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Annexure_3.4.6

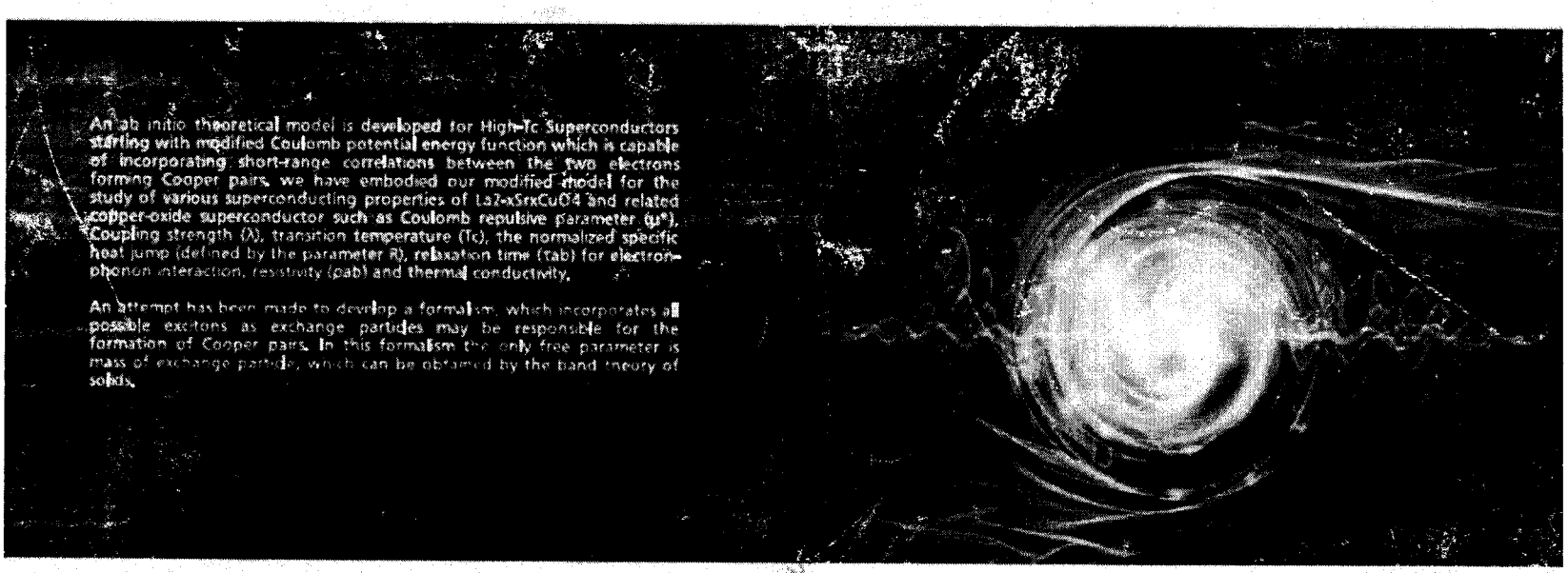
Criterion III – Research, Innovations and Extension

Key Indicators - 3.4 Research Publications and Awards

Metric No. 3.4.6_ Number of books and chapters in edited volumes published per teacher during the last five years

An ab initio theoretical model is developed for High-Tc Superconductors starting with modified Coulomb potential energy function which is capable of incorporating short-range correlations between the two electrons forming Cooper pairs, we have embodied our modified model for the study of various superconducting properties of La2-xSrxCuO4 and related copper-oxide superconductor such as Coulomb repulsive parameter (μ^*), Coupling strength (λ), transition temperature (Tc), the normalized specific heat jump (defined by the parameter R), relaxation time (τ_{ab}) for electron-phonon interaction, resistivity (ρ_{ab}) and thermal conductivity.

An attempt has been made to develop a formalism, which incorporates all possible exitons as exchange particles may be responsible for the formation of Cooper pairs. In this formalism the only free parameter is mass of exchange particle, which can be obtained by the band theory of solids.



Dr. BRAJRAJ SINGH is an Associate Professor in the Mody University of Science and Technology, Lakshmangarh, Sikar, (Rajasthan) India, since 2007. He has more than 20 years experience of teaching Physics to UG, PG and Ph.D. Programmes. He has authored several research papers in International and National refereed journals.

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Brajraj Singh

High Tc Superconductors

An Ab initio Theoretical Model

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An Overview of Microbial Derived Polyhydroxybutyrate (PHB): Production and Characterization

7

Monika Sharma and Harish Kumar Dhingra

Abstract

The glory of synthetic polymer and the production and application can be contributed to their prize, permanence, and endowment for the proficiency in daily living. Although, one time utilization of synthetic plastic, longevity and rebellious characteristics is opened a continuous enchancement in synthetic polymer as a part of garbage. Requirement for the replacement of one-time utilized plastics which is hard to detect has motivated many researchers to work regarding the permanent solution to replace synthetic polymers that are oil-based plastics. Poly-β-hydroxybutyrate is a naturally formed biopolymer that can be used as plastic produced by various microorganisms. It has aquired importance because of its structural variations and similar analogy to synthetic polymer. Additionally, specific physico-chemical, bio-logical, and degradation characterisitics of biodegradable plastics is key factor which make bioplastic important for various uses in different field. This chapter contains classification, biosynthesis, detection techniques, and recovery methods of microbially produced biodegradable polymer. We then discuss the application of biodegradable polymers in various fields to reduce the dependence on synthetic plastic.

Keywords

Biodegradable polymers · poly-β-hydroxybutyrate · biodegradation · bioplastic

M. Sharma (✉) · H. K. Dhingra
School of Liberal Arts and Sciences, Mody University of Science and Technology, Lakshmangarh, Rajasthan, India

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International conference on Innovative Development and Engineering Applications, 8-10 February 2021, Gaya College of Engineering, Gaya, India

Solar-based hybrid renewable energy plants

Mamta Chahar[a*], Sarita Khaturia[b*], C. B. Mahto[a1], Harlal Singh[b] and Vinay K. Chaudhary[a]

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Abstract

Hybrid renewable energy systems like solar and wind systems are growing at rapid pace due to the swift depletion of petroleum resources and global warming phenomena. In recent years, global warming and climate change are two major problems in the global economy and environment, and they have a significant effect on the inadequate accessibility and rising cost of energy. The high consumption of energy in the world has already increased concerns about supply difficulties and significant environmental effects, such as global warming and climate change. The results show that energy created by traditional energy sources causes an increase in greenhouse gas discharge, which could affect global warming. With the consideration of the issues discussed above, continual potential action for sustainable improvement is required. In addition, cost-effective, consistent, and environmentally friendly energy systems are the attributes of a sustainable energy system that efficiently uses local assets and networks. Therefore, renewable energy sources are positioned as one of the proficient and useful solutions. Currently, some countries have the potential for different types of energy resources, such as solar, wind, etc., and in addition, many companies are developing, constructing and setting up modern and high-tech renewable energy systems. These countries attempt to lead a large network of investigators and other partners to utilize advanced technologies that will provide a cost for renewable electricity generation that is competitive with traditional sources of energy. Although a number of studies have been performed on renewable energy systems but hybrid renewable energy systems (HRES) are in demand in this era due to advanced renewable energy technologies. For these types of hybrid plant, researchers are designing a most favorable system by incorporating optimization techniques to predict optimal units for solar PV, wind power generation and batteries in minimize cost for generating stable power supply. The unique features of hybrid energy plants such as instant power, power quality spinning reserve replacement, ancillary services, internal combustion engines–integrated with energy storage and solar PV–offer considerable potential for fuel and cost savings. This article focuses primarily on different hybrid solar systems, advancements and their applications.

Keywords: Renewable energy; Solar; Wind; Hybrid systems; Floating solar FPV; Batteries.

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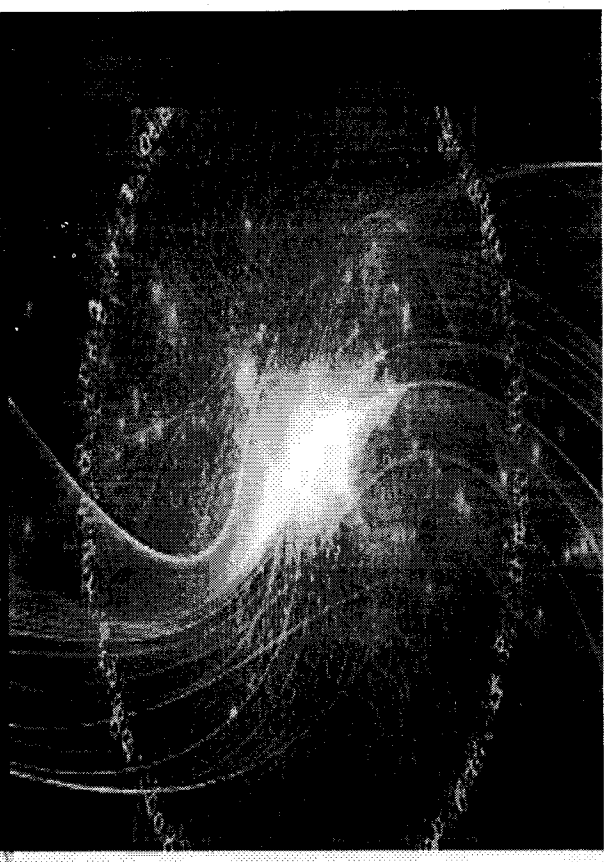
This text book is related to mathematical modeling of some aspects of digraphs with impetus of isomorphism, decyclization and pebbling. There is a rapid growth in graph theory over last two decades among applied mathematicians and engineers. There was one book on the graph theory entitled as Konig's Theorie der Endlichen und Unendlichen Graphen in 1957. Now, there are several textbooks, various seminar and conferences. Chapter I presents the essential preliminaries related to graph, digraph, graph isomorphism, graph decyclization, graph pebbling, graph rubbling, and their applications. Also, it covers the objectives of our research. Chapter II consists of, review of the literature regarding graph theory, graph isomorphism, decyclization of a digraph, graph pebbling, and graph rubbling. Chapter III presents materials and methods for graph isomorphism, graph decyclization, graph pebbling, and graph rubbling. Chapter IV is devoted to results and discussions for graph isomorphism, graph decyclization, graph pebbling, and graph rubbling. Chapter V discusses conclusions regarding findings of results of graph isomorphism, graph decyclization, graph pebbling, and graph rubbling.



Jitendra Binwal
Aakanksha Baber

MATHEMATICAL MODELING OF SOME ASPECTS OF DIGRAPHS

With Impetus of Isomorphism, Decyclization and Pebbling

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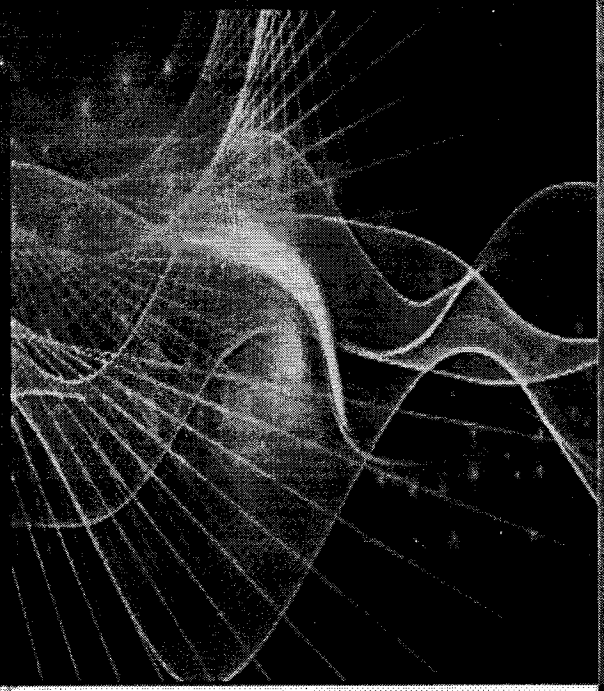
The present Ph. D. Thesis has been divided into seven chapters: I-VII, which deals with introduction , review of literature, isomorphism of directed graphs by considering graph invariant that is probability propagation matrix and related computer programming in C++ language; decyclization of directed graph and its isomorphic image by using combinatorial algorithm and related computer programming in C++ language; and pebbling on directed graphs.Chapter I presents the essential preliminaries related to graph, directed graph, review of literature, history, development, and the applications of graph theory in inter-disciplinary fields.Chapter II discusses graph isomorphism of undirected plane graphs.Chapter III presents a generalized heuristic program as a certificate for testing graph isomorphism by using C++ programming.Chapter IV is devoted to the study of decyclization in directed graphs and its isomorphic image by considering combinatorial approach.Chapter V discusses some aspects of combinatorial algorithms for feedback problems in directed graphs and presents a generalized heuristic program DTCPP. Chapter VI and VII discusses pebbling on undirected graphs and directed graphs.



Jitendra Binwal
C.L. Parihar
Madhu Tiwari

A Study of Directed Graph and Related Computer Programming

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MATHEMATICAL MODELING OF SOME ASPECTS OF DIGRAPHS

With Impetus of Isomorphism, Decyclization and Pebbling

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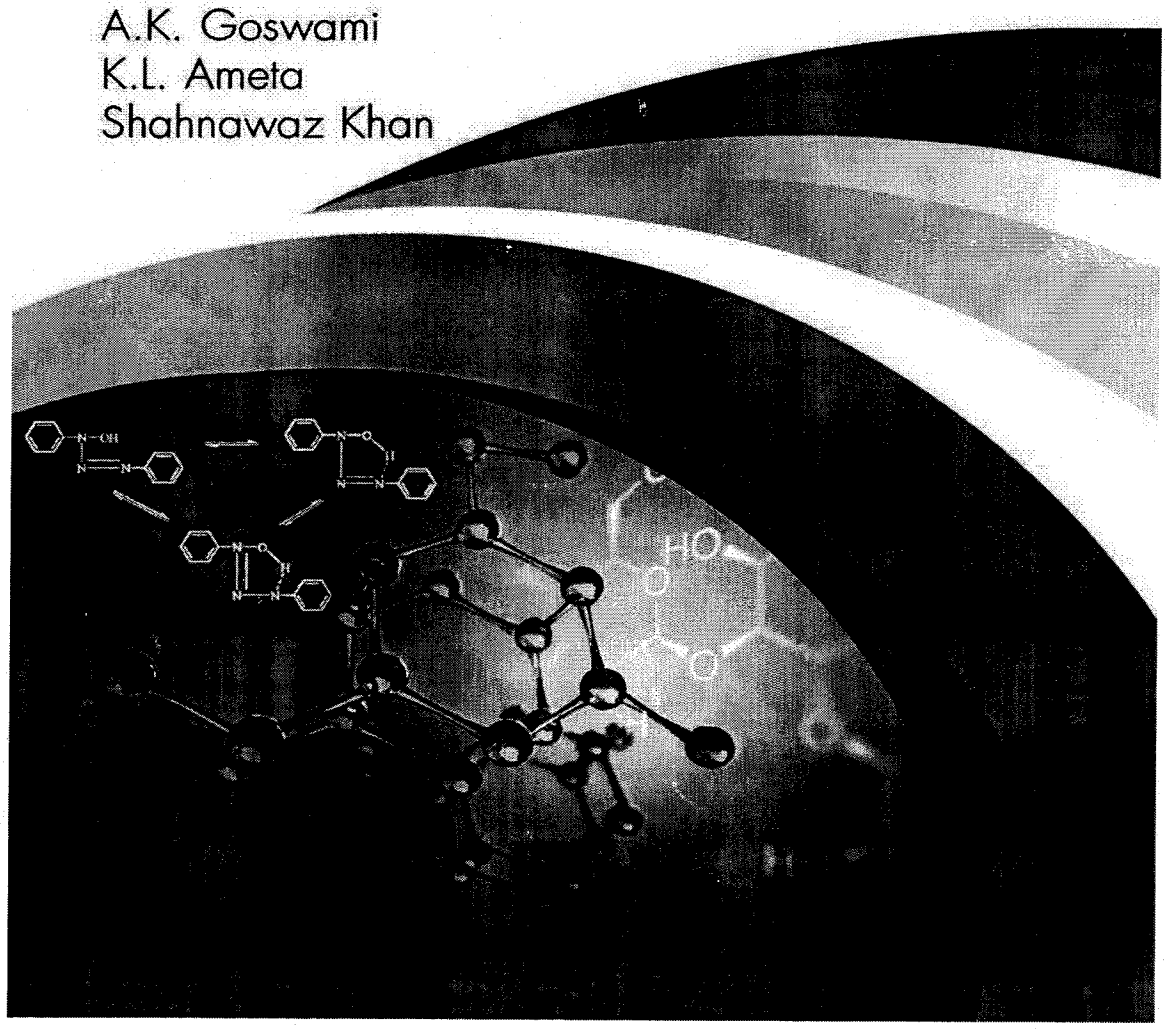
Hydroxytriazenes and Triazenes

The Versatile Framework, Synthesis, and Medicinal Applications

A.K. Goswami
K.L. Ameta
Shahnawaz Khan



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In this book, the novel designs of photonic crystal fibers with optimized optical properties such as index guiding, highly birefringence, small walk-off, near zero dispersion, normal dispersion, anomalous dispersion, highly nonlinear, single mode in silica and non-silica materials is proposed. In these photonic crystal fibers, the physical dynamics behind the new frequency generation is explored when an ultra-short pulse (femtosecond pulse) propagates through these fibers. The nonlinear optical phenomena which are responsible for the generation of supercontinuum is investigated.

Dr. Mohit Sharma received his Ph.D. degree from Birla Institute of Technology, Mesra. He received several national level scholarships such as the Sahara India Scholarship in 2003 and the Indian Railway Academic Scholarship in 2002, 2004, 2007, and 2009. His research interests include nonlinear optics, PCF, SCG, and fiber optic sensors.

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Mohit Sharma

Photonic Crystal Fibers for Supercontinuum Applications

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Sharma

CHAPTER – 5
ROLE OF MATHEMATICS IN COMPUTATIONAL BIOLOGY

BY
NAVEEN DHINGRA & AMAN MORYA

Abstract: Computer biology considers the use of computers to solve various biological problems related to protein and DNA. In computational biology there are various algorithms and methodologies are used for the sequencing and analysis of various data of DNA and protein. Tries, suffix trees, tandem repeats, boundary forest clustering etc. are various algorithms which are used to analyze the genes present in different species. Algorithms are mainly helpful in overcoming the various challenges introduced in computational biology. Analyzing and comparing the representations of biomolecules with the help of algorithms can reveal a lot of useful information about the biomolecules. Computational biology and mathematical technologies can be implemented by integrating the knowledge proteins and genome.

Keyword: Computational biology, algorithms, protein.

Introduction:

Computational biology considers the use of computers to solve biological problems. It indicates the development of specific algorithms and computational methods. Computational biology uses the methods of statistics, applied mathematics and informatics. This area is aimed at the study of analysis, genome and prediction of protein interactions with each other and other molecules. Computational biology and its methods are used in biophysics and biochemistry. In simpler words the use of mathematical tools to extract useful information for the structure of DNA and proteins [1].The existence of term "Bioinformatics" was considered from the discovery of genetic inheritance by G. Mendel in 1865. Different experiments on significant species to observe result of cross-fertilization was a big step by Gregor Mendel. He did cross-fertilization experiments on pea plants with different colors which took eight years of study. According to a study, G. Mendel grew around more than 10,000 pea plants throughout the study and kept all records strictly. The importance of mathematics in bioinformatics was clearly seen in his work. Mendel gave law of aggregation, law of independent assortment and low of dominance as compiled stated as Mendel's law of heredity. Although, DeVries, Correns and Tschermak were the 3 scientists who rediscovered the work done by Mendel in 1900. [1, 2]

Tries and Suffix Tree:

When we look for 'mathematics' in bioinformatics, the term 'algorithm' is very important. Just like that, when we look for term 'algorithm', the term 'suffix tree' is very important. Tries are structure of data in a branched form i.e. tree, composed of prefix of string. While prefix of a string is the any n letters $n \leq |S|$ that can be considered as from the beginning of string [2].

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Plant Virus-Host Interaction (Second Edition)
Molecular Approaches and Viral Evolution

2021, Pages 267-282

Chapter 9 - The interaction between begomoviruses and host proteins: Who determines the pathogenicity of begomoviruses

Megha Mishra [a], Filza Fatma [b], Shamresh Anand [b], Dinesh Kumar Singh [b], Pradeep Sharma [c], R.K. Gaur [b], Rakesh Kumar Verma [a]

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Abstract

Begomoviruses, small ssDNA viruses vectored by the whitefly *Bemisia tabaci, are* dependent on the host cell machinery to multiply and spread. The interaction between virus genes and host proteins leads to alteration of host gene expression, disruption of central cellular metabolic pathways, evasion of RNA silencing response, reprograming of plant signaling controls and impairment of plants defense system which results in successful infection of begomovirus in plants. This chapter summarize the battle between plant factors and virus proteins in context of a greater understanding of the molecular processes of infection of begomoviruses.

Previous Next

FEEDBACK

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Solar-based hybrid renewable energy plants

Mamta Chahar[a*], Sarita Khaturia[b*], C. B. Mahto[a], Harlal Singh[b] and Vinay K. Chaudhary[a]

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Abstract

Hybrid renewable energy systems like solar and wind systems are growing at rapid pace due to the swift depletion of petroleum resources and global warming phenomena. In recent years, global warming and climate change are two major problems in the global economy and environment, and they have a significant effect on the inadequate accessibility and rising cost of energy. The high consumption of energy in the world has already increased concerns about supply difficulties and significant environmental effects, such as global warming and climate change. The results show that energy created by traditional energy sources causes an increase in greenhouse gas discharge, which could affect global warming. With the consideration of the issues discussed above, continual potential action for sustainable improvement is required. In addition, cost-effective, consistent, and environmentally friendly energy systems are the attributes of a sustainable energy system that efficiently uses local assets and networks. Therefore, renewable energy sources are positioned as one of the proficient and useful solutions. Currently, some countries have the potential for different types of energy resources, such as solar, wind, etc., and in addition, many companies are developing, constructing and setting up modern and high-tech renewable energy systems. These countries attempt to lead a large network of investigators and other partners to utilize advanced technologies that will provide a cost for renewable electricity generation that is competitive with traditional sources of energy. Although a number of studies have been performed on renewable energy systems but hybrid renewable energy systems (HRES) are in demand in this era due to advanced renewable energy technologies. For these types of hybrid plant, researchers are designing a most favorable system by incorporating optimization techniques to predict optimal units for solar PV, wind power generation and batteries in minimize cost for generating stable power supply. The unique features of hybrid energy plants such as instant power, power quality spinning reserve replacement, ancillary services, internal combustion engines–integrated with energy storage and solar PV–offer considerable potential for fuel and cost savings. This article focuses primarily on different hybrid solar systems, advancements and their applications.

Keywords: Renewable energy; Solar; Wind; Hybrid systems; Floating solar FPV; Batteries.

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CHAPTER - 32

Renewable Energy System for Sustainable Development

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ABSTRACT

Sustainable development is no more a choice for mankind, it must be followed immediately. In this article, we have delineated various renewable energy systems and side by side we have also tried to learn how the concept of sustainability can be applied which may help mankind in near future. We have discussed the possible renewable enery resources, which are under utilized but they possess potential powers to replace almost all the non-renewable energy resources. The concept of sustainable development add an edge to these renewable energy resources for long term usage of these energies. We, therefore conclude that these renewable energy systems will be the potential energy provider in the near future and therefore future research will also be somewhere integrate sustainability.

Keywords: Sustainable development; Renewable energy resources; Solar, Wind, Hydro, Tidal.

INTRODUCTION

Since the dawn of the civilization, the ability to harness and use different forms of energy has changed living standard of many peoples, enabling them to enjoy a level of comfort that is undoubtedly exceptional in mankind history. Of course, the need for a profound transformation of the world's energy-production and infrastructure has been widely recognized in the global climate change. This unit will provides an outline and brief description, including fundamentals, of the different renewable energy technologies, wind, solar, bioenergy, hydro and geothermal energy. It provides a general overview of the technologies and their applications. The information in this unit is of general interest to explain the basics of renewable energy technologies, to understand their strengths and weaknesses and hence to have a better picture of the benefits available from, and the barriers faced by, these technologies.

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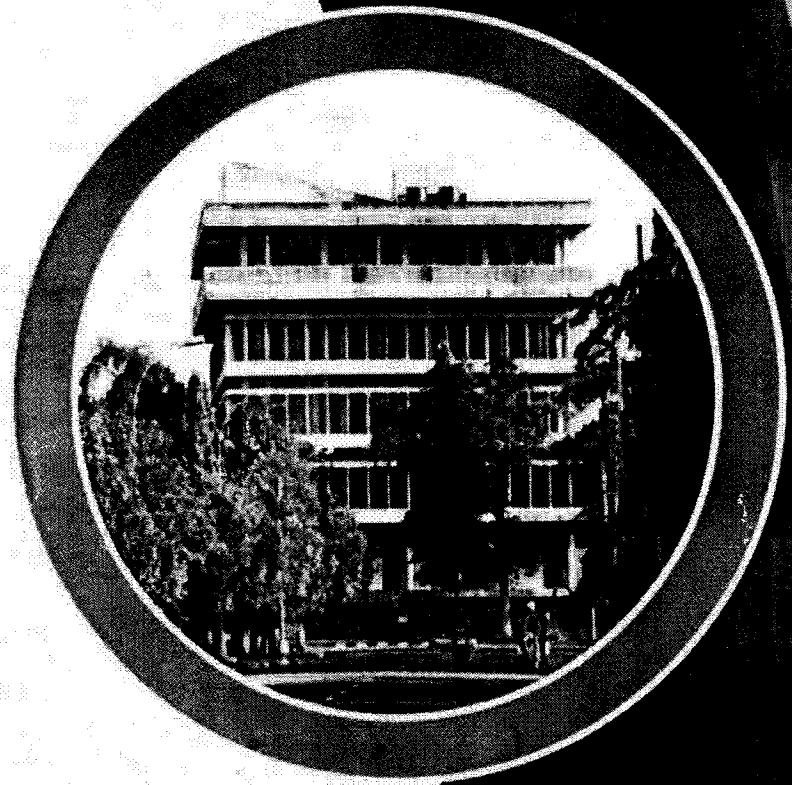

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Semester - II

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  (Author(s): **Puri, P.***, Dubey, M., Kumar, N.)

