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Plug-in Electric Vehicle Aided Load Frequency Control using Cascaded Controller in Microgrid System

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Indrajit Koley ; Goutam Kumar Panda ; Sanjoy Debbarma ; Alejandro Castillo Atoche ; Asim Datta All Authors

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Abstract

Document Sections

- I. Introduction
- II. System Descriptions
- III. Simulation Results and Comparative Study
- IV. Conclusion
- >> Appendix

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Abstract: The incorporation of plug-in electric vehicles (PEVs) in a micro-grid system can play a major role in load frequency control (LFC) with an appropriate charging/discharging process. This paper presents LFC in micro-grid system (diesel-wind-photovoltaic) utilizing PEV as a separate source. A cascaded proportional-integral-derivative (PID) controller is adopted to control the frequency response of the micro-grid system. The controller parameters are optimized by using a hybrid bacterial-foraging-oriented particle-swam-optimization (BFO-PSO) technique. The results of the proposed cascaded PID-based control scheme are compared with that obtained by other conventional controllers, and the computational performance of the hybrid BFO-PSO is compared with the widely used PSO. The proposed hybrid BFO-PSO tuned cascaded PID control scheme is validated with satisfactory results.

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2023 IEEE IAS Global Conference on Renewable Energy and Hydrogen Technologies (GlobConHT)
Published: 2023

Feedback

Coordinated Hybrid AC/DC Microgrid System With Optimized CSA-TLBO Tuned Robust 2-DOF-FOPID Controller

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Abstract— Frequency regulation has become more difficult as the introduction of sustainable energy sources (RES) has grown. The load frequency control (LFC) mechanism is a critical function in an electrical power network for scheduling a balance between power generation and the load in order to avoid frequency deviation (FD). The outcome of this article is to establish a practical LFC topology for a hybrid AC/DC microgrid (MG) system that includes a wind turbine generator (WTG) and a battery energy storage system (BESS). The LFC system is implemented using two degree of freedom fractional order proportional integral derivative controllers (2-DOF-FOPID). Further, a combination of Cuckoo search algorithm (CSA) and TLBO approach is blended to optimize the controller parameters. The results of 2-DOF-FOPID controllers are compared to those of proportional integral double derivative (PIDD) and proportional integral derivative (PID) controllers. While contrasted to the PIDD and PID controllers, the 2-DOF-FOPID controller exhibits superior characteristics in terms of settling time and magnitude of oscillations. Finally, the study reveals that suggested 2-DOF-FOPID -based LFC scheme's robustness is tested under various loading disturbances.

Keywords— LFC, MG system, CSA-TLBO, 2-DOF-FOPID controller, hybrid AC/DC MG.

I. INTRODUCTION

Microgrid (MG) integration with traditional power systems aims to address economic and environmental concerns while also

A review on load frequency control considering deregulated hybrid power system model: Recent trends and future prospects

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Abstract

The demand for electricity has been steadily rising over the past ten years, along with the rapid depletion of fossil resources and the advent of electrical deregulation policies. Unpredictability, fluctuation, and shifting load requirements can all be handled by a stable power system. A reliable power system is capable of withstanding disruptions, variations, and different load requirements. Because load demand is erratic and consequently causes the tie-line power and system frequency to deviate from their nominal values, loads in power systems are especially unstable and unpredictable. This article provides an overview of various deregulated power system control methodologies/techniques that aim to alleviate various LFC (Load Frequency Control) challenges in such systems. The discussion includes a thorough study of various control strategies based on traditional control, Modern control and robust procedures. This review effort effectively addresses this issue. With the aid of the merits and shortcomings of various controllers are also examined. Researchers may be able to figure out the gap between present advancements, implementation, difficulties, and anticipated future trends in case of LFC analysis with the aid of this thorough, efficient literature evaluation.

