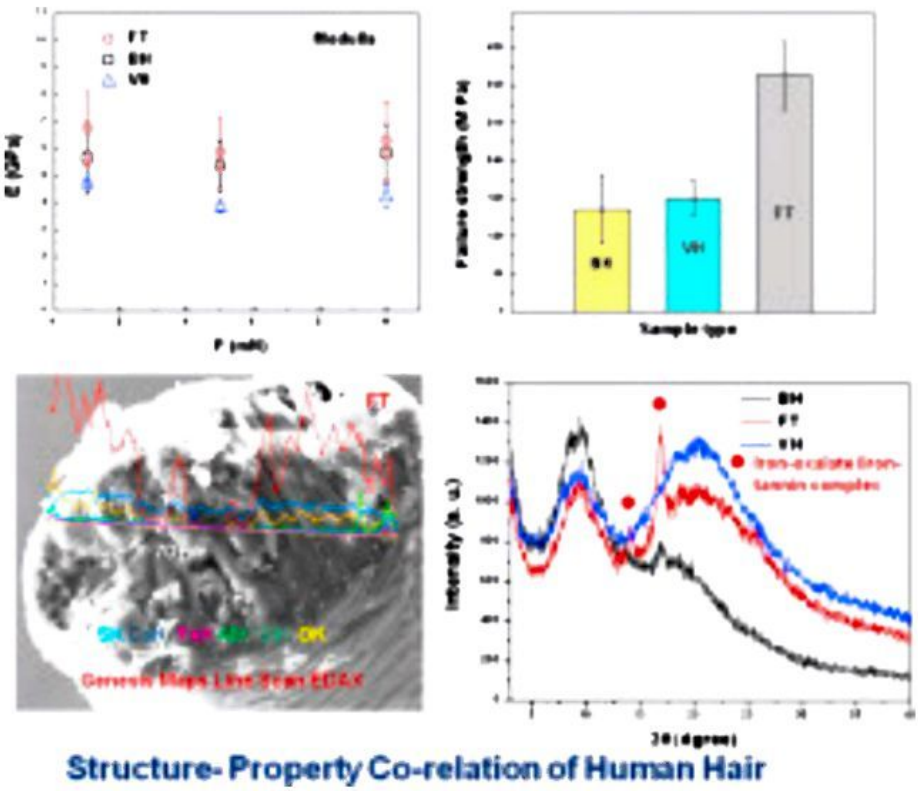
product involves a Fe-salt based formulation. The hair samples are characterized by optical microscopy, atomic force microscopy, field emission scanning electron microscopy, energy dispersive X-ray spectroscopy (EDAX) genesis line map, EDAX spot mapping, nanoindentation, tensile fracture, and X-ray diffraction techniques. The nanoindentation studies are conducted on the cross-sections of the VH, BH and FT hair samples. The results prove that the nanomechanical properties e.g., nanohardness and Young′s modulus are sensitive to measurement location e.g., cortex or medulla and presence or absence of the chemical treatment. Additional results obtained from the tensile fracture experiments establish that the trends reflected from the evaluations of the nanomechanical properties are general enough to hold good. Based on these observations a schematic model is developed. The model explains the present results in a qualitative yet satisfactory manner.

Access through **your institution**

Purchase PDF

trends reflected from the evaluations of the nanomechanical properties are general enough to hold good. Based on these observations a schematic model is developed. The model explains the present results in a qualitative yet satisfactory manner.

Graphical abstract



Structure- Property Co-relation of Human Hair

Download : Download high-res image (293KB)

Download : Download full-size image

ScienceDirect

View PDF

Access through your institution

Purchase PDF

Ceramics International

Volume 42, Issue 12, September 2016, Pages 13378-13386

Influence of loading rate on nanohardness of sapphire

Manjima Bhattacharya [a] ... Anoop Kumar Mukhopadhyay [a]

Show more

Outline | Share Cite

https://doi.org/10.1016/j.ceramint.2016.05.091

Get rights and content

Access through **your institution**

Purchase PDF

https://doi.org/10.1016/j.ceramint.2016.05.091

Get rights and content

Abstract

This work reports the loading rate effect on nanohardness of sapphire. The intrinsic nanoscale contact deformation resistance of sapphire increased with the loading rates following empirical power law dependence with a positive exponent. The results showed a significant enhancement (e.g., ~66%) of the nanohardness of sapphire with the increase in loading rates from 10 to 10,000 $\mu N\ s^{-1}$. These results were explained mainly in terms of the maximum shear stress generated underneath the nanoindenter, dislocation density and critical resolved shear stress of the sapphire.

Access through **your institution**

Purchase PDF

Ceramics International

Volume 42, Issue 8, June 2016, Pages 9875-9886

Low strain rate compressive failure mechanism of coarse grain alumina

Manjima Bhattacharya [a] ... Anoop Kumar Mukhopadhyay [a]

Show more

Outline | Share Cite

https://doi.org/10.1016/j.ceramint.2016.03.087

Get rights and content

Access through **your institution**

Purchase PDF

Abstract

The present work reports the dynamic compressive strength (σ_c) of a dense (~95%) coarse grain (~20 μm) alumina measured at ~30 °C as a function of strain rates ($\dot{\varepsilon}$) ranging from 10^{-5} to 5×10^{-1} s^{-1}. The results showed a unique 40% enhancement of (σ_c) with the increase in ($\dot{\varepsilon}$). Extensive post mortem examination of fracture fragments obtained from the compressive failure tests by FESEM, TEM and HRTEM confirmed the formation of micro-cracks, shear bands, nanoscale cleavages and dislocations whose recurrence had increased with strain rate. Both shear induced microplasticity and nanoscale cleavages as well as dislocations had occurred concurrently yet independently during compressive fracture of coarse grain alumina even at very low strain rates. Based on these evidences a new compressive failure mechanism of alumina was proposed.

FEEDBACK

IOPscience

Materials Research Express

PAPER

Self-adjusting unique nanoscale contact resistance of a single alumina grain

Manjima Bhattacharya[3 3,1], Arjun Dey[3 3,2] and Anoop Kumar Mukhopadhyay[1]

Published 21 April 2016 • © 2016 IOP Publishing Ltd

Materials Research Express, Volume 3, Number 4

Citation Manjima Bhattacharya *et al* 2016 *Mater. Res. Express* **3** 045017

76 Total downloads

6

Turn on MathJax

Get permission to re-use this article

Share this article

Abstract

This work evaluates the nanohardness of a single alumina grain for a coarse grain alumina ceramic of ~10 μm grain size. The results reveal that the nanoscale contact deformation resistance of the single grain has a unique self-adjusting characteristic. It increases in response to enhancement in the externally applied load. The nanoscale contact deformation resistance of a single alumina grain is determined by controlled nano-indentation experiments. The corresponding load versus depth plots are carefully analysed to identify the critical load at which the very first burst of incipient nanoscale plasticity is initiated. To avoid any spurious effect from neighbouring grain boundaries the nano-indentations experiments are deliberately carried out with only single grains. A range of ultra low loads that span from 1000 to 12 000 μN is used for this purpose. Both partial unload and load controlled nano-indentation experiments are

carefully analysed to identify the critical load at which the very first burst of incipient nanoscale plasticity is initiated. To avoid any spurious effect from neighbouring grain boundaries the nano-indentations experiments are deliberately carried out with only single grains. A range of ultra low loads that span from 1000 to 12 000 μN is used for this purpose. Both partial unload and load controlled nano-indentation experiments are performed with a Berkovich indenter on single alumina grains. The indenter has a tip radius of 150 nm. The results show for the very first time that a mild indentation size effect exists even in single grain hardness at nanoscale. In addition the intrinsic nanoscale contact deformation resistance increases as the externally applied load is enhanced. The way it increases follows an empirical power law. These results are analysed in terms of the dislocation loop radius, critical resolved shear stress and the maximum shear stress that is generated just underneath the indenter.

Access through **your institution**

Purchase PDF

Journal of the Mechanical Behavior of Biomedical Materials

Volume 65, January 2017, Pages 584-599

Research Paper

Nanotribological response of a plasma nitrided bio-steel

Aniruddha Samanta [a] ... Anoop K. Mukhopadhyay [a]

Show more

Outline | Share Cite

https://doi.org/10.1016/j.jmbbm.2016.09.017

Get rights and content

Access through **your institution**

Purchase PDF

Abstract

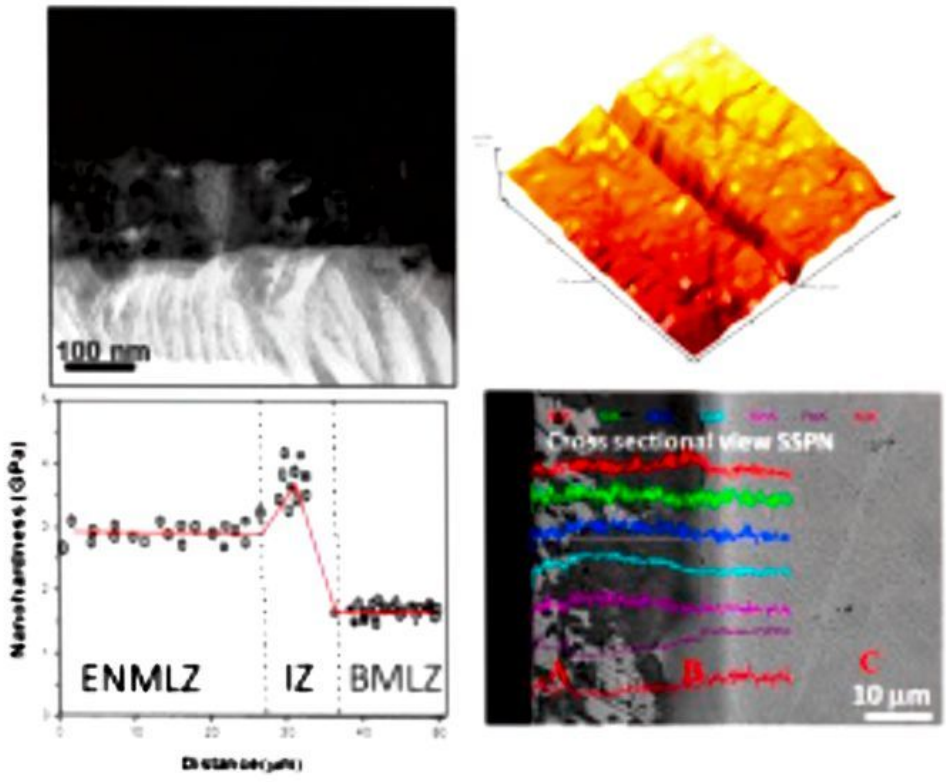
AISI 316L is a well known biocompatible, austenitic stainless steel (SS). It is thus a bio-steel. Considering its importance as a bio-prosthesis material here we report the plasma nitriding of AISI 316L (SS) followed by its microstructural and nanotribological characterization. Plasma nitriding of the SS samples was carried out in a plasma reactor with a hot wall vacuum chamber. For ease of comparison these plasma nitrided samples were termed as SSPN. The experimental results confirmed the formations of an embedded nitrided metal layer zone (ENMLZ) and an interface zone (IZ) between the ENMLZ and the unnitrided bulk metallic layer zone (BMLZ) in the SSPN sample. These ENMLZ and IZ in the SSPN sample were richer in iron nitride (FeN) chromium nitride (CrN) along with the austenite phase. The results from nanoindentation, microscratch, nanoscratch and

Access through **your institution**

Purchase PDF

and sliding wear resistance of the SSPN samples were much better than those of the SS samples. These results were explained in terms of structure–property correlations.

Graphical abstract



Download : Download high-res image (223KB)

Download : Download full-size image

PAPER

Microstructural, thermo-optical, mechanical and tribological behaviours of vacuum heat treated ultra thin SS304 foils

Debajyoti Palai[1,2], Manjima Bhattacharya[3], Amitava Basu Mallick[2], Parthasarathi Bera[4], Anand Kumar Sharma[1], Anoop Kumar Mukhopadhyay[3] and Arjun Dey[1]

Published 2 September 2016 • © 2016 IOP Publishing Ltd

Materials Research Express, Volume 3, Number 9

Citation Debajyoti Palai *et al* 2016 *Mater. Res. Express* **3** 096501

88 Total downloads

Abstract

The purpose of this present study was to evaluate the effect of vacuum (i.e., 10^{-5} mbar) heat treatment at 300 to 1100 °C on morphological, thermo-optical, mechanical and tribological properties of 75 μm thin SS304 foils. Microstructural, morphological and surface properties of the foils were characterized by field emission scanning electron microscopy (FESEM), profilometry, x-ray photoelectron spectroscopy (XPS) and water contact angle (WCA) measurement techniques, respectively. The x-ray diffraction (XRD) was employed to identify the phase of SS304 foils after different heat treatment temperatures. Thermo-optical properties such as solar absorptance (α_s), reflectance (ρ_s) and IR emittance (ε_{ir}) were also evaluated. The nanomechanical properties i.e., nanohardness (H) and Young's modulus (E) of as-received and heat treated SS304 foils were evaluated by the nanoindentation technique. Tribological and tensile properties i.e., yield strength (σ_y) and percentage of elongation of

reflectance (ρ_s) and IR emittance (ε_{ir}) were also evaluated. The nanomechanical properties i.e., nanohardness (H) and Young's modulus (E) of as-received and heat treated SS304 foils were evaluated by the nanoindentation technique. Tribological and tensile properties i.e., yield strength (σ_y) and percentage of elongation of different heat treated foils were also investigated by single pass scratch tests and universal testing machine, respectively. Noteworthy grain growth of SS304 was observed beyond vacuum heat treatment temperature of 700 °C. As a consequence, the magnitudes of both H and E data of SS304 were significantly decreased beyond the vacuum heat treatment temperature of 700 °C. Further, the hardness data followed the well known Hall–Petch relationship. On the other hand, the tribological property of SS304 was significantly deteriorated beyond the vacuum heat treatment temperature of 700 °C. The tensile strength of the foils was also altered after the heat treatment.

International Journal of Applied Ceramic Technology / Volume 13, Issue 6 / p. 987-996

Original Article

Impact Energy Absorption Analysis of Spark Plasma Sintered Al_2O_3 Reinforced Bulk Multiwalled Carbon Nanotube Compacts Using Nanoindentation

Ajitesh Kar, Soumya Sarkar, Probal Das, Manjima Bhattacharya, Anoop Mukhopadhyay

First published: 25 August 2016
https://doi.org/10.1111/ijac.12587
Citations: 1

Read the full text > | About

Abstract

Abstract

For utilizing the outstanding energy absorbing capacity of highly elastic carbon nanotube (CNT), bulk multiwalled CNT (MWCNT) structure containing 15 wt% alumina (Al_2O_3) was fabricated using spark plasma sintering at 1600°C for 10 min under 50 MPa. The compacted mass was ~85% dense having morphologically stable MWCNTs. Microindentation studies up to 9.81 N indicated outstanding elastic recovery of the bulk structure leaving only a diffused indentation mark at indenter-specimen interaction zone. Quantitative estimation of elastic response behavior of the fabricated structure using instrumented nanoindentation in 10–300 mN load range indicated promising applicability of Al_2O_3/MWCNT compact structure as energy absorbing material.