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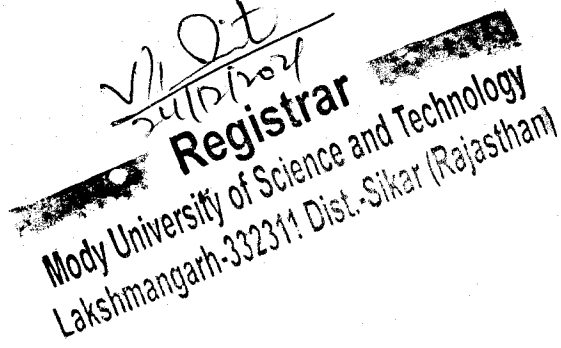

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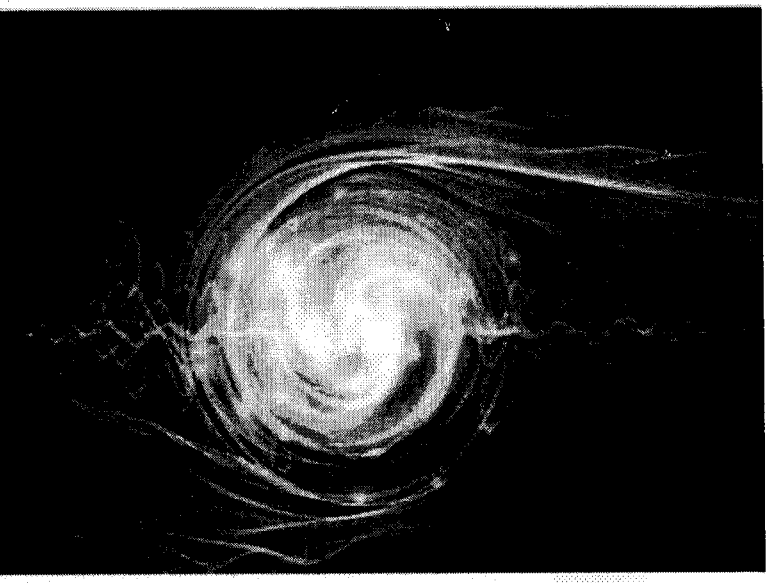
With thanks and best regards,
The Springer Reference Editorial Team

An ab initio theoretical model is developed for High-Tc Superconductors starting with modified Coulomb potential energy function which is capable of incorporating short-range correlations between the two electrons forming Cooper pairs. we have embodied our modified model for the study of various superconducting properties of La2-xSrxCuO4 and related copper-oxide superconductor such as Coulomb repulsive parameter (μ^*), Coupling strength (λ), transition temperature (Tc), the normalized specific heat jump (defined by the parameter R), relaxation time (τab) for electron-phonon interaction, resistivity (ρab) and thermal conductivity.

An attempt has been made to develop a formalism, which incorporates all possible excitons as exchange particles may be responsible for the formation of Cooper pairs. In this formalism the only free parameter is mass of exchange particle, which can be obtained by the band theory of solids.



Brajraj Singh

High Tc Superconductors

An Ab initio Theoretical Model

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Rubbling Number of Undirected Bipartite Graph with Impetus of Python Coding

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ABSTRACT

A graph rubbling and pebbling move is removable of two pebbles and addition of one pebble with their different prospect of respect of vertices. Using rubbling and pebbling move, a vertex is reachable if a pebble can be moved to the vertex. In this paper, we demonstrate the evaluation of the rubbling number of bipartite graphs with the impetus of Python coding for larger number of vertices.

Keywords:. Pebbling Number, Rubbling Number, Path Graph and Bipartite Graph.

1. Introduction

Chung was first one to introduce pebbling in graphs [1]. Consider, a graph of n vertices with fixed number of pebbles distributed among its vertices. Pebbling step is the removal of 2 pebbles from a vertex and addition of 1 pebble on its adjacent vertex [2, 3, 4, 6].

The $f(G)$ is the representation of pebbling number of graphs, after a sequance of pebbling moves on a graph where pebbles are randomly distributed all over the vertices can sent 1 pebble to any arbitrary vertex. For an example, $f(G) = 5$.

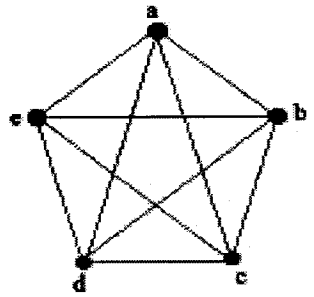

Figure 1. A undirected graph G with five vertices

1.1. Proposition [6]:

The pebbling number of the path graphs, $f(P_n) = 2^{n-1}$.

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3

Introduction to Photonic Crystal Fibers

Mohit Sharma and S. Konar

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4

Nonlinear Optics and Supercontinuum Generation in Photonic Crystal Fibers

Mohit Sharma and S. Konar

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4.1 Introduction

Supercontinuum (SC) generation is the significant spectral broadening of a pump pulse due to a host of nonlinear effects. Many nonlinear phenomena simultaneously take place to produce spectrally continuous output, which include self-phase modulation (SPM), cross-phase modulation (XPM), Raman scattering, modulation instability (MI), four wave mixing (FWM), soliton fission, and soliton self-frequency shift (SSFS). Moreover, dispersive waves also contribute to the SC generation. The role of these nonlinear phenomena is controlled by the combination of pulse duration, pumping wavelength, fiber dispersion, and nonlinearity, altering which results in significant changes in the shape, spectral width, and coherence properties of the SC. AQ 1 AQ 2

The SC spectra are usually generated by pumping femtosecond or picosecond pulses in a highly nonlinear photonic crystal fiber (PCF) with an anomalous group velocity dispersion (GVD) regime of the fiber that is close to the zero dispersion wavelength (ZDW). In this case, spectral broadening is contributed by a host of nonlinear phenomena such as SPM, MI, and stimulated Raman scattering (SRS), in addition to the third- and higher-order dispersions. This process can produce a broad SC spectrum; however, the SC generation mechanism is extremely sensitive to pump pulse fluctuations. Small fluctuation in the pump amplitude or phase from shot to shot causes significant fluctuations in the spectral intensity and phase of the resulting SC, leading to the loss of spectral coherence.

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In recent decades, there has been phenomenal growth in the field of photonic crystal research and it has emerged as an interdisciplinary area. Photonic crystals are virtually nanostructured electromagnetic media consisting of periodic variation of dielectric constant, which prohibit certain electromagnetic wave frequency ranges called photonic bandgaps to propagate through them. Photonic crystals elicited numerous interesting features by unprecedented control of light and their exploitation is a promising tool in nanophotonics and designing optical components. **Advances in Photonic Crystals and Devices** is designed with 16 chapters with introductory as well as research and application based contents. It covers the following highlighted features:

- Basics of photonic crystals and photonic crystal fibers
- Different theoretical as well as experimental approaches
- Current research advances from around the globe
- Nonlinear optics and super-continuum generation in photonic crystal fibers
- Magnetized cold plasma photonic crystals
- Liquid crystal defect embedded with graphene layers
- Biophysics and biomedical applications as optical sensors
- Two-dimensional photonic crystal demultiplexer
- Optical logic gates using photonic crystals
- A large number of references

The goal of this book is to draw the background in understanding, fabrication and characterization of photonic crystals using a variety of materials and their applications in design of several optical devices. Though the book is useful as a reference for researchers working in the areas of photonics, optical computing and fabrication of nanophotonic devices, it is intended for the beginner, such as students pursuing their masters' degree in photonics.

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Advances in Photonic Crystals and Devices

Kumar • Suthar

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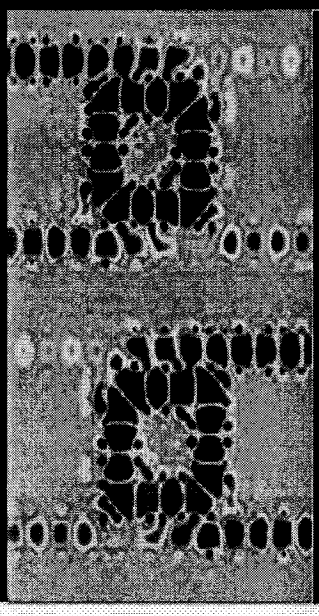

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5

Effects of Various Parameters on Band Structure of Extrinsic Magnetized Cold Plasma Photonic Crystal

Narendra Kumar and Bhuvneshwer Suthar

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5.1 Introduction

The two pioneering works of Yablonovitch (1987) and John (1987) laid the groundwork for the field of photonic crystal (PC), which has achieved a phenomenal growth during the last two decades. PCs are periodically structured electromagnetic (EM) media, usually a periodic optical nanostructure, in which there is periodic variation of dielectric constant with refractive indices of high contrast ratio and so prohibit propagation of certain frequency ranges, known as photonic bandgaps (PBGs) in analogy with electronic bandgaps as electron through periodic potential of semiconductors organize into electronic bands of various energies separated by electronic bandgaps. The coherence effect of scattering and interference results in PBGs, which occur in the scattering phenomenon for light traveling in the composite of periodic structure. Generally, these PCs are composed of dielectric, semiconductor, or metal surrounded by air with of a periodically varying refractive index or electric permittivity having the lattice constant of the order of the

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9

Tunable Broadband Reflector Using a One-Dimensional Photonic Crystal Containing Metamaterial with Symmetrically Introduced Magnetized Cold Plasma Defect

Asish Kumar, Khem B. Thapa, Narendra Kumar, and Anil K. Yadav

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9.1 Introduction

Photonic crystals (PCs) are artificial periodic nanostructures and microstructures containing dielectric, metallic, superconductor, and plasma materials, where the refractive index changes periodically in space. In 1987, PCs were experimentally introduced by Yablonovitch and theoretically proposed by John in the same year (John 1987; Yablonovitch 1987). Such kind of periodic structures affects the propagation of electromagnetic (EM) wave and produces bandgaps due to the periodicity of the materials. It is similar to the motion of an electron in the semiconductor material, which produces electronic bandgaps due to the periodic potentials. The wave propagation inside the periodic structure depends upon frequency of incident EM wave. Frequencies that are allowed to propagate are known as modes, and groups of allowed frequency modes constitute bands. In contrast, forbidden frequency ranges are called photonic bandgaps (PBGs), which are also known as Bragg's gaps because they are originated from the Bragg scattering in the periodic structures (Fink et al. 1998; Chigrin et al. 1999; Wu et al. 2003; Aghajamali et al. 2016).

In 1968, Veselago et al. theoretically predicted that electric permittivity and magnetic permeability of the materials are the fundamental characteristics, and they determine the propagation of EM waves in the matter (Veselago et al. 1968). The materials are called metamaterials or negative index materials (NIMs) or double-negative (DNG) materials, which have simultaneously negative values of the electric permittivity and the magnetic permeability. However, if both the electric permittivity and the magnetic permeability of the material are positive, then it is known as double-positive (DPS) material. According to

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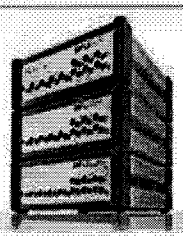

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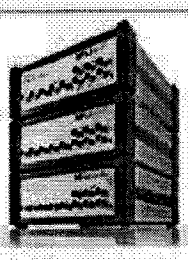

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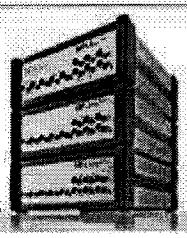

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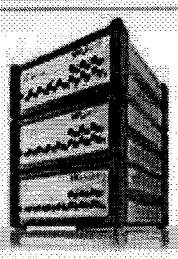

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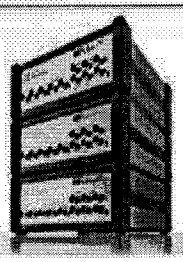

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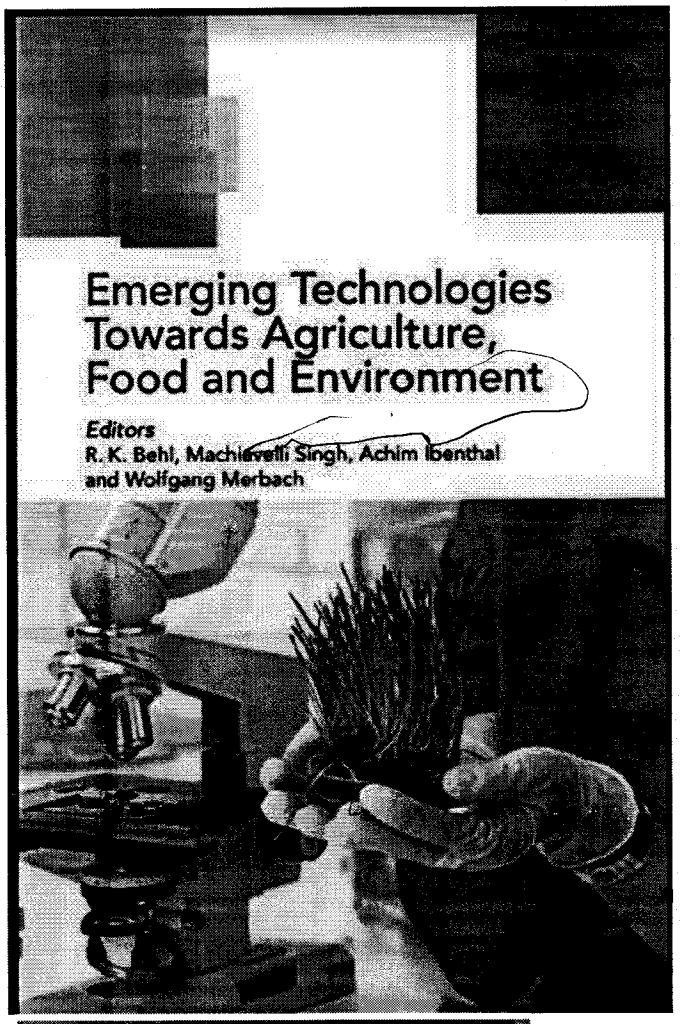

CHAPTER 15

Development of Salt Tolerant Mutants of *Pseudomonas*

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ABSTRACT

Salinity is a serious problem for crop production. Many environmental and anthropogenic activities could be the reason for the soil salinity. Microorganisms are vital and can be sustainable to stress tolerance. Pseudomonas is one of the promising bacteria used as tool for nurturing the global life. We have used Pseudomonas sp. as a tool to fulfill our objectives. This study was done to increased stress tolerance in Pseudomonas through mutagenesis which increased phosphate solubilization and IAA production. In the present study mutants were made with stress tolerance capacity, which showed increased IAA production and [redacted]. The concentrations of whole proteins in [redacted] wild type. This mutant strain can be used as a biofertilizer for the plants grown in saline soil.

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Abstract

Previous two to three decades have witnessed Abiotic (temperature, light, water, salt etc.) and Biotic (bacteria, fungi, viruses etc.) stresses in crop plants to be increasing and documented as a severe menace to global food security, making it hard for the plants to endure in such circumstances. With the fast-growing population, it is now mandatory to pace with the yield and productivity accordingly, thus protection of crop plants from the abiotic and biotic stresses is a priority. The expansion of stress-tolerant crops will be significantly profitable for the poor farmers in regions of the globe that are affected by such stresses. Similarly, a number of transcription factors/regulators play crucial roles in plant stress responses. This chapter emphasizes on the genes involved in plant's response to abiotic and biotic stresses with their molecular mechanisms to summarize the current knowledge and a step further for their better understanding. Such genes need to be properly utilized to generate resistant crop plants for future generations.

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External Control of Photonic Bands in a Magnetized Cold Plasma

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Abstract: In this analysis, the effect of external rectangle-wave-like periodic magnetic field, on photonic bandgaps (PBGs) exhibited by bulk cold plasma, has been illustrated. It is found that the forbidden gap for normal incidence decreases with a decrease in the thickness ratio for a constant magnetic field. A new gap appears for TM polarization at oblique incidence that is attributed to the Bragg's interference of plasma layers and this new gap width depends on the incident angle as well as the magnitude of the magnetic field. There is also a shifting in gap locations depending on the magnitude of the magnetic field. It is demonstrated that external parameters like magnetic field strength and the ratio of two parts of spatial period along with incident angle can tune the PBGs in a magnetized cold plasma.

Keywords: Magnetized cold plasma, Extrinsic photonic crystal, Reflectance, Oblique incidence

INTRODUCTION

Initialization from pioneering works of Yablonovitch [1] and John [2] in 1987, an extended development in the field of photonic crystals (PCs) during the *past decades*, has been significant. PCs are considered as periodically structured electromagnetic media consisting of periodic variation of dielectric constant, which prohibit certain frequency ranges of electromagnetic wave, called photonic band gaps (PBGs), to propagate through them. Such PCs have achieved archival interest in many areas, such as optical filters, switches, waveguides, cavities, and design of more efficient lasers [3-4]. Further, one-dimensional plasma photonic crystal (1D PPC), having unit cell consisting of plasma as one layer, has shown a remarkable attraction as they are externally controllable and possess the characteristics of conventional PCs as well as plasma. Hojo and Mase [5] discussed the effect of plasma density, layer thickness and dielectric constant on the dispersion characteristics of binary 1D PPC. The dispersion relation of binary 1D PPC, considering the collision effect in plasma with obliquely incident electromagnetic waves, has already been discussed [6].

Apart from these, extrinsic PCs have been reported, which are made from a bulk material by applying an external periodic magnetic field that makes the permittivity function periodic in space. Among them, Qi and Zhang [7] studied the effect of various parameters, including angle of incidence, on bandgap and reflection characteristics of an extrinsic 1D PPC. In more recent, King et al. [8] illustrated the bandgaps in a 1D PPC taking magnetized cold plasma in bulk with a square-wave-like magnetic field. In this work, we study the effect of the lattice parameter ratio on PBGs for normal incidence taking constant magnitude of periodic magnetic field. Further, we emphasize on how the angle of incidence and magnetic field can tailor the photonic band structure (PBS) of TM mode in such 1D PPC.

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Magnetic Sensor Using Extrinsic Photonic Crystal

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In the present paper, an extrinsic photonic crystal with induced periodicity in bulk cold plasma under a periodic magnetic field, is considered. Transmission spectra for the plasma photonic crystal in different cases are plotted and analyzed. The channel is modulated with an additional linear magnetic field, whose impact on bandgap can be used to sense the magnetic field. This type of extrinsic photonic crystal offers new features at normal incidence that may be useful in design of sensors for measurement of linear magnetic field with less complication in manufacturing process.

Keywords: Cold Plasma, Magnetic Field, Bandgap, Sensor.

1. INTRODUCTION

Photonic Crystals (PCs) with nanolayered periodic structures, known as intrinsic photonic crystals, have extensively been studied over the past few decades. Among them, plasma photonic crystals (PPCs) showing negative refraction as well as omnidirectional reflection characteristics, are studied by considering one periodic layer made of plasma.[1,2] Periodic structures composed of metamaterials with peculiar properties have also been reported.[3] Omnidirectional reflection properties of intrinsic photonic crystals are highly useful in antenna and space communication communications. Band gap tuning in intrinsic PCs is only possible by changing the intrinsic parameters, viz. lattice parameters, where external control has also been proposed by changing the temperature, angles, and electric field intensities.[4,5] Suthar and Bhargava[3] showed the external tuning by varying the temperature. Biosensors using one-dimensional (1-D) PCs were proposed by Singh et al.[6] Strain and temperature characterizations were made by Martelli et al.[8] using Bragg gratings in photonic crystal fibres.

In recent years, an external control by a periodic magnetic field has been demonstrated, where extrinsic photonic crystal (PPC) has been suggested by induced periodicity in bulk cold plasma.[9,10] This type of extrinsic photonic crystal offers new features at normal incidence that are important in which there is nonoccurrence of complications in manufacturing process.

Jhao et al.[11] suggested novel simultaneous measurement method, based on the two-resonant peaks photonic crystal fiber Bragg grating (PCFBG) filled magnetic fluid, for magnetic field and temperature. They introduced measuring principles and verified the sensitivity coefficients experimentally. Zu et al.[12] proposed magneto-optical fiber sensor based on bandgap effect of photonic crystal fiber infiltrated with magnetic fluid.

In our present article, an extrinsic photonic crystal has been conceived to be designed by applying periodic magnetic field on bulk cold plasma. Previous report[9] shows the photonic bandgap for this kind of structure, but here our interest is to show such extrinsic PPC as a sensor, if an additional field to be sensed is applied normally to it. To demonstrate such a sensing application, we determine the impact of additionally applied linear magnetic field on the bandgap offered by extrinsic PPC.

2. THEORETICAL MODEL

The bulk cold plasma with periodic magnetic field is considered, which induces photonic crystal periodicity, and the schematic diagram is shown in Figure 1. The dispersion relation and reflection spectra for such 1-D extrinsic PPC are computed by using transfer matrix method.[1,7]

For magnetized cold plasma:[9] $\varepsilon(\omega) = \mathrm{Re}(\varepsilon) - j\mathrm{Im}(\varepsilon)$, where ε is the dielectric constant and ω is angular frequency.

Here,

$$\varepsilon_{plasma}(\omega) = 1 - \frac{\omega_{pe}^2}{\omega^2[(1 - j(\eta/\omega) \pm (\omega_c/\omega))]} \quad (1)$$

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The authors within the fringes of this book have tried to bring in the salient features of the philosophical and sociological foundation of caste. The objectives of this book is to:

1. Provide a brief historical survey of caste and the status of caste at the present time.
2. Outline the theoretical foundation of caste.
3. Illustrate different theoretical approaches through well-known works of Indian English literature of Mulk Raj Anand, Bibhuti Bhattacharya and Arundhati Roy. It appears that the selected authors have their focus on the Indian background all through the book.

Dr. Mamta Bagria

Mamta Bagria was [illegible] heart of Rajasthan. Having been brought up in [illegible] cultured family during [illegible] post-partition of the past centuries and going out to the far flung places in the country she acquired a great interest in understanding the social life of the native people. This developed her awareness to understand the working of the [illegible] in the present day rural and urban societies. During the course she opted for education in humanities. She was [illegible] how population [illegible] and financial [illegible] problems of the poor [illegible] and [illegible] [illegible]. She received her post-graduate degree [illegible] Rajasthan University, Jaipur in 1984 [illegible] [illegible] Services Examination [illegible] [illegible] [illegible]

System Network Biology Approaches in Exploring of Mechanism Behind Mutagenesis

Anukriti, Swati Uniyal, Anupam Dhasmana, Meenu Gupta, Kavindra Kumar Kesari, Qazi Mohd. Sajid Jamal and Mohtashim Lohani

Abstract Mutagenesis is the alteration of the genetic material by the help of mutagens. Mutations that are capable of inducing any diseases have a large impact on the biological systems. Whenever mutation occurs, it not only affects any particular gene or protein, but also affects the whole system related to that gene. Changes in one system will further bring out changes in the adjacent systems, which works in coordination with the mutated system. Thus, a single mutation can have an impact on more than one system. System network biology helps in providing a new perspective of inspection of these biological systems in the form of networks with the help of mathematical representations. In this chapter, we deal with different properties of the networks that help in analyzing the network-graph and finding the most probable network that best describes the process. Here we tried to investigate the candidate protein molecule that may act as a target protein with the help of network

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Chapter 10
Bacterial Mediated Plant Protection: Induced Systemic Resistance in Soybean

Shikhar Jain, Devendra Kumar Choudhary, Kunti Prakash Sharma, and Rashmi Aggarwal

10.1 Introduction

Agricultural products are the primary dietary source of protein, carbohydrate, fat, vitamin and other nutrients, and soybean (*Glycine max* L. Merrill) is one of the best source of 'all in one' with a very high nutritional value. Its nutrient composition includes mainly protein, saponins, fibers, phytosterols, and important minerals that includes iron (Fe), calcium (Ca), potassium (K), phosphorus (P) and magnesium (Mg). Along with these, it also possesses good sum of different vitamins like A, E, K and B complex, lecithin, large amount of linoleic acid and powerful isoflavonoids, and valuable vitamin C is also found in its sprouting grains. It contains about 20% oil rich in poly unsaturated fatty acids, specially omega-6 and omega-3 fatty acid and 40% high quality protein which is rich in valuable amino acid lysine (5%). Due to presence of Ca and Fe, it is very helpful for the women who suffer from osteoporosis and anemia. It is the only vegetarian food with such a balanced nutrient

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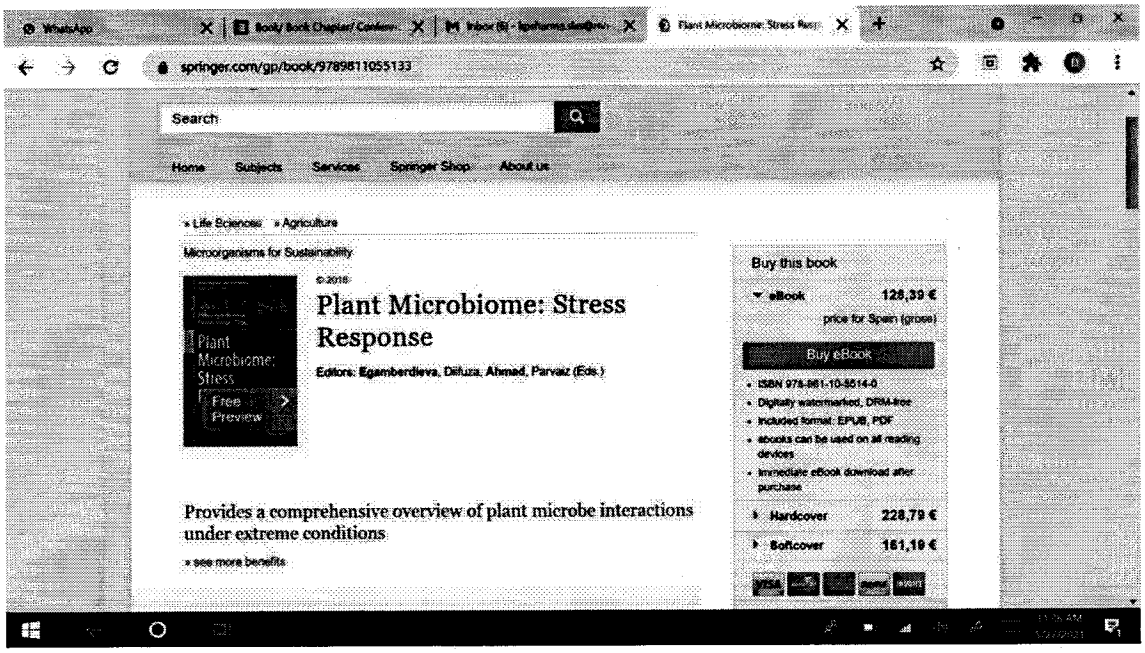

Chapter 8
Nitric Oxide as a Signaling Molecule in Plant-Bacterial Interactions

Anukool Vaishnav, Sushil K. Sharma, Devendra Kumar Choudhary, Kanti Prakash Sharma, Ezz Ahmad, Mahaveer P. Sharma, Aketi Ramesh, and Anil Kumar Saxena

Abstract Nitric oxide (NO), evolved during various biological processes occuring in soil, bacteria, and plants, is acting as signaling molecule to trigger different essential pathways involved in plant-microbe interactions. Reactive nitrogen species (RNS) is present at every developmental stage of plants and plays very important role in their life cycle. This valuable molecule also involved in signaling in response to biotic and abiotic stress in plants. Moreover, NO is very important or said to be a central molecule of nitrogen cycle. The NO is produced during different biological nitrogen transformation processes. Remarkably, the essential information of NO production and its efficient relations with plant and microbes are poorly characterized. This chapter covers the different processes of NO production in soil, bacteria, and plants and their role in different physiological processes. In particular, the role of NO is addressed as a signaling molecule in plant-microbe interactions including legume-rhizobium symbiosis.