Introduction to load frequency control in general

frequency are stabilised by the LFC. This is accomplished by properly adjusting the controller to

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TLBO Optimised PID Controller for Coordinated Control in a Hybrid AC/DC Microgrid

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Abstract

Document Sections

- I. Introduction
- II. System description
- III. Control model and strategy:
- IV. Proportional-Integral-Double Derivative based controller
- V. TLBO Techniques

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Authors

Abstract: Due to the increasing penetration of renewable energy sources (RES), frequency regulation has become more challenging. In electrical power network, the load frequency control (LFC) mechanism is a very crucial function for keeping an equilibrium between the power generation and load to avoid frequency deviation (FD). The paper aims to implement an effective LFC scheme for a hybrid AC/DC microgrid (MG) system comprising of wind turbine generator (WTG) and battery energy storage system (BESS). Proportional integral double derivative (PID) controllers are used to implement the LFC scheme. The controller parameters are computed using a teaching-learning-based optimization (TLBO) algorithm. The responses acquired using PID controllers are compared with the responses obtained using Proportional integral (PI) and Proportional integral derivative (PID) controllers. A critical analysis reveals that the PID controller shows better dynamic responses in terms of settling time and magnitude of oscillations compared to the PI and PID controllers. Furthermore, the robustness of the proposed PID based LFC scheme is ascertained under different system loadings.

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Subhajit Roy; Suman Majumder; Krishnarti De **All Authors**

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Abstract

Document Sections

- I. Introduction
- II. Proposed System Architecture
- III. Energy Calculation To Drive Ev
- IV. Solar Panel Size

Abstract:

The growing demand for road transport vehicles has led to an increase in air pollution. Electrifying transportation can be a feasible solution only if electric energy is driven by renewable sources. The work presents the electric vehicle (EV) charging technique in the workplace using renewable energy and also analyses its economic and environmental benefits. Electric cars are considered for the analysis which is mostly used as private cars. The energy required to drive the vehicle is calculated considering the city-driven pattern of India. Solar energy is calculated from the solar irradiation data of India and the size of the battery in the charging station is considered double the EV battery. The extra size of the battery can charge the battery even if the day is cloudy or rainy. The annual emission shows that the charging of electric vehicles in a workplace can reduce carbon dioxide emissions. The economic benefit is also feasible as the vehicle is charging at the workplace.

Published in: 2022 IEEE International Conference on Power Electronics, Drives and Energy Systems (PEDES)

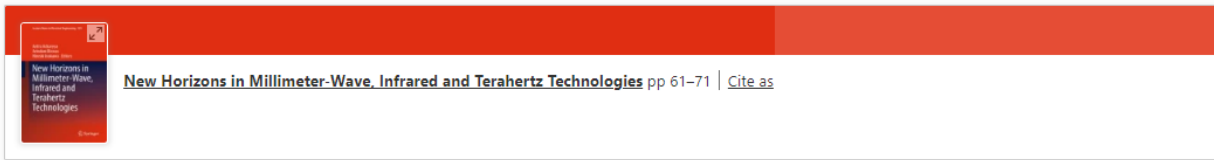
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Birhythmic Behavior in a New Dual Loop Optoelectronic Oscillator

Srishti Pal, Kankana Choudhury, Shayantan Kr Roy, Arindum Mukherjee & Dia Ghosh

Chapter | First Online: 01 November 2022

181 Accesses

Part of the Lecture Notes in Electrical Engineering book series (LNEE, volume 953)

Abstract

In the present paper, we report the birhythmic behavior of a time delayed Optoelectronic Oscillator (OEO) with two delays, popularly known as the Dual Loop Optoelectronic Oscillator (DLOEO). The present DLOEO contains a van der Pol Oscillator (VDPO) in its feedback loop, in place of the RF Band Pass Filter (BPF). We derive the system equation of the oscillator using weak nonlinear analysis. Coexistence of the two limit cycle oscillation is known as birhythmicity. Birhythmicity in an oscillator is an intriguing phenomenon. Often, birhythmicity is desirable as it presents us with two possible coexisting stable oscillatory states for common values of system parameters. It can also be a nuisance because a random perturbation may make the system settle onto an unwanted stable state. Therefore, identifying birhythmic behavior in an oscillator is an important task. Through detail analytical and numerical bifurcation analysis, for the first time, our study reveals birhythmic behavior in a DLOEO.