Open Access | Published: 17 November 2016

Nanocolumnar Crystalline Vanadium Oxide-Molybdenum Oxide Antireflective Smart Thin Films with Superior Nanomechanical Properties

Arjun Dey, Manish Kumar Nayak, [...]Anand Kumar Sharma

Scientific Reports **6**, Article number: 36811 (2016) | Cite this article

4386 Accesses | **20** Citations | **1** Altmetric | Metrics

Abstract

Vanadium oxide-molybdenum oxide (VO-MO) thin (21–475 nm) films were grown on quartz and silicon substrates by pulsed RF

Abstract

Vanadium oxide-molybdenum oxide (VO-MO) thin (21–475 nm) films were grown on quartz and silicon substrates by pulsed RF magnetron sputtering technique by altering the RF power from 100 to 600 W. Crystalline VO-MO thin films showed the mixed phases of vanadium oxides e.g., V_2O_5, V_2O_3 and VO_2 along with MoO_3. Reversible or smart transition was found to occur just above the room temperature i.e., at ~45–50 °C. The VO-MO films deposited on quartz showed a gradual decrease in transmittance with increase in film thickness. But, the VO-MO films on silicon exhibited reflectance that was significantly lower than that of the substrate. Further, the effect of low temperature (i.e., 100 °C) vacuum (10^{-5} mbar) annealing on optical properties e.g., solar absorptance, transmittance and

was significantly lower than that of the substrate. Further, the effect of low temperature (i.e., 100 °C) vacuum (10^{-5} mbar) annealing on optical properties e.g., solar absorptance, transmittance and reflectance as well as the optical constants e.g., optical band gap, refractive index and extinction coefficient were studied. Sheet resistance, oxidation state and nanomechanical properties e.g., nanohardness and elastic modulus of the VO-MO thin films were also investigated in as-deposited condition as well as after the vacuum annealing treatment. Finally, the combination of the nanoindentation technique and the finite element modeling (FEM) was employed to investigate yield stress and von Mises stress distribution of the VO-MO thin films.

PAPER

Effect of low temperature vacuum annealing on microstructural, optical, electronic, electrical, nanomechanical properties and phase transition behavior of sputtered vanadium oxide thin films

Deeksha Porwal[1], A Carmel Mary Esther[2], Arjun Dey[2], A K Gupta[2], D Raghavendra Kumar[2], Parthasarathi Bera[3], Harish C Barshilia[3], Manjima Bhattacharya[4], Anoop Kumar Mukhopadhyay[4], Kallol Khan[1]

+ Show full author list

Published 24 October 2016 • © 2016 IOP Publishing Ltd

Materials Research Express, Volume 3, Number 10

Citation Deeksha Porwal *et al* 2016 *Mater. Res. Express* **3** 106407

248 Total downloads

Abstract

Vanadium oxide thin films were deposited on quartz substrate by pulsed RF magnetron sputtering technique at 400–600 W and subsequently annealed at 100 °C in vacuum (1.5×10^{-5} mbar). Phase analysis, surface morphology and topology of the films e.g., both as-deposited and annealed were investigated by x-ray diffraction, field emission scanning electron microscopy and atomic force microscopy techniques. X-ray photoelectron spectroscopy (XPS) was employed to understand the elemental oxidation of the films. Transmittance of the films was evaluated by UV–vis-NIR spectrophotometer in the wavelength range of 200–1600 nm. Sheet resistance of the films was measured by two-probe method both for as-deposited and annealed conditions. XPS study showed the existence of V^{5+} and V^{4+} species. Metal to insulator transition temperature of the as-deposited film decreased from 339 °C to 326 °C after annealing as evaluated by differential

was evaluated by UV–vis-NIR spectrophotometer in the wavelength range of 200–1600 nm. Sheet resistance of the films was measured by two-probe method both for as-deposited and annealed conditions. XPS study showed the existence of V^{5+} and V^{4+} species. Metal to insulator transition temperature of the as-deposited film decreased from 339 °C to 326 °C after annealing as evaluated by differential scanning calorimetric technique. A significant change in transmittance was observed in particular at near infrared region due to alteration of surface roughness and grain size of the film after annealing. Sheet resistance values of the annealed films decreased as compared to the as-deposited films due to the lower in oxidation state of vanadium which led to increase in carrier density. Combined nanoindentation and finite element modeling were applied to evaluate nanohardness (*H*), Young's modulus (*E*), von Mises stress and strain distribution. Both *H* and *E* were improved after annealing due to increase in crystallinity of the film.

PAPER

Failure and deformation mechanisms at macro- and nano-scales of alkali activated clay

Pradip Sekhar Das[4,1], Manjima Bhattacharya[4,1], Dipak Kr Chanda[1], Srikanta Dalui[1], Saikat Acharya[2], Swapankumar Ghosh[3] and Anoop Kumar Mukhopadhyay[5,1]

Published 6 May 2016 • © 2016 IOP Publishing Ltd

Journal of Physics D: Applied Physics, Volume 49, Number 23

Citation Pradip Sekhar Das *et al* 2016 *J. Phys. D: Appl. Phys.* **49** 235503

173 Total downloads

Abstract

Here we report two qualitative models on failure and deformation mechanisms at macro- and nano-scales of alkali activated clay (AACL), a material of extraordinary importance as a low cost building material. The models were based on experimental data of compressive failure and nanoindentation response of the AACL materials. A 420% improvement in compressive strength (σ_c) of the AACL was achieved after 28 days (d) of curing at room temperature and it correlated well with the decrements in the residual alkali and pH concentrations with the increase in curing time. Based on extensive post-mortem FE-SEM examinations, a schematic model for the compressive failure mechanism of AACL w proposed. In addition, the nanoindentation of AACL provided the first ever experimental evidence of the presence of nano-scale plasticity and a nano-scale contact deformation resistance that increased with the applied load. These results meant the development of a unique strain tolerant microstructure in the AACL of Indian

PDF
Help

of curing at room temperature and it correlated well with the decrements in the residual alkali and pH concentrations with the increase in curing time. Based on extensive post-mortem FE-SEM examinations, a schematic model for the compressive failure mechanism of AACL was proposed. In addition, the nanoindentation results of AACL provided the first ever experimental evidence of the presence of nano-scale plasticity and a nano-scale contact deformation resistance that increased with the applied load. These results meant the development of a unique strain tolerant microstructure in the AACL of Indian origin. The implications of these new observations were discussed in terms of a qualitative model based on the deformation of layered clay structure.

PDF
Help

PAPER

Nanoscale contact resistance of V_2O_5 xerogel films developed by nanostructured powder

Biswajit Bera[1,2], Pradip Sekhar Das[1], Manjima Bhattacharya[1], Swapankumar Ghosh[3], Anoop Kumar Mukhopadhyay[1] and Arjun Dey[4]

Published 27 January 2016 • © 2016 IOP Publishing Ltd

Journal of Physics D: Applied Physics, Volume 49, Number 8

Citation Biswajit Bera *et al* 2016 *J. Phys. D: Appl. Phys.* **49** 085303

395 Total downloads

Abstract

Here we report the synthesis of V_2O_5 nanostructures by a fast, simple, cost-effective, low-temperature chemical process; followed by the deposition of V_2O_5 xerogel thin films on a glass substrate by a sol–gel route. Phase analysis, phase transition, microstructural and electronic characterization studies are carried out by x-ray diffraction, texture coefficient analysis, field emission scanning electron microscopy, transmission electron microscopy (TEM), related selected area electron diffraction pattern (SAED) analysis, Fourier transform infrared spectroscopy, thermogravimetry and differential thermal analysis, differential scanning calorimetry, and x-ray photoelectron spectroscopy techniques. Confirmatory TEM and SAED data analysis further that in this polycrystalline powder there is a unique localized existence of purely single crystalline V_2O_5 powder with a preferred orientation in the (0 1 0) direction. The most interesting result obtained in the present work is that the xerogel thin films exhibit an inherent

PDF
Help

Confirmatory TEM and SAED data analysis prove further that in this polycrystalline powder there is a unique localized existence of purely single crystalline V_2O_5 powder with a preferred orientation in the (0 1 0) direction. The most interesting result obtained in the present work is that the xerogel thin films exhibit an inherent capability to enhance the intrinsic resistance against contact induced deformations as more external load is applied during the nanoindentation experiments. In addition, both the nanohardness and Young's modulus of the films are found to be insensitive to load variations (e.g. 1 to 7 mN). These results are explained in terms of microstructural parameters, e.g. porosity and structural configuration.

PDF

Access through **your institution**

Purchase PDF

Journal of the Mechanical Behavior of Biomedical Materials

Volume 56, March 2016, Pages 229-248

Research Paper

Nanomechanical responses of human hair

Aniruddha Samanta [a, 1] ... Anoop Kumar Mukhopadhyay [a] [2]

Show more

Outline | Share Cite

https://doi.org/10.1016/j.jmbbm.2015.10.010

Get rights and content

Access through **your institution**

Purchase PDF

Abstract

Here we report the first ever studies on nanomechanical properties e.g., nanohardness and Young's modulus for *human hair of Indian origin*. Three types of hair samples e.g., virgin hair samples (VH), bleached hair samples (BH) and Fe-tannin complex colour treated hair samples (FT) with the treatment by a proprietary hair care product are used in the present work. The proprietary hair care product involves a Fe-salt based formulation. The hair samples are characterized by optical microscopy, atomic force microscopy, field emission scanning electron microscopy, energy dispersive X-ray spectroscopy (EDAX) genesis line map, EDAX spot mapping, nanoindentation, tensile fracture, and X-ray diffraction techniques. The nanoindentation studies are conducted on the cross-sections of the VH, BH and FT hair samples. The results prove that the nanomechanical

Access through **your institution**

Purchase PDF

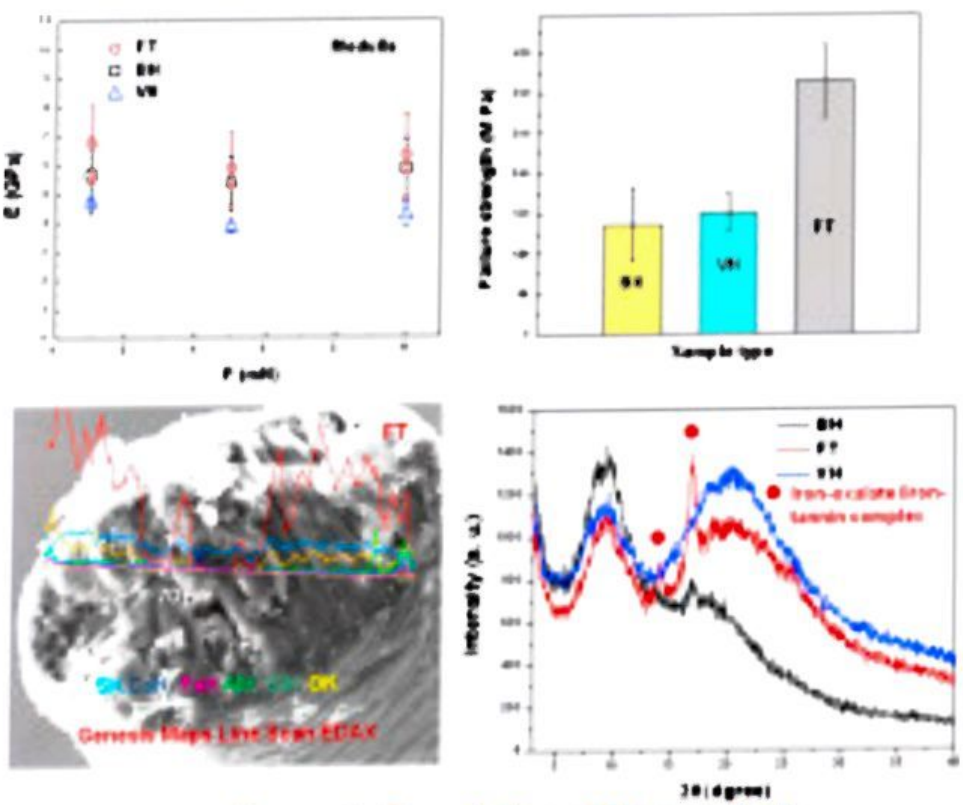
treatment by a proprietary hair care product are used in the present work. The proprietary hair care product involves a Fe-salt based formulation. The hair samples are characterized by optical microscopy, atomic force microscopy, field emission scanning electron microscopy, energy dispersive X-ray spectroscopy (EDAX) genesis line map, EDAX spot mapping, nanoindentation, tensile fracture, and X-ray diffraction techniques. The nanoindentation studies are conducted on the cross-sections of the VH, BH and FT hair samples. The results prove that the nanomechanical properties e.g., nanohardness and Young's modulus are sensitive to measurement location e.g., cortex or medulla and presence or absence of the chemical treatment. Additional results obtained from the tensile fracture experiments establish that the trends reflected from the evaluations of the nanomechanical properties are general enough to hold good. Based on these observations a schematic

Access through **your institution**

Purchase PDF

hold good. Based on these observations a schematic model is developed. The model explains the present results in a qualitative yet satisfactory manner.

Graphical abstract



Structure- Property Co-relation of Human Hair

Download : Download high-res image (293KB)

Download : Download full-size image

From the journal:
RSC Advances

Synthesis of a $BiFeO_3$ nanowire-reduced graphene oxide based magnetically separable nanocatalyst and its versatile catalytic activity towards multiple organic reactions†

Check for updates

Debabrata Moitra,[a] Barun Kumar Ghosh,[a] Madhurya Chandel[a] and Narendra Nath Ghosh*[a]

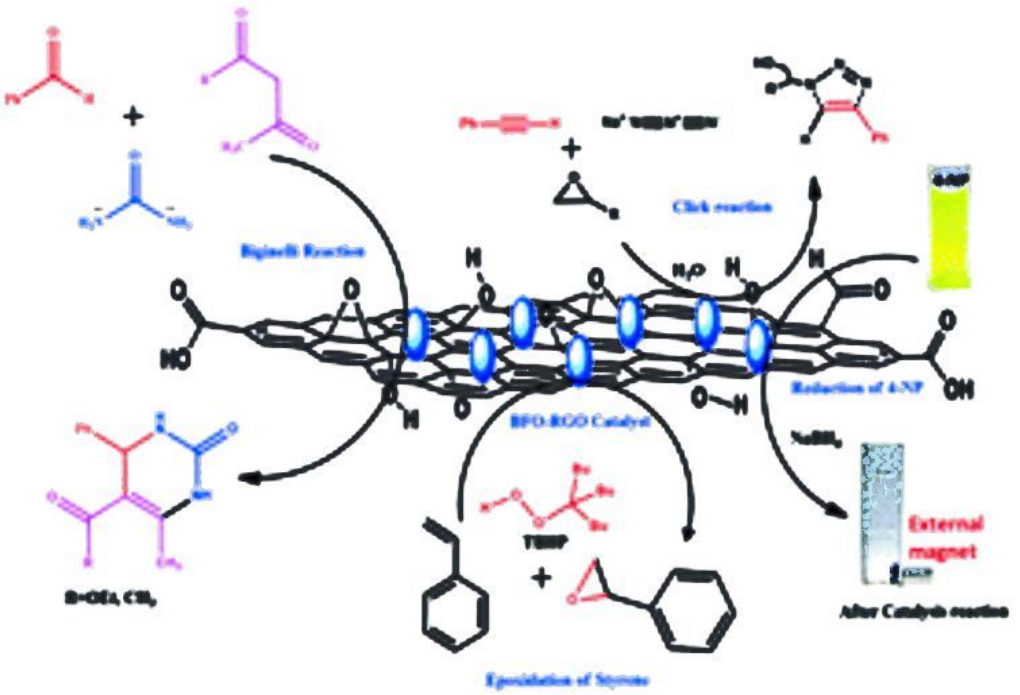
Author affiliations

Abstract

Herein, we report for the first time synthesis of a $BiFeO_3$ nanowire-reduced graphene oxide nanocatalyst (BFO–RGO) using a hydrothermal method. The BFO–RGO

Abstract

Herein, we report for the first time synthesis of a $BiFeO_3$ nanowire-reduced graphene oxide nanocatalyst (BFO–RGO) using a hydrothermal method. The BFO–RGO nanocatalyst exhibited excellent catalytic activity towards Biginelli reaction, Click reaction, styrene epoxidation, 4-NP reduction and a herbicide, (trifluralin) reduction. The novelty of this catalyst lies in its high catalytic efficiency towards many organic reactions, easy separation and good reusability.