Keywords Bacteria • Legumes • Nitric oxide • Nitrogen cycle • Plant

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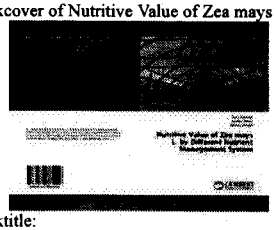

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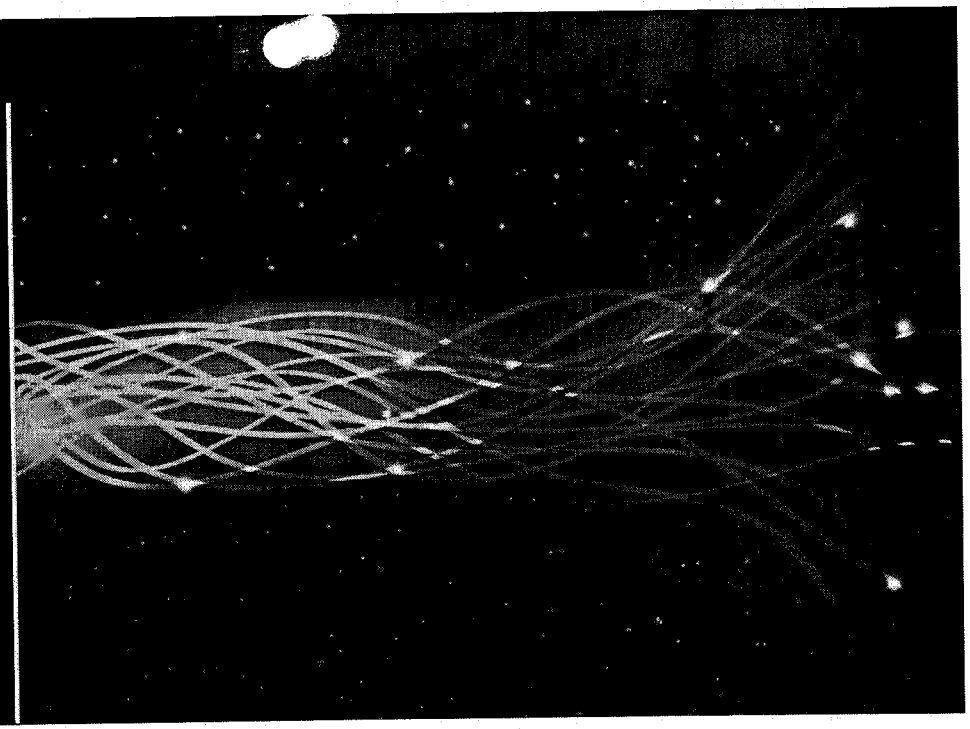
The increasing demand of high band-width can only fulfilled by all optical technologies. The Self-focusing is a non-linear optical process induced by the change in refractive index profile of material exposed to high intensity laser beam. Hence a high power optical beam can create a waveguide through a nonlinear medium which can then focus the beam. Further, owing to the nonlinearity of the medium, it is possible to guide one beam by another beam. This process is called induced focusing. Therefore, it appears that the phenomenon of induced focusing may be very useful in controlling and manipulating the light by the light. The Optical Solitons are the self trapped light pulses/beam that propagate without broadening and distortion. They arise as a consequence of balance between dispersion/diffraction and nonlinearity. The Solitons could be bright or dark. These Solitons could be useful in long rang optical communication. This book discuss the topics like slab wave guide, self-focusing, induced focusing, and optical dark Solitons.



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Abstract

The world faces an invisible health crisis in the form of hidden hunger and micronutrient deficiency, and the concomitant global demand for food is rising continuously. The burgeoning population needs crops engineered to produce more and tolerate climate change. Genetic engineering has revolutionized the entire crop improvement programs by providing crops with improved nutritional value, biotic and abiotic stress tolerance, therapeutic and industrial proteins, and superior agronomic traits. In the last decade, genome editing with designer nucleases has had a great impact on crop breeding as well as on human lives. In this chapter, we attempt to summarize the transgenic technologies and their potential applications in the improvement of horticultural crops. The future challenges and opportunities for the deployment of genetic engineering and genome editing technologies in horticultural crop improvements are also discussed.

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- Human Rights at Risk: A Gender Perspective of Women Police in Odisha

Dr. Ramesh Chandra Nayak

Abstract

Women are now a days playing worth mentioning role in all the walks of social life. Indian women worriers fought courageously for the cause of their motherland. Kiran Bedi, the first Indian woman to join Indian Police Service in 1972, is incessantly and constantly making momentous contributions towards the progress of Indian society even after her formal retirement. Despite the critical contributions made by women, there has been little research aimed at understanding the acute difficulties faced by them. They are very much a part of Indian society that still does not consider them to be at par with men when it comes to their jobs in law enforcements in general and as police officers in particular, a conventionally male dominated domain. This paper thus addresses the human rights issue in relation to women police in the context of gender. The paper discovers that the human rights of women police such as right to equality, privacy, health, dignity, family and motherhood, leasure, right against discrimination etc. are being violated in the course of acting as police officers., Some of such right like right to employment is being protected. They are playing key role in protecting the human rights of women in society.

Key words: *Gender, human rights, women police and job challenges.*

Preface

Introduction to the Course

It is desirable that every student of Engineering need to acquire profound knowledge of the basics and applications of Engineering Chemistry. The Engineering Chemistry book is designed to fulfil the requirements of learning of the basic concepts, theory and technical applications. The book is exclusively best suited for I/II year semester students of B.E/B.Tech of any technical universities of India. The entire 23 chapters written in the book cover almost all the topics related to engineering aspects of Chemistry.

Target Audience

Since, the book is widely accepted for I/II year semester students of B.E/B.Tech of any technical universities of India, the book emphasizes on the basic concepts of chemistry and lays stress on the fundamental principles and motivates every students to acquire profound knowledge for real applications.

Objective of the Revision

The main objective of revision is to incorporate prime interest topics like 'Nanoscience and Nanotechnology', 'Thermal Analysis' and 'Supercapacitor', which are added to the first edition. In addition, two new chapters—'Lubrication' and 'Dynamical Analytical Methods' are included in the second edition of the book. Minor changes are effected in Chapter 1 and Chapter 8 to update the syllabi of technical universities.

Roadmap to Target Course

The content of the second edition of the book contains 23 chapters which will cater to the needs of student community of any technical universities in India and abroad. The chapters included in the book have logical flow, comprehensive coverage of topics, exhaustive, illustrative, simple and clear to understand for any student. The book is ideally suited for I/II semester students of B.E/B.Tech of any technical university of India.

Salient Features

Five new chapters are included in the second edition of book. The following below mentioned reviewers have stressed their report on the style of writing. The new chapters have been reviewed by professors from various states of India.

We would like to thank the following reviewers who went through the text and provided valuable suggestions and comments. Their names are given as below:

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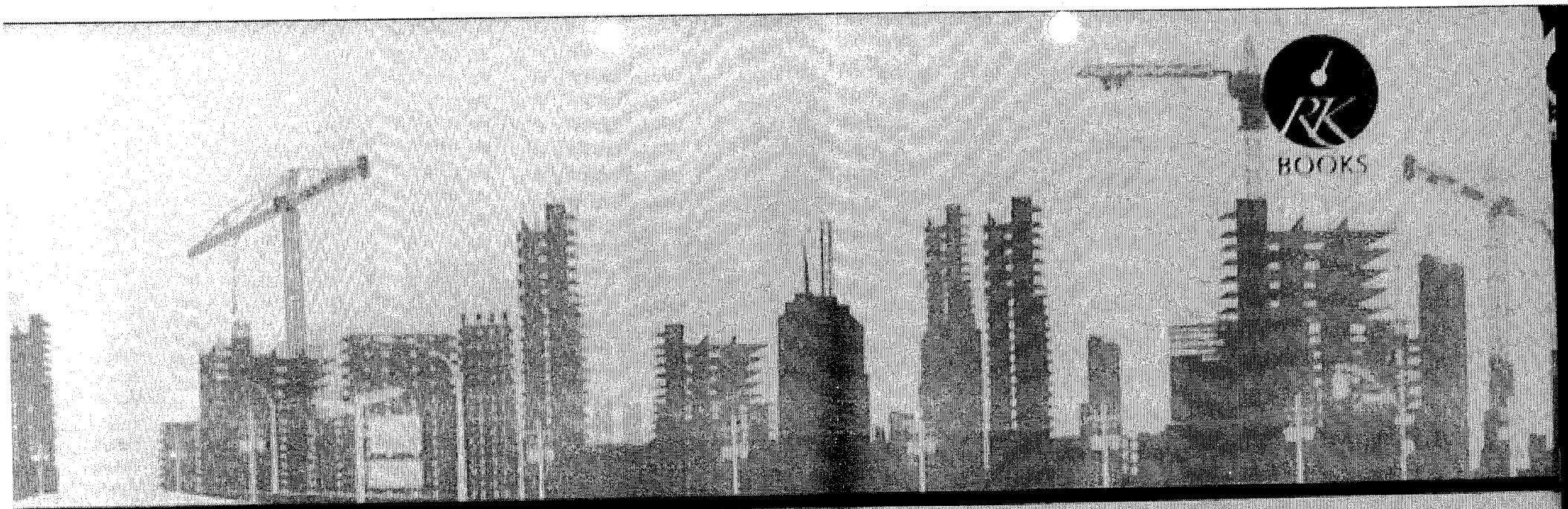

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Paper presented in International Congress at Argentina

1. Chalconas sinteticas con acción insecticida sobre spodoptera Frugiperda. José Ruiz Hidalgo, Melina Santillán, Alicia Bardóna, Eduardo Alberto Parellada, K L Ameta, y Adriana Neske. Published in XXXI Congreso Argentino de Química, 25 al 28 de Octubre de 2016 Asociación Química Argentina, Sánchez de Bustamante 1749 – Ciudad de Buenos Aires – Argentina. The Journal of The Argentine Chemical Society Vol. 103 (1-2) January – December 2016 ISSN: 1852 -1207,Anales de la Asociación Química Argentina AAQAE 095 – 196

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7 Synthesis of Fluorinated Heterocycles by Multicomponent Reactions

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Sandip S. Shinde, S. N. Thore, Rajendra P. Pawar, K. L. Ameta, and Sunil N. Patil*

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7.1 INTRODUCTION

Fluorine is one of the most important elements in the periodic table because it is the most electronegative element, makes the strongest C–F bond, and is more polarized in organic synthesis. These unique and distinctive properties of fluorine make it very useful and widely applicable in the pharmaceutical and agrochemical industries. Hydrogen replaced with the fluorine of an organic compound can tune the pharmacokinetic and pharmacological properties of the molecule, which improve solubility, membrane permeability,

* Corresponding author.

10 Recent Progress on One-Pot, Multicomponent Reaction for Pyridine Synthesis

Vijaykumar Paike, Padmakar Suryavanshi, Sandeep More, Sandeep B. Mane, Rajendra P. Pawar, and K. L. Ameta**

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10.1 INTRODUCTION

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11 Synthesis of Functionalized Piperidine Derivatives Based on Multicomponent Reaction

Padmakar Suryavanshi, Vijaykumar Patke, Sandeep More, Rajendra P. Pawar,* Sandeep B. Mane, and K. L. Ameta*

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11.1 INTRODUCTION

Nitrogen-containing heterocycles are one of the extensively explored heterocyclic compounds in various fields like natural products, pharmaceuticals, and agrochemicals.[1] Piperidines and their derivatives have become increasingly popular building blocks in vast array of synthetic protocols.[2] Several review reports in the literature have described various strategies for the piperidine synthesis, but none have highlighted the synthesis of piperidines through multicomponent reactions (MCRs).[3–5] In recent years, MCRs have become a powerful methodology in organic chemistry.[6] Plenty of heterocyclic molecules are synthesized by this methodology and, day by day, demands for new developments in this area are steadily increasing. MCRs can be defined as convergent processes whereby more than two reagents are combined in a sequential manner to give the final product in a one-pot chemical operation that retains significant portions of all starting material (Figure 11.1). Therefore, they have to be proved to be very effective and efficient bond-forming tools in synthetic organic chemistry.[6]

* Corresponding author.

12 Malononitrile: A Key Reagent for Synthesis of Medicinally Promising Fused and Spiro Pyridine Derivatives in Multicomponent Reactions

*Ruby Singh and K. L. Ameta**

Ruby Singh
Ruby University of Science and Technology
Laksmangarh-332311, Dist.-Sikar (Rajasthan)

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Welcome to the Green environment. This book Environmental Biotechnology-Recent Perspectives contains articles by eminent experts on different aspects of the subject. Articles on biofuel, biotechnological approaches in biodegradation, bioremediation and biosorption; industrial, applications provide information on the role and application of different techniques in the present scenario. The book also covers various information on newer biotechnological tools and techniques required for sustainable development. Various aspects covering efficient bioremediation methods have been included to project their importance in the 21st century. Review chapters and comprehensive studies on various environmental aspects throw light on the significance of this subject. This book is aimed to develop scientific and research skill along with the basic knowledge in the undergraduate and postgraduate students.

Navneet Joshi

Mr. Navneet Joshi is working as an Assistant Professor in Department of Biotechnology, MITS University, Laxmangarh, Sikar, Rajasthan, India. He did M.Sc. from Thapar University, M.Tech. from Sathyabama University and Ph.D from University of Rajasthan, Jaipur. Prof. K. C. Sharma and Dr. Manju Sharma are renowned names in Biotechnology.

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SOB	67	Ashish Kur	Book Chap	Snippets from the Gr		2017	ISBN – 978	Yes
SOB	68	Ashish Kur	Book Chap	In-Film Advertising –		2017	ISBN – 978	Yes
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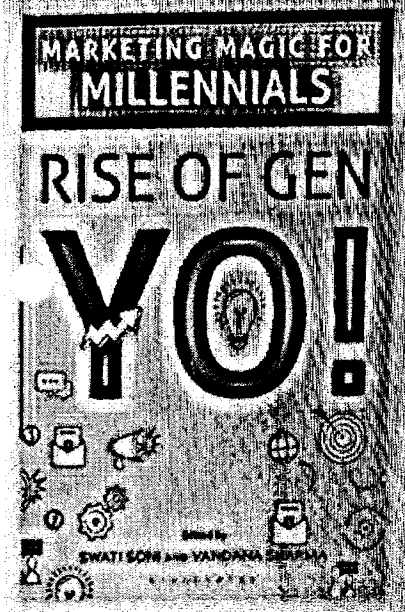

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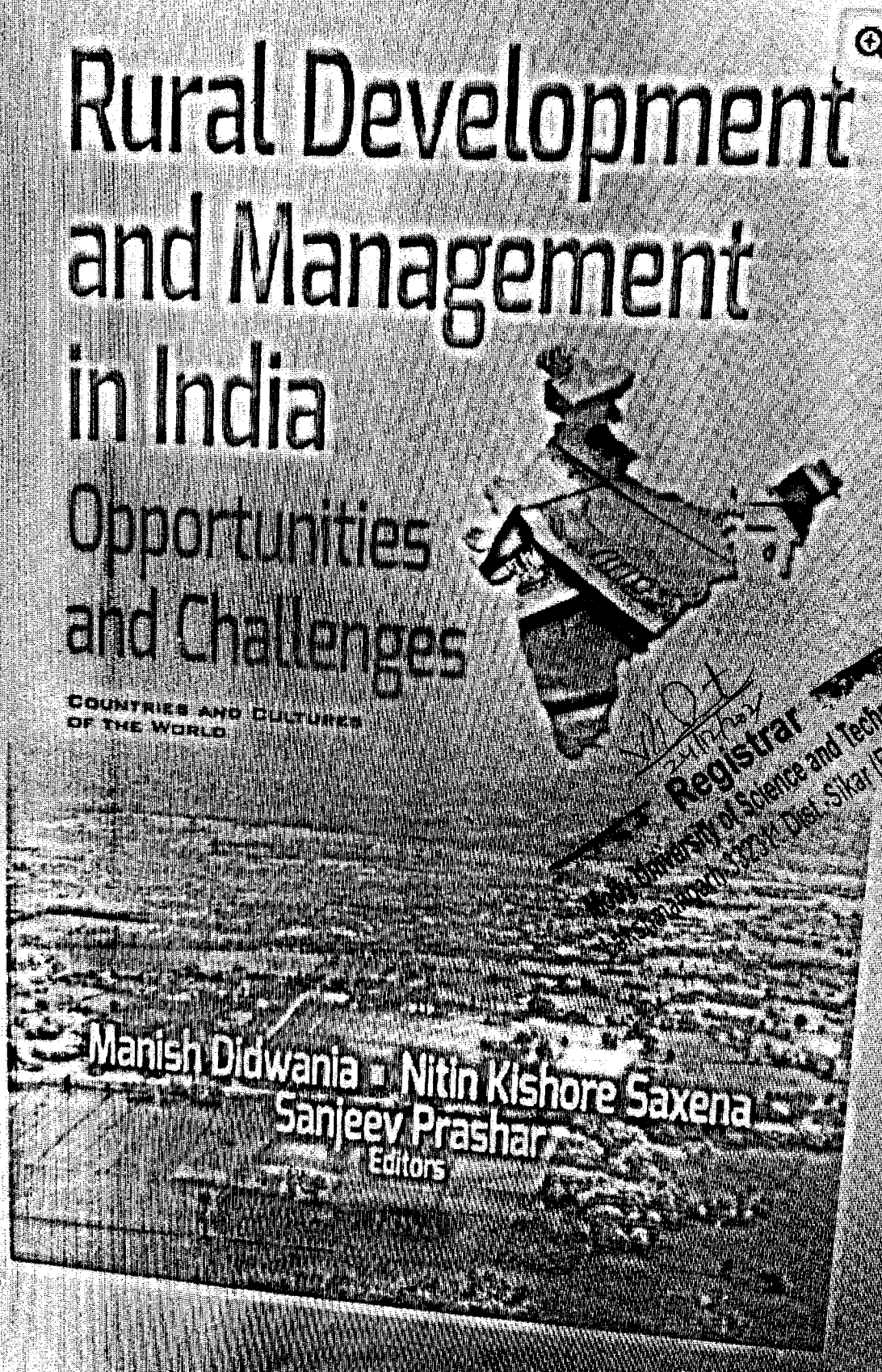

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SNIPPETS FROM THE GREAT INDIAN RURAL 'BRANDISTAN': A CASE STUDY

Ashish Kumar Sharma, PhD and Anjali Sharma, PhD†*
College of Business Management, Economics & Commerce,
Mody University of Science & Technology, Lakshmangarh, Sikar, India
CLG, Mody University, Lakshmangarh, Sikar, India

ABSTRACT

Rural India offers a tremendous market potential. Due to the rise in the levels of literacy and proliferation of media houses, consumers are now more concerned about the way they live. TV, radio and regional newspapers are very powerful media to reach the 70% population of the country. Information and awareness gap between urban and rural customers is gradually vanishing. For the marketers, both Indian and MNC's, rural reach has become very important. There are marketing opportunities in durables and FMCG sectors and marketing companies are increasingly devoting a big share of their investments in targeting the rural segment of the Indian market. Rural India is catching up in terms of attitudes and aspirations. Brand consciousness is increasing among the rural population. Rural customers are now more likely to recall brand

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CHAPTER 8

In-Film Advertising-A Strategy for Brand Positioning

Dr. Ashish Kumar Sharma, Dr. Anjali Sharma***

Abstract: *In-film advertising is a promotional tool wherein branded products or signages are placed strategically in a film and which are visible to the consumers without any distraction. Leveraging on the entertainment value, emotional quotient of the film and its psychological impact on viewers, this form of film-based promotion is utilized by advertisers to attract eyeballs. The phenomenon is gaining momentum due to its clutter-free feature and advantage of celebrity endorsement for the product or service. Diverse genre of films makes the task easier for the marketers and advertisers to associate with the right kind of movie and reach its target consumers. This advertising technique acts as a supplementary source of revenue for the film producers and advertisers proving to be an additional technique to strengthen their brands. This paper showcases the use of in-film advertising as a brand positioning strategy by marketers in India.*

***Key Words:** In-film Advertising, Brand Positioning.*

Introduction

Product placement during movies is one of the popular forms of advertising the world over. A product placement is a prominent example of a hybrid message, or a paid attempt to influence audiences that does not identify the sponsor (Balasubramanian, 1994). In India, Bollywood presents an appropriate platform to promote products and services. Since the 1940's and 50's, business firms have been utilising the impact of popular films and iconic stars on styles, trends and ideology. It is mostly the branded luxurious items such as cars and phones which attract the Indian movie-goers cutting across genders. Building brand equity is difficult and usually takes a long time (Aaker & Joachimsthaler, 2000). A marketing firm can raise the brand equity of its products through in-film advertising. At the same time, in-film advertising covers atleast some of the production and marketing costs for the film producer. This is no doubt an advantage in an age of ever-increasing inflation. For a developing nation like India, in-film advertising encourages consumers to show positive buying behaviour towards a range of products and services in the market. Research shows that people are globally positive about product placement (Nebenzahl &Secunda, 1993; Tiwsakul, Hackley, & Szmigin, 2005; O'Reilly, Cripps, Kazani, Patel, & Zarra, 2005), it may not be true in case of continuous repetitions.

Merits of In-film Advertising

The first and the foremost advantage of in-film advertising is that the popular actors and actresses or the so-called 'stars' are available for promotion at a fraction of their fees. Movie audiences comprise of people from various sections of the society and the promotion can reach each one of these groups irrespective of religion or caste. The biggest problem of clutter as witnessed during advertisement breaks on TV is not seen in in-film advertising. So, it can be said that this medium is free from competition as only a few products are promoted throughout the length of the movie. Moreover, there is no chance of the audience surfing the

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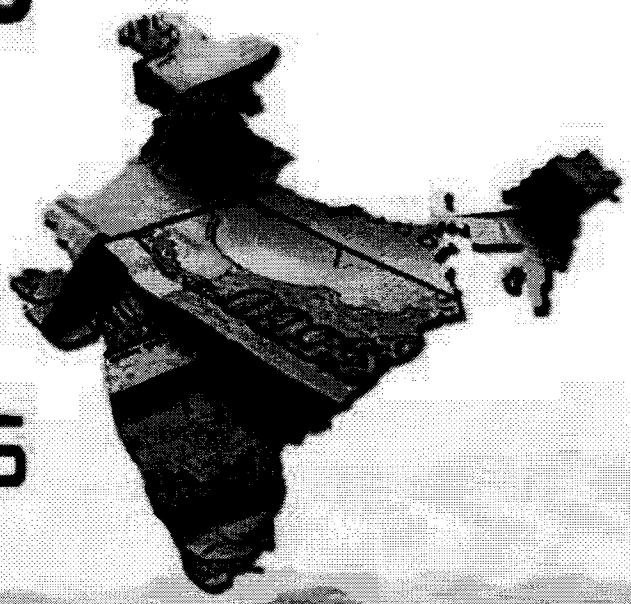

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Laminar flow Photovoltaic thermal (PV/T) Heat transfer coefficient (HTC) Solar energy

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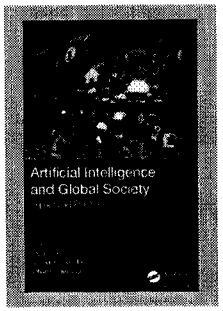

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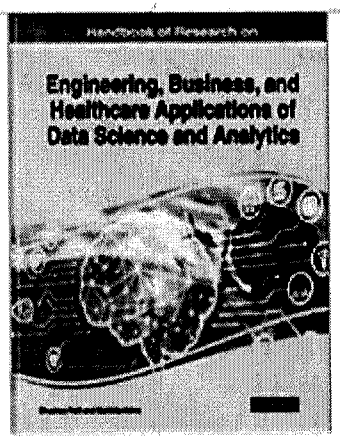

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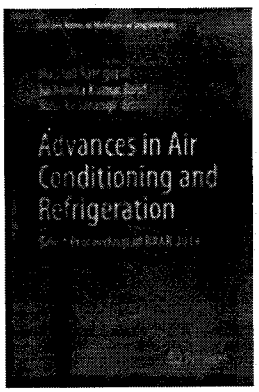

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Utilizing Artificial Intelligence to Design Delay and Energy-Aware Wireless Sensor Networks

Ranjana Thalore, Vandita Vyas, Jeetu Sharma, and Vikas Raina

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10.1 Introduction

The eye is a significant organ in the human body. It includes interconnected subsystems like the lens, iris, retina, cornea, and optic nerve. There are many ocular disorders associated with different parts of the eye such as glaucoma, macular degeneration due to trachoma and aging, hereditary myopia, retinitis pigmentosa, and diabetic retinopathy but patients are not usually conscious of their progress. An ophthalmologist or optometrist detects eye disease through slit-lamp (retinal examination) or visual acuity checks after inspecting the pupil. Visual acuity tests are done using a chart or display device, interpreting a series of progressively smaller letters. Using an intense light line, an ophthalmologist can examine the eye under magnification. During retinal evaluation, the

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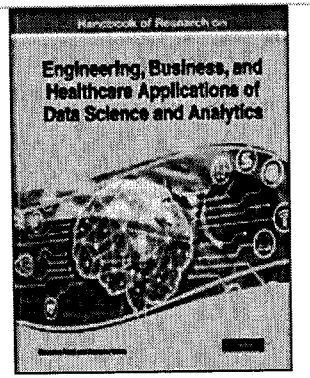