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NATURE: LOVE AND CONCERN OF POETS EAST OR WEST

Ms. Rimni Chakravarty
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Nature has always touched the feelings of the poets down the ages be it benevolent or malevolent, whether during the 19th century Romantic period of British Poetry or in the ancient period in India when Kaildasa vividly portrayed the suffering of Shakuntala where Nature was daunted with human characteristics. The aim of this article is to project how Nature provided a source of energy to the poets down the ages in the west or east, expressed their anguish be 19th century or in this 21st century where nature has always been tampered that become wild with rage to punish the wrong doers. The article would also like to emphasise how Kaildasa projected Nature to feel for the humans. In the modern times poets like Geki. N Daruwalla also provides the same thought in his Boat ride along the Ganga wherethe poets reacts for the hypocrisy of humans who pray to nature but never shy away to dilute her.. The article concluded how these poets think in the same vein and subtly suggests taking care of Mother Earth to the conclusion and recommendation to be caring for our good as envisaged by the poets down from the 19th century Romantic Period.

INTRODUCTION

Nature is always bounteous. It is a giver of life; that sustains our life, the air that provides us the...

so we keep alive in the midst of the tribulations life offers with hope and anxiety, pleasure and pain to de-stress ourselves when confront with the cacophony, the ennui of modern life complex as well as tedious to tear every problem and plunge into the lap of nature for comfort and solace. The same nature however beautiful, cool and serene could also be harsh, fierce, and dangerous as could be when it's tampered and struck with a deadly blow from humans who do it out of greed or want. Nature is not then a giver but also a taker who become furious and outrageous by men who loot or plunder for petty self interests of course some short term gains.


THE DUALITY OF NATURE AS TREATED BY WILLIAM WORDSWORTH ST COLERIDGE AND BYRON

Romantic philosophy was a protest against Enlightenment and Rationalism, the scientific technological advances it brought in the contemporary. The Romantics perceived logic and reason could not solve human problems rather it was making the life complex. , Romantics therefore with the publication of ballads in 1798 sought to restore the natural relationship between human beings and nature as it was when human beings lead a simple lifestyle.Nature pure, free from corruption where existed a spirit that governed the universe .The poet therefore could confess Composed a Few Miles above Tintern Abbey, On First the Banks of the Wye during a Tour. July 13, 1798:

The anchor of my purest thoughts, the nurse,
guide, the guardian of my heart, and soul Of all my being. (Stanza 5)

Nature to the poet is then a spirit that endowed with human qualities that enabled the poet to find comfort and refuge in Nature. The poet therefore

Rimni Chakravarty



Rimni Chakravarty, resident of Siliguri a small city on the foothills of the Himalaya, is an Asst. Professor of Humanities, Siliguri Institute of Technology, and West Bengal, India.

NATURE AND HUMANS

*The river flows and the winds blow,
The clouds gaily sail and so do the birds fly,
The sun with its beams glorify the sky,
The magnolia tree murmurs and sings,
As blows the gentle breeze,
The parrot sitting on its branch flaps its wings,
While the magnolia grandiflora is unable to cease
The buzzing of the bees,
The roaring and the gurgling Mahananda passing through the woods
Mesmerize a little girl in her childhood,
Who standing on the river bank perceives how Nature is in tune
with the universe,
But why not the human who fights for lands?
Tear forests and later return to the sands.*

Dr. Jernail Singh Anand

প্রকৃতিওমানুষ (Bangla)

নদীওবাতাসবয়েচলে
মেঘেরোসানশেভেসেফায়, পানিরোওউড়েচলে।
আবরশিতারকিরশেরদটায়,
আকাশকেরাঙিফেদেয়।
ম্যাগনোলিয়াগাছমর্মরমর্মরকনিত্তেগেগেওঠে,
যখনমুখুবাতাসবয়েফায়।

তিম্মাশাখি ষ্ট্রমগডানেমিসেরডানোঝাপটায়।
আনুবেম্যাগনোলিয়াকুল,
কখনতেপাবেনানৌমাদিবগুত্রন।
গর্জনরতমহানন্দাতারকসতানএমুটেচলেজরগেরপথে,
মোহিতকবেতোলেএকবাদিকাকে,
যেদাড়িফেআদেতারনদীরচরে।
বাসিকারেউপরছিহয়,
কিতাবেপ্রকৃতিওবিশ্বত্রমাও
মিশেফায়একহয়ে।
কিন্তুমানুষকেনপাবেনা
যারামুছকবেজমিবতবে, অরণ্যকেনারামুছফনে,
অরণ্যেফেফিবেনাফেবাসিরচরে।

