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## INFLUENCE OF BACTERIA ON RAISING OF PLANT NUTRIENTS ABSORPTION FROM SOIL

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**Abstract:** Investigating various bacteria on elevating of plant nutrients absorption from soil can be useful for raising of plant's growing and phytoremediation. In this study, *Brevundimonas diminuta* (bacteria 5) and *Alcaligenes faecalis* (bacteria 60) were examined for their ability to increase the plant nutrients absorption of *Scirpus mucronatus* in soil. Three sample treatments were utilized in this study. Two of the treatments enriched with bacteria 5 or bacteria 60, and the third treatment was growth without the addition of bacteria (control sample). After 1 and 42 days of enrichment, the *Scirpus mucronatus* was prepared, and the B, C, Ca, Cu, Fe, K, Mg, Mn, Mo, N, Ni, P, S, and Zn concentrations were determined using inductively coupled plasma mass spectrometry. To evaluate statistical differences of elemental concentration in our results, the one-way ANOVA test was used. Comparison of elemental concentrations in our samples demonstrated which there were statistically significant differences between concentration of all elements in bacterium and control samples except for Mn and Mo (for all elements,  $p > 0.05$ ). Moreover, our findings was proved the concentration of most of the elements in bacteria 5 and bacteria 60 were strongly correlated to the results in control sample using Pearson's correlation test ( $R > 0.3$ ). The results showed that bacterium increased the plant nutrients absorption from soil.

**Keywords:** Plant nutrients, *Scirpus mucronatus*, *Brevundimonas diminuta* and *Alcaligenes faecalis* bacterium, ICP-MS.

## AN INTEGRATED SECURED NETWORK MANAGEMENT SYSTEM OF MOBILE COMMUNICATION SOLUTION USING SSL- ENCRYPTION MMSE WITH GIS

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**Abstract-**With the construction of mobile communication network system, the need of building an integrated network management system based on specialized network management using GIS (Geogra Fmelyphical interface system) technologies become more and more necessary. By analyzing the current status of mobile communication network management system, this paper proposes that using ArcGIS, Java, Flex and other technologies to implement the integrated network management system. It also explains about the secured integraton and error reduction during integration using MMSE (minimum mean square error) also with the SSL (secure socket layer) Encryption

**Keywords-**GIS; MMSE;, SSL Encryption; Wireless Mobile Solution

## AN ASSESSMENT OF STUDENTS' ATTITUDES TOWARD WRONGFUL CONVICTIONS

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**Abstract:** The study attempts to assess students' attitudes toward wrongful convictions. It tried to replicate Ricciardelli, Bell and Clow's (2009) Canadian study using an undergraduate student sample from the United Kingdom. This will help to understand whether the students' attitudes toward wrongful convictions differ between the two studies. This study adopts a between group design, in which one 150 participants were involved. The attitudes of 81 Criminal justice students and 69 Noncriminal Justice Students were compared. The study also assessed students' attitudes according to year of study, in which 74 year one students' were compared with 71 year three students. Additionally, attitudes were examined according to gender. The findings revealed that criminal justice students differ from noncriminal justice students in their attitudes toward wrongful convictions. Years three gave higher estimates of the frequency of wrongful convictions and were more supportive for the Blackstone ratio than year one students. Nevertheless, year one students were more supportive of the need to train the criminal justice professionals than year three students. The result showed no difference between the participants' confidence in the criminal justice system. No differences were found between males and females in terms of their attitudes toward wrongful convictions. The implications of the findings were discussed.

**Key words:** Wrongful conviction; Criminal justice; Blackstone ratio.

## PRODUCTION AND CHARACTERIZATION OF ZERO WASTE BIODIESEL FROM GREEN ALGAE (CLADOPHORA GLOMERATA)

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**Abstract:** Biodiesels are one of the attractive renewable energy sources that could be used to replace the conventional sources. Recently algae are emerging as an alternative feedstock sources for producing biodiesel. The main objective of this study was to produce and characterize zero waste biodiesel from the green algae *Cladophora glomerata*. The algae oil extraction was carried out using three different techniques (Soxhlet, refluxing and shaker). Statistically no significant ( $p \leq 0.5$ ) difference was observed in the amount of oil extracted by Soxhlet and refluxing methods. However in terms of extraction time refluxing method was found to be much better than Soxhlet. The total oil extracted was transesterified for production of biodiesel using NaOH as a catalyst. The crude biodiesel displayed desirable physical and chemical properties meeting international standards set by American Society for Testing and Materials (ASTM) and European standards (EN). Briefly, specific gravity, acid value, iodine value, ash content and calorific value of algae biodiesel were within the specification of ASTM and EN. The analysis of fatty acid methyl ester composition showed, 62.96 % 9-octadecenoic acid methyl ester, 26.98 % Hexadecenoic acid methyl ester and 10.05 % Octadecenoic acid methyl ester. In an attempt to produce zero waste biodiesel, two waste streams were combined to form glycerin pellet. The measured energy content of glycerin pellet was found to be comparable with fire wood. Therefore the green algae *Cladophora glomerata* could potentially be an important source of zero waste biodiesel. Particularly the use of glycerin pellet as an alternative source of fuel could mitigate the problem of deforestation in developing countries where fire wood is the major source of fuel.