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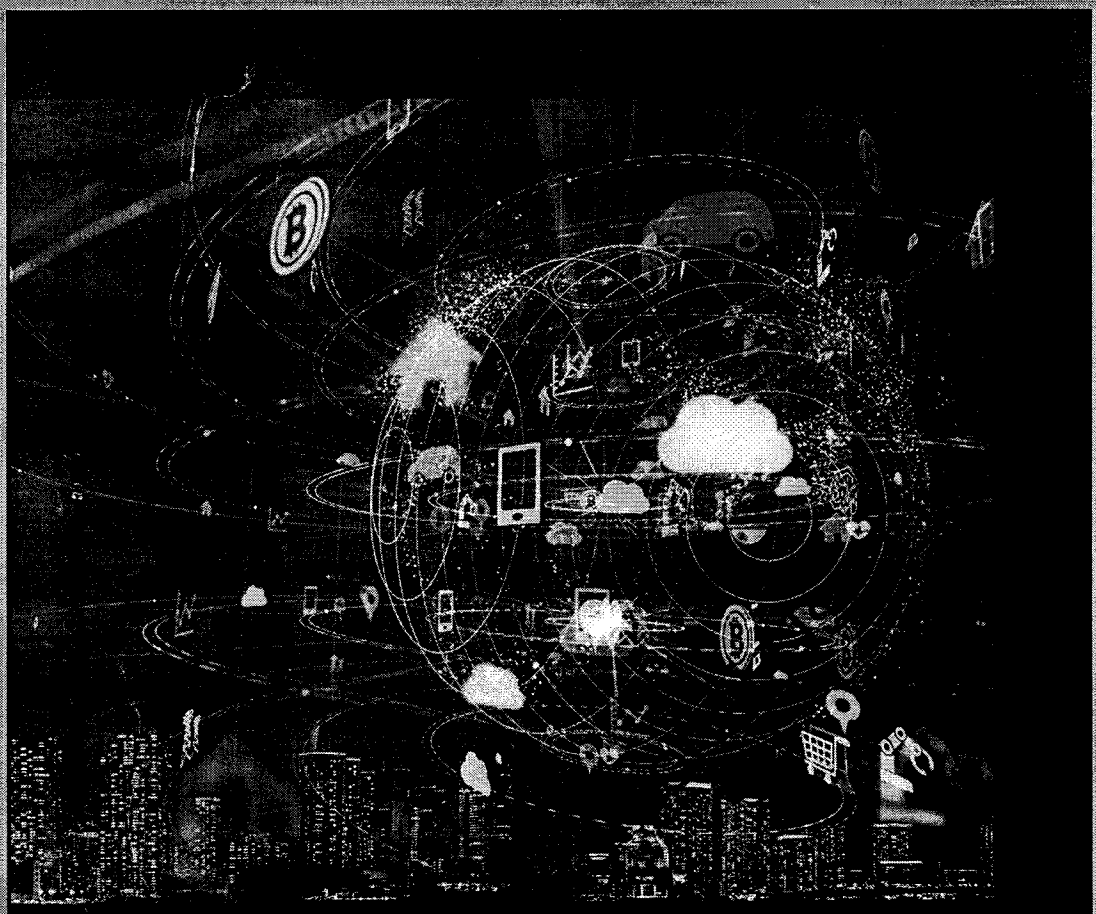

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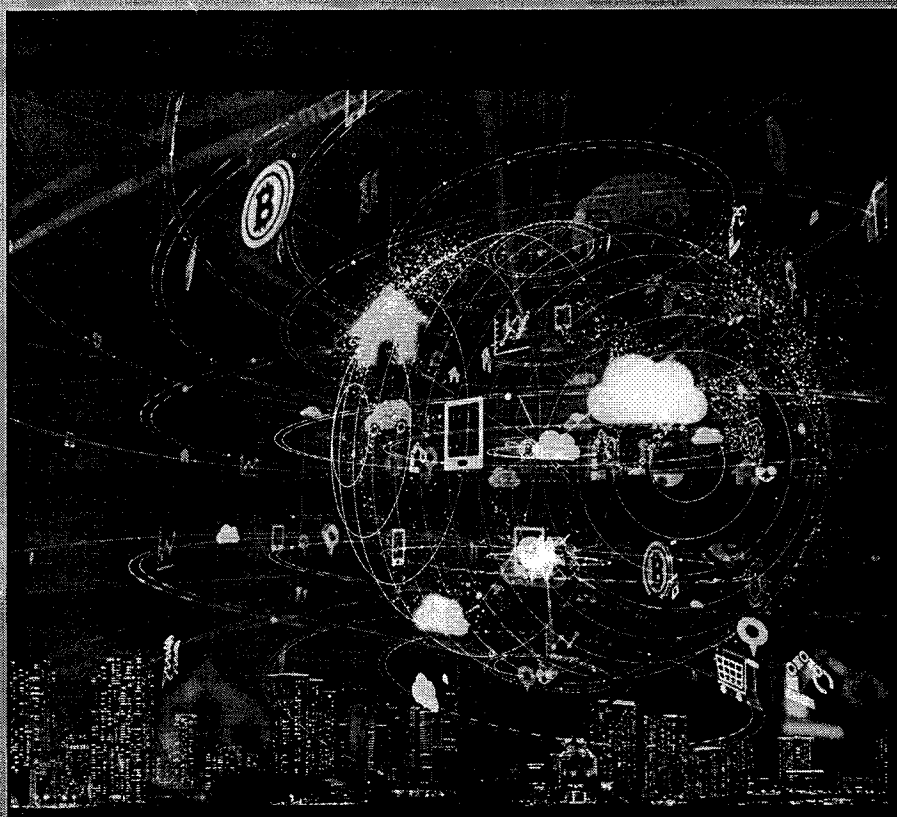

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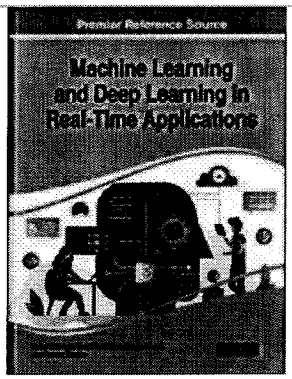

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Malaria Detection System Using Convolutional Neural Network Algorithm

Kanika Gautam (Mody University of Science and Technology, Lakshmangarh, India), Sunil Kumar Jangir (Mody University of Science and Technology, Lakshmangarh, India), Manish Kumar (Mody Institute of Science and Technology, Lakshmangarh, India) and Jay Sharma (JECRC, Jaipur, India)

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Abstract

Malaria is a disease caused when a female Anopheles mosquito bites. There are over 200 million cases recorded per year with more than 400,000 deaths. Current methods of diagnosis are effective; however, they work on technologies that do not produce higher accuracy results. Henceforth, to improve the prediction rate of the disease, modern technologies need to be performed for obtain accurate results. Deep learning algorithms are developed to detect, learn, and determine the containing parasites from the red blood smears. This chapter shows the implementation of a deep learning algorithm to identify the malaria parasites with higher accuracy.

Chapter Preview

Top

Literature Review

The work done in the past by many authors in the field of detecting malaria parasites in the red blood smears by using modern machine learning and deep learning methodologies have given better results as compared to the traditional methods being used. In 2015, Hanung Adi Nugroho *et.al*, carried out work in the domain of feature extraction and classification for malaria detection which

Enhanced Homomorphic Encryption Scheme with Particle Swarm Optimization for Encryption of Cloud Data

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Abstract. Cloud Computing is the decentralized type of architecture which is vulnerable to various type of security attacks. Homomorphic encryption is the encryption scheme to encrypt objects which are used to access data from the cloud server. Homomorphic encryption scheme has major disadvantage of key management and key sharing which reduce its efficiency. Particle swarm optimization algorithms (PSO) are nature-inspired meta-heuristic algorithms that are population dependent known for social behavior of birds and fishes. These concepts are used as an inspiration to build scientific approach for complex problem solving. Depending upon the quality of measure, the solutions are enhanced by the algorithms initiating from a randomly distributed set of particles. By moving the particles around the search space using a set of mathematical expressions, the improvisations are achieved. In this research work, technique of PSO is applied which generate key for the encryption. PSO in is the optimization algorithm used to generate fixed number key for the encryption. PSO based homomorphic algorithm is implemented in MATLAB and simulation results shows that it performs well in terms of execution time, resource utilization. The execution time and resource utilization of PSO based homomorphic algorithm is less as compared to homomorphic algorithm. The result is optimized upto 10% approx in the improved algorithm as compared to existing algorithm.

Keywords: Particle swarm optimization · Homomorphic · Key management · Nature inspired · Resource utilization

1 Introduction

There are several cryptographic techniques utilized by various security mechanisms [1]. To ensure security within the cloud, cryptographic techniques are important to be

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Detection and Prevention of Black Hole Attack Using Trusted and Secure Routing in Wireless Sensor Network

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Abstract. A wireless sensor network (WSN) is a network of devices that can communicate after gathering information by monitoring any region through wireless links. Due to this delicate arrangement several numbers of attacks directly affects the WSN functions especially denial of service (DoS). DoS is the most popular and frequent among all to affect WSN. Recently, blackhole attack has taken over it and comprises security and integrity of WSN. Secure and reliable data transmissions are the prime requirements of WSN but new evolving attacks are threats to achieve this objective. This paper proposes an algorithm that detects and recovers nodes from blackhole assaults in WSN. The proposed algorithm Trusted and Secure routing (TSR) involves detector nodes, moves in the network algorithm identifies blackhole attacks in the network, marks this node as balckhole and subsequently excludes from the network. It enables to transmit data securely with alternate path using detector node. The proposed algorithm increases the performance and the delivery ratio of data in WSN. The experimental results show reliable and secure data transmission from DoS and blackhole attacks.

Keywords: WSN · DoS · Blackhole · Security · False alarm · PDR

1 Introduction

Wireless sensor network (WSN) is a network of devices that can communicate after gathering information after monitoring any region through wireless links [1]. WSN uses sensors that senses properties like, vibration, electromagnetic strength, light, temperature, humidity and transfer the gathered data to sensor that assist pass on the data. WSN has sensing ability and communication functionalities and works in different modules [2]. Central module of WSN detects malicious node and keeps this information in a wireless sensor network. But, present malicious data injection and detection of false alarm faces pertinent issues [3]. WSN always strives to realize availability, security [2] and reliability of routing protocols. Fundamental of trust lies in locating DoS and blackhole attacks, however, gaining trust of a node is very challenging in WSN [4]. Trust, security

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Text Message and Digital Image Secure for Discrete Shearlet Transform

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Abstract—**"Steganography" is a strategy that defeats unapproved clients to approach the critical information, to imperceptibility and payload limit utilizing the diverse system like discrete cosine transform (DCT) and discrete shearlet transform (DST). The available methods till date result in good robustness but they are not independent of file format. The point of this exploration work is to build up an autonomous of record organize and secure concealing information conspire. The independent of file format and secure hiding data scheme is increased by combining DST and least significant bits (LSB) technique. In like manner a proficient plan is produced here that are having better MSE and PSNR against various characters.**

Keywords—Discrete Shearlet Transform, Singular Value Decomposition, Peak Signal to Noise Ratio, Mean Square Error, Discrete Cosine Transform, Least Significant Bit

I. INTRODUCTION

Recent growth of digital image content over internet has expanded the requirement for the security of advanced media. The image transmitted through internet and wireless communication channels can suffer various threats. One of the major threats is the threat of confidentiality. This threat represents the possibilities of accessing the audio data via unauthorized channels. Another issue is the threat of integrity, where the resource can be altered, by unauthorized entities, without any detection. Threat of availability is possession of a confidential audio content through some illicit channels. Various other threats include replication of digital data without any information loss and manipulations of the same without any detection. A feasible solution is required, for telecommunication, consumer electronics and information technology industries, to provide secure transmission of content without sacrificing their security rights [1]. Emerging technologies for sound security has three primary targets: secure substance transmission, validation of sound data and duplicate control to shield sound information from illicit conveyance and burglary [2]. In present day times, the conventional paper media is being supplanted with its computerized forms for picking up the benefit of maintaining a strategic distance from extensive capacity and safeguarding prerequisites, while making data effectively accessible for a bigger number of clients. When the beneficiary approves and unscrambles the information, the item can be thusly taken from any substance recognizable. The word steganography was originated from Greek which means covered writing. Steganography is the oldest form of covert channel. This may prompt further duplication and re-appropriation leaving the rights holders weak and sovereignty less [3]. To enhance the security of audio data, digital watermarking and steganography techniques complement cryptography for protecting content even after it is deciphered [4]. The study of multimedia security [5] therefore includes not just encryption but also watermarking and steganography. Steganography and Watermarking almost interchangeably, refers to hiding secondary information into the primary multimedia source. The primary multimedia sources can be audio, image, and video. There are unique techniques associated with each type of primary perceptual sources depending on their inherent redundancy and perceptual properties. These techniques have practically all business and private associations are presently moving towards 'paperless' office, where basic office gadgets, [6]. In this thesis work the primary multimedia source is image.

Advanced watermarking is a procedure to insert mystery data into a picture. A watermark is an example of bits embedded into picture information that serves to recognize the document's security data (creator, rights, mystery message, and so forth [7]. The name "watermark" is gotten from the faintly obvious imprints engraved on hierarchical stationery. Dissimilar to printed watermarks, which are expected to be to some degree noticeable, the vast majority of the computerized watermarks are intended to be totally imperceptible. What's more, the bits speaking to the watermark must be dissipated all through the document so that they can't be recognized and controlled [8]. The inserting system must keep the first data perceptually unaltered and the watermark information ought to be distinguished by an extraction calculation.

The fundamental point of watermarking is to give powerful watermarking (copyright assurance) and delicate watermarking (content confirmation). A third kind of watermarking procedure that is getting to be famous is the "Biometric Watermarking". Biometric Watermarking is a procedure that makes a connection between a human subject and the computerized media by implanting biometric data into the computerized article [9]. Data stowing away is another zone where, as the name proposes, short messages

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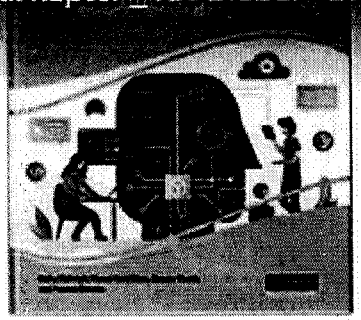

Malaria Detection System Using Convolutional Neural Network Algorithm

Kanika Gautam (Mody University of Science and Technology, Lakshmangarh, India), Sunil Kumar Jangir (Mody University of Science and Technology, Lakshmangarh, India), Manish Kumar (Mody Institute of Science and Technology, Lakshmangarh, India) and Jay Sharma (JECRC, Jaipur, India)

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Abstract

Malaria is a disease caused when a female Anopheles mosquito bites. There are over 200 million cases recorded per year with more than 400,000 deaths. Current methods of diagnosis are effective; however, they work on technologies that do not produce higher accuracy results. Henceforth, to improve the prediction rate of the disease, modern technologies need to be performed for obtain accurate results. Deep learning algorithms are developed to detect, learn, and determine the containing parasites from the red blood smears. This chapter shows the implementation of a deep learning algorithm to identify the malaria parasites with higher accuracy.

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10

Computer-Aided Cataract Detection Using MLP and SVM

Simran Agarwal, Manish Kumar, Sunil Kumar Jangir, and Chandraprakash Sharma

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10.1 Introduction

The eye is a significant organ in the human body. It includes interconnected subsystems like the lens, iris, retina, cornea, and optic nerve. There are many ocular disorders associated with different parts of the eye such as glaucoma, macular degeneration due to trachoma and aging, hereditary myopia, retinitis pigmentosa, and diabetic retinopathy but patients are not usually conscious of their progress. An ophthalmologist or optometrist detects eye disease through slit-lamp (retinal examination) or visual acuity checks after inspecting the pupil. Visual acuity tests are done using a chart or display device, interpreting a series of progressively smaller letters. Using an intense light line, an ophthalmologist can examine the eye under magnification. During retinal evaluation, the

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A Novel Planar Inverted-F Antenna for Dual Band Operations

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***Abstract*—In the present paper, a low profile planar inverted-F antenna for dual band operation has been proposed. This design comprises of a trapezoidal slotted radiating patch over a square substrate. The offered design is appropriate for 4G and Wi-MAX applications as it resonates at 2.37 GHz and 3.48 GHz frequencies. Performance metrics such as return loss, VSWR and radiation pattern are attained using HFSS 11.0.**

Keywords—Fourth generation (4G); PIFA; trapezoidal slot; WiMAX; WLAN

I. INTRODUCTION

Design of multiband antennas is desirable for personal communication services for supporting various global communication standards and services [1]. The Planar inverted-F antenna (PIFA) has characteristics such as compact in size, easy to fabricate, gives omnidirectional pattern and hence it is widely used [2]. PIFA is the most demanding antenna that fulfilled the requirement to use inside a mobile phone. It gives low Specific Absorption Rate (SAR) which is desirable. A multiband operation can be easily obtained by creating slots on the radiating patch of the PIFA [3].The operating bandwidth of PIFA is controlled by the gap between the ground plane and the radiating strip [4]. The bandwidth of a conventional PIFA, which is usually less, can be enhanced by using numerous techniques such as patches with parasitic elements, stacked configurations, creating slots in the patch, slotted ground plane etc. [4].

In [5], author addressed a tunable stacked patch printed inverted F-antenna. It uses radio frequency switches to achieve frequency agile dual band performance. As reported in [6], compact quad-band PIFA radiates at four center frequencies corresponding to various wireless applications. An L-shaped wide band coupled-fed microstrip antenna for 4G mobile system has been demonstrated in [7]. A multiband PIFA which covers various mobile applications such as 3G, 4G and Wi-MAX is reported in [8]. An ultra-wideband PIFA is described in [9], which supports mobile communication. In [10], a PIFA with control of independent resonant frequency and low SAR have been addressed to have multiband operation with enhanced bandwidth. A wideband high gain PIFA with two shorting pins is presented in [11], which operates at band corresponding to WLAN operation. A compact size uniplanar printed antenna apt for Wi-MAX and WLAN applications is reported in [12]. In [13], author addressed two miniaturized, dual band PIFAs. These antennas resonate at 2.45 GHz and 5.25 GHz. A dual band PIFA for WLAN application has been reported in [14], which consists of a U-slot for dual band performance. For the perspective 4G/Wi-MAX operation a novel small-size printed inverted-F antenna with slots is designed to achieve dual band performance. In [15], a compact PIFA for mobile phone is reported. To achieve multiband behavior capacitive slots are used.

II. ANTENNA STRUCTURE AND DESIGN APPROACH

The antenna design includes a rectangular shaped radiating patch on a FR4 substrate (dielectric constant 4.4) as shown in Fig. 1. Two identical trapezoidal shape slots are created in the patch, as with the help of slots compact size PIFA can be designed [1]. Double slots are created for multiband operation. A planar inverted technique is used to make this antenna small in size and useful for mobile communication. This designed antenna is compact compared to PIFA presented in [2, 6, and 9].

The rectangular patch is proposed for design of the trapezoidal slotted Planar inverted –F antennas in this paper. The rectangular patch is of 12 mm × 15.5 mm (0.1 λ0 × 0.13 λ0) dimensions. A ground-plane area of 20 mm × 20 mm (0.17 λ0 × 0.17 λ0) is selected, where λ0 is the wavelength equivalent to the lower operating frequency 2.5 GHz. Substrate and ground plane dimensions are chosen to design compact size antenna suitable for mobile communication. Various dimensions of antenna are mentioned in Table I.

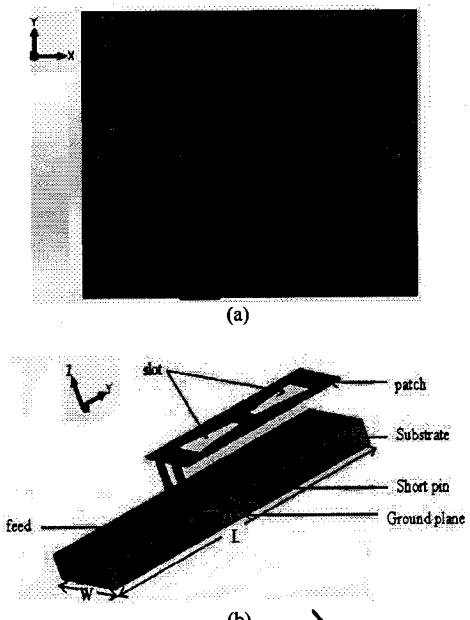

Fig. 1. Structure of proposed Printed inverted-F antenna (a) top view (b) 3-D view

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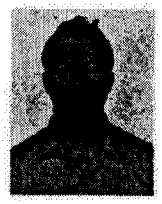

Thoudam Paraskumar Singh has received his B.Tech.(EEE), University of Kerala, M.Tech.(Power Electronics), VIT, Vellore and Ph.D., Mody University. He is currently working as an Assistant Professor at SET, MU, Rajasthan. His research interest includes Supercapacitor & Fuel Cell Applications, Power Electronics, Renewable Energy and Energy Management.

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Ultracapacitor Based HESS For EV

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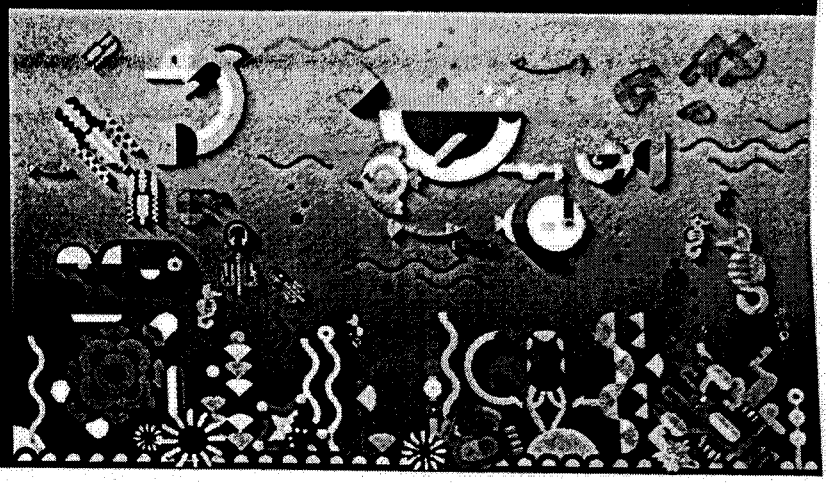

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Sudhir Y Kumar
Jagan V Desai

Ultracapacitor Based Hybrid Energy Storage System For Electric Vehicle

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Past, Present and Future Scenario for Renewable Energy Resources in India

Sunita Kumari[1], S. Y Kumar[2]

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ABSTRACT

Renewable energy is a term that refers to any source of usable energy intended to replace the conventional fuel sources without the undesired consequences fuel sources of the replaced fuels. Power consumption in a country determines its development index. In India conventional power generation is comparatively less and thus is still a developing country. There is enormous need to work on grass root level to implement successfully alternative energy resources in our rural India.

High prices for oil and natural gas, which are expected to persist also, encourage expanded use of renewable flues. Renewable energy sources are fair for environmental reasons, especially in countries where reducing greenhouse gas emissions is of specific concern. Government policies and motive to increase the use of renewable energy sources for electricity generation are expected to encourage the development of renewable energy even when it cannot compete. In relation to coal, oil, the world's yearly consumption has become so enormous that we are now actually within measurable distance of the end of the supply.

Keywords— Energy scenario, Renewable energy resources.

INTRODUCTION

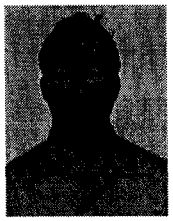
The flow of electrical power is Electricity. Electricity is a lesser energy source because it is produced by converting chief energy sources that is solar energy, wind energy, gas energy, nuclear energy, water energy and thermal strength into electrical power. Primary energy sources are renewable or non-renewable energy but the electricity we use is neither renewable nor non-renewable. So, what exactly is renewable energy? It is an energy resource that can be always replenished, unlike petroleum, coal, natural gas or other fuels, which are used once and then are gone forever. Solar power is almost like the original energy fantasy; you install a solar panel and then for years and years that panel will lead to electricity, without any further inputs. India, one of the world's fastest-developing countries, currently has no electricity grid to connect 400 million people who have no entry to electricity. During the past two decades are now bearing fruit as people in all walks of life are more aware of the advantage of renewable energy, especially decentralized energy where prescribed in village and in urban or semi-urban centres. India has the world's largest scheme for renewable energy. Fuel cell is a wild card; fuel cell is one of the most likely power generation technologies on the horizon. However the timing of when fuel cells will break through to the broad commercial marketplace is hard to predict [4]. The industry faces two major challenges: cost lowering and proven performance if significant public funding is made available for stationary applications, fuel cells could achieve commercialization much sooner.

NON-CONVENTIONAL AND RENEWABLE SOURCES OF ENERGY

To meet the future energy demands and to give quality and pollution free stock to the growing and today's environment conscious population, the present world thought is to go in for natural, clean and renewable energy resources. These energy sources catch their energy from on –going natural processes, such as geothermal heat flows, sunshine, wind, flowing water and biological processes.

The some form of energy, such as rainfall and wind power are considered short term energy storage, whereas the energy in biomass is build up over a periods of month as in straw, and through many years as in wood. The average per capita consumption of energy in India is around 500 W, which is much lower than that of developed countries like USA, Europe, Australia, Japan etc. The consumption of electricity is growing on the worldwide basis. Energy is a requirement and sustainable renewable energy is a vital link in industrialization and development of India.

Look out for the clean energy technology which can restrict the environmental pollution from automobiles with conventional fuels has led to the rise of Electric Vehicles Empire to play a leading dynamic role in overcoming fuel exhaustion and environmental pollution for the sustainable development of human society. To satisfy the demand for energy and power density of EV, research is essential to tackle major obstacles like price & robustness to make it at the commercial platform. The book is an attempt towards developing a novel Hybrid Energy Storage System and its efficient energy management scheme using efficient control and new optimization scheme that will manage the sharing of energy between the primary energy storage device and its complementary energy storage device Ultracapacitor, demanded by the Electric Vehicle. The development of a novel HESS was checked for Ultracapacitor & Battery and another as Ultracapacitor & Fuel Cell, as energy storage devices while new optimal energy management scheme is achieved by Hybrid Optimization Algorithm which uses Fuzzy and Whale Optimization to maintain constant high voltage and optimal State of Charge of the energy storage device.



Thoudam Paraskumar Singh has received his B.Tech.(EEE), University of Kerala, M.Tech.(Power Electronics), VIT, Vellore and Ph.D., Mody University. He is currently working as an Assistant Professor at SET, MU, Rajasthan. His research interest includes Supercapacitor & Fuel Cell Applications, Power Electronics, Renewable Energy and Energy Management.