মনীচক্রবর্তী।
(শিশিগুড়ি, পশ্চিমবঙ্গ, ভারত)

Rimni Chakravarty



Rimni Chakravarty was born in 1970 and brought up in Siliguri a small city on the foothills of the Himalayas, gateway to the neighboring countries of Bangladesh, Bhutan, Nepal. She is currently an Associate Professor, Humanities, Siliguri Institute of Technology under the Siliguri campus, West Bengal. Post Graduated in English Literature from the University of North Bengal, Darjeeling 1996, she has a passion for poetry, music, art and has published more than 50 publications, besides technical and literary papers in various journals.

Surrealist Moments in the dawn of early September

Rimni Chakravarty

The drums beat aloud somewhere in the neighbourhood. The night is yet to fade away to handover the charge to dawn eagerly waiting to felicitate the sun on its way to sparkle the earth with its dazzling rays. The rains fall a pit a pit sound: a lullaby for the human race to get a deep sleep in the wee hours as the night is about to melt away to light that shower the earth in this early September days in Siliguri, a small city in the laps of the Himalayas, the gateway to North East, Bhutan, Nepal, Bangladesh, Sikkim, Assam and Darjeeling the queen of Hills. Autumn has arrived with its fresh spells of frequent rains, deep blue sky, where the trailing clouds float by like the white patches of cotton balls, the blue mountains call with its lustrous beauty while the Kans grass move to and fro as blows the gentle yet the rustling wind. The cuckoo never sing but the white herons flap their wings and fly in circles to welcome the sun majestically marching up the hills with its sparkling mood to drive away the rains and make its way to ignite the world from the darkness and push the human race back to work from their grove. The drums beat aloud but its sound bothers me not, rather I feel energetic to spring up from my bed as did years back as a teenager waiting for the autumn festival when the Divine Mother will arrive to lit up my face with a smile. As those days I as any other ordinary Bengali girl used to wait for an opportunity to hop the *pandals* with school friends donning new clothes and accessories tasting the street foods with its delicious smell and taste I smile still today as I feel no pain to arise early at 4 AM.

I wonder how it happened and why it happened that today at 4 AM I feel no body pain!

The Theme of Alienation: A Universal Phenomenon in Literature and Life

Rimni Chakravarty

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Abstract: The theme of alienation is considered to be a major concept in the modernist movement during the late 19th century and the early 20th century which had a tremendous influence not only in British Literature but also in the American and the Bengali literature .However the theme of alienation is not a new concept that emerged in the modern period. It had its relevance during the Romantic as well as the Victorian period and of course it continues in the postcolonial period where the eminent poets of the present times voice their anguish about alienation. It also reveals how isolation boost the morale of our freedom fighters to fight against all odds and move towards attaining our independence .The aim of the research is also to find out how the theme of alienation has been dealt with the different poets and novelists down the ages to the present century. The article attempts to draw a conclusion that the theme of alienation is a universal phenomenon in literature or in our life

Key Words: Alienation, Romantic, Victorian, Modern, Universal



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Lightweight Authentication Protocol for E-Healthcare Systems Using Fuzzy Commitment Scheme

Jhuma Dutta, Subhas Barman, Rathit Bandyopadhyay & Moumita Ghosh

Conference paper | First Online: 25 April 2023

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Part of the Lecture Notes in Networks and Systems book series (LNNS, volume 519)

Abstract

Authentication schemes are now getting importance in the field of the medical system. Medical data are private and sensitive to a patient, therefore, during sharing of data, privacy preservation is very crucial issues in electronic healthcare systems. An authentication protocol is required to ensure mutual authentication between a patient and a medical server before data communication. Single server-based authentication schemes require a separate registration of patients for every medical server. Moreover, most of the existing schemes do not consider error correction mechanism for disorderly biometrics. Further, the schemes have limitations like lack of user anonymity, non-diversification of biometric data, and being vulnerable to attacks if the smart card is stolen and also susceptible to user impersonation attacks. To overcome these shortcomings, we have proposed an authentication protocol for multi-server-based medical systems considering multi-factors to generate the key. In the proposed scheme, patient name is integrated with a cancelable biometric template and a