ROYAL SOCIETY OF CHEMISTRY

Log in / register

Issue 80, 2016, Issue in Progress

Previous Next

From the journal:
RSC Advances

A simple '*in situ*' co-precipitation method for the preparation of multifunctional $CoFe_2O_4$–reduced graphene oxide nanocomposites: excellent microwave absorber and highly efficient magnetically separable recyclable photocatalyst for dye degradation†

Check for updates

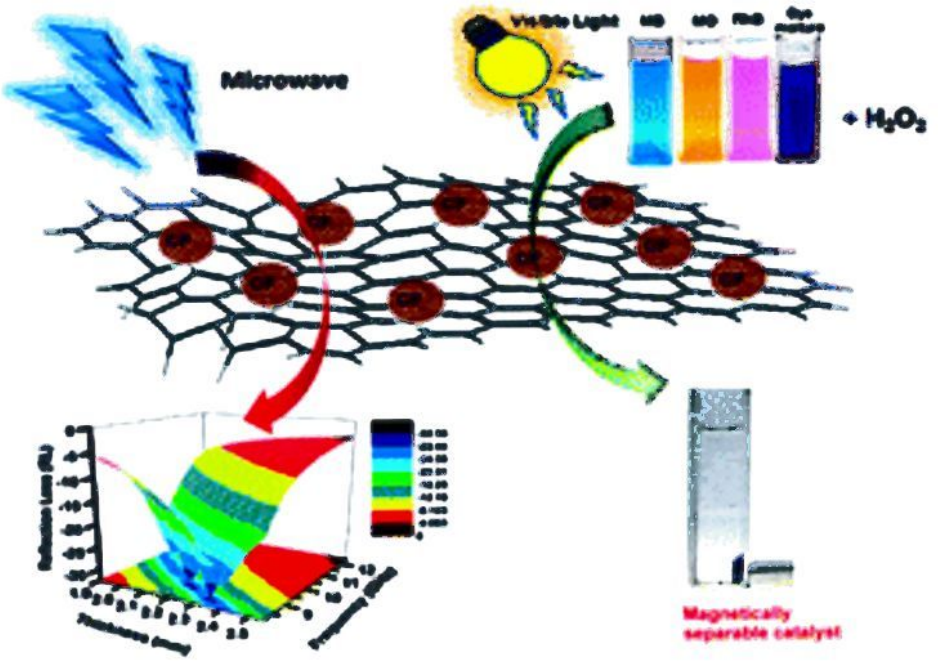
Debabrata Moitra,[a] Madhurya Chandel,[a] Barun Kumar Ghosh,[a] Raj Kumar Jani,[b] Manoj Kumar Patra,[b] Sampat Raj Vadera[b] and Narendra Nath Ghosh*[a]

Author affiliations

Abstract

Here, an '*in situ*' co-precipitation reaction method has been reported for the preparation of $CoFe_2O_4$–RGO (CF–RGO) nanocomposites. To the best of our knowledge, this is the first time a simple synthetic method is reported for the preparation of $CoFe_2O_4$–RGO nanocomposites where a hydrothermal technique was not used. The novelty of this technique lies in its simplicity, cost-effectiveness, and the capability of large scale production of $CoFe_2O_4$–RGO nanocomposites. The synthesized $CoFe_2O_4$–RGO nanocomposites possess excellent microwave absorbing properties as well as high photocatalytic activity towards the degradation of various dyes under visible light irradiation. 85CF–15RGO (85 wt% CF and 15 wt% RGO) showed excellent microwave absorption properties with a Reflection Loss (RL) of −31.31 dB (~99.94% absorption) at 9.05 GHz with an 8.2–10.92 GHz effective band width range. To the best of our knowledge 85CF–15RGO nanocomposite exhibited comparable and even superior microwave absorption properties in the X-band region than most of the ferrite based composites. 75CF–25RGO (75 wt% CF and 25 wt% RGO) acted as a very good magnetically separable photocatalyst for the degradation

than most of the ferrite based composites. 75CF–25RGO (75 wt% CF and 25 wt% RGO) acted as a very good magnetically separable photocatalyst for the degradation of various synthetic dyes (such as methyl orange, methylene blue, rhodamine B and a mixture of these dyes) under visible light irradiation emitted from a 100 W reading lamp. Moreover, $CoFe_2O_4$–RGO catalyst also showed easy magnetic separation with high reusability. The photocatalytic activity of 75CF–25RGO was found to be comparable and in some cases better than the various reported RGO–ferrite composites. The simple method of preparation and multifunctional character make CF–RGO nanocomposites attractive materials for application in the area of photocatalysis as well as microwave absorption.



Log in / register

Issue 17, 2016

Previous Next

From the journal:
RSC Advances

Synthesis of a $Ni_{0.8}Zn_{0.2}Fe_2O_4$–RGO nanocomposite: an excellent magnetically separable catalyst for dye degradation and microwave absorber†

Check for updates

D. Moitra,[a] B. K. Ghosh,[a] M. Chandel,[a] R. K. Jani,[b] M. K. Patra,[b] S. R. Vadera[b] and N. N. Ghosh*[a]

Author affiliations

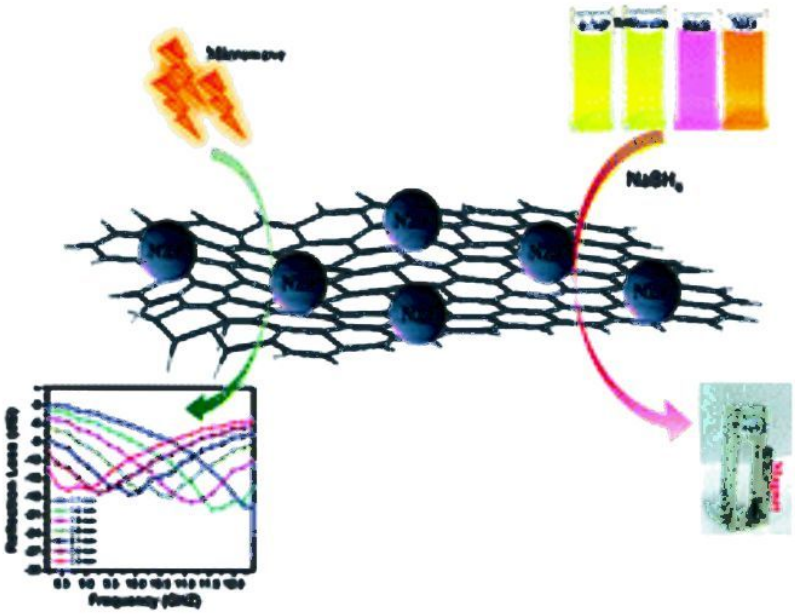
Abstract

D. Moitra,[a] B. K. Ghosh,[a] M. Chandel,[a] R. K. Jani,[b] M. K. Patra,[b] S. R. Vadera[b] and N. N. Ghosh*[a]

⊕ Author affiliations

Abstract

A $Ni_{0.8}Zn_{0.2}Fe_2O_4$ reduced graphene oxide nanocomposite has been synthesized by a simple '*in situ* co-precipitation' technique. This composite exhibited an ability to act as an excellent magnetically separable catalyst towards the degradation of various dyes as well as a toxic herbicide (trifluralin). It also demonstrated very good microwave absorption properties.



A Facile Method for Preparation of TiO_2 Nanoparticle Loaded Mesoporous γ-Al_2O_3: An Efficient but Cost-Effective Catalyst for Dye Degradation

Buy Article:
$107.14 + tax
(Refund Policy)
ADD T BUY N

Authors: Naik, Bhanudas [1]; Moitra, Debabrata [2]; Dayananda, Desagani [2]; Hazra, Subhenjit [2]; Ghosh, Barun Kumar [2]; Prasad, Sivankutty Vadakkethonippurathu [3]; Ghosh, Narendra Nath [2];

Source: Journal of Nanoscience and Nanotechnology, Volume 16, Number 8, August 2016, pp. 8544-8549(6)
Publisher: American Scientific Publishers
DOI: https://doi.org/10.1166/jnn.2016.11703

Cookie Policy

In this paper, we have reported the synthesis of a highly efficient TiO_2 nanoparticle loaded mesoporous *y*-Al_2O_3 catalyst for photocatalytic degradation of methyl orange under sunlight exposure. Pure anatase TiO_2 nanoparticles were formed in the interconnected mesoporous matrix of *y*-Al_2O_3. The synthesized catalysts were characterized using powder X-ray diffraction method, surface area and porosimetry analysis, particle size analysis and transmission electron microscopy. The photocatalytic property of the synthesized catalysts were investigated towards the degradation of methyl orange under sunlight exposure and monitored by UV-visible spectrophotometer. Synthesized catalysts showed high photocatalytic activity for the degradation of methyl orange. High photocatalytic activity under sunlight exposure, simple method of preparation and cost effectiveness make this catalyst an attractive candidate for photocatalytic dye degradation reactions.

Keywords: Methyl Orange; Photocatalysis; TiO2; Transmission Electron Microscopy; y-Al2O3

Document Type: Research Article

Level of service for on-street parking

March 2017 · KSCE Journal of Civil Engineering

DOI:10.1007/s12205-017-1538-1

Project: On-street parking demand estimation in urban CBD

Authors:

Debasish Das
JIS COLLEGE OF ENGINEERING

Mokaddes Ali Ahmed
National Institute of Technology, Silchar

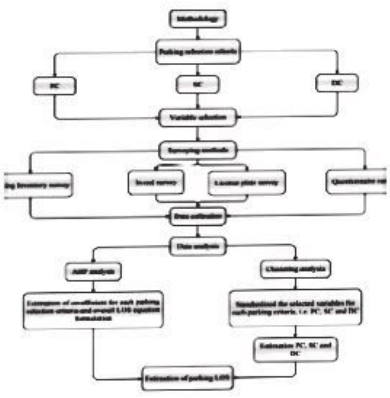
Download full-text PDF

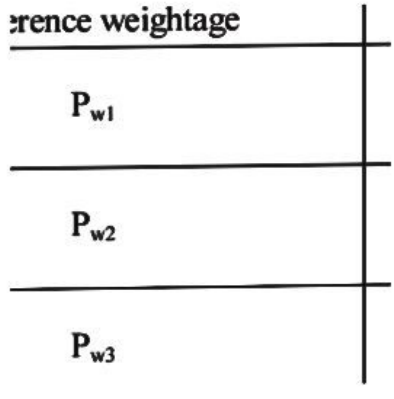
Citations (6) References (25) Figures (1

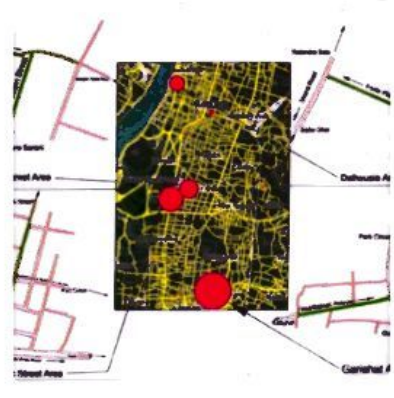
Abstract and Figures

Abstract and Figures

Parking of vehicle is one of the most important issues of the urban transportation system in any Central Business District (CBD). A sharp rise in vehicular ownership and insufficient transit system give rise to the huge on-street parking demand leading to a reduction in effective carriageway width, flow speed, creating unnecessary congestion, etc. The problems can be controlled by providing an efficient parking system. The present study aims to estimate the Level of Service (LOS) of on-street parking. LOS is calculated based on three parking selection criteria, viz. Parking Characteristic (PC), Safety Characteristic (SC) and Design Characteristic (DC). Four CBDs of Kolkata Metropolitan Area (KMA) are selected as a case study area. The overall LOS equation is formulated by Analytic Hierarchy Process (AHP). Cluster analysis and Zero dimension process are used to standardize the variables to designated LOS. Various surveys are carried out for data collection. The data are analyzed using SPSS. Finally, the overall LOS for on-street parking is estimated for all the selected CBDs.







Controlling on-street parking demand using sensitivity analysis: A case study at Kolkata

December 2016

Projects: Effect of Public Transport and Parking reliability on Mode choice of Kolkata · On-street parking demand estimation in urban CBD

Authors:

Debasish Das
JIS COLLEGE OF ENGINEERING

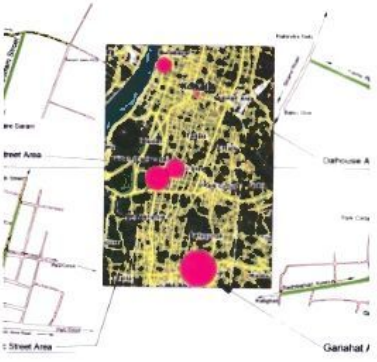
Ali Mokaddes

Mokaddes Ali Ahmed
National Institute of Technology, Silchar

Saptarshi Sen
Indian Institute of Engineering Science and Tec...

Abstract and Figures

On-street parking is one of the most important aspects of the transportation system in any central business district (CBD) worldwide. Managing the on-street parking demand is an important issue in transportation planning, especially for metropolitan cities. Every car owner prefers to park their vehicle as close as possible to destination to minimize the walking distance, leading to overcrowded. The objectives of this study are to find out important parameters on on-street parking, generating a parking demand estimation model and to carry out sensitivity analysis to obtain most sensitive parameter(s) for demand estimation. The data are collected from field survey. Four CBDs of Kolkata, viz. Camac Street, Dalhousie, Gariahat and Park Street have been selected as case study areas in this study. The estimated demand is found to be much higher than the present supply. The forecasted demand is also estimated. Statistical software like SPSS is used for analysis.