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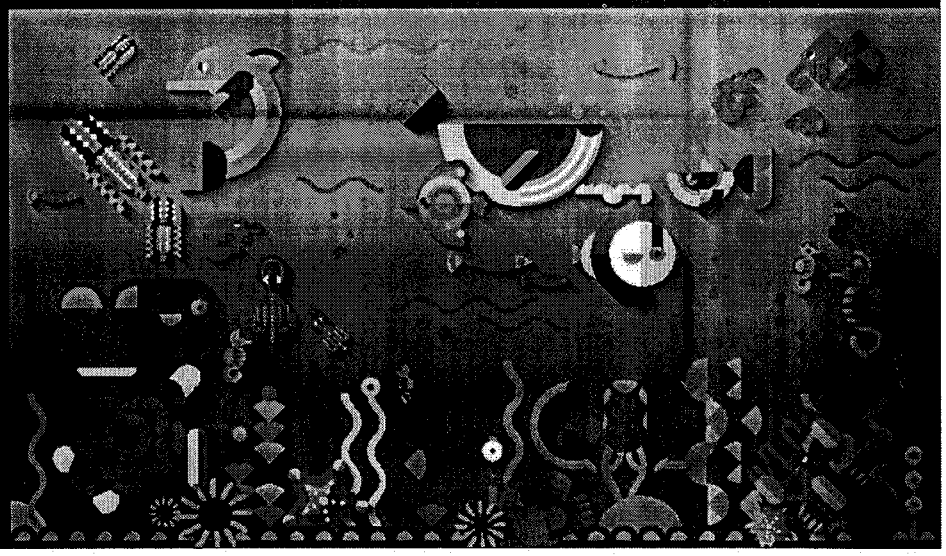

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Abstract

Document Sections

I. Introduction

II. Wireless Sensor Network

III. Localization Process

IV. Multidimensional Scaling

Abstract:
Internet of Things have gained the interest of researchers and other academic communities due to their applications in various fields. Determining the location of a sensor node within the specified area consisting of number of sensors and smart devices is very crucial, which requires association between the devices and the sensor nodes[1]. Localization is the basic requirement for other services of any smart network like communication, clustering, distribution, routing etc. Multidimensional scaling is one of the approach used effectively for the sensor node localization. In this approach the process to obtain the minimum distance path between the pair of sensors are used which helps in estimating the relative positions of the nodes. This paper includes the explanation and comparison of different types shortest path algorithms. Then, we discuss about the use of multidimensional scaling process to obtain the absolute positions of nodes with reduced error cumulation in a smart network. It is mandatory to have a efficient, economic and scalable sensor node position estimation process for a wireless sensor network

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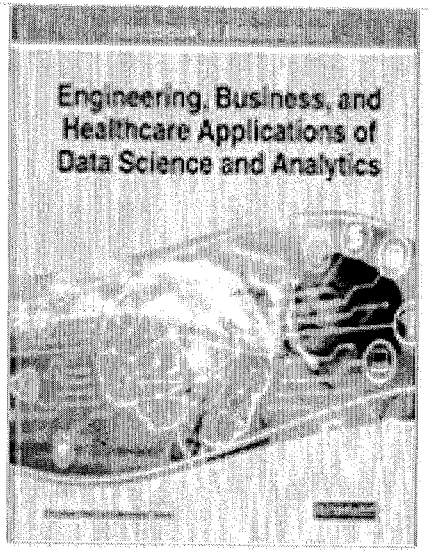

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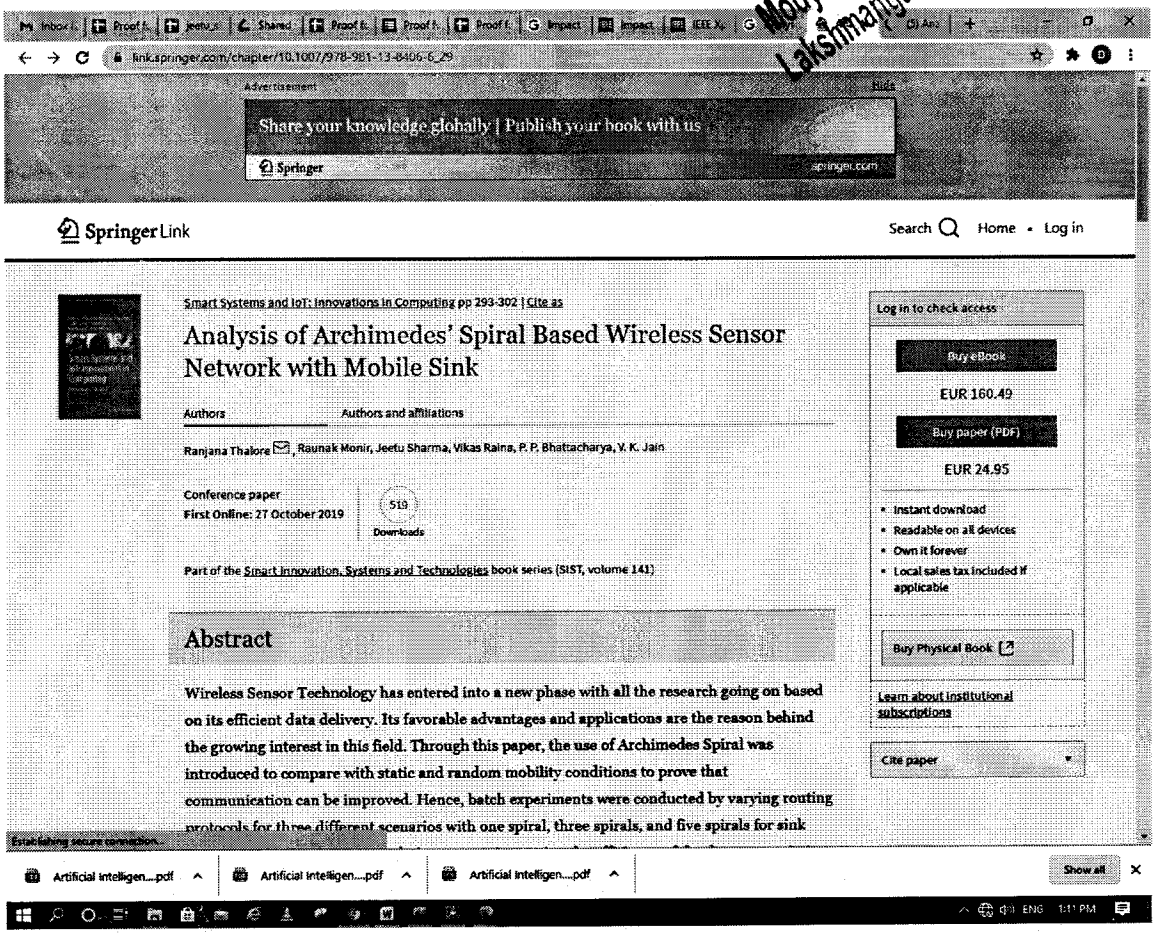

Impact of Zigbee Coordinator on Archimedes' Spiral Based Mobile Network Design in 3D

Ranjana Thalore[1], Rounak Monir[2], Jeetu Sharma[3], Vikas Raina[4]

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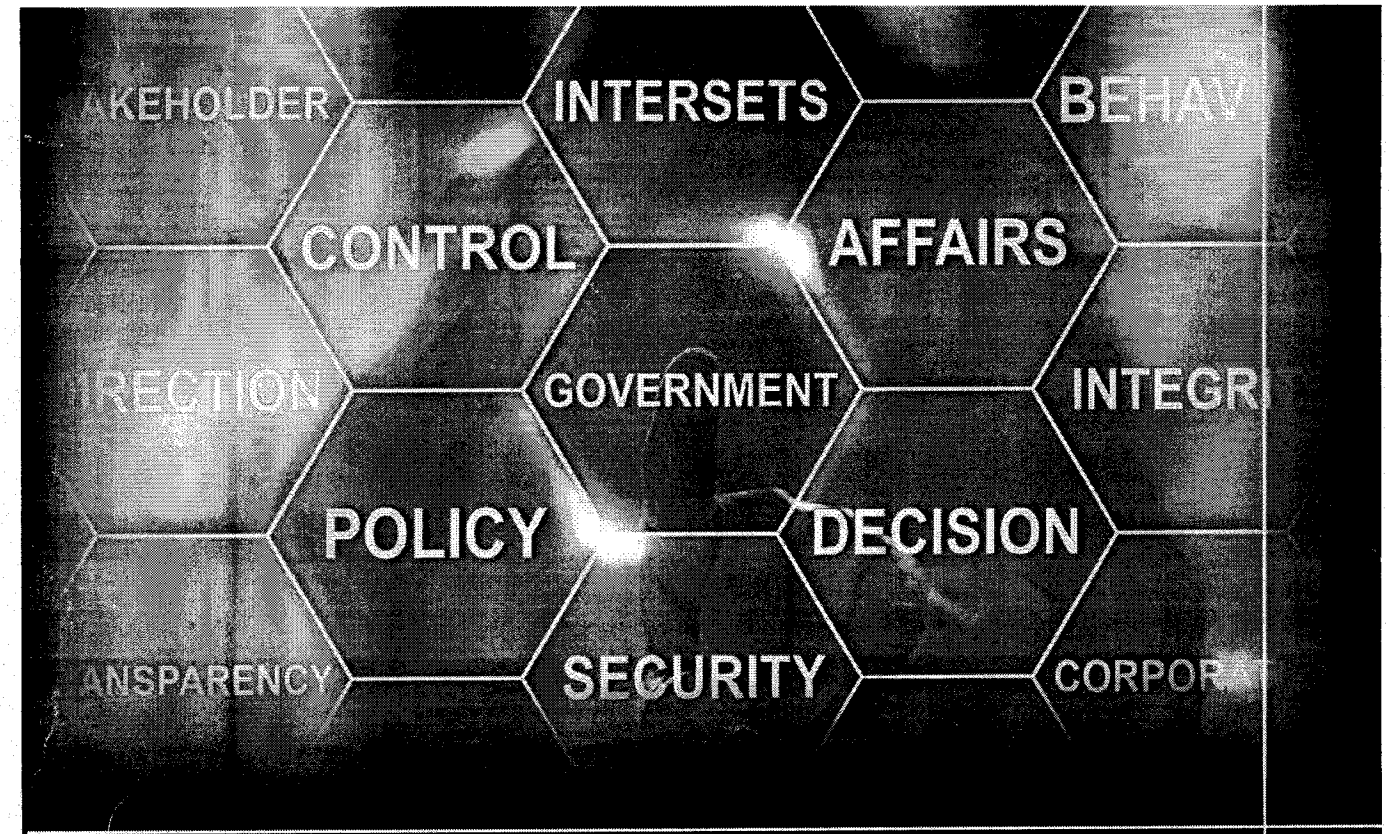
Abstract:

ZigBee is recently developed technology which can be implemented in IEEE standard 802.15.4 to be used in a wireless sensor network (WSN). It's low information rate, low power utilization, economical value are principle highlights of ZigBee. The sensor nodes data in the network is



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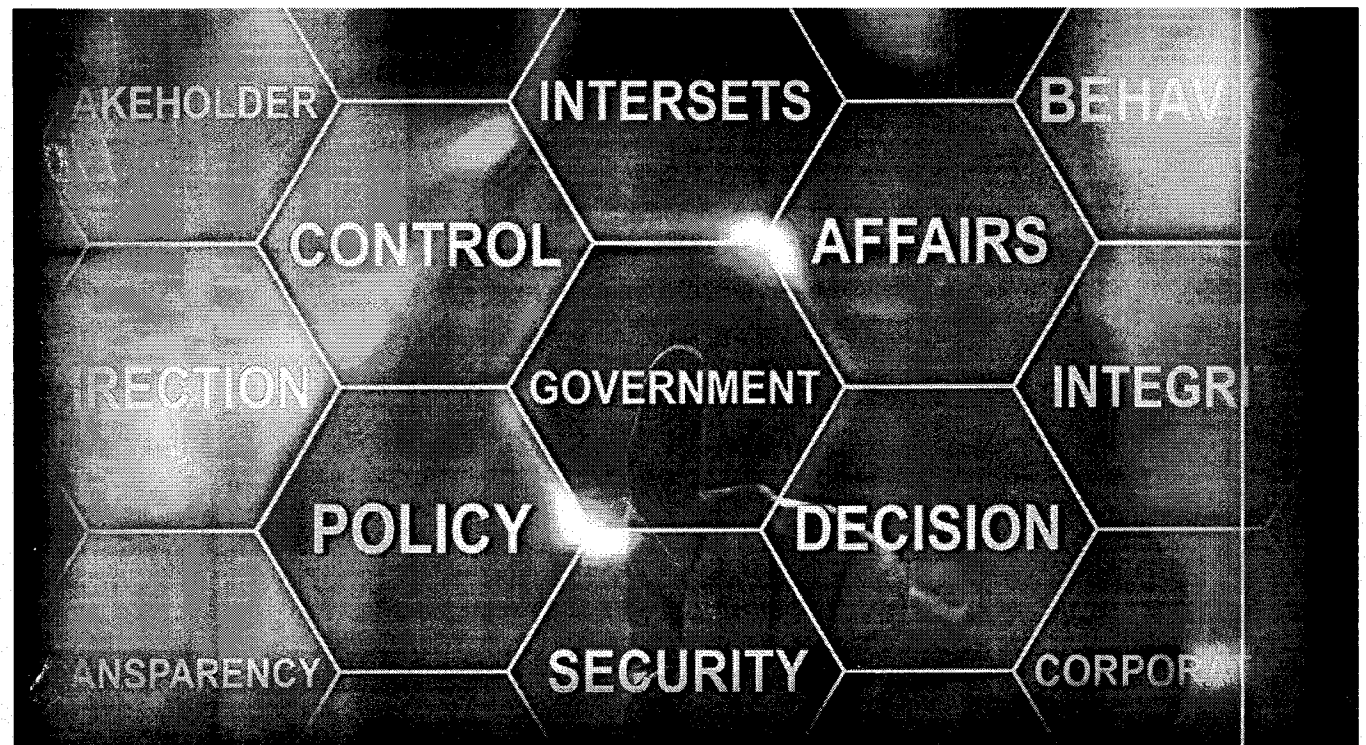

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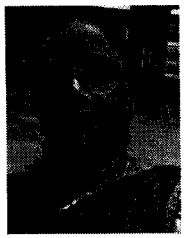

Sunita Kumari has received her B.E. in Electrical Engineering in 2007 from Rajasthan University, Jaipur & M.Tech. in Power System in 2012 from RTU, Kota. She has completed Ph.D. in Power Electronics Drives & Control from Mody University. Presently, She is working as Asst. Prof. in SET, Mody University, Rajasthan (India).

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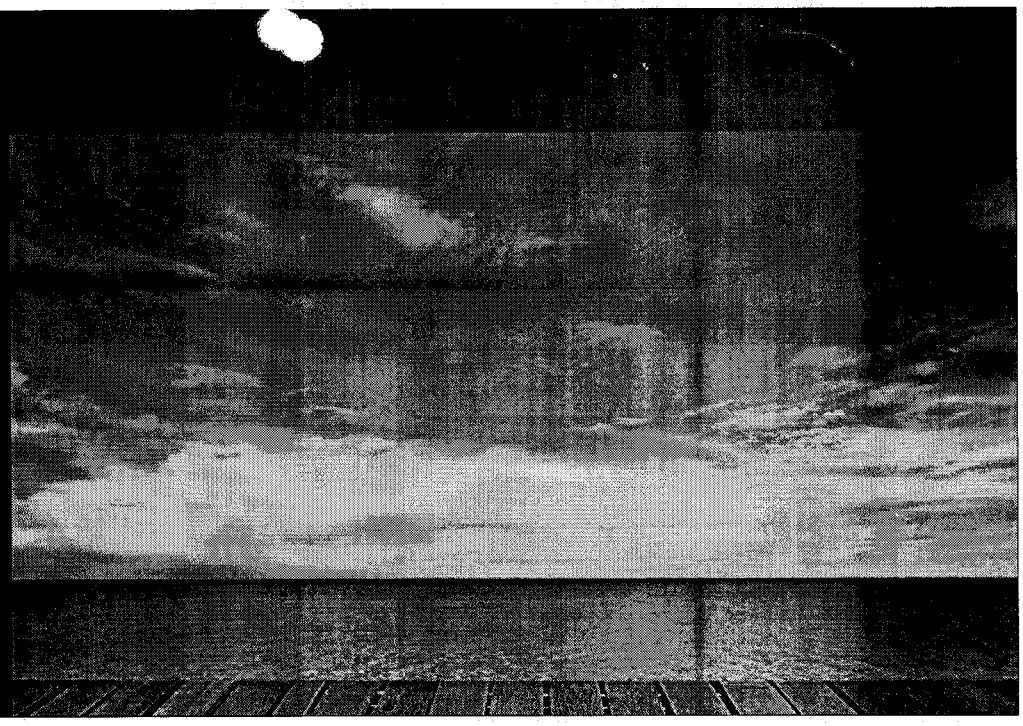

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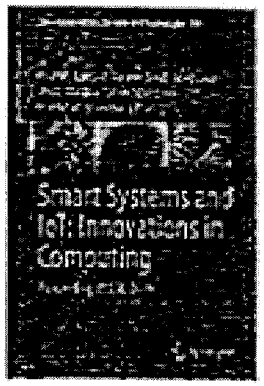

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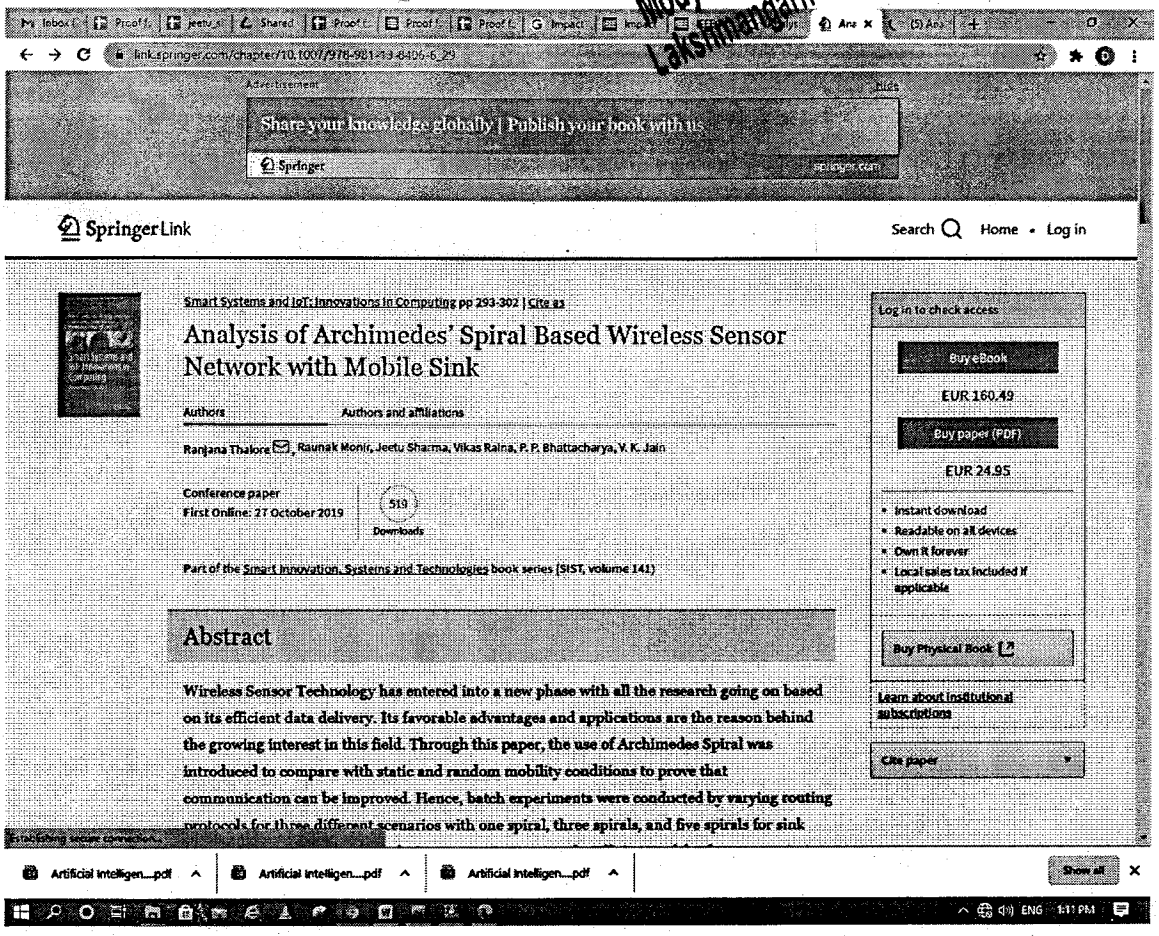

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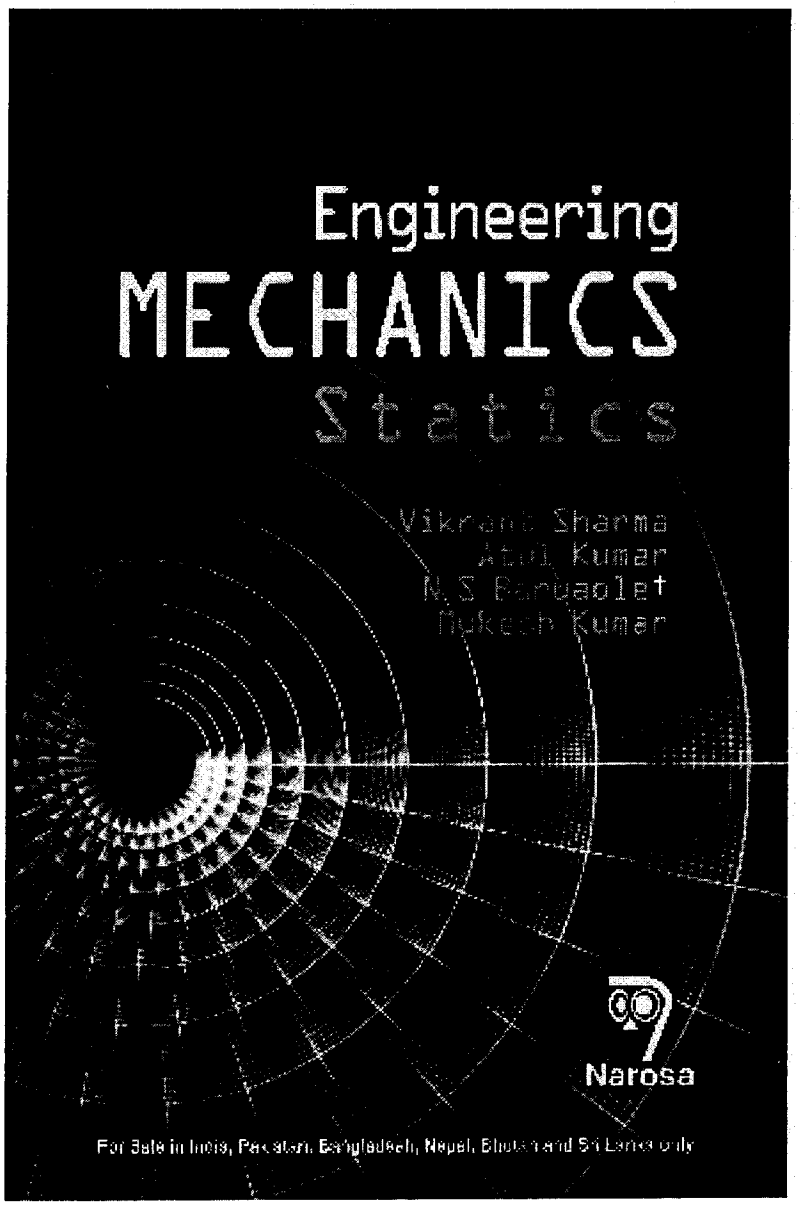

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Ranjana Thalore, Raunak Monir, and Partha Pratim Bhattacharya

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18.1 Introduction

Design of a Slotted Square Patch Antenna for 3G and 4G Wireless Communication

Purnima Sharma, Nidhi Pandit, S.K. Jha and P.P. Bhattacharya

Abstract In this paper, a reconfigurable square patch microstrip antenna has been designed. The proposed antenna consists of a slot and two metal strips for switching operation. In today's scenario where technology is merging, reconfigurable antennas for 3G and 4G technologies are needed. Particularly the proposed design is unique and attractive since it supports the third generation and fourth generation technologies for mobile phones where multiband operation is essentially required. The presented antenna operates in the ranges 2.25–3 GHz without metal strips (OFF-OFF state) and 1.96–2.76 GHz with metal strips (ON-ON state). Characteristics parameter such as return loss-S11 and radiation pattern are analysed using HFSS 13.0.

Keywords Third generation · Fourth generation · Microstrip patch antenna · MIMO · Reconfigurable

1 Introduction

Microstrip patch antennas are widely used because of their properties such as low profile, light weight and ease to manufacture [1]. The applications of Microstrip patch antennas are in various fields such as in mobile communication, medical applications, satellites and in the area of military as rockets, aircrafts and missiles etc. [2]. The demand of mobile communication is to design reconfigurable antenna

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Design and Simulation of Microstrip Rectangular Patch Antenna using HFSS

Neetigya Abichandani, Kritika Sharma, Rajeev Pourush
Mody University, Lakshmangarh

INTRODUCTION

Microstrip patch antenna has numerous applications and is continuously increasing with advancement in technology like it is employed in radar for purposes and in communication systems like satellites and mobile broadcasting. They are also employed in remote sensing and in bio military medical fields. Micro strip patch antenna is basically made of a dielectric substrate as a base on a ground plane and a patch mounted as radiating substance. The basic advantages of microstrip patch antennas are that they can be easily manufactured with low cost, have less weight and can be integrated by the help of microwave integrated circuits [1-3]. Microstrip patch antennas can also be operated under dual or triple frequencies. Though microstrip patch antennas have many advantages but they also have certain disadvantages like they have narrow bandwidth but this disadvantage will be overcome by increasing the thickness of substrate or by choosing different shapes of substrate. The microstrip u-shape and e-shape patch antennas are providing better results in WiMAX applications.

FEEDING TECHNIQUES

For feeding microstrip patch antenna various types of feeding techniques can be used such as Microstrip line feed, Co-axial probe, aperture coupling and proximity coupling. Most basic feed of all is Microstrip line feed which consists of a conducting strip that is feeded with the signal and is connected to the patch and also the strip is of much smaller width as compared to patch. Feeding Technique used in the proposed antenna is co-axial feed.

Coaxial Line Feed

Coaxial line feed is done with the help of probe , in this outer conductor of coaxial is connected with ground plane and inner is connected to the radiating patch, this conductor acts as a power transfer between ground plane and radiating patch via the substrate[4]. Some advantages of coaxial line feed are that it can be fabricated easily and low spurious radiation.