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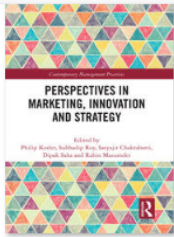
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Chapter

Brand Selection Behaviour of Customers and Market Standing of 4G Internet Service Providers in Siliguri and Darjeeling Towns of North Bengal

By *Shuvendu Dey, Shomnath Dutta, Santana Guha*

Book [Perspectives in Marketing, Innovation and Strategy](#)

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ABSTRACT

Mobile phone has become omnipresent in today's world with a huge subscriber base penetrating all strata of the population. Mobile Internet commerce has transformed over the past few years due to three swiftly growing sectors, mobile, internet and wireless communication technologies. The researchers use a semi-structured questionnaire to collect cross-sectional field data as the current study is purported to be exploratory as well as descriptive. Thus eye-catching advertising campaigns should be utilized by the ISPs to considerably increase the volume and frequency of 4G data usage among the netizens of both towns. The rapidly developing information and communication technology transformed the mobile wireless communication technology generation from 3G to 4G now making swift strides towards future forthcoming generation, 5G. It should be borne in mind that, the widespread growth of 4G technology in India has applications in diverse fields like entertainment, education, defence and health care.

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Chapter 59 On the Structure—Property Correlations of a New Class of Chiral Liquid Crystalline Materials: A Perspective from Electro-Optic and Dielectric Measurements



Priyanta Barman, Malay Kumar Das, Banani Das, Vera Hamplova,
and Alexej Bubnov

Abstract The results of electro-optic and dielectric measurements have been discussed in the light of molecular structure—property correlations on two chiral liquid crystalline materials possessing paraelectric SmA^* , ferroelectric SmC^* and antiferroelectric SmC_A^* phases, which differ in their linkage groups (keto or ether) and an additional chiral unit in the terminal chain. The phase transition temperatures and transition enthalpies were precisely determined from Polarising Optical Microscopy (POM) and Modulated Differential Scanning Calorimetry (MDSC) measurements. The compounds exhibit negative dielectric anisotropy, $(\Delta\epsilon)$ of around -6 and -1 in the SmC^* phase and a moderately high spontaneous polarization of around $80-130$ nC/cm². The temperature dependence of the response time, τ , bulk viscosity, η and the activation energies in the SmC^* phase have been determined, from which interesting structure property correlations have been elucidated specially in terms of the molecular geometry arising due to the presence of an additional chiral unit in the terminal chain. These results shed important light on the emergence of these materials as a smart alternative for their application in electro optic and photonic devices.

Keywords Dielectric parameters · Electro-optical measurement · Antiferroelectric liquid crystal · Structural correlation · Keto · Ether · Lactate group



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Predictive Geospatial Crime Data Analysis and Their Association with Demographic Features Through Machine Learning Approaches

Anupam Mukherjee & Anupam Ghosh

Conference paper | First Online: 21 June 2022

528 Accesses

Part of the Lecture Notes in Networks and Systems book series (LNNS, volume 480)

Abstract

Crime is a socioeconomic issue that has a negative impact on life quality and economic progress. By identifying crime trends, we will be able to handle difficulties with unique strategies in different criminal categories and improve societal security. This research focuses on the Vancouver crime dataset, with the goal of analyzing and predicting crimes in states using machine learning algorithms. In this work, we develop a model that can be used to estimate the number of crimes committed by category in a given state. Machine learning algorithms have exploded in popularity, making crime prediction possible based on historical data. This work mainly creates ensembled models that perform significantly better results with respect to stability, accuracy and provide more accurate forecasting results compare to the existing algorithms. If we follow data decomposition techniques based on district-wise accuracy rate then the result will outperform the existing methodologies. Geo-spatial crime