Case study area

Open Access Subscription Access

Controlling on-street parking demand using sensitivity analysis: A case study at Kolkata

Mr. Debasish Das, Prof. Mokaddes Ali Ahmed, Mr Saptarshi Sen

Abstract

On-street parking is one of the most important aspects of the transportation system in any central business district (CBD) worldwide. Managing the on-street parking demand is an important issue in transportation planning, especially for metropolitan cities. Every car owner prefers to park their vehicle as close as possible to destination to minimize the walking distance, leading to overcrowded. The objectives of this study are to find out important parameters on on-street parking, generating a parking demand estimation model and to carry out sensitivity analysis to obtain most sensitive parameter(s) for demand estimation. The data are collected from field survey. Four CBDs of Kolkata, viz. Camac Street, Dalhousie, Gariahat and Park Street have been selected as case study areas in this study. The estimated demand is found to be much higher than the present supply. The forecasted demand is also estimated. Statistical software like SPSS is used for analysis.

Full Text:

PDF

References

Asiyanbola, R.A. and Akinpelu, A.A. The challenges of on-street parking in Nigerian Cities' transportation routes. International Journal of Development and Sustainability, 1(2), 2012.

A report, Parking policy in Kolkata Metropolitan area, KMA, India, Available: http://www.cseindia.org/userfiles/Parking%20Policy_KMDA.pdf,2000.

Bhatt, B., Kumar, V. and Gandhi F. R., A Study on Parking Needs at Intersections – Case of Surat T. P. Schemes, International Journal of Engineering Research, Volume No.3, Issue No.7, Pp : 449-452, 2014.

Briefing Note on Parking demand Elasticity in the CBD: An Analysis Comparing Calgary with 43 International cities, Calgary.ca/economy, 2010, Available: Available: http://www.calgary.ca/CA/fs/Documents/Corporate-Economics/Briefing Note/Briefing-Note-08-Parking.pdf?noredirect=1.

Chakrabarti, S. and Mazumder, T., Behavioral Characteristics of Car Parking Demand: A Case Study of Kolkata, Institute of Town Planners, India Journal 7 - 4, 01 – 11, 2010.

Hensher, D.A. and King, J., Parking demand and responsiveness to supply, pricing and location in the Sydney central business district .Transportation Research Part A: Policy and Practice, 35(3), pp.177-196, 2001.

Hensher A. David, Stanley John,, Performance-based quality contracts in bus service provision, Transport Policy, Volume 8, Issue 2, April 2001, Pages 151–160, DOI:10.1016/S0967-070X(01)00005-1, 2002.

Huang, S., LIN, W. and HUANG, H., Empirical study of parking problem on university campus. Journal of Transportation Systems Engineering and Information Technology, 7(2), pp.135-140, 2007.

Kolhar, P., On Street Parking Management Plan and Cost-Benefit Analysis for Dharwad City, Karnataka, India. International Journal of Engineering Research and Applications (IJERA) ISSN, pp.2248-9622, 2012.

Kolhar, M.P., Offstreet Parking Management Plan for Dharwad City, Karnataka, India. Journal of Engineering Research and Studies, April- June, 2012

International Journal of Trend in Research and Development, Volume 3(6), ISSN: 2394-9333
www.ijtrd.com

A Review Paper of Squamous Cell

[1]Moumita Ghosh and [2]Himadri Nath Moulick,
[1]Computer Science and Engineering Department, Siliguri Institute of Technology, Sukna , Siliguri, West Bengal, India
[2]Computer Science and Engineering Department, IMPS Engineering College, Malda, West Bengal, India

Abstract – In the recent years, basaloid squamous cell carcinomas (BSCCs) have gained attention because of (1) observation of a relative increase in the number of tumors arising particularly in head and neck sites, (2) identification of human papillomavirus (HPV) in BSCCs arising predominantly in the oropharynx, and (3) controversies that exist regarding the biological aggressiveness of the tumor. The objective of the present review was to address the issues mentioned above by focusing primarily on oral BSCCs, using literature that has been published in the English language up to 2013. According to the literature review, oral BSCCs were found to be relatively more common in elderly patients with a mean age of 64 years. A male predominance with a male/female ratio of 3:1 was observed. The predominant site was the tongue, with almost half of the reported cases occurring at this site, followed by the floor of the mouth and palate. With reference to habit history, majority were found to be tobacco and alcohol users. However, only 3 studies revealed data on HPV status of purely oral BSCC, and according to the results of these studies, of the 17 tumors tested, 4 had harbored high-risk HPV.

Keyword: *Image Processing, Medical Images, Image Segmentation, Image Enhancement, TNM System.*

I. INTRODUCTION

SQUAMOUS CELL CARCINOMA(SCC) of the lip is an infiltrating and destructive malignant epithelial tumour, with high potential for lymphatic and/or blood metastasizes. Squamous cell carcinoma (SCC) is an uncontrolled growth of abnormal cells arising in the squamous cells, which compose most of the skin's upper layers (the epidermis). SCCs often look like scaly red patches, open sores, elevated growths with a central depression, or warts; they may crust or bleed. SCC is mainly caused by cumulative UV exposure over the course of a lifetime. It can become disfiguring and sometimes deadly if allowed to grow. An estimated 700,000 cases of SCC are diagnosed each year in the US, resulting in approximately 2,500 deaths. SCCs may occur on all areas of the body including the mucous membranes and genitals, but are most common in areas frequently exposed to the sun, such as the rim of the ear, lower lip, face, bald scalp, neck, hands, arms and legs. Often the skin in these areas reveals telltale signs of sun damage, such as wrinkling, changes in pigmentation, and loss of elasticity.Squamous cell carcinoma most commonly occurs on the lip, floor or roof of the mouth, tongue, soft palate, gums, and other areas of the oral cavity. Lip SCC is 15-30% of all SCC the cephalic extremity and 1/5 of the upper aerodigestive tract cancers. We conducted a prospective study in Dermatology Clinic from Craiova, between 2004-2010, with the aim of highlighting the epidemiological aspects, clinical and therapeutically evolution of patients with lip SCC. Lip SCC onset occurs frequently on premalignant lesions, especially on chronic keratozicchеilitis, pointing out the importance of early diagnosis and appropriate treatment for preblastomatouscheilitis. Early establishment of treatment of lip SCC offers the safety of therapeutic accomplishment. Option for surgical treatment of T0, T1N0M0 lip SCC is justified by the very good oncological, aesthetic and functional results in most cases. Surgical treatment of primary T0, T1 lesions, respecting the oncological surgery principles makes it not recommended to "filling in" the results with other therapeutic methods. Patients should be regularly examined for a period of at least three years to capture the moment of occurrence of metastases, or a possible relapse of a lip SCC. Actions are needed to educate the population about the risk factors and to detect precancerous lesions and SCC of rim in early stage. To present incisional biopsy importance as an effective clinical approach for the diagnosis of lip squamous cell carcinoma and actinic cheilitis malignancy as well as the professional's lack of knowledge on these two diseases.The physician and dentist must be aware of the main clinical features of lip squamous cell carcinoma so that they can establish its correct diagnosis and early treatment.

II. GENERAL INSTRUCTIONS

SCC of the lip is an infiltrating and destructive malignant epithelial tumour, with high potential for lymphatic and/or blood metastasizes. Lip SCC is 15-30% of all SCC the cephalic extremity and 1/5 of the upper aero digestive tract cancers. We conducted a prospective study in Dermatology Clinic from Craiova, between 2004-2010, with the aim of highlighting the epidemiological aspects, clinical and therapeutically evolution of patients with lip SCC.Lip SCC onset occurs frequently on premalignant lesions, especially on chronic keratozic cheilitis, pointing out the importance of early diagnosis and appropriate treatment for preblastomatous cheilitis. Early establishment of treatment of lip SCC offers the safety of therapeutic accomplishment. Option for surgical treatment of T0, T1N0M0 lip SCC is justified by the very good oncological, aesthetic and functional results in most cases. Surgical treatment of primary T0, T1 lesions, respecting the oncological surgery principles makes it not recommended to "filling in" the results with other therapeutic methods. Patients should be regularly examined for a period of at least three years to capture the moment of occurrence of metastases, or a possible relapse of a lip SCC. Actions are needed to educate the population about the risk factors and to detect precancerous lesions and SCC of rim in early stage. To present incisional biopsy importance as an effective clinical approach for the diagnosis of lip squamous cell carcinoma and actinic cheilitis malignancy as well as the professional's lack of knowledge on these two diseases.The physician and dentist must be aware of the main clinical features of lip squamous cell carcinoma so that they can establish its correct diagnosis and early treatment.

III. EXPERIMENTAL RESULTS

Squamous cell carcinoma, or squamous skin cancer, is a type of skin cancer that develops from the flat, squamous cells that are the primary cell type that makes up the outermost layer of the skin, the epidermis. Squamous cells produce a protein called keratin, which helps to provide a protective layer for the rest of

Access through **your institution**

Purchase PDF

Journal of Luminescence

Volume 178, October 2016, Pages 314-323

Full Length Article

Size dependent photoluminescence property of hydrothermally synthesized crystalline carbon quantum dots

S. Sarkar [a, 1], D. Banerjee [a, 2], U.K. Ghorai [a], N.S. Das [a, 3], K.K. Chattopadhyay [a, b]

[a] School of Material Science and Nanotechnology Jadavpur University, Kolkata 700032, India

[b] Thin Film and NanoScience Laboratory, Department of Physics, Jadavpur University, Kolkata 700032, India

Access through **your institution**

Purchase PDF

Abstract

In this work, simple hydrothermal synthesis of water soluble Carbon quantum dots (CQDs) of different sizes has been reported. The effect of synthesis temperature and synthesis time on the particle size has also been shown. The structures of all the as-prepared samples were studied by field emission scanning electron microscope and high resolution transmission electron microscope. Fourier transformed infrared spectrophotometer analyzes the different bonding present in the sample whereas Raman spectrophotometer quantifies the hybridization state of the prepared samples. UV–vis spectrophotometer gives the variation of absorbance of all the samples with wavelength. Dynamic light scattering study shows the variation of particle size with deposition condition and corresponding zeta potential gives the idea about the stability of the CQD solutions. The photoluminescence (PL) properties of the as

Access through **your institution**

Purchase PDF

Fourier transformed infrared spectrophotometer analyzes the different bonding present in the sample whereas Raman spectrophotometer quantifies the hybridization state of the prepared samples. UV–vis spectrophotometer gives the variation of absorbance of all the samples with wavelength. Dynamic light scattering study shows the variation of particle size with deposition condition and corresponding zeta potential gives the idea about the stability of the CQD solutions. The photoluminescence (PL) properties of the as prepared CQDs were also studied in detail. It is noticed that with the increase of excitation wavelength, the PL emissions for the different samples were red shifted. The results have been explained in terms of the excitation dependent emission, variations in size of the CQD and presence of different functional groups on the surface of CQDs.

Access through **your institution**

Purchase PDF

Materials Chemistry and Physics
Volume 175, 1 June 2016, Pages 22-32

Easy synthesis of porous carbon mesospheres and its functionalization with titania nanoparticles for enhanced field emission and photocatalytic activity

Dheeraj Kumar [a], Diptonil Banerjee [b, 1], Sourav Sarkar [a], Nirmalya S. Das [b], Kalyan K. Chattopadhyay [a, b]

Access through **your institution**

Purchase PDF

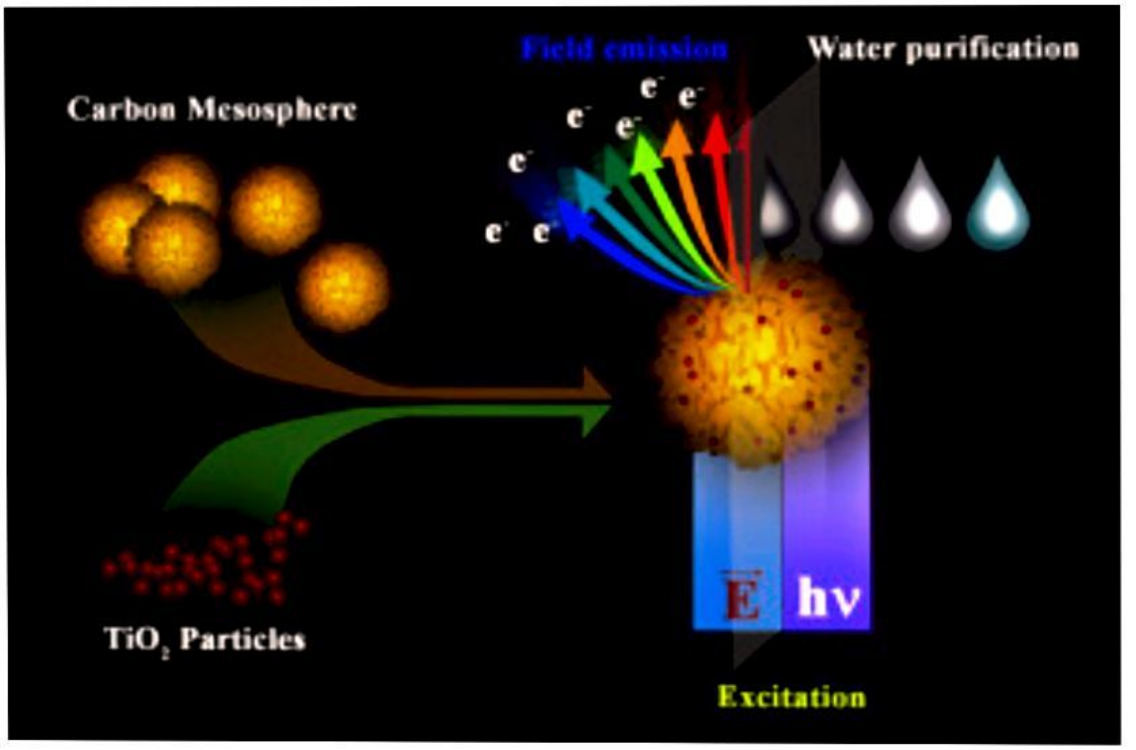
A simple low temperature chemical approach for synthesizing porous carbon microspheres and its hybrid structure with titanium dioxide (TiO_2) nanoparticle is reported. The carbon spheres and related hybrid structures were characterized by X-ray diffraction, scanning and transmission electron microscopy, Raman and UV–Vis–NIR spectroscopy. The microscopic studies confirm the successful synthesis of hybrid structure of carbon spheres with TiO_2 nanoparticles. Also it reveals that the porous carbon spheres were actually composed of few layers thick carbon flakes. The performance of these as-synthesized pure and hybrid materials on removal of poisonous dyes from water under photon irradiation was studied. It is found that the hybrid sample shows better photocatalytic activity. It is also shown that TiO_2 nanoparticle functionalization enhances the electron field emission properties of carbon sample with reduction of turn-on field from 5.1 to 3.4 V/μm. The enhancement in the photocatalytic activity is due to the combined effect of higher surface area and the

Access through **your institution**

Purchase PDF

the combined effect of higher surface area and the injection of electrons from carbon to TiO_2 nanoparticles whereas in case of field emission TiO_2 particles act as additional sites with lower work function and increase the roughness helping enhancement of field strength giving enhanced emission.

Graphical abstract



Download : Download high-res image (172KB)
Download : Download full-size image

A comprehensive theoretical study of dual loop optoelectronic oscillator

Dia Ghosh [a], Arindum Mukherjee [b], Somnath Chatterjee [c], Baidya Nath Biswas [d]

[a] Department of Electronics & Communication Engineering, Siliguri Institute of Technology, Siliguri 734009, West Bengal, India

[b] Department of Electronics & Communication Engineering, Central Institute of Technology, Kokrajhar 783370, Assam, India

[c] Kanailal Vidyamandir (French Section), Chandernagore, Hooghly 712136, West Bengal, India

[d] Education Division, SKF Group of Institutions, Mankundu, Hooghly 712139, West Bengal, India

Received 29 June 2015, Accepted 5 December 2015, Available online 19 December 2015.