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Fabrication of Itty Bitty Telescope to be used for Measurement of Solar Radiations

Indu Gupta, Mahima Tomar and Rajeev Pourush
Mody University, Lakshmgarh

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Mody University of Science and Tec ology
Lakshmangarh-332311 Dist.-Sikar asthan

INTRODUCTION

Radio Telescopes [5] are used for finding out those objects which do not reflect enough light which can be observed by general optical methods. It can also be used to pick those radio waves which are emitted by another radio source or the radiations reflected back from the object. Nowadays, several forms of Radio Telescopes can be seen everywhere around us like The Satellite TV dish [6] which is a modified version of Radio Telescope and collects the radio waves sent by the Geostationary satellites present in orbit around the Earth.

The Geostationary satellites are present in the synchronous orbits which means its position is fixed in the satellite orbit with respect to the Earth. These are positioned approximately 35888 km above the Earth's surface. The satellite meter has a device called Radiometer which is used to measure the strength of the radio signals coming from the satellite. Radiometer also has a detector called 'Square law detector' whose output is proportional to the input radio power. The detector's output is displayed on an arbitrary scale. The dish[1] has two main functions- One is to collect the maximum signal energy and focus that energy on the Feed horn, which is mounted on the focal point of the dish, Second is to channel the collected signal from feed horn to the LNB. The LNB [8] (Low Noise Block down Converter) is a preamplifier which amplifies the signal reflected from the dish.

EQUIPMENT DESCRIPTION

Following equipments are used for our experiments:

Satellite Dish

A Satellite Dish [1] is a receiving antenna which is designed to focus on a specific broadcast source. There are several types of Satellite dishes. The most popular satellite dish consists of a parabolic surface and a feed horn located at its focus. The dish on the receiving end cannot transmit information; it can only receive it. When a beam hits the curved surface of the dish, the parabola shape reflects the radio signal into a particular point by forming a narrow beam, just like the concave mirror focus the light coming from the infinity to a particular point called focus. Here, the particular point is the Feed Horn, which further passes the signal to the receiving device.

along with increase and decrease in the pitch or amplitu
Page 2 / 5

Review- A Effect of Rain on Millimeter Wave Propagation

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Abstract

Importance to study the behavior of millimeter wave is increasing due to increase in number of applications an number of users. As millimeter waves have a communication window from waves from 28 GHz to 42 GHz and 75 GHz to 9 GHz Precipitation attenuation is one of the important reasons which can limit millimeter wave in communication technolog In this paper some studies and results of experiments are reviewed and it is concluded that transmitted power should b modulated in accordance to rainfall to make uninterrupted communication.

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Impact of High-K Spacers on Nanometer Scale Junction less Double Gate MOSFET

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Abstract

The channel lengths for traditional MOSFETs have reached sub-45 nm node and thickness of gate layer have also reduced below 2nm. This has led to improvements in device performance and incre packing density. Continuing scaling of device parameters has given rise to short channel effects su threshold voltage roll-off, drain induced barrier lowering and sub-threshold swing. The fabricati nanometer scale traditional MOSFETs with junctions have become very challenging. The newer de like junction less double gate MOSFETs are in focus as they have shown good electrostatic beh compared with traditional MOSFETs. In this paper, we introduce new device architecture with hi spacers placed on either sides of the both the gates of a junction less double gate MOSFET. The effe the high dielectric constant ( ) of the spacer on the device characteristics has been studied. This p investigates the junction les -k spacers of materials like silicon dio (SiO2), hafnium oxide (HfO2), and aluminium oxide (Al2O3). The work is done on the device to carry

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Impact of High-K Spacers on Nanometer Scale Junction less Double Gate MOSFET

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Abstract

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Automatic Focal Epileptic Seizure Detection in EEG Signals

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Abstract— In this paper, we propose an automatic epilepsy diagnosis based on the statistical feature extraction. At outset, EEG signals are recorded from the patient and pre-processed to remove the unwanted signals: Dc drift elimination, high pass and low pass filter techniques are applied to preprocess the EEG signals. The noise is diminished from the signal by the method of Hilbert-Huang Transform (HHT). Empirical mode decomposition is the portion of HHT by which intrinsic mode functions (IMFs) are separated from the signal. In Hilbert spectral analysis, the instant frequency of IMFs is executed using Hilbert transform, which allows the finding of localized features. Empirical Static Wavelet transform is applied to acquire WT components from the EEG signals. These features are further extracted in to five frequency sub-bands based on clinical interest. Genetic algorithm is structured for displaying the best features from the localized features. Based on the optimized features, support vector machine is applied to classify and evaluated the signals as epileptic seizure and seizure-free EEG signals. An experimental result shows that the proposed method can attain a very high accuracy.

Indexed Terms-EEG signal, epileptic seizure detection, DC drifts Elimination, Hilbert-Huang Transform, Empirical Wavelet Transform, Genetic Algorithm and Support Vector Machine Classifier.

I. INTRODUCTION

Temporary and irregular electrical disruption of the brain is utilized to distinguish the neurological disorder is known as epilepsy. EEG signals are recorded from the patients with epilepsy through which, the seizure is recognized by using seizure detection. Brain abnormalities detection is commonly implemented by expert physicians with observation of electroencephalography (EEG) signals, which is time consuming and sensitive to bias. The Brain abnormalities detection in earlier research faces from low power and unsuitability for processing huge amount datasets. Hence, computerized Brain abnormalities detection method is highly recommended to get rid of the aforementioned problems and also efficiency in terms of Brain abnormalities classification accuracy, throughput and cost saving are highly effective as compare with computer tomography (CT). Brain abnormalities are epilepsy, seizure brain stroke etc.

This paper is explained as following sections. Section II presents a description about the previous research which is appropriate to the detection of epileptic seizure. A brief description about the experimental EEG data in this study presented in section III. The execution procedure of the proposed method is detailed in Division IV. The analysis of performance metrics is mapped in section V. Obtainments observed in this work is stated in section VI.

II. LITERATURE SURVEY

This section surveys the works about existing techniques associated with seizure identification method. Kevric and Subasi [1] Suggested Multiscale Principal Component Analysis (MSPCA), to identify epileptic seizures. Freiburg database utilized to develop the algorithm of seizure identification. The experimental results shown that the classification performance was improved for epileptic seizure identification by this efficient signal processing method.van Luijtelaar, et al. [2] Presented methods for automatic identification of absence seizure. Methods of off and on-line analysis were performed to identify spike-wave discharges in the rodents ECG. The spike wave discharges has the continuous wavelet transform. Absence seizure was identified on high sensitivity and also low selectivity by network based method. False alarms were prohibited and also the solutions were combined with brain stimulation system for producing techniques for experimental seizure control. Sharma and Pachori [3] Detected epilepsy by the framework by phase space representation (PSR) Empirical mode decomposition (EMD) was utilized to split the EEG signals and Intrinsic mode functions (IMFs) were applied through which phase space were again modified. The classification performance was improved by simulating the performance parameters using distinct kernels. Mporas, et al. [4] accomplished computer based monitoring, analysis and management of epileptic patients to identify seizure by using EEG signals and ECG signals. The features of time and frequency domain were utilized to perform short-time analysis. Support vector machine method was applied to perform the classification. Trade-off is provided between computational demands and accuracy by feature vector parameters. Fergus, et al. [5] generalized seizure identification among a group of subjects by using CHB-MIT database. KNNC classifier was utilized to

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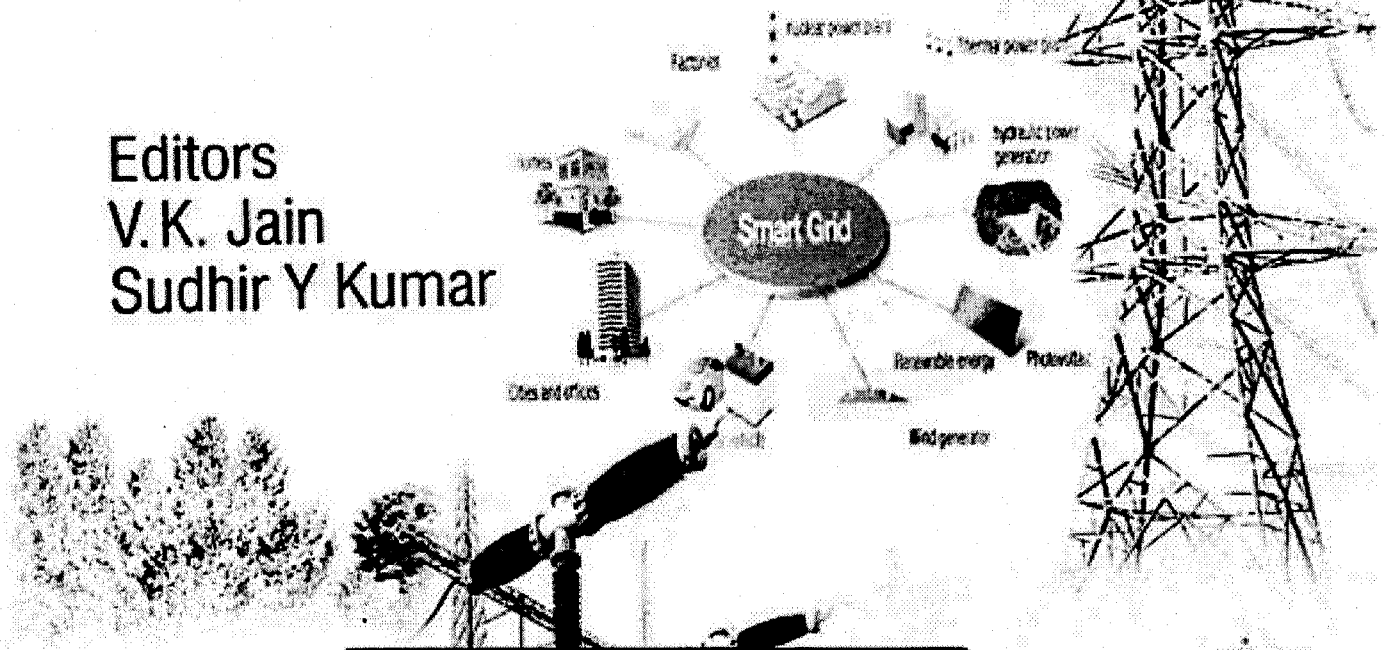
RENEWABLE ENERGY AND SMART GRID TECHNOLOGY

Editors
V.K. Jain
Sudhir Y Kumar



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Integration of Solar Photovoltaic in Smart Distribution Grid: Constraints and Guidelines

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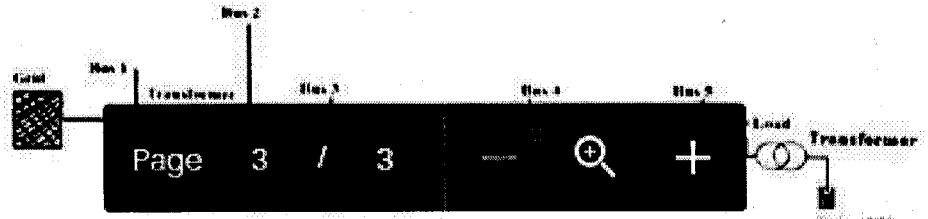
INTRODUCTION

Solar PV is the most widely used renewable energy source in the present time due to its cost-effective and eco-friendly advantages [1]. It is also one of the important components of smart grid. A smart grid cannot achieve completeness unless this renewable energy source is integrated in it. The most important facilitator for the integration of PV into utility grid is the device called inverter which converts the DC power into AC and feeds to the grid as per the required specifications. Such power transfer process poses various challenges like reverse power flow, voltage variation, ampacity, system losses, harmonics and power quality etc. Moreover, the existing distribution grids as presented in Figure1 are not designed to accommodate such sources of energy. In order to overcome these challenges and achieve smart grid goals, extensive studies are needed to determine the maximum amount of solar PV that may be penetrated without requiring major changes in the existing distribution systems [2-3]. This paper presents limiting factor and corresponding guidelines to increase the hosting capacity of the system. The paper is organized as follows; section II presents the characteristics of solar PV various constraint factors for solar PV integration are presented in section III, section IV describes the guideline for solar PV Interconnection in Smart Distribution Grid, section V presents the conclusion of the paper.



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Induction Motor Modelling for Sliding Mode Controller Design

Ritu Tak and Sudhir Y Kumar
Mody University, Lakshmangarh

INTRODUCTION

Induction Motors (IM) are most widely used as a industrial drives, however the control of IM due to the higher order and nonlinearity become a challenging problem for the researchers. There are two types of IM wound rotor type or squirrel-cage type. Squirrel-cage induction motors are widely used in industrial drives because they are rugged, reliable and economical. In the field of electric drives the control of IM without mechanical sensors is now receiving wide attention. The SMC is one of the nonlinear controllers for the IM the attractive superior properties of SMC such as good performance in the case of nonlinear systems, robustness, insensitive to parameter variations and external disturbance is the main reason of the popularity [1-3].

The dynamical model of induction motor is strongly nonlinear, and hence attracted much attention, among nonlinear control strategies. The stability of the controller for the IM depends upon the choice of the reference frame in the *d,q* model. The purpose of this paper is to choose the most suitable reference frame for designing the SMC controller for the IM [4].

Mathematical Model of Induction Motor

The dynamic model of IM describes the transient as well as the steady state behavior of the IM. For developing high performance sliding mode controller for the IM drives, the dynamic model can be used to simulate and evaluate the transient performance of IM including that of using the control technique. Fig.1 shows a schematic diagram of a d,q axes coordinate of 3-phase induction motor. Although the d,q axes can rotate at an arbitrary spe DS, QS, DR and QR. In order to original machine correctly, the or variables, but this

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Solar Energy is the Path for India's Rural Prosperity: A Mobile Solar PV Application

Tarun Saxena, J.P. Kesari and Sudhir Y Kumar[1]
Delhi Technological University, Delhi
[1]Mody University, Lakshmangarh

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INTRODUCTION

Electricity is a basic need for today's era. Each and every sector of society depends upon electricity for its working and maintenance. In rural India there is still 33% area which does not have electricity in their life. India is a country where the land gets an incident radiation of about 5,000 trillion kWh per year with a solar power potential of about 0.25 kWh per sq. meter. India is still producing just 6762.85 MW of renewable energy as a form of solar. In creating a new space for solar in rural life, we decided to prepare a multipurpose solar PV system. This system can fulfill the day to day need of a rural farmer including irrigation and household too. It includes a system that produce 2kW of energy. It is used in solar underground water pumping. This system comes into existence when there was shortage of water and various problems were generated due to lack of irrigation. In India only 1/3rd land is irrigated and due to which there is an increase in price of crops.

Of all the countries, India has the largest population that does not have access to electricity – 304 million people. While 94% of Indians living in urban areas have electricity, only 67% in rural area have power. In total 24% i.e. 304 million do not have electricity. Due to this problem, irrigation faces a major drawback in agriculture. To sort this problem, we need a renewable and an alternative source of energy, this gives a chance to Solar Energy to come into existence. Solar energy can meet various demands of electricity.

We decided to select the system in such a way that the whole system is as cheap as possible. It can be produced in such a way that farmers can afford it. Solar is best suited for them [illegible] Solar PV is eco-friendly and is a [illegible]stly but the basic aim of this proje[illegible]nowledge of solar pumping for irrigation.

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Evolution of Ultra-Capacitor as Modern Energy Storage Device for Smart Grid Applications

Thoudam Paraskumar Singh and Sudhir Y Kumar
Mody University, Lakshmangarh

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INTRODUCTION

The energy in this world can neither be created nor destroyed but it is converted from one form to another. All the energy generated from different types of power plants using renewable and non-renewable resources are utilized as generated. They can be temporarily stored in certain energy storage which has limited storage capacity. The complete generated energy from power plants can never be stored in one place or no single storage device or any number of combined storage devises together can do the storing. It is only about some fractions in percentage of the total generated. There is growing demand for developing efficient storage system in the field of electric and hybrid vehicles, consumer electronics, generating plants and electric energy distribution grids or smart grids with extremely varying performance characteristics.

The energy storage devices available as of today are not ideal to meet all the economic and technical requirement of the growing demand. Some of the storage devices which see competition amongst the devices are electrochemical batteries; pump hydro, flywheels, Superconducting Magnetic Energy Storage, compressed air energy storage, Fuel Cells etc. The interest in developing and refining more efficient energy storage devices has led to the introduction of Supercacitor and has matures over the decade and emerged with major potential to facilitate advances in storing of energy. Ragone plot for different energy storage devices is represented to compare the specific power and

The most pron ce battery in many application of pres wn by other names

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Job Opportunities in Solar Energy Sector in India

Kaushalya Bishnoi, Thoudam Paraskumar Singh, S. Y Kumar
Mody University, Lakshmangarh

INTRODUCTION

Solar energy in India is a growing Industry and as of now the country's solar grid has a cumulative capacity of 8,626 Megawatt (MW). Indian government has solar plans, targeting US $100 billions of investment and 100 Gigawatt (GW) of solar capacity including 40 GW's from rooftop solar, by 2022[1]. The ambitious targets of India include installing more than double that achieved by world leaders China or Germany in all of the period upto 2015 year end inspite of the fact that large scale solar power deployment began only as recently as 2010. One million solar lanterns had been sold in country by end of 2015 reducing need for expensive kerosene in rural areas. 30,256 solar powered water pumps for Agriculture and drinking water had been installed. 118,700 solar home lighting systems were installed. 46,655 solar street lighting installations were provided [9]. Total solar energy consumption in India is being shown in table 1.

Table 1: Total Solar Energy Consumption in India

Descriptions	*Capcity/Quantity*
Number of solar street lighting systems	46,655
Number of home lighting systems	118,700
Solar lanterns	1000,000
Solar photovoltaic power plants	1566 kW
Solar w	f collector area
Bo	5,000

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Security and Privacy in Smart Grid

Radhika Maheshwari, Manju and Thoudam Paraskumar Singh
Mody University, Lakshmangarh

INTRODUCTION

Our current power grid was conceived more than 100 years ago where in electricity meter; simple power generation was localizable around communities. Most homes have only small electric demand such as fuel and other fossil produced sources. Power grid was designed to deliver the consumer homes which made it difficult to respond to the ever-changing and rising demand for the 21st century. Hence, the smart grids were introduced. Smart grid introduces a two-way dialogue where the electricity and information can be exchanged between the utility and its consumers. It is developing network of Communications controls that uses automation and new technologies and tools working together to make the great more efficient more reliable and more secure. Smart grid also makes use of the renewable energy source. Though, the setup of power grid definitely depends on the locality the blueprint of Smart grid is given in Figure 1.

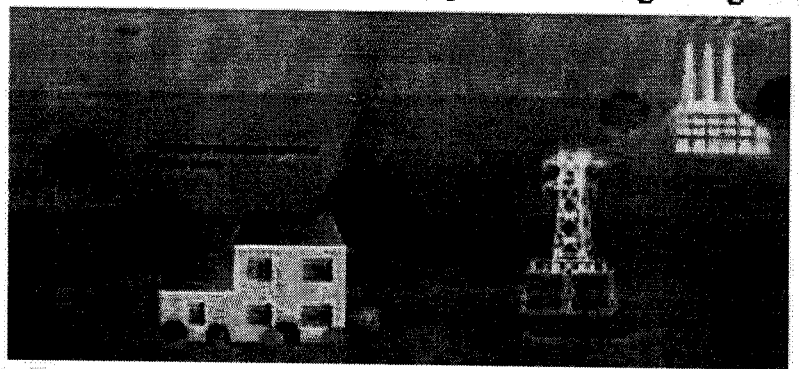

Fig. 1: Basic way a smart grid works between consumers and suppliers

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Chapter 10

A CASE STUDY OF AUSTRALIAN MODEL OF E-GOVERNANCE AND CONCEPTUALIZATION OF A PROTOTYPE FOR REJUVENATION OF E-GOVERNANCE IN INDIA

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ABSTRACT

It is evident from numerous studies that e-governance in India was initiated in a haphazard manner. At the time of evolution of e-governance in India, various provinces have shown their autonomy in development of various e-governance applications. As a result numerous number of applications were developed across the nation to accomplish similar or distinct objectives of various states. But, the scenario of deployment of e-governance is still not overwhelming because India has not envisioned any centralized, futuristic approach in deployment of e-governance. The majority of applications are severely lacking in interoperability, standardization of data and having ample redundancy of data which increases vulnerability of data or information. In order to eradicate such perplexing scenario this paper undergoes the case study of Australian model of e-governance because Australia is one of the pioneer in establishing e-governance with 80% satisfaction ratio among Australians. Further, this paper suggests a prototype to get revived from this situation. It also delineates about prospects of proposed framework after its adoption.

Keywords: framework, model, interoperability, consolidation, virtualization, ICT

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Orthodox Belief and Social Stigma in Sudha Murthy's Novel Mahashweta

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1. Introduction

Among the various prolific writers of English in India is a name that does not need an introduction per se. Sudha Murthy is an immensely accomplished business woman, teacher, social worker and an author to reckon with.

Feminism plays an essential role in women rights and Sudha Murthy's novels are rich in dealing with it. This paper is an attempt to analysis Sudha Murthy's novel Mahashweta, a

E-Governance in India

Problems, Prototypes and Prospects

Puneet Kumar
Rajesh Sharma
Urmani Kaushal
Editors

GOVERNMENT PROCEDURES AND OPERATIONS

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Design of an L-Slot Dual-Band Patch Antenna for Wireless Applications

Purnima Sharma, S. K. Jha and P. P. Bhattacharya

Mody University, Lakshmangarh

Abstract— In this work, a dual band Microstrip planar antenna is proposed. The proposed antenna design consists of an L-slotted rectangular patch antenna. The proposed antenna operates at 2GHz and 5.8GHz. The presented design is suitable for 3G and WLAN applications. Various antenna parameters as return loss, VSWR and radiation pattern are analysed using HFSS.

Keywords— 3G, Microstrip antenna, WLAN

1. INTRODUCTION

Microstrip planar antenna has been very useful for wireless communication applications due to their unique advantages as low profile, low cost and easy fabrication [1]. The applications of Microstrip patch antennas are in various fields such as in cellular communication, RFID applications and satellites etc. [2]. Requirement of modern wireless communication system is to design multi-band antenna suitable for more than one application. Microstrip patch antenna usually operates at their fundamental TM_{01} mode. Microstrip planar antenna operating at higher order TM_{02} mode has dual symmetric radiations beams [3]. For multiband operation, slots are generally created in patch antenna. In literature, a number of techniques have been used to achieve multi band operation for microstrip patch antennas.

2. BRIEF REVIEW

A wide-band and dual-beam U-slot microstrip patch antenna is presented [3]. Two radiation beams were obtained by operating patch antenna at higher order TM_{02} mode instead of conventional TM_{01} mode. This antenna is suitable for indoor wireless systems. In [4], I slot antenna is presented, where patch length is equal to the wavelength. The presented antenna resonated at 2.1GHz and 5.7GHz, which are suitable for 3G and WLAN applications. A partial ground plane is used to reduce the reflections and back lobe radiation. A triple band triangular patch antenna is presented [5]. This antenna is composed of a triangular patch with three triangular slots. In this design patch length is taken such as the antenna operates at higher order mode TM_{02}. This presented antenna resonates at 2 GHz, 4.2 GHz and 5.7 GHz which corresponds to 3G, C-band and WLAN application. In [6], a reconfigurable square patch microstrip antenna has been presented. This antenna consists of a slot and two metal strips for switching operation. The presented antenna operates in the bands 2.25–3 GHz without metal strips (OFF-OFF state) and 1.96–2.76 GHz with metal strips (ON-ON state). A novel triple-band circularly polarized antenna is presented in [7]. This antenna achieves frequency ratio which is suitable for multiband wireless communication systems. The effect of shaping of ground plane on performance of patch antenna is shown in [8]. It was observed that reducing the ground plane significantly affects the return loss and input impedances. A dual-band microstrip antenna was designed suitable for IEEE 802.11a WLAN application [9]. This antenna design was realized by creating double slots in patch along with a slot in ground plane.

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Influence of environmental parameters on groundwater contamination in Rajasthan, India. Nikhil Gakkhar; Soni, M. S.; Sanjeev Jakhar ; International Association of Computer Science and Information Technology Press (IACSIT) , Jurong West , Singapore , International Proceedings of Chemical, Biological and Environmental Engineering (IPCBEE) , 2016 , Vol. 98 , pp. 66-73

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Water is one of the most abundant resources on earth, covering three-fourths of the planet's surface. However, about 97% of the earth's water is salt water in the oceans, and only 3% is fresh water. The water from lakes, rivers and ground are majorly used for drinking purpose. Rajasthan being the largest state of India, which lies in the north western part of the country, is overly exploited state for groundwater. The current study identifies the major source of contamination, i.e. fluoride content, nitrate content and salinity which is also reflected by the electrical conductivity of the water. Various factors which influences the contamination like waste water generation, chemical pollution discharge into the environment, hazardous waste, groundwater depth below ground and rainfall are identified. All the district of the state is classified into four regions and statistical investigation is carried out on the same. The statistical correlation is made to check the fluctuation level among various variables. Further to validate the correlation, t-test and analysis of variance has been carried out to get a regression model and check the level of significance. The results show the direct correlation between fluoride content with hazardous pollution discharge into the environment specifically in the northern part of the state. The negative correlation of salinity with rainfall, which is also obtained as key result, implies that the salinity decreases with increase in rainfall in the region. The correlation of variables for the southern and eastern part of the state shows the high correlation of nitrate contamination with water sources as it is easily soluble in water. In the end, analysis of variance approach validates the significance of these parameters on groundwater contamination. The results may be used to reduce the toxic waste in the ground water by keeping a strong check on the identified polluting source.

Author(s): Nikhil Gakkhar; Soni, M. S.; Sanjeev Jakhar

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P-II (2) Hardware development & Real Time Analysis of Zeta Buck Boost Converter for Grid connected PV System

Ashish Nayyar	Dr. N. K. Banthiya	Dr. S. K. Calla	Dr. S. L. Surana
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Implementation on Power Converter using Sliding Mode Control

Sunita Kumari[1], S. Y Kumar[2]

[1]Assistant Professor, Mody University, Lakshmangarh
[2]Associate Professor & Head, Mody University, Lakshmangarh

ABSTRACT

The concept of this paper is a basic concept, mathematical model and design aspects of variable structure system. The merits of sliding mode control are decoupling design procedures, disturbance rejection and insensitivity to parameter variations, order reduction and simple implementation of conventional power converters. Therefore, sliding-mode control (SMC) is the robust and nonlinear control method. Discrete-time implementation and un-modeled dynamics are the method of chattering suppression. The sliding mode control is demonstrated for linear time invariant system and for control of induction motor, dc motor etc.

Keywords: Chattering, Robustness, Sliding-mode control, Variable-structure systems (VSCs).