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Enrichment of Polarization Purity, Gain and Compactness of Circular Microstrip Antenna

[Manoj Sarkar](#), [Abhijyoti Ghosh](#) ✉, [Sudip Kumar Ghosh](#), [L. Lolit Kumar Singh](#) & [Sudipta Chattopadhyay](#)

Conference paper | [First Online: 08 July 2023](#)

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Abstract

The investigation is intended for the miniaturization of circular patch antenna (CPA) with high polarization purity and stable gain. A simple probe feed circular patch antenna with curved “l” shaped defected ground structure (CI-DGS) at radiating edge and thin metal strip at the non-radiating edge of patch on RT-Duroid substrate ($\epsilon_r = 2.33$) has been investigated concurrent improvement of gain, polarization purity and compactness. The present investigation provides around 36.7% size reduction of the active patch area, 27 dB polarization purity and high stable gain of 7.79 dBi which is inherently good as compared to conventional circular patch antenna. The proposed structure provides a stable radiation pattern over the entire operational frequency and it’s very easy to manufacture, therefore the proposed structure might be useful in the era of wireless communication system where miniaturization, high polarization purity, stable gain and stable radiating pattern are the primary requirements.

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Advanced Data Mining Tools and Methods for Social Computing

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Chapter 9 - Recent trends in recommendation systems and sentiment analysis

Sutapa Bhattacharya^a, Dhruvasish Sarkar^b, Dipak K. Kole^c, Premananda Jana^d

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Abstract

With the rise of technology, anyone can easily share their sentiments through social media platforms like Facebook, Twitter, LinkedIn, Google+, and Instagram. Sentiment analysis is a technique that categorizes opinions from pieces of text to determine a sentiment score (positive, negative, or neutral). Recommendation systems usually aim to match user patterns by finding similar users or different users according to their sentiment scores. Sentiment analysis is dependent on machine learning- or lexicon-based approaches.

The following study is an attempt to enlighten how sentiment analysis approaches can be used to improve the outcomes of recommender systems. In the introduction, the basic concepts and terms related to sentiment analysis and recommendation systems are described. Next, we provide an overview of the different aspects of sentiment analysis. Recent developments and related works are discussed subsequently. In this research, we propose a combination of a BERT model and an S3VM classifier using a collaborative recommendation architecture for getting good accuracy. The last part of the chapter

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Comparison Between Some Glassy Systems and Their Heat-Treated Counterparts

Aditi Sengupta, Chandan Kr Ghosh & Sanjib Bhattacharya

Chapter | First Online: 02 October 2022

164 Accesses

Abstract

Li₂O-doped glass-nanocomposites and crystalline counterparts have been developed. Microstructural study reveals the distribution of Li₂Zn₂(MoO₄)₃, ZnMoO₄, Zn(MoO₂)₂, Li₂Mo₆O₇ and Li₂MoO₃ nanorods in the glassy matrices. Crystalline counterparts exhibit enhancement in crystallites sizes. The ionic conductivity is found to be function of frequency and temperature. Flat conductivity at a low-frequency regime indicates the diffusional motion of Li⁺, whereas the “higher frequency dispersion” may correspond to a correlated and sub-diffusive motion. As the crystalline counterpart is formed by controlled heating, ZnSeO₃ chain structure is expected to break by increasing dimensions of molybdate rod-like structures.

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A Study on Suction Properties, Subgrade Modulus and Compressibility of Marine Soil Subgrade for Flexible Pavements

Ram Wanare, Pritam Sinha & Kannan K. R. Iyer

Conference paper | First Online: 31 August 2021

989 Accesses

Part of the Lecture Notes in Civil Engineering book series (LNCE, volume 164)

Abstract

One of the important parameters that governs suitability of soil subgrade for flexible pavements is subgrade modulus and it depends on many factors such as type of loading and its magnitude, soil type and its engineering properties, flexural stiffness of the pavement structure and relative stiffness of the soil subgrade and pavement structure. The strength and stiffness of soil affects its relative stiffness with pavement structure and depends on various factors such as water content, soil type, degree of compaction and soil suction. For most soils, soil suction is mainly due to matric suction. However, for marine soils, soil suction is due to the presence of osmotic suction in addition to matric suction. The evaluation of the influence of both matric and osmotic suction on engineering properties of marine soil would be quite useful to understand its performance as soil subgrade for pavement. In this regard, the present work attempts to understand the relationship between subgrade modulus, suction and