Access through **your institution**

Outline | Share | Cite

https://doi.org/10.1016/j.ijleo.2015.12.085

Get rights and content

Abstract

In the present paper a theoretical analysis of pole movement in dual loop optoelectronic oscillator (DLOEO) has been carried out. A new circuit arrangement for DLOEO is proposed, where the band pass filter (BPF) has been replaced by an oscillator using injection locking technique. It has been seen from the theoretical and simulation results that the performance of the proposed system is similar to that of the conventional DLOEO. Moreover the proposed system eliminates the requirement of RF filter in the feedback loop of the Optoelectronic Oscillator (OEO).

Access through **your institution**

Purchase PDF

Optik

Volume 127, Issue 7, April 2016, Pages 3576-3581

On the effect of combining an external synchronizing signal feeding the Mach–Zehnder modulator in an optoelectronic oscillator

Arindum Mukherjee [a], Dia Ghosh [b, 1], Baidyanath Biswas [c, 2]

Access through **your institution**

Purchase PDF

https://doi.org/10.1016/j.ijleo.2015.12.170

Get rights and content

Abstract

Injection locking properties of a single loop optoelectronic oscillator have been re-visited with particular emphasis on injecting an external microwave signal to the stationary microwave signal present in the loop shining on the Mach–Zehnder modulator. This approach has made it possible to investigate the behavior of the normalized amplitude and frequency with the fiber delay. Detailed theoretical calculations have been carried out to investigate the dependence of the locking characteristics on the loop parameters. Also presented are experimental results in support of the theoretical findings.

Access through **your institution**

Purchase PDF

Volume 127, Issue 2, January 2016, Pages 973-980

Harmonic distortion and power relations in a single loop optoelectronic oscillator

A. Mukherjee [a] ... B.N. Biswas [d]

Show more

Outline | Share Cite

https://doi.org/10.1016/j.ijleo.2015.10.126

Get rights and content

Abstract

This paper begins with a review of the work in the field of single loop optoelectronic oscillator. Detailed theoretical investigation of the system incorporating an injection locked oscillator in place

Access through **your institution**

Purchase PDF

A. Mukherjee [a] ... B.N. Biswas [d]

Show more

Outline | Share Cite

https://doi.org/10.1016/j.ijleo.2015.10.126

Get rights and content

Abstract

This paper begins with a review of the work in the field of single loop optoelectronic oscillator. Detailed theoretical investigation of the system incorporating an injection locked oscillator in place of the conventional bandpass filter is presented. Power relations and harmonic distortions of the oscillator are calculated. Experimental results showing in good agreement with theoretical predictions are given.

electronics

MDPI

Article

Design of an Oscillation-Based BIST System for Active Analog Integrated Filters in 0.18 µm CMOS

Leonid Kladovščikov *, Marijan Jurgo and Romualdas Navickas

Micro and Nanoelectronics Systems Design and Research Laboratory, Vilnius Gediminas Technical University, 10257 Vilnius, Lithuania

* Correspondence: leonid.kladovscikov@vgtu.lt; Tel.: +370-5-274-4768

Received: 19 June 2019; Accepted: 18 July 2019; Published: 20 July 2019

Abstract: In this paper, an oscillation-based built-in self-test system for active an analog integrated circuit is presented. This built-in self-test system was used to detect catastrophic and parametric faults, introduced during chip manufacturing. As circuits under test (CUT), second-order Sallen-Key, Akerberg-Mossberg and Tow-Thomas biquad filters were designed. The proposed test hardware detects parametric and catastrophic faults on changeable limits. The influence of both oscillation and test hardware on fault detection limits were investigated and analyzed. The proposed oscillation based self-test system was designed and simulated in 0.18 µm complementary metal-oxide semiconductor (CMOS) technology. Due to the easiness of implementation and configuration for testing of different active analog filters, such self-test systems can be effectively used in modern integrated circuits, made of a large number of devices and circuits, such as the multi-standard transceivers used in the core hardware of software-defined radios. Using the proposed test strategy, the fault tolerance limits for catastrophic faults varied from 96% to 100% for all injected faults in different structures of low pass filters (LPF). The detection range of parametric faults of passive components' nominal value, depending on the used structure of the filter, did not exceed –0.74% – 0.72% in case of Sallen-Key, –3.31% – 1.00% in case of Akerberg-Mossberg and –2.39% – 1.44% in case of Tow-Thomas LPF.

Keywords: CMOS; self-test; analog filter; low-pass; oscillation; transmission gate

Access through **your institution**

Purchase PDF

Renewable and Sustainable Energy Reviews

Volume 62, September 2016, Pages 215-235

Recent developments of solar energy in India: Perspectives, strategies and future goals

Subhojit Dawn ... Manash Kumar Mishra

Show more

Outline | Share Cite

https://doi.org/10.1016/j.rser.2016.04.040

Get rights and content

Access through **your institution**

Purchase PDF

https://doi.org/10.1016/j.rser.2016.04.040

Get rights and content

Abstract

Power is the most paramount ingredient of infrastructure for growth in economics and welfare of a nation. Development for sustaining the growth of the Indian economy in the existing infrastructure is crucial. The power sector of India is one of the largest expanded power sectors in the world. Due to the continuous increment in electricity demand day-by-day, Indian power sector is interfacing some challenges to maintain the balance between the power generation and demand with suffering from supply constraints and shortages in power. For maintaining the ratio of generation and demand of power, moving from conventional sources to non-conventional sources is not only an option, it is a

Access through **your institution**

Purchase PDF

is crucial. The power sector of India is one of the largest expanded power sectors in the world. Due to the continuous increment in electricity demand day-by-day, Indian power sector is interfacing some challenges to maintain the balance between the power generation and demand with suffering from supply constraints and shortages in power. For maintaining the ratio of generation and demand of power, moving from conventional sources to non-conventional sources is not only an option, it is a necessity. The importance of using solar as an energy source in India's perspectives in not only to increase power generation, but also to expand energy reliability with considering the environmental, social, independent and financial beneficial properties. This paper analyzes the recent scenario, strategies, availability, future potential, policies and development of solar energy in emerging Indian power sector.

Access through **your institution**

Purchase PDF

International Journal of Electrical Power & Energy Systems

Volume 80, September 2016, Pages 190-201

Improvement of economic profit by optimal allocation of TCSC & UPFC with wind power generators in double auction competitive power market

Subhojit Dawn, Prashant Kumar Tiwari

Department of Electrical Engineering, National Institute of Technology (NIT), Silchar, Assam, India

Access through **your institution**

Purchase PDF

Abstract

This paper presents a simple and reliable optimization approach to optimally allocate the Thyristor Controlled Series Compensator (TCSC) and Unified Power Flow Controller (UPFC) with wind generator under deregulated power system. The proposed approach is based on step by step variation in control parameters of TCSC and UPFC devices. Results have been determined for all possible locations, compensation level and reactance of TCSC & UPFC, reactive power injection or absorption, maximization of social welfare, maximization of profit with minimization of objective function. The double auction bidding model has been incorporated in this paper. The impacts on the locational marginal pricing and system voltage have been also investigated in this work. The effectiveness of the proposed approach for optimal placement of TCSC and UPFC has been tested and analyzed on modified IEEE 14-bus and modified IEEE 118-bus systems.

FEEDBACK

International Journal of Renewable Energy Research-IJRER

USER
Username
Password
Remember me
Login

NOTIFICATIONS
- View
- Subscribe

JOURNAL CONTENT
Search
Search Scope
All
Search

Browse
- By Issue
- By Author
- By Title

FONT SIZE

INFORMATION
- For Readers
- For Authors
- For Librarians

Journal Help

A Joint Scheduling Optimization Strategy for Wind and Pumped Storage Systems Considering Imbalance Cost & Grid Frequency in Real-Time Competitive Power Market

Subhojit Dawn, Prashant Kumar Tiwari, Arup Kumar Goswami

Abstract

This paper presents a simple and efficient operating strategy for the operation of Pumped Storage Hydro (PSH) plant so as to maximize the profit of the Wind-Thermal-PSH hybrid plant with considering the grid frequency (f) and current energy level of the PSH plant. The wind speed is predicted for a day-ahead market and with this predicted value of wind speed the wind plants are committed to supply the demand; and if there is a difference between the predicted and actual wind power output, the PSH is operated in order to reduce this difference and trying to minimize the effect of imbalance cost, which is occurred due to the mismatch between the actual and predicted data. Thus the combined operation of wind, thermal and PSH helps to reduce the uncertainty of wind power in economic manner under completely deregulated power market. Two new energy levels (E_{opt} and E_{low}) for pumped storage have been also incorporated in this work to maximize the profit and revenue of the system. The proposed strategy is implemented using MATLAB Interior Point Solver (MIPS) to solve the optimal power flow problem. The implementation has been done on modified IEEE 30 bus system. The results of proposed strategy have been compared with an existing strategy to show the effectiveness of the proposed strategy.

Total Views: 2928

Keywords

Imbalance Cost; Market Clearing Price; Pumped Hydro Storage; Competitive Power Market; Load Scaling Factor

Full Text:

PDF

References

Comparative Performance Study for Closed Loop Operation of an Adjustable Speed Permanent Magnet Synchronous Motor Drive with Different Controllers

Chiranjit Sain, Atanu Banerjee, Pabitra Kumar Biswas

Abstract

In this paper an extensive comparative study is carried out between PI and PID controlled closed loop model of an adjustable speed Permanent Magnet Synchronous Motor (PMSM) drive. The incorporation of Sinusoidal Pulse Width Modulation (SPWM) strategy establishes near sinusoidal armature phase currents and comparatively less torque ripples without sacrificing torque/weight ratio. In this closed loop model of PMSM drive, the information about reference speed is provided to a speed controller, to ensure that actual drive speed tracks the reference speed with ideally zero steady state speed error. The entire model of PMSM closed loop drive is divided into two loops, inner loop current and outer loop speed. By taking the different combinations of two classical controllers (PI & PID) related with two loop control structure, different approximations are carried out. Hence a typical comparative study is introduced to familiar with the different performance indices of the system corresponding to time domain and frequency domain specifications. Therefore overall performance of closed loop PMSM drive is tested and effectiveness of controllers will be determined for different combinations.

Imperial Journal of Interdisciplinary Research (IJIR)
Vol-2, Issue-5, 2016
ISSN: 2454-1362, http://www.onlinejournal.in

Improving Power Quality of a Transmission Line using Static VAR Compensator

Rubi Kumari & Ipsita Das
Sikkim Manipal Institute of Technology

***Abstract**: In this paper improvement of power quality and efficiency of transmission line has been discussed using Static VAR Compensator (SVC). The Matlab Simulink model of SVC addressed here comprises of Thyristor Switched Capacitor (TSC) and Thyristor Controlled Reactor(TCR) which gave the enhanced results in terms of voltage , current and improved power quality in the transmission line.*

1. Introduction

Over the last few years, power quality has been an important issue in the field of power system. Need of rapid dynamic response, ability to adapt the frequent variations in output and smooth adjustable output, an improvement of voltage flicker in power transmission has led to the use of FACTS devices. Among various FACTS devices the SVC plays an important role in regulation of voltage and improvement of power transfer capability in power system. There are two main applications of SVCs:-

Transmission SVC: - They are connected to power system to regulate the transmission voltage

Industrial SVC:-They are connected near large industrial loads, to improve power quality.

1.1. SVC

It is series compensated power electronics device which provides fast acting reactive power on high voltage electricity transmission network. SVCs either absorb or supply reactive power based on the change of VAR requirement of the load. Thus SVC provides power factor correction to maintain the unity power factor at variable loads. In this paper SVC has been modeled using TSC and TCR.

The SVC can be operated in two different modes: In voltage regulation mode and in VAR control mode (the SVC Susceptance is kept constant).

The system characteristic is represented by the load line A which intersects the SVC characteristics at reference voltage. The load line B intersects the SVC characteristics at voltage V2. Since voltage V2 is above the reference voltage, the reactive power needs to be absorbed from the system (indicates inductive reactive power is required). The current I1 corresponds to voltage V2 in the inductive region and therefore it requires the operation of the Thyristor Controlled Reactor (TCR) . The load line C intersects the SVC characteristics at a voltage V1 which is below the reference voltage and hence reactive power needs to be provided to the system (capacitive reactive power is required). Thus the current I2 corresponding to voltage V1 is in the capacitive region of operation [1].

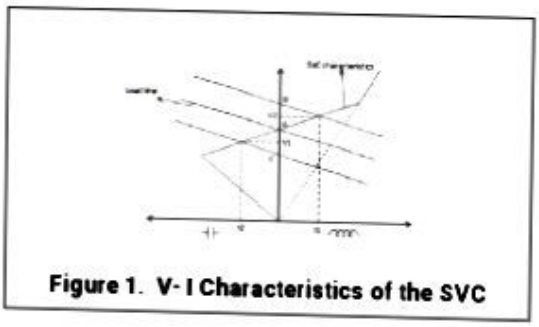


Figure 1. V- I Characteristics of the SVC

1.2. TCR

The TCR is a Thyristor Controlled Reactor whose effective reactance can be varied continuously by partial conduction control of thyristor valve [2,3].The basic principle of TCR is to control the reactive power by controlling the firing angle of the thyristor valve. The controlled element is the reactor and the controlling element is the thyristor controller consisting of two oppositely poled thyristors which conducts at every alternate half cycles of the supply frequency [4].

International Journal of Emerging Technology and Advanced Engineering
Website: www.ijetae.com (ISSN 2250-2459, ISO 9001:2008 Certified Journal, Volume 6, Issue 5, May 2016)

Designing and Modelling of the STATCOM for Voltage Improvement in the Transmission Line.

Rubi Kumari[1], Chitrangada Roy[2]
[1,2]Sikkim Manipal Institute of Technology, Electrical and Electronics Engineering Department, Majhitar, Sikkim-737136

***Abstract*— This paper presents the use of the Static Synchronous Compensator (STATCOM) for the voltage regulation in the power system. A STATCOM is a Power Electronics based Voltage Source Converter (VSC). The objective of this study was to decrease the voltage fluctuation or dip and to increase the power flow in the power system. The MATLAB Simulation was carried out which allowed to analyse the response of the STATCOM at the time of change in load.**

***Keywords*—Static Synchronous Compensator (STATCOM), State Space Vector PWM (SVPWM), Voltage Source Converter (VSC), Flexible AC Transmission Systems (FACTS)**

I. INTRODUCTION

Due to continuous increase in the demand of the electricity it has affected the stability of the power system. The STATCOM is one of the FACTS devices which can improve the voltages profile in the transient state and can improve power quality of the transmission system. The voltage stability, steady state and transient stabilities of a power system can be improved by the use of FACTS devices [1]. The STATCOM falls into Shunt Controllers category which provides high efficiency, continuous and fast response time, continuous and dynamic voltage control.