I. INTRODUCTION

Variable structure control (VSC) with sliding mode control was first proposed and elaborated by several researchers from the former Russia, starting from the sixties (Emelyanov and Taran 1962; Emelyanov, 1970; Utkin, 1974). The idea did not appear outside of Russia until the seventies when a book by Itkis (Itkis, 1976) and a survey paper by Utkin (Utkin 1977) were published in English. Then sliding mode control has developed into a general design control method applicable to a wide range of system types including non-linear system, MIMO systems, discrete time models, large scale and infinite-dimensional system. In formulation of any practical control problem there always be a difference between the actual plant and its mathematical model used for the controller design. These mismatches mostly come from unknown external disturbances, plant parameters and un-modeled dynamics. Designing the control law that provides the desired performance to the control system in presence of these disturbances/uncertainties is a very challenging task for a control engineer. This has led to an intense interest in the development of so called robust control methods which are supposed to solve this problem. One particular approach to robust controller design is the so-called sliding mode control technique. Chattering phenomenon can cause some problems such as saturation and heat for mechanical parts of robot manipulators or drivers. To reduce or eliminate the chattering, various papers have been reported by many researchers and classified in two most important methods, namely, boundary layer saturation method and estimated uncertainties method [1-4].

II. PROPOSED HYBRID CONTROL USING SLIDING MODE CONTROL

Sliding mode control forces the system trajectories into this subspace and then holds them there so that they slide along it. This reduced order subspace is referred to as a sliding surface and when closed loop feedback forces trajectories to slide along it, it is referred to as a sliding mode of the closed loop system. One application of sliding mode controllers is the control of electric drives operated by switching power converters, because of the discontinuous operating mode of those converters, a discontinuous sliding mode controller is a natural implementation choice over continuous controllers that may need to be applied by means of pulse width modulation

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...rovement of Power Output and Optimization of Wind Turbine

...Bhaskar Ruhmat, Saif Nawaz Ahamd, Manoj Kumar, Nirmal Priyadarshi, Nawaz Akhat...
...Student, Institute of Technology, Patna, Bihar
...Associate Professor, Mitra Institute of Technology, Patna, Bihar

Abstract

...improvement of power output of two straight bladed vertical axis wind turbines is numerically investigated using ... fluid dynamics as well as analyzed and optimized utilizing the Taguchi method. Five working elements of ... angle, tip speed ratio, turbine spacing, rotational direction, and blade angle along with four levels are thought-... on their influences on the performance of the dual turbine system. The profile of extracted curves that the factors ... and flow angle play crucial roles in determining power output, whereas the factor blade angle almost plays no part ... The influence strength order of each factor is featured by speed ratio > flow angle > rotational direction > ... > blade angle. Furthermore, the analysis of the signal to noise ratio suggests that the combination of the ... maximize the power output of the system is located at speed ratio = 2, flow angle = 60°, gap ... turbine spacing =3, and blade angle = 0. Compared to the single wind turbine operated at ... wind speed = 10 m/s, [illegible] and computational results indicate that the mean power coefficient ... and the optimal combination is enhanced by [illegible]%.

...ustries" ...plementation on Power Control Using Sliding Mode Controller

...Sunita Kumari, Sanjeet Kumar...
...Assistant Professor, Department of Electrical Engineering
...Associate Professor, Department of Electrical Engineering, Lakshmangarh

Abstract

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Past, Present and Future Scenario for Renewable Energy Resources in India

Sunita Kumari[1], S. Y Kumar[2]

[1]Assistant Professor, Mody University, Lakshmangarh
[2]Associate Professor & Head, Mody University, Lakshmangarh

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ABSTRACT

Renewable energy is a term that refers to any source of usable energy intended to replace the conventional fuel sources without the undesired consequences fuel sources of the replaced fuels. Power consumption in a country determines its development index. In India conventional power generation is comparatively less and thus is still a developing country. There is enormous need to work on grass root level to implement successfully alternative energy resources in our rural India.

High prices for oil and natural gas, which are expected to persist also, encourage expanded use of renewable flues. Renewable energy sources are fair for environmental reasons, especially in countries where reducing greenhouse gas emissions is of specific concern. Government policies and motive to increase the use of renewable energy sources for electricity generation are expected to encourage the development of renewable energy even when it cannot compete. In relation to coal, oil, the world's yearly consumption has become so enormous that we are now actually within measurable distance of the end of the supply.

Keywords— Energy scenario, Renewable energy resources.

INTRODUCTION

The flow of electrical power is Electricity. Electricity is a lesser energy source because it is produced by converting chief energy sources that is solar energy, wind energy, gas energy, nuclear energy, water energy and thermal strength into electrical power. Primary energy sources are renewable or non-renewable energy but the electricity we use is neither renewable nor non-renewable. So, what exactly is renewable energy? It is an energy resource that can be always replenished, unlike petroleum, coal, natural gas or other fuels, which are used once and then are gone forever. Solar power is almost like the original energy fantasy; you install a solar panel and then for years and years that panel will lead to electricity, without any further inputs. India, one of the world's fastest-developing countries, currently has no electricity grid to connect 400 million people who have no entry to electricity. During the past two decades are now bearing fruit as people in all walks of life are more aware of the advantage of renewable energy, especially decentralized energy where prescribed in village and in urban or semi-urban centres. India has the world's largest scheme for renewable energy. Fuel cell is a wild card; fuel cell is one of the most likely power generation technologies on the horizon. However the timing of when fuel cells will break through to the broad commercial marketplace is hard to predict [4]. The industry faces two major challenges: cost lowering and proven performance if significant public funding is made available for stationary applications, fuel cells could achieve commercialization much sooner.

NON-CONVENTIONAL AND RENEWABLE SOURCES OF ENERGY

To meet the future energy demands and to give quality and pollution free stock to the growing and today's environment conscious population, the present world thought is to go in for natural, clean and renewable energy resources. These energy sources catch their energy from on –going natural processes, such as geothermal heat flows, sunshine, wind, flowing water and biological processes.

The some form of energy, such as rainfall and wind power are considered short term energy storage, whereas the energy in biomass is build up over a periods of month as in straw, and through many years as in wood. The average per capita consumption of energy in India is around 500 W, which is much lower than that of developed countries like USA, Europe, Australia, Japan etc. The consumption of electricity is growing on the worldwide basis. Energy is a requirement and sustainable renewable energy is a vital link in industrialization and development of India.

Resources in India

Sunita Kumari[1], S. Y Kumar[2]

[1]Assistant Professor, Mody University, Lakshmangarh
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ABSTRACT

Renewable energy is a term that refers to any source of usable energy intended to replace the conventional fuel sources without the undesired consequences fuel sources of the replaced fuels. Power consumption in a country determines its development index. In India conventional power generation is comparatively less and thus is still a developing country. There is enormous need to work on grass root level to implement successfully alternative energy resources in our rural India.

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INTRODUCTION

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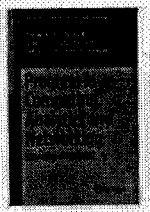

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Feed Forward Neural Network-Based Sensor Node Localization in Internet of Things

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Ajay Kumar ✉, V. K. Jain

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Abstract

Internet of Things and wireless sensor networks have attracted worldwide researchers because of their various applications in different fields. Specifically, in IoT, knowledge of location is a very critical issue which deals with identifying the position of deployed node in the sensor network. It is extremely advantageous to propose scalable, cost efficient, and proficient localization procedure for IoT. This paper provides a sensor positioning algorithm named centroid algorithm which is a range-free position identifying scheme. The centroid of the polygon is used to compute the coordinates of estimate position to get better node location precision and further neural networks such as feed forward have been implemented to improve the accuracy. A comparison of centroid algorithm and feed forward neural network-based localization has been done and found that the neural network promises better results for higher

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A Review on Hydrogen as the Future Fuel

Mukul Kant Paliwal, Harshita Sharma and Sonal Singh
Mody University, Lakshmangarh

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INTRODUCTION

Hydrogen is widely used and produced. Approximately 10-11 million metric tons of hydrogen are produced in U.S. each year which would be enough to power 20-30 million cars or 5-8 million homes. Hydrogen is basically a energy carrier which is available in chemically combined forms in water, fossil fuels, biomass, etc. Because of the total dependence of mankind on the fossil fuels has made a major impact on energy security and on natural climate. Due to which all the fossil fuel has exhaust, emission of pollutants is there and also facing global warming due to greenhouse gases. Therefore, because of these reasons hydrogen would replace petrol and diesel and which could be used in auto mobiles a wer generation. But in India the idea has been propose enewable Energy and would be

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A REVIEW ON CELLULAR MANUFACTURING SYSTEM

[1]VIKRANT SHARMA, [2]JINESH JAIN, [3]ANKUR PAREEK

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Abstract - A big challenge of today's batch production industries is to offer fast delivery of a variety of products to the customer. To meet this challenge, manufacturing industries are turning to cellular manufacturing system (CMS). CMS is based on group technology approach where workstations are arranged in form of manufacturing cells and part families are assigned to these cells. Each manufacturing cell performs all or most of the operations required by part families. Primary purpose of CMS is to reduce setup time, cycle time, and improve machining utilization. The important steps in CMS are identifying part families, formation of manufacturing cells and assigning part families to the cells. This paper reviews literature on cellular manufacturing system. Different approaches such as heuristic, meta-heuristics, mathematical programming methods etc. have been discussed.

Keywords - Cellular manufacturing system, group technology, manufacturing cells, part families.

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I. INTRODUCTION

Cellular Manufacturing (CM) is a approach for improving operations in batch and job shop production. In cellular manufacturing, Group Technology (GT) is used to form part families based on similar processing required on the job. Machines and parts are then grouped together based on in order or immediate techniques (Arora, Haleem, & Singh, 2011).

Group Technology is defined as "A manufacturing philosophy in which similar parts are identified and grouped together to take advantage of their similarities in design and production". Group

Technology (GT) is a method of manufacturing parts grouped into part families. Part Family is a collection of parts that posses similarities in shape and size. Part families are a very important features of GT.

Mitrofanov was the first who introduced the concept of GT philosophy and the machine grouping problem in the late 1950's. The other early pioneers in the field of GT are Burbidge and Ham (Heragu, 1994). Early techniques developed for solving GT and CM problems are as follow:

Visual inspection is the technique where parts are classified into appropriate families, based on the parts or photos of the parts. But this technique is not suitable on large scale.

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Part classification and coding is the technique where

In: e-Governance in India: Problems, Prototypes and Prospects ISBN: 978-1-63484-830-5
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Chapter 5

DEMYSTIFYING E-GOVERNANCE IN INDIA: A COMPARATIVE ANALYSIS WITH DEVELOPED AND DEVELOPING NATIONS

Kumar Sambhav Pareek [1,] and Twinkle Patel [2]*
[1]Assistant Professor in Political Science,
College of Arts, Science and Humanities,
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ABSTRACT

"IT Indian Talent + IT Information Technology = IT India Tomorrow", an equation solved by Narendra Modi will surely pave its way to make India experience the power of e-governance.

The booming entry of technology into the cosmos of human life has changed the entire perspective of human perceiving; the working pattern of people, the business agendas and the government services. E-governance makes use of Information and Communication Technology (ICT) to upgrade the system of governance and hence provide better services to the citizens.

E-government uses technology as tool to enhance the access and delivery procedure of government services for the benefit of citizen. Hence, it facilitates the people with convenience, customization and empowerment to aid their desire. Technically, e-governance is the praxis of communication and information technologies to mutate the coherence, accountability and transparency of informational and transitional barter with the organizations and government institutions.

Keywords: Digital India, Security Council, G-4, G-8, G-20, BRICS, ASEAN, NeGP

* E-mail: dr.kumarpareek@gmail.com.

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Chapter 10

A CASE STUDY OF AUSTRALIAN MODEL OF E-GOVERNANCE AND CONCEPTUALIZATION OF A PROTOTYPE FOR REJUVENATION OF E-GOVERNANCE IN INDIA

Puneet Kumar [*] ***and Kumar Sambhav Pareek***
Assistant Professors, Mody University of Science and Technology, Lakshmangarh, Sikar, Rajasthan, India

ABSTRACT

It is evident from numerous studies that e-governance in India was initiated in a haphazard manner. At the time of evolution of e-governance in India, various provinces have shown their autonomy in development of various e-governance applications. As a result numerous number of applications were developed across the nation to accomplish similar or distinct objectives of various states. But, the scenario of deployment of e-governance is still not overwhelming because India has not envisioned any centralized, futuristic approach in deployment of e-governance. The majority of applications are severely lacking in interoperability, standardization of data and having ample redundancy of data which increases vulnerability of data or information. In order to eradicate such perplexing scenario this paper undergoes the case study of Australian model of e-governance because Australia is one of the pioneer in establishing e-governance with 80% satisfaction ratio among Australians. Further, this paper suggests a prototype to get revived from this situation. It also delineates about prospects of proposed framework after its adoption.

Keywords: framework, model, interoperability, consolidation, virtualization, ICT

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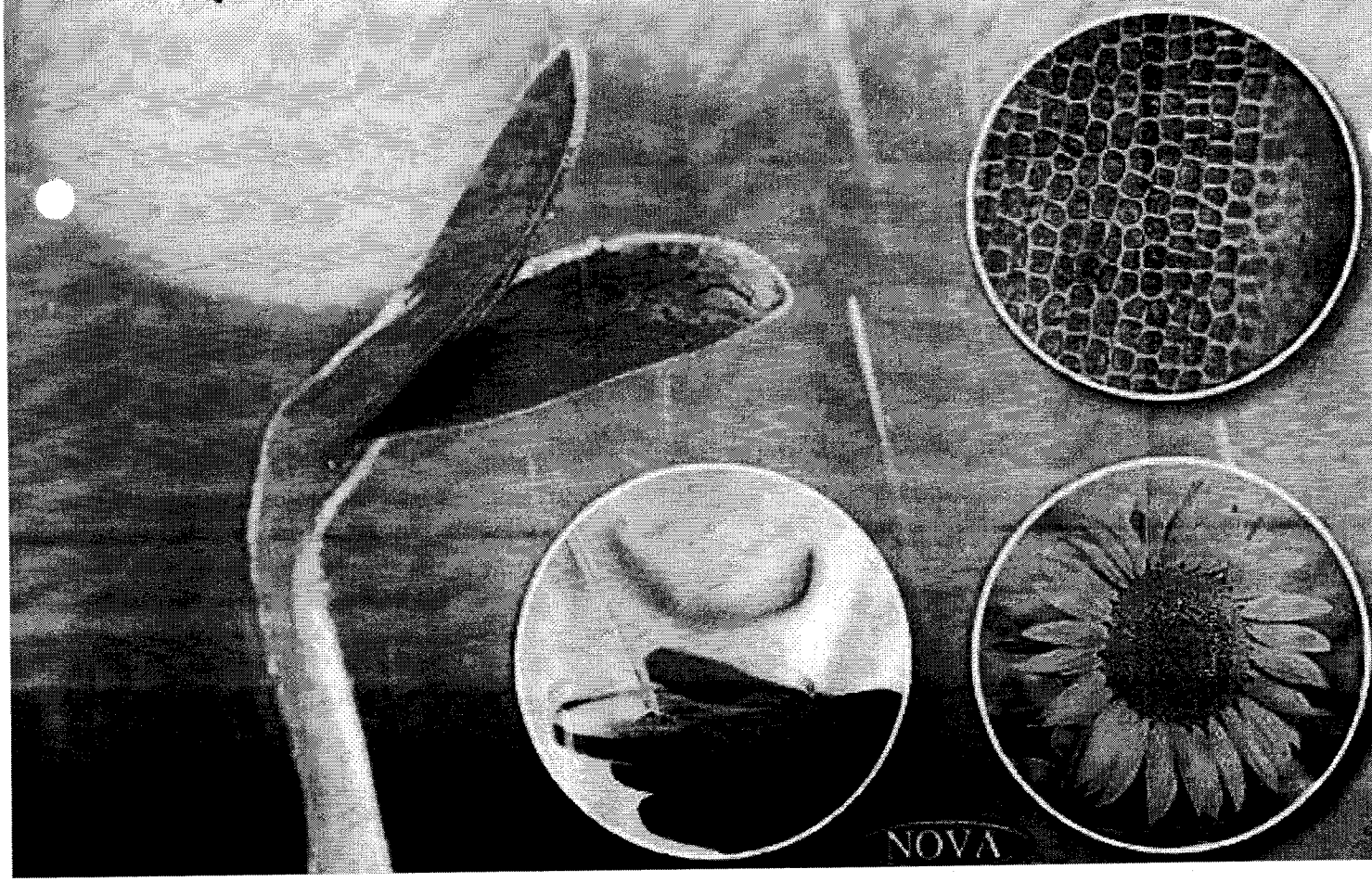

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Factors driving emergence and spread of whitefly-transmitted geminivirusesin India: introduction of genes for susceptibility and evolution of virus–vector–host interactions

Anupam Varma

Email ID for Correspondence: av.acpv@gmail.com
Advanced Centre for Plant Virology, Indian Agricultural Research Institute, Pusa, New Delhi 110012, India

Whitefly-transmitted geminiviruses (WTGs) have emerged as the most destructive pathogens of crop plants, assuming epidemic proportions even in the regions that were earli
These epidemics are a serious concern to su
The major contributory factors driving e

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Begomoviruses occurring in southern India: Translation of research for practical field application

V. Muniyappa

Email ID for Correspondence: vmuniyappa@gmail.com
Department of Plant Pathology, University of Agricultural Sciences, GKVK, Bengaluru-560 065, Karnataka State, India

Horsegram yellow mosaic virus is one of the earliest geminiviruses isolated and characterised in India. Subsequently, seven whitefly transmitted geminiviruses were differentiated and recognised. Research was carried out on these begomoviruses of
ector transmission, host range, genome
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tion, host resistance and management.

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Abstracts of the 8th international geminivirus symposium and the 6th international ssDNA comparative virology workshop, 7–10th November 2016, New Delhi

Homology modeling and structural validation of coat protein (aey68281) of croton sparsiflorus yellow vein Lakshmangarh virus

Rajnesh Prajapat[1], Avinash Marwal[2] and Rajarshi Kumar Gaur[2]*

Email ID for Correspondence: gaurrajarshi@hotmail.com
[1]Rama University, Kanpur (U.P.) India. [2]Department of Biosciences, Mody University of Science and Technology, Lakshmangarh, Sikar - 332311, Rajasthan, India

Research findings indicate that begomoviruses (family *Geminiviridae*) are geographically widespread viruses that cause destructive diseases in many crops. During an extensive survey for whitefly-transmitted geminiviruses, samples were collected from Lakshmangarh, Rajasthan (India) of stunted *Croton sparsiflorus* weed plants with small and mosaic yellow leaves. The DNA was extracted from infected leaves using CTAB method and PCR was carried out by using universal coat protein primer AC 1048 and AV 494. The PCR product was partially sequenced (JN998452) and its CDS sequence (AEY68281) was used for the in silico characterization. In the present study, the sequence coat protein sequence (AEY68281) of Croton sparsiflorus yellow vein Lakshmangarh virus was used to understand its structure, function and mechanism of the action of protein. The stereo chemical quality of the protein model was checked by using in silico analysis with PROCHECK, WHATIF, ProSA and QMEAN servers. The result of the study may be a guiding point for further investigations on coat protein (AEY68281) and its role in viral replication, infection and development of symptom. The 72.9% residue in the core region of Ramachandran plot showing high accuracy of protein model and the QMEAN Z-score of −7.07 indicates the overall model quality of coat protein (AEY68281).

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GENETIC ENGINEERING OF HORTICULTURAL CROPS: PRESENT AND FUTURE

Rajarshi K. Gaur[1], Rakesh K. Verma[1], Satyendra M.P. Khurana[2]

[1]Mody University of Science and Technology, Sikar, India; [2]Amity University Haryana, Gurgaon, India

1. INTRODUCTION

Horticulture is one of the important sectors of agriculture, which consists of fruits, flowers, vegetables, spices, tuber crops, mushrooms, bamboo, plantation crops, and medicinal and aromatic plants (Sonah et al., 2011). Biotechnological tools have revolutionized conventional plant breeding methods by providing new genotypes for breeding purposes, supplying healthy and disease-free planting material, improving fruit quality, enhancing shelf-life, increasing availability of biopesticides, biofertilizers, etc. Recent advancements in molecular biology and genetic transformation encompass broad areas of biology from the utilization of living organisms or substances from those organisms to make or modify a product, to improving plants or developing microorganisms for specific uses. Integration of specially desired traits through genetic engineering has been possible in some horticultural crops (Thakur et al., 2012). The major areas of biotechnology include tissue culture, genetic engineering, molecular diagnostics, and molecular markers/breeding, as well as development of beneficial microbes that can be adopted for improvement of horticultural crops. Mutagenesis research for horticultural crops has provided considerable knowledge regarding mutagen effects, mutation induction methods, and improved traits, and their heritability as well as current scientific and technical advances can presently deliver mutation induction with new possibilities to contribute to horticultural crop improvement (Mba, 2013; Oladosu et al., 2016). Genetic engineering is a set of techniques that enable tar[illegible]es, its isolation and recombination, to introduce new [illegible]ure in an organism (Agarwal et al., 2016). Genetic engineering offers numerous potentially useful [illegible]netic manipulations for the

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The Role of Human Rights in Peace Building

*Dr. Kumar Sambhav Pareek**
*Dr. Purnima Dadhich***

Abstract

The human rights as proclaimed by the UN Assembly find their origin in the concept of natural rights as espoused by political philosophers like Locke and Paine. "Human rights are the rights that everyone has and everyone equally by virtue of their very humanity. They are grounded in our appeal to human nature".The aim of this paper is to examine the contribution that human rights can make in terms of securing lasting peace in societies. In particular, it aims to assess how human rights can deter civil unrest through the creation of a wide range of socio-economic opportunities, as well as a sense of belonging to the nation itself. This is achieved through an assessment of the elements needed to build a nation, and the ways in which specific human rights can contribute to a process of nation-building. Human rights can be introduced in a culturally-specific manner, thereby averting the common concern that human rights are simply a means of the West imposing its views on the rest of the world.

Introduction

The human rights are universal. They are provided to members of the human society as a whole whether or not some section of them are aware of them or not. They cover legal rights which are safeguarded by the law of the land. They also comprise fundamental rights which are included in the constitution of a particular country. As such, they

* Assistant Professor, Dept. of Political Science, College of Arts, Science and Humanities

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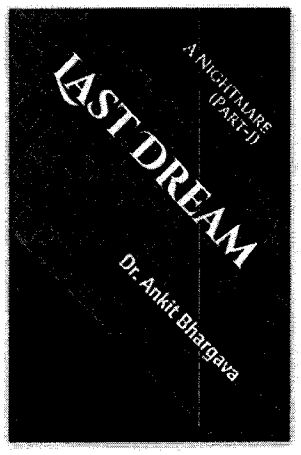

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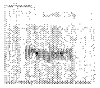

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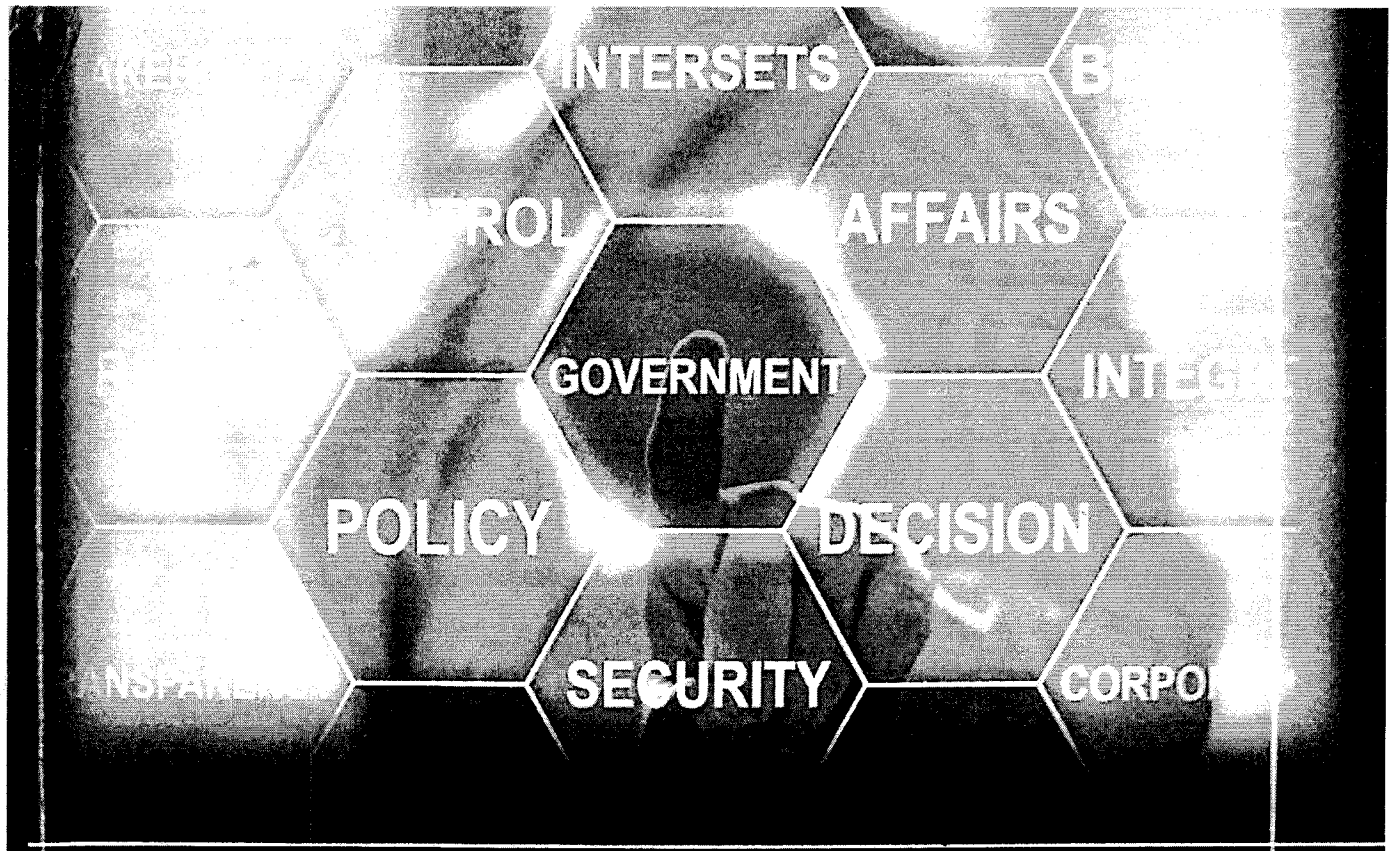

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MANGO PEELS - A POTENTIAL SOURCE OF NUTRIENTS IN THE FOOD

Nisha[1] and Vibha Bhatnagar[2]

[1]Mody University, Lakshmangarh, Rajasthan

[2]College of Home Science, MPUAT, Udaipur

Abstract:

India is the largest producer of mango which is a seasonal fruits. The fruit finds its way to the food processing industry where several products are made out of it but the peels only form a part of waste despite the fact that it is a good source of nutrients and antioxidants and can be used as natural preservative in ready to eat products. Use of ready to eat food products has increase drastically in the recent few years and to increase the shelf life of these products the use of synthetic antioxidants has gone up. Several studies have thrown light on the ill effects of synthetic antioxidant demonstrating the need for natural antioxidants. There is a need to find a natural source of antioxidant which would be cheap and would also enhance the nutritional value for the food product. Mango peels is probably a good answer to the question.