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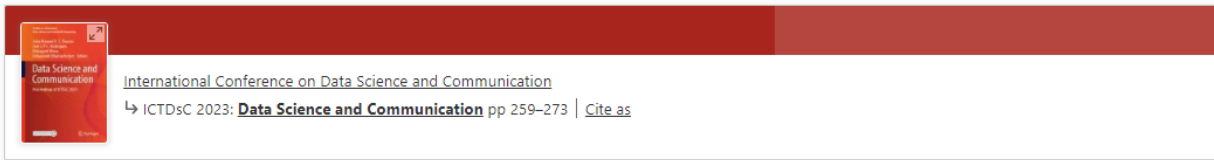
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A Survey on the Application of Chaos-Based Encryption Techniques on Medical Images

[Sujata Ghatak](#), [Satyajit Chakrabarti](#), [Debasmriti Bhattacharjee](#), [Debajyoti Misra](#), [Biswajoy Chatterjee](#), [Mousumi Gupta](#) & [Snehashish Bhattacharjee](#)

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32 Accesses

Part of the [Studies in Autonomic, Data-driven and Industrial Computing](#) book series (SADIC)

Abstract

The security requirements for radiological images, which are now transferred across numerous networks, are very high. During this COVID-19 days, clinicians are solely dependent on these radiological images. Transmission of these medical records is becoming more common due to an increase in patients, and keeping them confidential, along with availability and integrity, emerges as one of the most crucial security considerations. Numerous algorithms are employed to safeguard data against unauthorized access since image data has a variety of properties. This paper focuses primarily on the specific cryptographic methods utilized for the image encryption and decryption of the COVID-19 medical image data within the field of information security. In addition, a comparative study is carried out among the parameters used to measure security of the existing literatures.

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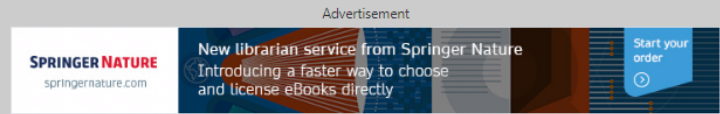
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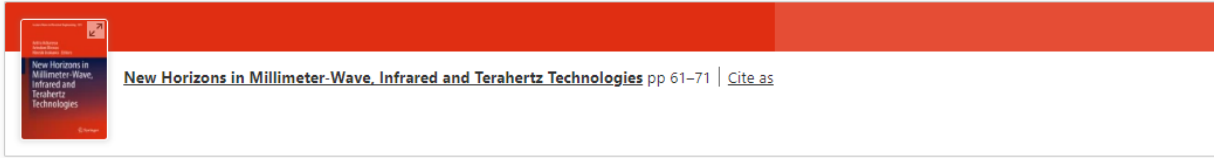


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Birhythmic Behavior in a New Dual Loop Optoelectronic Oscillator

Srishti Pal, Kankana Choudhury, Shayantan Kr Roy, Arindum Mukherjee & Dia Ghosh

Chapter | First Online: 01 November 2022

181 Accesses

Part of the Lecture Notes in Electrical Engineering book series (LNEE, volume 953)

Abstract

In the present paper, we report the birhythmic behavior of a time delayed Optoelectronic Oscillator (OEO) with two delays, popularly known as the Dual Loop Optoelectronic Oscillator (DLOEO). The present DLOEO contains a van der Pol Oscillator (VDPO) in its feedback loop, in place of the RF Band Pass Filter (BPF). We derive the system equation of the oscillator using weak nonlinear analysis. Coexistence of the two limit cycle oscillation is known as birhythmicity. Birhythmicity in an oscillator is an intriguing phenomenon. Often, birhythmicity is desirable as it presents us with two possible coexisting stable oscillatory states for common

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Rimni Chakravarty



Rimni Chakravarty was born in 1970 and brought up in Siliguri a small city on the foothills of the Himalayas, gateway to the neighboring countries of Bangladesh, Bhutan, Nepal. She is currently an Associate Professor, Humanities, Siliguri Institute of Technology under the Siliguri campus, West Bengal. Post Graduated in English Literature from the University of North Bengal, Darjeeling 1996, she has a passion for poetry, music, art and has published more than 50 publications, besides technical and literary papers in various journals and magazines.