The voltage control and reactive power control is an important issue in power system operation. This is because of the differences between generation and transmission systems. This paper comprises of the techniques which will avoid the voltage collapse in the power system. In order to achieve efficient and reliable operation of power system, the control of voltage and reactive power should satisfy the following objectives:-

1. Voltages at all terminals of all equipment in the system
1. are within acceptable limits
2. System stability is enhanced to maximize utilization of the transmission system
3. The reactive power flow is minimized so as to reduce I^2R and I^2X losses.

The power system supplies power to a large number of loads and is feeding from many generating units, which leads to a problem of maintaining voltages within the required limits. As load varies, the requirements of reactive power in the transmission system also vary. As it is known that the reactive power cannot be transferred or transported over long distances, voltage control can be controlled by using special devices located through the system which possess difficulties in keeping sufficient levels of voltage in the power system network.

The proper selection and coordination of equipment for controlling reactive power and voltage stability is very important for upgrading the voltage level in the power system. Due to these challenges some FACTS devices for controlling and compensating reactive power in the power system. To overcome the additional demand for reactive power and to maintain the voltage stability in the power system devices such as SVC (Static Var Compensator) , STATCOM (Static Synchronous Compensator)were introduced. The main aim of FACTS device is only to increase of power flows in the high voltage side of network during both steady state and transient conditions. In recent decades, there has been significant progress in terms of equipment designed to improve the stability of voltage in power systems. This is mainly due to the development of power supply systems in the world, which requires seeking better ways of adjusting and controlling power flows and voltage levels.

In this paper detailed explanation about the effects of the STATCOM at the time of voltage dip at 0.6sec has been mentioned. The MATLAB Simulation results obtained explains how effectively STATCOM injects the reactive power in the transmission system in order to improve the voltage dip in the power system.

II. SYSTEM MODELLING

The MATLAB blocks represent a test system model. The test system model consists of a three phase source which generates 11 kV at 50Hz. The voltage has been stepped up to 33 kV using a 11kV/33kV, 5MVA three phase transformer.

Performance Enhancement of DC Motor Drive using Fuzzy Logic Controller

Shrabani Pal[1] Jayanta Bhusan Basu[2]
[1,2]Assistant Professor
[1,2]Department of Electrical Engineering
[1,2]Siliguri Institute of Technology, Siliguri, Darjeeling

Abstract—This paper demonstrates how the performance of a DC motor drive can be enhanced using a fuzzy logic controller. The performance of the DC motor drive is judged without controller, with a most commonly used controller (Ziegler-Nichols Tuned PID) and fuzzy logic controller (FLC). For the considered system 7 fuzzy rules are framed for FLC. Comparison between the outputs in different scenario was done on the basis of the simulation result obtained by MATLAB. Finally, the result shows that the fuzzy logic approaches using the designed set of fuzzy rules enhance the performance of the DC drive system.

Key words: DC Drive, PID Controller, Ziegler-Nichols, FLC (Fuzzy Logic Controller)

I. INTRODUCTION

DC motor is a machine which converts electrical energy to mechanical energy. DC motors are widely used in industry, robot manipulators and home appliances where speed and position control of motor is required because of their high performance reliabilities, flexibilities, and low costs. So, the performance analysis of speed control of DC motor is very much necessary. The speed of DC motor can be adjusted to a great extent so as to provide easy control and performance. There are many conventional and numeric methods for controlling of the speed of DC motor. The tunings methods are very much important of controller. The most commonly used controller is PID controller which can be tuned by Ziegler-Nichols method. The modern control system used intelligent control like knowledge based expert system, fuzzy logic and neural networks. All three approaches are interesting and very promising areas of research and development [1]. Fuzzy logic controller can replace the PID controller very successfully because they can cover a much wider range of operating conditions than classical controller. The aim of this paper is characteristic analysis of the speed of the DC motor and performance enhancement of DC motor using Fuzzy Logic Controller. In this paper one knowledge based approach is proposed using 'if-then' rules which control action is implemented through fuzzy-logic controller.

II. MODELLING OF DC MOTOR

The DC or direct current motor works on the principal, when a current carrying conductor is placed in a magnetic field; it experiences a torque and has a tendency to move. The basic principle behind DC motor speed control is that the output speed of DC motor can be varied by controlling armature voltage for below and up to rated speed keeping field constant. To analyze the performance of the DC motor using simulation an appropriate model needs to be established.

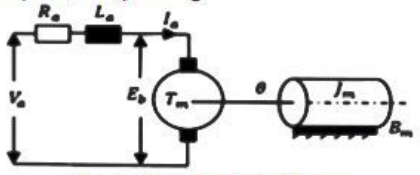


Fig. 1: Model of D.C. Motor

In general the torque of the DC motor is proportional to the current (I_a)

$$T_m = K_t I_a \qquad (1.1)$$

The back emf is proportional to the angular velocity of the shaft of the motor.

$$E_b = K_b w \qquad (1.2)$$

From the above figure the electrical and mechanical equations are

$$V_a = R_a.I_a + L_a.\frac{dI_a}{dt} + E_b \qquad (1.3)$$

$$T_m = J_m.\frac{dw}{dt} + B_m.w \qquad (1.4)$$

Where :
V_a= armature voltage (V)
Ra= armature resistance (ohm)
La=armature inductance (Henry)
Ia = armature current (A)
E_b= Back emf (V)
θ_m = angular position of rotor shaft (rad)
w = angular speed of the motor (rad/sec)
T_m= motor torque (N/m)
J_m= rotor inertia (kgm^2)
B_m= viscous friction coefficient (Nms/rad)
K_t = torque constant (Nm/A)\
K_b= back emf constant (Vs/rad)

Applying the Laplace Transform, the above modeling equation can be expressed as follows:

$$V_a(s) = R_a.I_a(s) + L_a.sI_a(s) + K_b W(s) \qquad (1.5)$$

$$K_t I_a(s) = J_m.s.W(s) + B_m.W(s) \qquad (1.6)$$

From the above equation the transfer function of the DC motor is

$$\frac{W(s)}{V_a(s)} = \frac{K_t}{L_a J_m s^2 + (R_a J_m + L_a B_m)s + (R_a B_m + K_b K_t)}$$

The speed of the motor: $W(s) = s.\theta_m(s)$ (1.7)

So, the equation no. 1.7 can be written as

$$\frac{\theta_m(s)}{V_a(s)} = \frac{K_t}{L_a J_m s^3 + (R_a J_m + L_a B_m)s^2 + (R_a B_m + K_b K_t)s}$$

Using the above equation the SIMULINK model of the DC motor is developed as shown in Fig. 2.

All rights reserved by www.ijsrd.com

International Journal of Science and Research (IJSR)
ISSN (Online): 2319-7064
Index Copernicus Value (2013): 6.14 | Impact Factor (2014): 5.611

Performance Enhancement of DC Motor Using Genetic Algorithm

Shrabani Pal[1], Jayanta Bhushan Basu[2]

[1]Siliguri Institute of Technology, Siliguri, Darjeeling India

Abstract: ***This paper proposes a simulation of a speed control of DC motor drive using Genetic algorithm at MATLAB. A proposed speed controller is developed based on Genetic Algorithm. A comparative study and analysis of proposed technique to classical method of PID control system applied to DC motor drive is presented. This comparison study has been done by MATLAB Simulink Toolbox. The simulation result shows that the proposed controller enhances the performance of speed control of Dc motor drive than the conventional PID controller.***

Keywords: DC motor Drive, Speed control, PID, GA, Simulink.

1. Introduction

The Speed control of the DC motor drive is very important to provide the high performance. Generally a high performance motor drive system must have good dynamic speed command tracking and load regulating response. Because of the simplicity, high reliabilities, flexibilities and low costs DC motor drive are widely used in various fields of industry, robotics and home appliances. Many kind of control scheme has been used to control the speed of the DC motor drive. The conventional PID controllers are commonly used because of their simple structure and intuitionally comprehensible control algorithms. In PID controller the controller parameters are generally tuned using Ziegler-Nichols frequency response method. In this paper the tuning of the controller parameter has been done by Genetic Algorithm (GA). The tuning has been done by GA Toolbox in MATLAB.

2. Mathematical Modeling of DC motor

The speed control is one of the important components in DC motor operation. The DC or direct current motor works on the principal, when a current carrying conductor is placed in a magnetic field; it experiences a torque and has a tendency to move. A simplified mathematical modeling is necessary to build up the DC motor's transfer function. This model consists of different equations for electrical, mechanical and the inter connections between them. The basic principle behind DC motor speed control is that the output speed of DC motor can be varied by controlling armature voltage for below and up to rated speed keeping field constant. In controlling the speed of a DC motor, some improvement needs to be done toward speed regulation during transient loading conditions. The control includes a regulating circuit that having an output for controlling the armature voltage to the motor. An input speed reference signal corresponding to the desired speed is provided to the regulating circuit. A feedback signal proportional to armature voltage is also provided to the regulating circuit to establish an error signal for operating the control to regulate the voltage to the motor and therefore the motor speed.

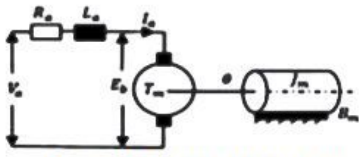


Figure 1: Model of D.C. Motor

In general the torque of the DC motor is proportional to the current (I_a)

$$T_m = K_t I_a \quad (1.1)$$

The back emf is proportional to the angular velocity of the shaft of the motor.

$$E_b = K_b w \quad (1.2)$$

From the above figure the electrical and mechanical equations are

$$V_a = R_a . I_a + L_a . \frac{dI_a}{dt} + E_b \quad (1.3)$$

$$T_m = J_m . \frac{dw}{dt} + B_m . w \quad (1.4)$$

Where:
V_a= armature voltage (V)
Ra= armature resistance (ohm)
La=armature inductance (Henry)
Ia = armature current (A)
E_b= Back emf (V)
θ_m = Angular position of rotor shaft (rad)
w = angular speed of the motor (rad/sec)
T_m= motor torque (N/m)
J_m= rotor inertia (kgm^2)
B_m= viscous friction coefficient (Nms/rad)
K_t = torque constant (Nm/A)\
K_b= back emf constant (Vs/rad)

Applying the Laplace Transform, the above modeling equation can be expressed as follows:

$$V_a(s) = R_a . I_a(s) + L_a . sI_a(s) + K_b W(s) \quad (1.5)$$

$$K_t I_a(s) = J_m s . W(s) + B_m . W(s) \quad (1.6)$$

From the above equation the transfer function of the DC

Licensed Under Creative Commons Attribution CC BY

International journal of biosensors & bioelectronics

Author Manuscript HHS Public Access

A review on wearable photoplethysmography sensors and their potential future applications in health care

Denisse Castaneda, Aibhlin Esparza, [...], and Homer Nazeran

Additional article information

Abstract

Photoplethysmography (PPG) is an uncomplicated and inexpensive optical measurement method that is often used

Abstract

Photoplethysmography (PPG) is an uncomplicated and inexpensive optical measurement method that is often used for heart rate monitoring purposes. PPG is a non-invasive technology that uses a light source and a photodetector at the surface of skin to measure the volumetric variations of blood circulation. Recently, there has been much interest from numerous researchers around the globe to extract further valuable information from the PPG signal in addition to heart rate estimation and pulse oxymetry readings. PPG signal's second derivative wave contains important health-related information. Thus, analysis of this waveform can help researchers and

waveform can help researchers and clinicians to evaluate various cardiovascular-related diseases such as atherosclerosis and arterial stiffness. Moreover, investigating the second derivative wave of PPG signal can also assist in early detection and diagnosis of various cardiovascular illnesses that may possibly appear later in life. For early recognition and analysis of such illnesses, continuous and real-time monitoring is an important approach that has been enabled by the latest technological advances in sensor technology and wireless communications. The aim of this article is to briefly consider some of the current developments and challenges of wearable PPG-based monitoring technologies and then to discuss some of the potential applications of this technology in clinical settings.

International journal of biosensors & bioelectronics

Author Manuscript HHS Public Access

A review on wearable photoplethysmography sensors and their potential future applications in health care

Denisse Castaneda, Aibhlin Esparza, [...], and Homer Nazeran

Additional article information

Abstract

Photoplethysmography (PPG) is an uncomplicated and inexpensive optical measurement method that is often used for heart rate monitoring purposes. PPG is a non-invasive technology that uses a

e-ISSN: 2395-0056 p-ISSN: 2395-0072

International Research Journal of Engineering and Technology

(An ISO 9001-2008 Certified Journal)
Fast Track Publications

International Research Journal of Engineering and Technology (IRJET) is an peer reviewed, open access, high Impact Factor,Multidisciplinary journal in English for the enhancement of research in various discipline of Engineering, Science and Technology. Prime Focus of the Journal is to publish articles related to the current trends of research . IRJET brings together Scientists, Academician, Engineers, Scholars and Students of Engineering Science and Technology.Published by Fast Track Publications.

Why Select IRJET?

- An ISO 9001:2008 Certified International Journal.
- Fast, Easy and Transparent paper publication process
- Low publication fee to promote the research work.
- IRJET Impact factor value : 7.529 for the year 2020 (Verify)
- IRJET is indexed in Google Scholar, academia.edu,Scribd, Slideshare & more..
- UGC Approved Journal in 2017
- IRJET is registered with Ministry of MSME, Govt. of India.
- Open Access Journal database for high visibility and promotion of your articles.
- Open Access Journal (No Subscription required to download Papers)
- Strict Plagiarism Policy
- IRJET provides Free Soft Copy of Certificate of Publication to each Authors.
- IRJET provides Hardcopy Certificate of Publication to each Authors.
- Authors can submit the papers at any time by online submission.
- Authors can pay Accepted paper publication Fee online by Net Banking/ Credit Card/ Debit Cards/ UPI/ Mobile Payment/ Paypal,instantly in any day any time.
- Transactions on the site are protected with 256-bit Secure Sockets Layer (SSL) encryption.
- Publication within a short period after acceptance & final submission.
- Fast Reliable website/ Virtual Private Server/Daily updation /User friendly site/Security reason Right click protected.
- Author's queries shall be resolved within 24 hours of time.
- 30,000+ papers published...
- **Frequency:** Monthly / 12 Issues Per Year / Estd Year : 2014
- **Areas Covered:** Engineering,Science,Technology (Multidisciplinary)
- **Publisher:** Fast Track Publications

We're offline
Leave a message

ISSN (Print) : 2320 – 3765
ISSN (Online): 2278 – 8875

International Journal of Advanced Research in Electrical, Electronics and Instrumentation Engineering

(An ISO 3297: 2007 Certified Organization)

Vol. 5, Issue 5, May 2016

Development of a Low Cost Under-Voltage and Over-Current Protection Device

Sourav Ghosh[1], Soumik Bakshi[2], Saurav Ghosh[3], Rahul Kundu[4], Indrajit Koley[5]

B.Tech Student, Dept. of EE, Siliguri Institute of Technology, Siliguri, WB, India[1, 2, 3, 4]

Assistant Professor, Dept. of EE, Siliguri Institute of Technology, Siliguri, WB, India[5]

ABSTRACT: This paper presents the design and construction of a low cost under-voltage and over-current protective device, which was fabricated using a comparator, IC, Transistor and other discrete devices. The comparator LM324 is at the heart of the device which performs the major control of the device. The device is simple and of low cost. The required set voltage range for the device to allow supply to the connected load at the output varies from 200 – 230 Volts. It can be used to protect loads such as refrigerator, T.V., VCR/DVD players etc. from undesirable under voltages and over currents, as well as surges caused due to sudden failure/resumption of mains power supply. It protects the load when (1) the input voltage to the motor drops below a particular value, (2) the current through the motor exceeds a particular value, (3) both the current increases beyond a particular value and the voltage drops to a particular value. This device can be used directly as a standalone equipment between the mains supply and the load, or it may be inserted between an existing automatic/manual stabilizer and the load.