Keywords : Mango peel, cookies, ready to eat foods, antioxidant

Introduction:

Mango (*Mangifera indica*) belonging to the family of *Anacardiaceae*, is one of the most important tropical fruit and India ranks first among the world's mango producing countries accounting to about 52 % of world's mango production. In India, about 1500 varieties are grown with 1000 commercial varieties. Table 1 shows the list of various varieties (state wise) grown in India. It is rich source of antioxidants, including ascorbic acid, beta carotenoid and phenolic compound. Flavonol and xanthone glycosides as well as gallotannins and benzophenone derivatives have been demonstrated to be present mainly in the peels, though pronounced inter- varietal differences have been observed in terms of quantitative composition of these compounds [1].

As mango is a seasonal fruit, about 20 % of fruits are processed for products such as puree, nectar, leather, pickles and canned slices, among others, which have worldwide popularity. During processing of ripe mango, peel is a major by-product and several tons of mango wastes are produced annually from factories. Peels contribute to 15 – 20 % of the fruit [2]. Mango peel is not currently utilized for any commercial purposes and is discarded as a waste, becoming a source of pollution [3]. Researchers feel that this waste should be treated as a specialized residue due to high levels of phenolics, flavonoid and beta carotene content. Ajila *et al.* [4] reported that mango peel contains a number of valuable compounds such as polyphenols, carotenoids, enzymes and dietary fibre. U.S. Patent application US 2002/0187239 A1 have proposed the use of mango by-products as a source of nutritional constituents [5] observed that the higher antioxidant activity of the peel was related to the higher content of antioxidant compounds in comparison to other parts of the fruit. Bound polyphenolic and flavonoid contents were in the range of 8.1–29.5 and 0.101–0.392 mg/g, respectively, and were found to be more in ripe peel than in raw peel. Gallic, protocatechuic and syringic acids were the bound phenolic acids, and kaempferol and quercetin were the major flavonoids of the peels of Raspuri and Badami varieties. Kalpna [6] also reported that mango peel showed best antioxidant capacity may be because of its higher phenolic content which normally is the major determinant of antioxidant potential of food plants. Therefore, mango peel may become important as a cheap and noticeable natural source of compounds with health protective potential, which can be used in pharmaceutical, nutraceutical and food preparation. Kim *et al.*

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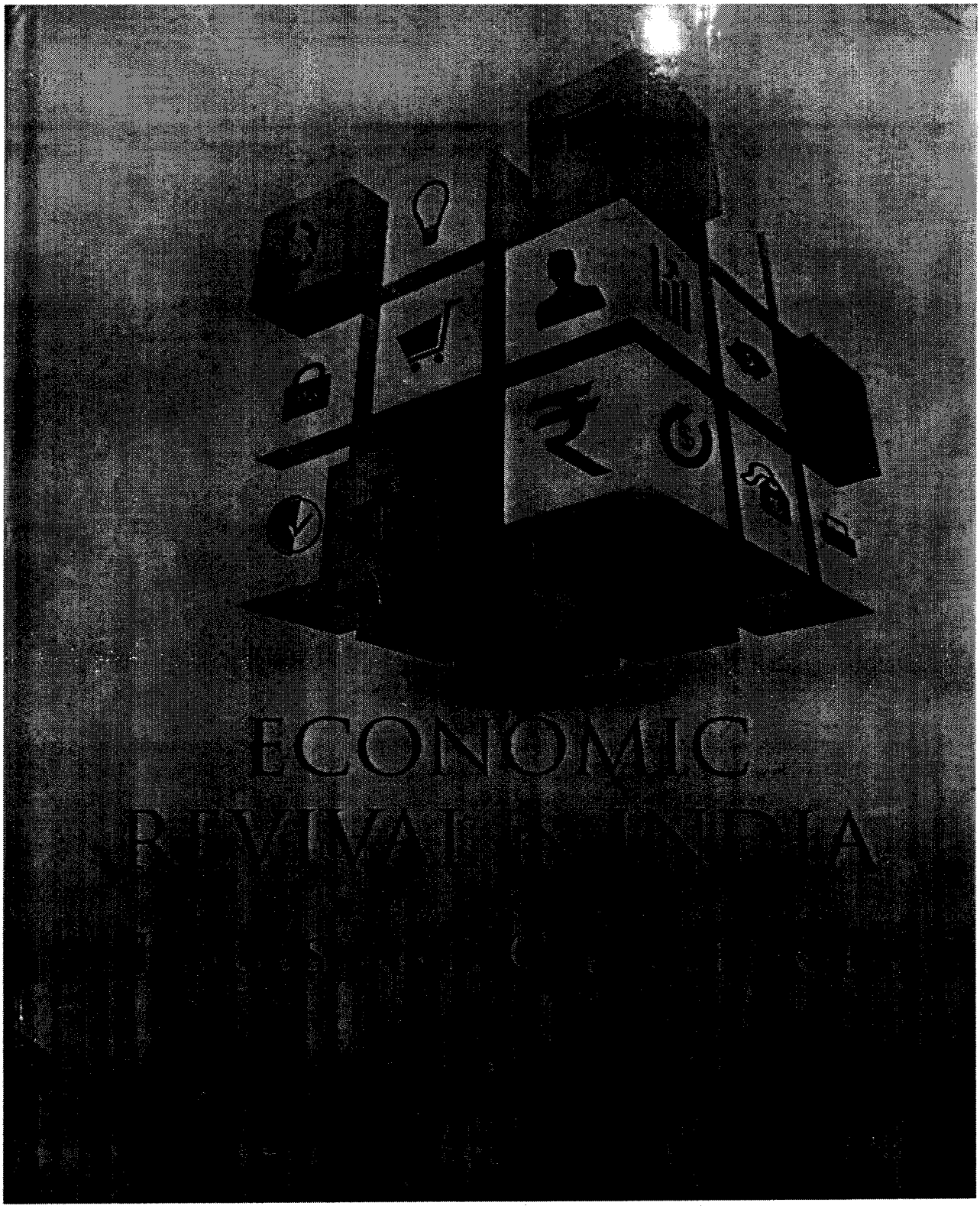

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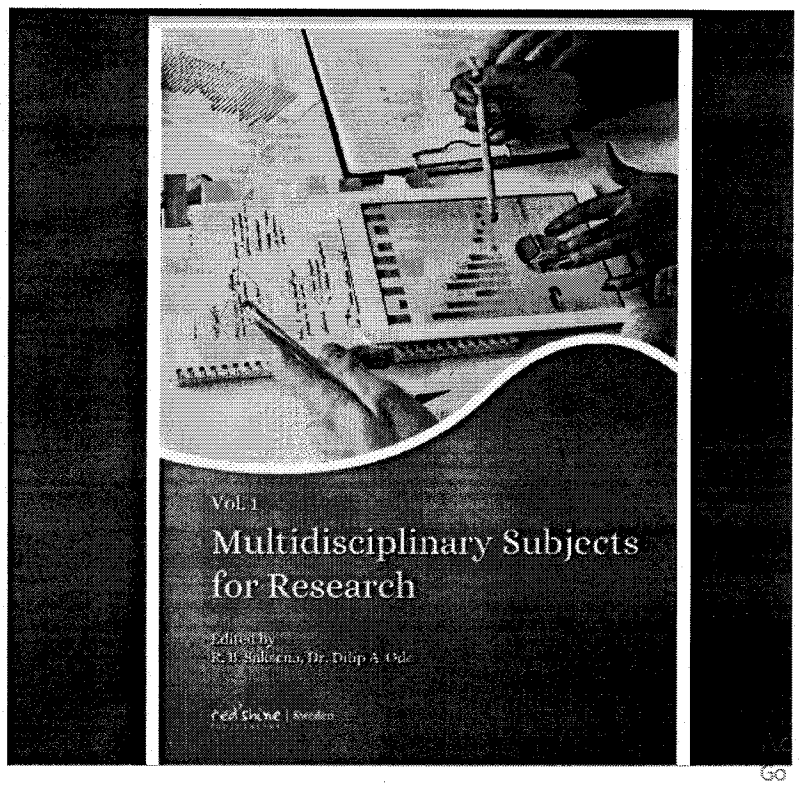

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Violence Against Women and Criminal Justice System

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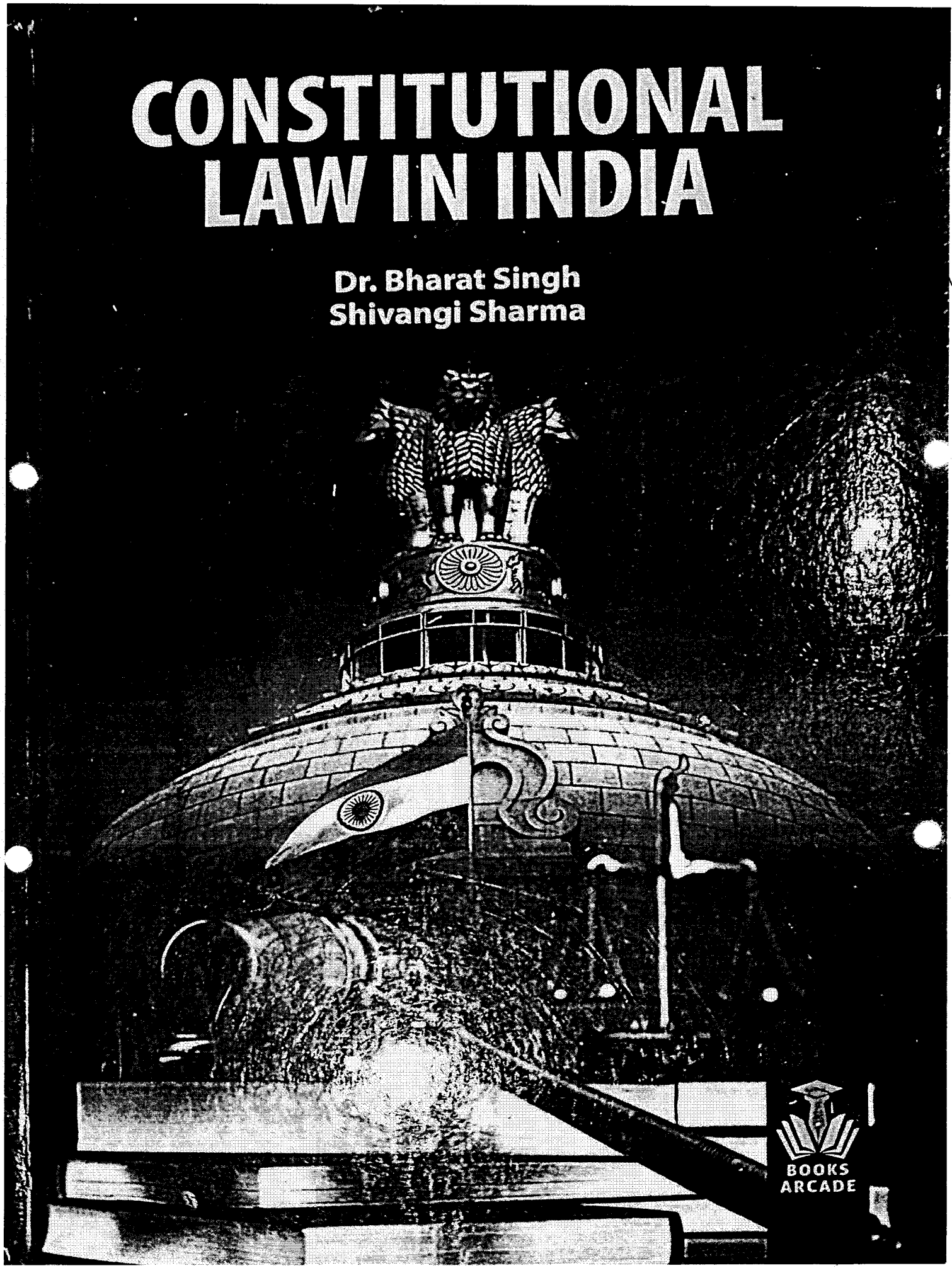

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...constant were also increased with increasing values ions fluences.

KEYWORDS: Polystyrene, Nanocomposite, X-Ray Diffraction, Differential Scanning Ca... Temperature.

Noise Pollution, Right to Health and Environment

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...seem as harmful as the contamination of air or water, but it is a pollutio... to health and can contribute to a general deterioration of environmental q... unwanted sound. All sound is not noise. It may be considered as music to ... another. Noise Pollution is one type of the volume which makes di... very harmful for the people who are breathing and living on this earth. ... forms. Industrial volume and loudspeaker music. Noise Pollution is ... physical and mental health and irritating and annoying to the living be...

"Down with noise, otherwise noise will keep you hearing down."

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Keywords: Noise Pollution, Health, Environment

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RAVI SHARMA[1], AJA...

[1]Professor, Deptt. of Chemistry, S.M.P.B.J. Govt. College, Sheoganj, 3070...

[2]Head, P. G. Deptt. of Chemistry, Govt. College, Sirohi-307...

...sive and convenient quantitative method for the estimation of sulph... (SNP) has been investigated. SNP...

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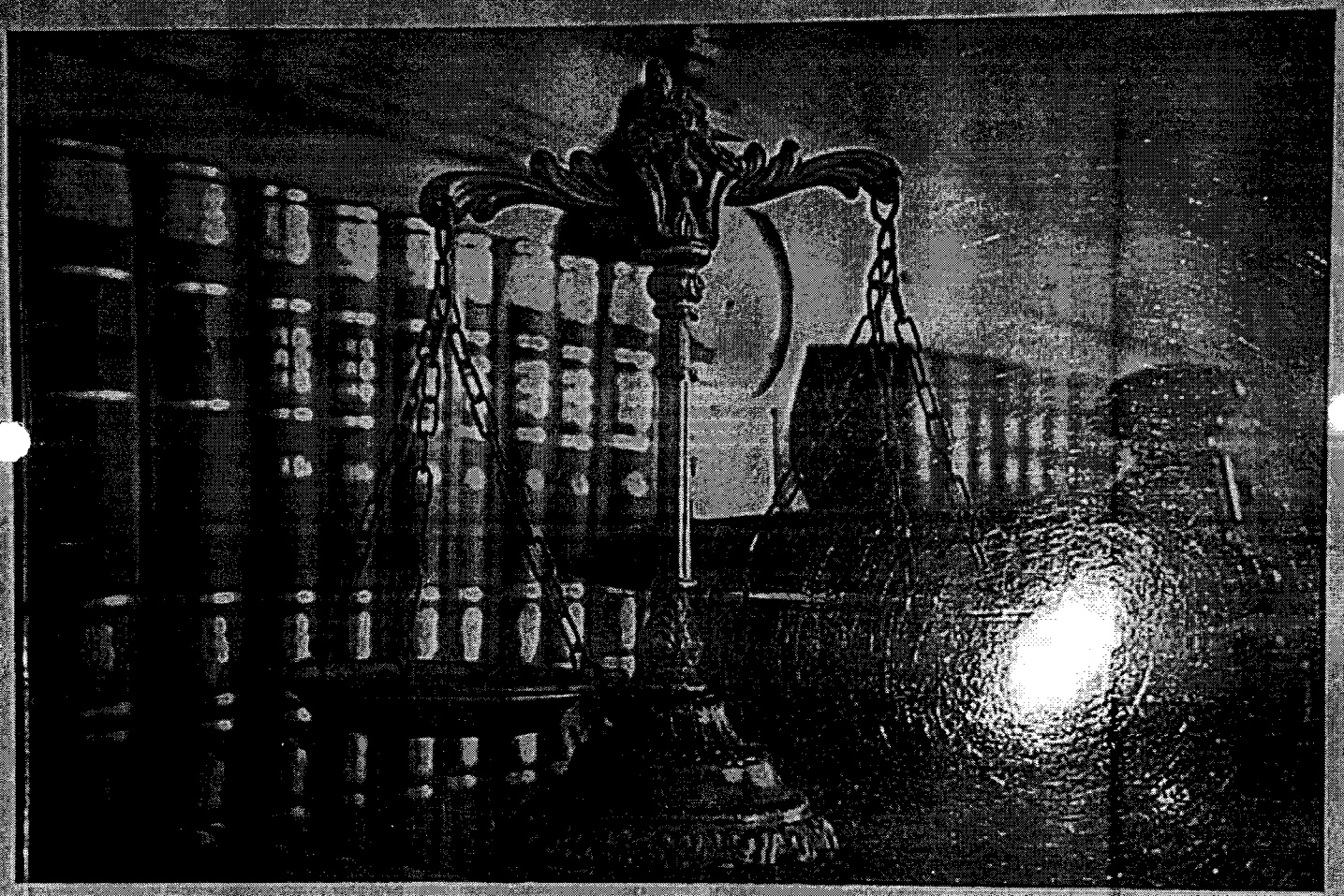
An Indian Perspective



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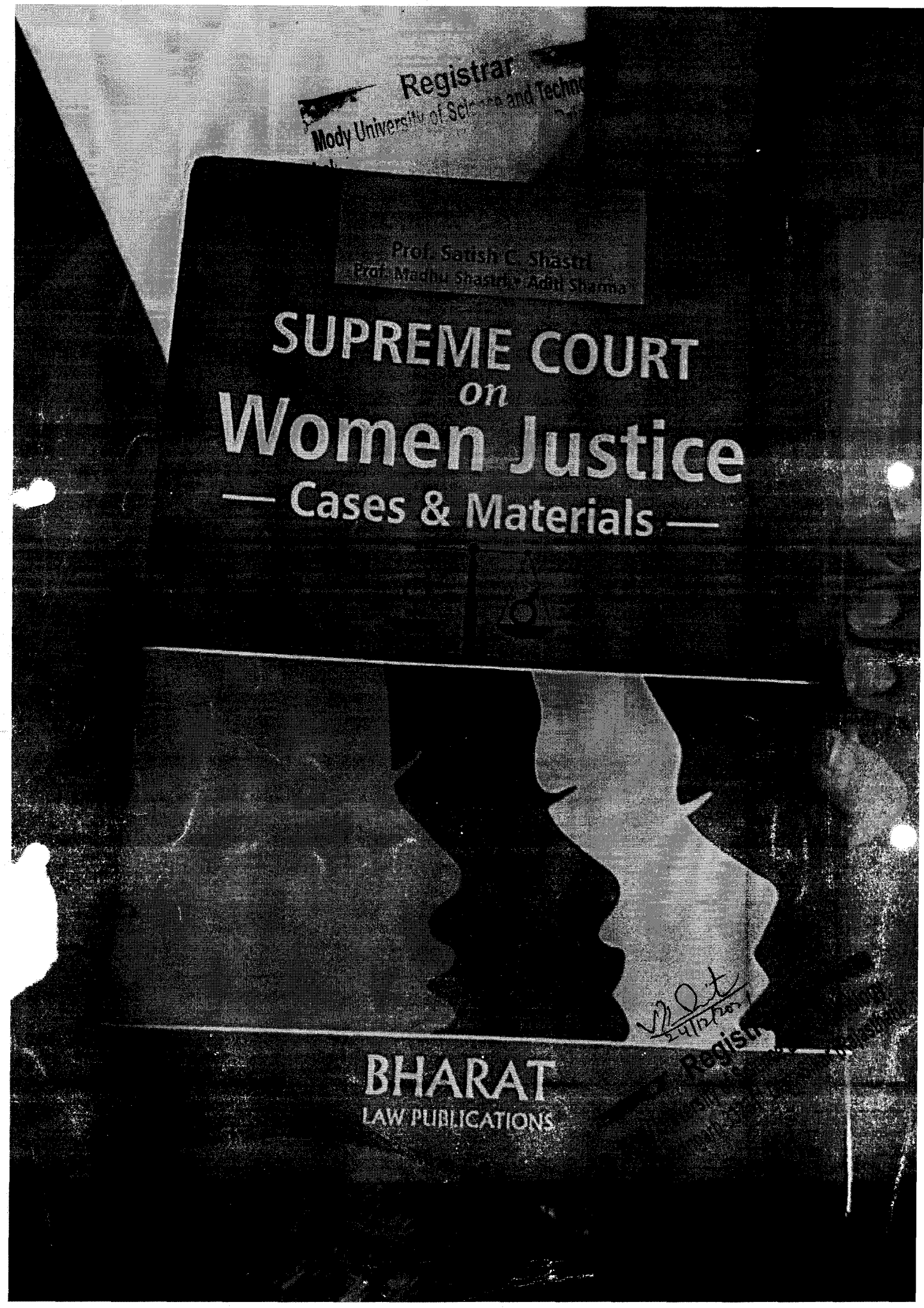
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Networking of Mutagens in Environmental Toxicology

Editor: Dr. Kavindra Kumar Kesari

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Print ISBN: 978-3-319-96510-9

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2019 | OriginalPaper | Chapter

System Network Biology Approaches in Exploring of Mechanism Behind Mutagenesis

Authors: Anukriti, Swati Uniyal, Anupam Dhasmana, Meenu Gupta, Kavindra Kumar Kesari, Qazi Mohd. Sajid Jamal, Mohtashim Lohani

Abstract

Mutagenesis is the alteration of the genetic material by the help of mutagens. Mutations that are capable of inducing any diseases have a large impact on the biological systems. Whenever mutation occurs, it not only affects any particular gene or protein, but also affects the whole system related to that gene. Changes in one system will further bring out changes in the adjacent systems, which works in coordination with the mutated system. Thus, a single mutation can have an impact on more than one system. System network biology helps in providing a new perspective of inspection of these biological systems in the form of networks with the help of mathematical representations. In this chapter, we deal with different properties of the networks that help in analyzing the network-graph and finding the most probable network that best describes the process. Here we tried to investigate the candidate protein molecule that may act as a target protein with the help of network analysis. For this, we used various datasets and software that would be used in the reconstruction of different biological networks and pathways.

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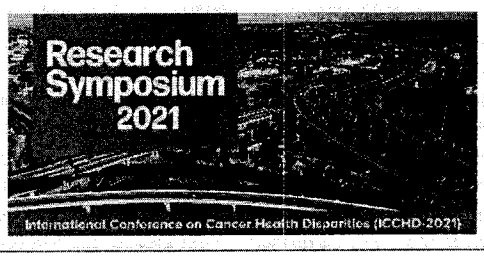

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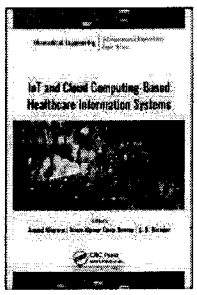

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Notes: 88 b/w illustrations

This book features new and innovative research on the positive contributions of IoT and cloud technology healthcare information systems for the improvement of patient care and disease management. Highlighting the challenges and difficulties in implementing IoT and cloud technology in the healthcare field, the volume focuses on theories, systems, methods, algorithms, and applications. The chapters showcase the interface between e-health and communication technologies and their beneficial contribution to building efficient and secure healthcare information systems.

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This informative volume will be a valuable resource for academicians, professionals, engineers, technology designers, analysts, and students involved in the various fields that are involved with information technology and biomedical engineering in healthcare and medicine.

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ABOUT THE AUTHORS / EDITORS:

Editors: Anand Sharma, PhD
Assistant Professor of Computer and Engineering Science, Mody University of Science and Technology, Lakshmangarh, India

Anand Sharma, PhD, has been working at Mody University of Science and Technology, Lakshmangarh, India, for last 10 years. He has more than 14 years of experience in teaching and research. He has been invited to several reputed institutions, including ISI-Kolkata, IIT-Mumbai, IIT-Jodhpur, IIT-Delhi, KU-Kota, etc. He is an academician associated with the field of education and provides resources to enhance knowledge and to promote understanding of fundamental as well as applied concepts in the respective research area. Dr. Sharma has pioneered research in areas of information security, IoT, WBAN, and machine learning. He is a member of IEEE, IET, ACM, and IE (India) and a life member of CSI and ISTE. He is serving as secretary of CSI-Lakshmangarh Chapter and as Student Branch Coordinator of CSI-MUST Student Branch. He has organized more than 15 conferences, seminars, and workshops; has chaired more than eight special sessions; and has delivered six keynote addresses at international conferences. He serves in an advisory capacity for several international journals as an editorial member and for international conferences on the technical programming and organizing committees. Dr. Sharma received his PhD degree in Engineering from MUST, Lakshmangarh, India; his MTech from ABV-IIITM, Gwalior; and BE from RGPV, Bhopal, India.

Hiren Kumar Deva Sarma, PhD
Professor, Department of Information Technology, Sikkim Manipal Institute of Technology, Sikkim, India

H. K. D. Sarma, PhD, is presently working as Professor in the Department of Information Technology, Sikkim Manipal Institute of Technology, Sikkim, India. He was appointed as a Visiting Fellow by various universities, including North Eastern Hill University, Shillong; Assam University, Silchar; and Mizoram University, Aizawl, India. He has more than 23 years of teaching experience and research. He has successfully completed research projects funded by AICTE and the Department of Electronics and Information Technology, Government of India. He has received a Young Scientist Award of URSI (International Union of Radio Science) during the General Assembly of URSI in 2005, held at New Delhi, India. Professor Sarma has more than 70 international publications in peer-reviewed journals, book chapters, and conference proceedings. He has edited books published by ACCB Publishing (England) and Springer. He has presented his research in many places outside India, including New Mexico (USA); Berkeley, California (USA); and Japan. He has served as reviewer for several journals, including *Wireless Personal Communications*, *Neural Computing and Applications*, *Network and Computer Applications*, and *IEEE Systems Journal*.

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He has also served as a book reviewer for Pearson Education India and Tata McGraw Hill India. Dr. Sarma received his PhD (Computer Science and Engineering) from Jadavpur University, Kolkata, India, and his MTech and BE from Tezpur University and Gauhati University, India, respectively.

S. R. Biradar, PhD
Professor, Information Science and Engineering Department; Deputy Dean (Academic Programs, SDM College of Engineering and Technology, Dharwad, Karnataka, India

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