Surrealist Moments in the dawn of early September

Rimni Chakravarty

The drums beat aloud somewhere in the neighbourhood. The night is yet to fade away to handover the charge to dawn eagerly waiting to felicitate the sun on its way to sparkle the earth with its dazzling rays. The rains fall a pit a pit sound: a lullaby for the human race to get a deep sleep in the wee hours as the night is about to melt away to light that shower the earth in this early September days in Siliguri, a small city in the laps of the Himalayas, the gateway to North East, Bhutan, Nepal, Bangladesh, Sikkim, Assam and Darjeeling the queen of Hills. Autumn has arrived with its fresh spells of frequent rains, deep blue sky, where the trailing clouds float by like the white patches of cotton balls, the blue mountains call with its lustrous beauty while the Kans grass move to and fro as blows the gentle yet the rustling wind. The cuckoo never sing but the white herons flap their wings and fly in circles to welcome the sun majestically marching up the hills with its sparkling mood to drive away the rains and make its way to ignite the world from the darkness and push the human race back to work from their grove. The drums beat aloud but its sound bothers me not, rather I feel energetic to spring up from my bed as did years back as a teenager waiting for the autumn festival when the Divine Mother will arrive to lit up my face with a smile. As those days I as any other ordinary Bengali girl used to wait for an opportunity to hop the *pandals* with school friends donning new clothes and accessories tasting the street foods with its delicious smell and taste I smile still today as I feel no pain to arise early at 4 AM.

I wonder how it happened and why it happened that today at 4 AM I feel no body pain!



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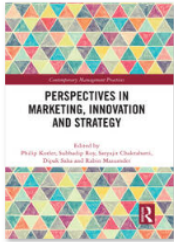


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Chapter

Brand Selection Behaviour of Customers and Market Standing of 4G Internet Service Providers in Siliguri and Darjeeling Towns of North Bengal

By *Shuvendu Dey, Shomnath Dutta, Santana Guha*

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Cost Optimized Community-Based Influence Maximization

[Mithun Roy](#), [Subhamita Mukherjee](#) & [Indrajit Pan](#)

Conference paper | [First Online: 23 June 2023](#)

58 Accesses

Part of the [Advances in Intelligent Systems and Computing](#) book series (AISC, volume 1446)

Abstract

Effective identification of a small set of nodes within a network which can potentially cover many number of nodes in the remaining network is known as influence spread process. Influence spreading amongst maximum number of nodes is called influence maximization process. Influence maximization task is computationally hard which involves promising seed set selection and estimation of the maximum influence spread throughout the network. Community detection algorithm to figure out effective seed set for influence maximization within an acceptable execution time is the key essence of this article. Proposed community-based identification method involves three stages. First stage detects communities in the given network, second stage analyzes community structure to select candidate nodes within the communities, and the third stage identifies promising influential members from the candidate set to make a target set. Ultimately, average influence spread is measured through Monte Carlo simulation technique. Proposed algorithm has been rigorously tested on two

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An Effective Community-Based Greedy Approach Over Selected Communities for Influence Maximization

Mithun Roy, Subhamita Mukherjee & Indrajit Pan

Conference paper | First Online: 23 June 2023

51 Accesses

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Abstract

Influence maximization refers to reaching the most promising part of a network by selecting a small number of nodes. Computing the maximum influence spread throughout a network based on influential seed sets is a computationally hard problem. This article attempts to minimize the execution time and maximize the influence spread. The technique is community based and comprises three steps, (1) Identify communities within a network, (2) Locate most significant communities and candidate vertices, and (3) Trace most influential nodes among candidate vertices. Experiments have been conducted on two real-world social network data sets to understand the efficacy and usefulness of the proposed algorithm.

Keywords

- Clique proximity
- Influence maximization
- Overlapping community
- Social network

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