KEYWORDS: Comparator, over current, Protection, under voltage.

I.INTRODUCTION

Voltage irregularities are one of the greatest power quality issues facing industry and home today and often times, is responsible for damaging valuable electrical equipment. Electrical Power System protection is required for protection of both user and the system equipment from fault, hence electrical appliances are not allowed to operate without any protective device installed. Power System fault is defined as undesirable condition that occurs in the power system, and the undesirable conditions are short circuit, current leakage, ground short, over current, under and over voltage. The ability of protection system is demanded not only for economic reason but for expert and reliable service (Bayindar et al., 2008).

Technically speaking, an under voltage condition is reached when the voltage lags the nominal voltage by 10% for more than 1 minute. Short duration voltage events can also occur such as transients (both impulsive and oscillatory), sags/dips and swells. Short duration intermittent supply failures can last anywhere from 0.5 cycles up to 1 minute and can be caused by a number of occurrences such as supply system faults, equipment failures, or malfunctions in control equipment.

Over current or excess current is a situation where a larger than intended electric current exists through a conductor, leading to excessive generation of heat, and the risk of fire or damage to equipment. Under-voltage might result into brownout, distortion or permanent damage while for overcurrent causes include short circuits, excessive load, incorrect design, or a ground fault. Fuses, circuit, temperature sensors and current limiters are commonly used protection mechanisms to control the risks of overcurrent.

Owing to the incessant damages done by fluctuations in the power supply, there is dire need to address the problem through other alternatives, which give birth to design and construction of an equipment to protect the connected loads against under voltage supply. Under voltage and over current protection is needed between supply terminal and the appliances (connected loads).

II.LITEARTURE SURVEY

Bayindir R. (2008) [6], discussed about fault detection and load protection with sensors which protects the devices from under voltage and over voltage faults with the use of sensors. The sensors detects the faults and cut the supply

Journal For All Subject

International Educational Scientific Research Journal

International Indexed Journal | Multi-Disciplinary

Refereed Research Journal

E-ISSN : 2455-295X

Impact Factor Value : 5.391 (SJIF)

Journal DOI : 10.21276/2455-295X

Peer-Reviewed Journal - Equivalent to UGC Approved Journal

World Wide Most Trusted Research Publication Platform Since 2015

Abstract

The Law of retail gravitation is a heuristic idea conceptualized by William J. Reilly in 1931, which depicts that "customers are willing to travel longer distances to larger retail centers given the higher attraction they present to customers". According to Reilly's formulation, "the attractiveness of the retail center becomes the analogy for size (mass) in the physical law of gravity". The law of retail gravitation (LRG) and the economic law of market areas (LMA) both seek to define the market-area boundary between two competing centers. Each law is characterized in terms of the primary magnitudes of the market-area periphery. It is revealed that under specific circumstances the two laws keep up a correspondence precisely, so the LMA is able to offer some economic hold for the LRG. The two laws are also viewed within the

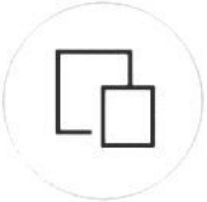
analogy for size (mass) in the physical law of gravity". The law of retail gravitation (LRG) and the economic law of market areas (LMA) both seek to define the market-area boundary between two competing centers. Each law is characterized in terms of the primary magnitudes of the market-area periphery. It is revealed that under specific circumstances the two laws keep up a correspondence precisely, so the LMA is able to offer some economic hold for the LRG. The two laws are also viewed within the broader outline of a hierarchically prearranged urban system. Accurate association between the laws is again possible under definite circumstances, but the eloquent competence of the LMA is greatly augmented when estimate is permissible. This paper aims at relevance of Reilly's (1931) Law of Retail Gravitation in sub-urban areas of West Bengal, especially Northern region of the state where a good number of shopping malls are being constructed in last few years.

Business process reengineering for the increase in the environmental friendliness of construction

January 2019 · E3S Web of Conferences 91(1):08048

DOI:10.1051/e3sconf/20199108048

Authors:



Natalia Shchepkina

Maiia Kramchaninova
East Ukraine Volodymyr Dahl National Universi...

Download full-text PDF

Abstract

Some current trends and prospects of the world construction industry development from environmental economics position are presented in article. The increased role of innovations and their influence on the competitiveness of construction company in the context of economic, social and ecological components is analyzed. Reduction of some negative impact of all the types of technological processes of construction on the environment is connected with the growth of innovative opportunities. This research proves the need of overcoming technical and technological lag for the development of the construction industry by the means of introduction of business processes management instruments. Justification of reengineering as an effective way of transformation of the technology of construction production is made. The algorithm of stage-by-stage reengineering of business processes, offered in the article is the instrument of effective introduction of technological innovations in the construction companies according to current ecological requirements.

GE-INTERNATIONAL JOURNAL OF MANAGEMENT RESEARCH
VOLUME -4, ISSUE -3 (Mar, 2016) IF-4.88 ISSN: O (2321-1709), P (2394-4226)

A COMPARATIVE ASSESSMENT OF ECOTOURISM ORIENTATION OF ADVENTURE AND LEISURE TOURISTS VISITING DARJEELING

*** Dr. Debasis Bhattacharya** ****Dr. Shuvendu Dey**

*Dr. Debasis Bhattacharya, Associate Professor, Department of Commerce, University of North Bengal, Raja Rammohanpur, Siliguri-734013, India,

**Shuvendu Dey, Asst Professor & Mentor, Department of Business Administration, Siliguri Institute of Technology, Salbari, Sukna, Siliguri-734009, India,

ABSTRACT

It is recommended that for the sustainable growth of tourism in tourist spots, it is imperative to have conscientious visitors with high pro-environmental orientation and a critical minimum knowledge of ecotourism. The adventurous, and leisure destinations in India are in ecologically sensitive locations with abundant environmental resources. Thus, understanding tourists' environmental orientation is critical for destination management. In this context, the present study investigates the environmental orientation and ecotourism awareness of adventure and leisure tourists visiting Darjeeling. A comparative analysis of the environmental orientations of adventurists, and leisure tourists is presented. The findings reveal that there exist significant differences between these categories in terms of environmental orientation and awareness about ecotourism. Adventurists exhibit superior environmental orientation compared to leisure tourists. The paper is concluded with a discussion of the implications for future research and managerial practice.

Keywords: Ecotourism, Environmental Orientation, Adventure Tourists, Leisure Tourists, Darjeeling

Introduction

Darjeeling is home to unending tea gardens, babbling rivers, urban settlements with modern facilities sprinkled with tiny ethnic settlements, which constitute a fascinating tourist destination. A fascinating and tempting landscape with breathtaking natural beauty, exotic locations, and a rich treasure of flora and fauna make it a veritable paradise for lovers of mass as well as ecotourists. The colorful rituals and unique lifestyles of ethnic communities like Bhutias, Lepchas, Sherpas and Yolmos make it all the more irresistible for lovers of ethnic and ecotourism.

The ways in which adventure tourists have been characteristically identified in the bulk of the literature is limited by relying too heavily on apparent markers of behavior, destination, and/or circumstance. All of these are pointers of possible ecotourists. Tourists typically participate in various activities offering a range of experiences that they may find attractive to pursue, regardless of personal characteristics (Weaver, 2001b). They have certain characteristics and attributes – attitudes, values, beliefs, motives, commitments, needs, desires, and interests – that might predispose them to visit ecotourism destinations and engage in ecotourism-related activities. In some cases, their predisposition might shape their commitment to protecting and preserving these interests, whether the protection of environments, the conservation of native species, the support of research, or the desire to volunteer (Nowaczek and Smale, 2010). On the other hand, leisure tourists are more interested in having a comfortable stay with an appetite for amenities of luxury and lavishness. They have little or negligible environmental orientation as the emphasis is more on fun and enjoyment.

Literature Survey

Studies of ecotourists usually have identified them based on the destinations they go to, the behaviors in which they engage, the tours that they take, or in some cases, self-identification by the travelers themselves (Ballantine and Eagles, 1994; Fennell, 1999). Only very recently, studies have begun to identify ecotourists based on their psycho-social personal makeup (Lemelin and Smale, 2007) of more stable and deeply embedded character traits responsible for directing visitor impetus and behaviors (Ajzen, 1991; Fishbein and Ajzen, 1975). This approach is an extension of the earlier studies, which reported on visitor motivations and observations (Blamey, 1997; Weaver, 1999). Many

STRESS AND JOB INDUCED TENSION OF BPO EMPLOYEES: AN EMPIRICAL EXPLORATION OF INTENTION TO LEAVE THE JOB

Dr. Debasis Bhattacharya[1] **Dr. Shuvendu Dey[2]** **Dr. Mrinal Kanti Haldar[3]**

[1]Associate Professor
Department of Commerce
University of North Bengal, Pin: 734013.

[2]Assistant Professor & Mentor
Siliguri Institute of Technology
Salbari, Sukna, Pin: 734009

[3]Officer (Administration, Admission & Examination)
Aligarh Muslim University
Murshidabad Centre, Pin- 742223.

ABSTRACT

A considerable number of service providers companies are making persistent efforts for enhancing their performance through customer-driven strategies to win new segments of the broader market for their continued existence. A firm's human resources can be a foundation of its continued competitive benefit and thus organizations have to develop suitable strategies to attract, inspire and keep appropriate talent. The results of the factor analysis amply demonstrate that the three factor solution is quite satisfactory considering the Eigen values, percentages of variance explained and the loadings of the original variables onto various factors. It has been observed from the table that job supervision and job induced tension are positively associated with intention to leave the organization. The results of factor regression are also found to be significant. The employees have no dissatisfaction with job supervision but females are less satisfied with the quality of supervision probably due to long working hours and shifting job schedule.

Keywords: Job Stress, ITES, Intention to leave, Supervision, Factor Analysis.

Introduction

Information Technology (IT) industries in India characterize a growing industry typically recruiting workers with adequate knowledge and skill. However, it is a major concern for the Human Resource (HR) professionals to retain the employees for the sustainable growth of these companies. Many scholars and practitioners have expressed their concern as to how to retain employees. A large volume of studies has drawn attention of the industry for highlighting this issue (e.g. Taylor and Bain, 2005; Thite and Russell, 2010). A plethora of empirical studies had recognized that customers, in today's competitive environment, had more access to information, claim fast and flawless service and exhibit greater expectations from the service providers (Felps, Mitchell, Hekman, Lee, Holtom and Harman, 2009). In view of the changing needs and demands, a substantial number of service providers companies are making relentless efforts for recruiting talented professional and taking measures to retain those staffs to enhance their performance. The Indian Information Technology Enabled Services (ITES) and Business Process Outsourcing (BPO) industries are under pressure to retain employees with requisite knowledge, skill and abilities. The greatest problem with human capital is that firms cannot own them like other tangible resources. Researchers' working in the field of human resource has conducted studies to explore reasons behind the intention to leave the job. A substantial research work has been undertaken in the developed countries to study

IJSR
INTERNATIONAL JOURNAL OF SCIENTIFIC RESEARCH
PRINT ISSN NO 2277 - 8179
IF OF IJSR: 5.711 (SJIF)
PEER REVIEW, INTERNATIONAL JOURNAL
JOURNAL DOI : 10.36106/IJSR
Journal Of Medical Science
Sunday, Jul,4th, 2021
12:50:51 PM
ijsr@worldwidejournals.com
+91 88 66 00 3636
+91 88 66 11 3636

Volume : IV, Issue : II, February - 2015

How Satisfied are our Bank Customers? An Analysis of Performance of Banks in an IPA Framework

Debasis Bhattacharya, Shuvendu Dey

Abstract :

Importance-Performance Analysis (IPA) is a much uncomplicated but exceptionally useful technique that facilitate the management of an organization to assess and categorize the key strengths and weaknesses of success features of any industry operating in the service sector. In this paper the authors have made an attempt to compare and contrast the performances of both the private and public sector banks (PSB) in providing desired services to its customer by improving the service quality which is essential for retaining satisfied customers. The authors have identified through a series of focus group

Abstract :

Importance-Performance Analysis (IPA) is a much uncomplicated but exceptionally useful technique that facilitate the management of an organization to assess and categorize the key strengths and weaknesses of success features of any industry operating in the service sector. In this paper the authors have made an attempt to compare and contrast the performances of both the private and public sector banks (PSB) in providing desired services to its customer by improving the service quality which is essential for retaining satisfied customers. The authors have identified through a series of focus group interviews a list of 11 attributes that are considered most important by the respondents. Responses were gathered from 166 usable questionnaires. The importance-performance grid shows that the performances of Banks in both the sectors differ to a considerable extent as revealed by the IPA grid. The results of the study reveal that there is enough scope to enhance the quality of services provided to the customers by initiating appropriate internal marketing strategies.

GJRA
GLOBAL JOURNAL FOR RESEARCH ANALYSIS
PRINT ISSN NO 2277 - 8160
IF OF GJRA: 5.956 (SJIF)
PEER REVIEW, INTERNATIONAL JOURNAL
JOURNAL DOI : 10.36106/GJRA
International Journal
Sunday, Jul,4th, 2021,
12:50:31 PM
gjra@worldwidejournals.com
+91 88 66 00 3636
+91 88 66 11 3636

HOME ABOUT US EDITORIAL BOARD AUTHOR GUIDELINES INDEXING & ABSTRACTING PAST ISSUES PUBLICATION ETHICS CONTACT US

UPDATES MEDICAL COUNCIL OF INDIA (MCI) VALID PUBLICATION AS PER FEBRUARY 2020 GAZETTE CLICK HERE

G - GLOBAL
J - JOURNAL FOR
R - RESEARCH
A - ANALYSIS

Upload your Article
Author Guidelines
Download

UPDATES INTERNATIONAL INDEXED JOURNAL PEER REVIEWED MONTHLY PRINT JOURNAL DOUBLE REVIEWED REFEREED & REFERRED INTERNATIONAL J

36572 Manuscript submission
9855 Publish Research Papers
26.94 Acceptance Ratio
100 Articles from over 100 Countries

BOOK PUBLICATION SPECIAL ISSUES CURRENT ISSUE FAQS SEARCH SUBSCRIPTION FORM PEER REVIEW PROCESS SISTER JOURNALS

Volume : V, Issue : VII, July - 2016

Investment behavior towards financial and non financial instruments with special reference to Jalpaiguri district.

Ms Santana Guha

Abstract :

People in India have a strong habit of saving their money income for the future in one way or the other. It has become a tradition and part of culture to save money for education, old age and emergencies. Even a daily earner who earns a meager amount would like to keep some of the money as savings. Although, long term goal is in the mind of the Indians while saving money they don&#65533;t plan for long term financial instruments which may fetch them with huge profit. When it comes to investing the savings property and gold are perceived as safe bets in India. Here, in India people generally invest very less in stock market and avoid

Volume : V, Issue : VII, July - 2016

Investment behavior towards financial and non financial instruments with special reference to Jalpaiguri district.

Ms Santana Guha

Abstract :

People in India have a strong habit of saving their money income for the future in one way or the other. It has become a tradition and part of culture to save money for education, old age and emergencies. Even a daily earner who earns a meager amount would like to keep some of the money as savings. Although, long term goal is in the mind of the Indians while saving money they don't plan for long term financial instruments which may fetch them with huge profit. When it comes to investing the savings property and gold are perceived as safe bets in India. Here, in India people generally invest very less in stock market and avoid risky investment as compared to Western economies. The saving habit of Indian is good but when it comes to investment choice it is considered as poor. This paper focuses on the investment pattern of the households in Jalpaiguri district and what motivates them to their choice of Investment Avenue.

INTERNATIONAL JOURNAL OF MULTIDISCIPLINARY EDUCATIONAL RESEARCH
ISSN : 2277-7881; IMPACT FACTOR – 3.318; IC VALUE:5.16; ISI VALUE:2.286
VOLUME 5, ISSUE 7(3), JULY 2016

PHYSICAL FITNESS COMPONENTS AS PREDICRTORS OF KABADDI PERFORMANCE

D. Reddi Bhaskara
Research Scholar
Sri Venkateswara University
Tirupati

Dr. Shaik Nafeez Umar
Assistant Professor
Dept. of Statistics and Mathematics
A.N.G.R.A. University, Bapatla

Dr.D.Krishna Murthy
Deputy Director
Department of Physical Education
Sri Venkateswara University, Tirupati

Abstract

The purpose of the present research was to analyze the relationship between physical fitness components and kabaddi performance as predictors. Ninty (N=90) male kabaddi layers were selected as a subjects , their age was between 18and25 years they are studying in various degree colleges affiliated to Sri Venkateswara University, Tirupati, Chittoor Dt. Andhra Pradesh. Independent variables are Speed, Strength, power, Agility, Flexibility, and Cardio respiratory endurance. Speed was measured by 50 mts Sprint, abdominal muscle strength was measured by bent knee sit ups, Power was measured by standing broad jump, Flexibility was measured by forward bend and reach test, Agility was measured by 30 mts shuttle run and Cardio vascular endurance was measured by Harvard step test. The playing ability (dependent variables) was measured depending up on execution of their performance. The Pearson product movement 'r' was used to determine the inter correlation among them, and the multiple linear regression was applied to predict the playing ability of

International Journal of Application or Innovation in Engineering & Management (IJAIEM)
Web Site: www.ijaiem.org Email: editor@ijaiem.org
Volume 4, Issue 5, May 2015 ISSN 2319 - 4847

Sustainability & Tourist-crowding Trade-off at Wildlife Based Tourist Spots in Dooars Region of North Bengal: A Study on Ecotourism Carrying Capacity of Chapramari Wildlife Sanctuary in Dooars, Jalpaiguri (W.B)

Shomnath Dutta

Assistant Professor, Department of Business Administration
Siliguri Institute of Technology (A Unit of Techno India Group)
Hill Cart Road, Sukna-Methibari, Darjeeling, 734009, W. Bengal

ABSTRACT

Having realized the proliferated growth of ecotourism, forest based wildlife tourism in sub-himalayan Dooars belt of West Bengal has opened up a new milestone for socio-economic development of this economically distressed region. Such protected areas are capable enough to generate more revenue in terms of tourism, biodiversity conservation, improvement of climate, purification of water and air, storage and supply of fresh water and flood control but without any physical exploitation. This article highlights existing scenario of wildlife tourism in the Dooars area for promoting it as one of the hottest wildlife tourist destinations of India. This article attempts to ventilate the glaring impacts of tourist congestion on the carrying capacities of the various forest tourist sites with reference to Chapramari Wildlife sanctuary of Dooars in Jalpaiguri district. For assessing trade-off between carrying capacity on both ecological & effective dimensions and ecotourism prospect, visitors were interviewed with semi structured questionnaire. Finally the paper concludes by showcasing the maintenance of sustainable carrying capacities to eliminate ecological imbalances which would otherwise hinder the growth of wildlife tourism.

Keywords: Carrying capacity, Ecotourism, Ecological carrying capacity, Wildlife tourism, Tourist congestion

1. INTRODUCTION

In India, Dooars region of the northern sub-Himalayan West Bengal acts as a treasure hunt for the nature bound wildlife lovers of India and abroad, offering a rich biodiversity in the dense forests with diverse collection of wild species and ethnic tribal cultures. But sustained preservation of nature and its wild habitat is severely affected by mushrooming of private resorts causing tourist congestion & thereby hampering the physical & ecological carrying capacity of the wildlife safari parks both at visitor's and host resident's level. According to the report of UNEP 1998, an optimal number of visitors' footfall may enhance the quality of visitors' satisfaction without deteriorating the physical, economic, socio-cultural environment. The tourist carrying capacity has been defined as the ability of a natural or man-made system to absorb population growth without significant degradation (Schneider1978) assuming that an increased level of contact could produce large reductions in visitor satisfaction (Lucas and Priddle 1964). Wildlife itself is often disturbed by tourist influx leading to loss of habitat. Usually people flock together to wildlife sanctuaries and national parks in Dooars to spend an enjoyable vacation in the midst of pristine wilderness. In Dooars, Chapramari forest possesses the backdrop of serene beauty with stark mental and physical calmness where forest lovers get themselves involved in bird-watching, safaris and nature-walk. Heavy tourist traffic in this type of protected areas for enjoying serene natural beauty amidst wilderness together with wildlife safaris promotes ecotourism and socio economic upliftment of the adjacent tribal communities. This article attempts to assess the trade-off between ecological carrying capacity and ecotourism potential of such wildlife tourism spots. Within the purview of this paper a number of issues regarding sustainable management of ecotourism are analyzed in relation to optimal carrying capacity of such wildlife tourist attractions.

2. LITERATURE REVIEW

As per Schneider (1978) carrying capacity of a forest safari park is its capability to absorb population growth without hampering environment. In the year 1983, Pigram defined carrying capacity in physical dimension in terms of accommodation and in ecological context, a limit up to unacceptable or irreversible decline in ecological values and in societal background it speaks of maximum recreational usage level. Under the constraint of space in such areas the physical capacity can be increased if some management parameters are developed for complete or efficient utilization

Liquid Crystals ›
Volume 42, 2015 - Issue 3

227 24 0
Views CrossRef citations to date Altmetric

Original Articles

Electro-optical properties of a new series of fluorinated antiferroelectric orthoconic liquid crystalline esters

Anamika Pramanik, **Malay Kumar Das** ✉, Banani Das, Magdalena Żurowska & Roman Dąbrowski

Pages 412-421 | Received 19 Oct 2014, Accepted 06 Dec 2014, Published online: 23 Feb 2015

Download citation

https://doi.org/10.1080/02678292.2014.996792

Check for updates

Abstract

The electro-optical properties of orthoconic antiferroelectric liquid crystals of some analogues of (S)-MHPOBC ((S)-4-(1-methylheptyloxy)carbonylphenyl 4'-octyloxy-4-biphenylcarboxylate) have been investigated and discussed in terms of the structure property correlations of liquid crystalline molecules. Polarisation field reversal technique has been used for their characterisation. In this study the occurrence of such a high value of spontaneous polarisation (P_s) for the investigated compound is especially noteworthy as they comprise a bulky chiral unit, zigzag ester linkage and polar fluorinated terminal. Lengthening of oligomethylene spacer in the terminal chain and placement of fluorine atom in the molecular core structure leads to reduction in the value of P_s. The

has been used for their characterisation. In this study the occurrence of such a high value of spontaneous polarisation (P_s) for the investigated compound is especially noteworthy as they comprise a bulky chiral unit, zigzag ester linkage and polar fluorinated terminal. Lengthening of oligomethylene spacer in the terminal chain and placement of fluorine atom in the molecular core structure leads to reduction in the value of P_s. The P_s data suggest that the nature of the chiral smectic C (SmC*) to smectic A (SmA) phase transition is of second order and the critical exponent β is in the range 0.19–0.34. The 'V-shaped' mode or thresholdless switching in such high-polarisation ferroelectric liquid crystals has also been discussed.

Liquid Crystals ›
Volume 42, 2015 - Issue 8

212 5 0
Views CrossRef citations to date Altmetric

Original Articles

Comparative study of the mesomorphic properties of several laterally fluorinated liquid crystalline materials

Prajnamita Dasgupta, Anamika Pramanik, Malay Kumar Das & **Banani Das**

Pages 1083-1094 | Received 26 Jan 2015, Accepted 26 Feb 2015, Published online: 23 Jun 2015

Download citation
https://doi.org/10.1080/02678292.2015.1024768

Check for updates

Abstract

Laterally fluorinated bi- and ter-phenyl compounds exhibiting negative dielectric anisotropy are widely used in multicomponent mixtures for application in vertically aligned (VA) mode liquid crystal displays (LCDs). This work reports the mesomorphic and viscoelastic properties of several laterally fluorinated compounds with the aim to identify suitable compounds as components of mixtures for VA mode LCDs. The position of the fluoro substituent in the rigid core and the variation of the terminal alkyl/alkoxy chain have been found to have a pronounced effect on the physical properties of these compounds. Moreover, the viscoelastic coefficient, figure of merit and orientational order parameter values have also been reported. The

mixtures for application in vertically aligned (VA) mode liquid crystal displays (LCDs). This work reports the mesomorphic and viscoelastic properties of several laterally fluorinated compounds with the aim to identify suitable compounds as components of mixtures for VA mode LCDs. The position of the fluoro substituent in the rigid core and the variation of the terminal alkyl/alkoxy chain have been found to have a pronounced effect on the physical properties of these compounds. Moreover, the viscoelastic coefficient, figure of merit and orientational order parameter values have also been reported. The physical properties of the series of LC compounds investigated here have emerged to be promising for display applications.

Keywords: laterally fluorinated liquid crystals | negative dielectric anisotropy | birefringence | rotational viscosity | figure of merit

Phase Transitions ›

A Multinational Journal

Volume 88, 2015 - Issue 7

114 Views | 8 CrossRef citations to date | 0 Altmetric

Original Articles

Self-assembling properties of lactic acid derivative with several ester linkages in the molecular core

Anamika Pramanik, Malay Kumar Das, **Banani Das** ✉, Věra Hamplová, Miroslav Kašpar & Alexej Bubnov

Pages 745-757 | Received 11 Jan 2015, Accepted 02 Mar 2015, Published online: 09 Apr 2015

Download citation

https://doi.org/10.1080/01411594.2015.1025782

Check for updates

Abstract

The effect of several polar ester linkage groups incorporated in the molecular core of a chiral lactic acid derivative on self-assembling properties has been investigated by polarizing optical microscopy, small angle X-ray diffraction, differential scanning calorimetry, optical and electro--optical studies. The compound possesses the paraelectric smectic A* (SmA*) and ferroelectric smectic C* (SmC*) phases over a broad temperature range. Mesomorphic behaviour, spontaneous polarization, birefringence, optical transmission, dielectric anisotropy and structural properties of the self-assembled chiral material have been determined. The obtained results are discussed and compared with that of other liquid crystalline materials. Experimentally determined spontaneous

differential scanning calorimetry, optical and electro--optical studies. The compound possesses the paraelectric smectic A* (SmA*) and ferroelectric smectic C* (SmC*) phases over a broad temperature range. Mesomorphic behaviour, spontaneous polarization, birefringence, optical transmission, dielectric anisotropy and structural properties of the self-assembled chiral material have been determined. The obtained results are discussed and compared with that of other liquid crystalline materials. Experimentally determined spontaneous polarization and tilt angle values are also used to elucidate the nature of SmC* to SmA* phase transition. The effect of polar ester linkages in the molecular core has also been discussed.

Keywords: phase transition, ferroelectric liquid crystal, lactic acid derivative, self-assembling, spontaneous polarization, birefringence

Soft Materials ›
Volume 13, 2015 - Issue 4

122 Views | 3 CrossRef citations to date | 0 Altmetric

Original Articles

Preparation and Study of the Electro-optical Properties of Binary Mixtures of Orthoconic Anti-ferroelectric Esters and Achiral Phenyl Pyrimidine Liquid Crystal

Anamika Pramanik, **Malay Kumar Das**, Banani Das & Roman Dąbrowski

Pages 201-209 | Received 29 Apr 2015, Accepted 15 Jun 2015, Accepted author version posted online: 27 Jul 2015, Published online:21 Aug 2015

Download citation

https://doi.org/10.1080/1539445X.2015.1063510

Check for updates

Abstract

We have prepared three different binary systems by mixing an achiral low viscous phenyl pyrimidine liquid crystalline SmC compound with three different orthoconic antiferroelectric analogous of (S)MHPOBC exhibiting SmA*-SmC*-SmC_A* phase sequences. In these binary mixtures, ferroelectric and antiferroelectric phases were induced and their mesomorphic parameters (spontaneous polarization, response time, effective torsional viscosity, and anchoring energy coefficient) were determined by thermo-microscopic and electro-optical study. All the physical parameters show a nonadditive behavior with respect to the concentration of chiral mesogens due to strong dipole-dipole and/or intermolecular interactions between polar fluorinated chiral esters with heterocyclic phenyl pyrimidine compound.

INDERSCIENCE PUBLISHERS
Linking academia, business and industry through research

Unified scheme for finding disjoint and overlapping communities in social networks using strength of ties

by Partha Basuchowdhuri; V.K. Lakshan Prabhu; Mithun Roy; Subhashis Majumder; Sanjoy Kumar Saha

International Journal of Social Network Mining (IJSNM), Vol. 2, No. 2, 2015

Abstract: In this paper, we have defined a metric that measures the strength of a link (SOL) in the network to calculate the degree to which it is considered to be part of a community. Higher the strength value of a link, more likely it is to be an integral part of a community whereas links with lesser strength value, such as bridges, are considered to be on the border of the communities. Based on the strength of the links, first we have devised a disjoint community detection technique and then we have extended it to form a unified scheme capable of detecting both disjoint and overlapping communities. This method does not need any predefined number of communities as input and shows the best set of clusters as output. Proposed methods produce results closer to ground truth compared to some popular community detection methods and has a high clique retention index.

An Empirical Study on Selection Behaviour of Ball-point & Gel Pen Brands in Siliguri city of Northern West Bengal

Shomnath Dutta
Assistant Professor, Department of Business Administration
Siliguri Institute of Technology (A Unit of Techno India Group)
Hill Cart Road, Sukna, Darjeeling, 734009, West Bengal (India)

Abstract: Writing instruments continue to play integral part in the life of particularly every business, school and household. Pen and pencils continue to be the staples of everyday life and indispensable items for everyday use. The Indian writing instruments market today is still on the path of discovering new niches with ergonomic designed products, promotional marketing items and luxury items. Through this paper attempts have been made to crystallize the major pen-brand selection parameters for Ball-point & Gel pens and their categorization for identifying the least important ones. The study thereafter analyzes the inherent interrelationships between the pen brands popular in Siliguri city of Northern West Bengal and top most influential selection factors using statistical tools like ANOVA, Factor analysis and Chi-Square.

Keywords: Brand Selection, Inter factor Relationships, Utility factors Statistical, Hypothesis tests.