**Key words:** Algae oil; biodiesel; transesterification; glycerin pellet.

## CONVENTIONAL AND INTELLIGENT CONTROLLER FOR QUARTER CAR SUSPENSION SYSTEMS

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**Abstract:** Optimal vehicle handling, good driving pleasure, best comfort for passengers, effective and efficient isolation of road noise and vibration in suspension systems has been a key research area. In this paper two control techniques; a conventional Proportional Integral and Derivative (PID) and intelligent Fuzzy Logic Control (FLC) schemes are proposed and compared for the passive quarter car suspension system. MATLAB Simulink environment was used for both designs, investigation of the effects of the two control techniques, their comparison and verification of the results obtained and the results are shown to show the effectiveness of the controllers. Index Terms- Proportional Integral and Derivative (PID), Fuzzy Logic Control (FLC), Quarter car.



## INVESTIGATION OF MICROWAVE APPLICATION IN AGRICULTURAL PRODUCTION DRYING

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**Abstract:** Drying is one of the conventional methods in order to maintain the food in which due to lower product moisture content, it minimizes the rate of reactions and undesired microbial activity and increases the storage time by maintaining the appearance of products. In the present research, In order to evaluate drying of apple slices, undergoing microwave method, one microwave drier was designed and manufactured. In the manufactured drier, one circuit was employed for feeding Magnetron lamp with nominal power of 1.3 kW and frequency of 2.45 GHz in order to produce microwaves. This drier is capable of controlling microwaves power and during drying process, changes in mass and total consumption power can be simultaneously measured. The research results showed that increasing microwaves power causes the drying time to considerably reduce and drying rate to increases. minimum drying time occurs in the highest microwave power But after reviewing the images on the product quality testing, it is determined that the quality of products can be impaired in high microwave power.

**Keywords:** Drying, microwave power, drying time, drying rate, apple.

## DESIGN AND EVALUATION OF NEW STRATEGY IN HUMAN GAIT RECOGNITION

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**Abstract:** In this paper considering a new human gait recognition system based on Radon transform which gives a high precision recognition rate. Feature extraction in this work is based on the Radon transform of binary silhouettes .In this paper for each gait sequence the transformed silhouettes are used after background estimation and human detection to make each related templates. Set of all templates is used to subspace projection by PCA method. Consequently feature vectors are used to multilayer perceptron neural network for final decision. Experimental results is performed over a suitable data base include 10 samples for ten person which each sample have 130 frames approximately. 97% recognition rate of the proposed system is obtained over 10 samples test patterns.

**Keywords:** Human Gait recognition, Background estimation, Radon Transform, Y-T plan, X-T plan, Feature extraction, PCA, Neural network classifier.

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## 10-ghz Antenna Array with Substrate Integrated Waveguide Planar Feed Network

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**Abstract:** A 10-GHz tapered slot antenna (TSA) array of 1×8 elements is designed and fabricated using substrate integrated waveguide (SIW) technology. The SIW binary splitters in the feed structure is utilized to minimize the feed structure insertion losses and achieve a broadband performance in X-band range. Unlike previous antennas with SIW technology, the proposed antenna array has wider impedance bandwidth (BW) and much better gain. The fabricated antenna array has dimension of 190×130 mm<sup>2</sup>. The simulated and measured impedance B and radiation patterns are studied and compared to demonstrate validity of this design.

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## DESIGNING OPTIMAL CONTROL OF CONSTRAINED DC-DC POWER CONVERTER USING PARTICLE SWARM OPTIMIZATION

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**Abstract:** In this paper, a new algorithm which is a combination of model predictive control with particle swarm optimization is presented to optimal control of constrained DC-DC power system modeled as piecewise affine. Two problems are being addressed: one is deriving the control law of constrained final time optimal control for DC-DC power system based on model predictive control over polyhedral regions and the other is using particle swarm optimization method to reduce the number of polyhedral and improve DC-DC performance simultaneously. Simulation results demonstrate the potential advantages of the proposed methodology and illustrate that how the complexity of optimal control law can be efficiently reduced along with improvement of DC-DC performance using particle swarm optimization.

**Keywords:** Particle swarm optimization, Complexity reduction, Constrained final time optimal control, Piecewise affine system, DC-DC power system.

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# DESIGNING, AND STATIC AND DYNAMIC EVALUATION OF TRACTOR-BACK SPRAYER WITH VARIABLE RATE TECHNOLOGY (VRT)

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**Abstract:** In recent years, concerns about utilizing various chemical toxicants in different sections of agriculture and also environmental pollutions increased and also convinced researchers and scientists in agricultural sector to discuss and offer new methods related to improve the toxicant management. One of the main disadvantages of increase the use of chemical toxicants in agriculture is transfer chemical materials to food through the soil and cause liver or respiratory cancer. Nowadays, in most countries, spraying fertilizer in farm fields is done without regard to changes in soil toxicant and also need of plant to toxicant and carried out uniformly to all parts of the farm and finally toxicant use and environmental pollution would increase. In developed countries, development of precision farming and using Variable Rate Technology (VRT) is growing rapidly. One of the vital nutrients for plant growth is nitrogen (N). Due to the lack of nitrogen in most agricultural soils, utilizing of nitrogen toxicant in agriculture is more than all other toxicants. On the other hand, excessive consumption of nitrogen would have negative effects on water quality and ecosystem of living organisms. In this paper, designing, construction and evaluation of chemical liquid toxicant spray with Variable Rate Technology (VRT) were carried out and it's used two types of electric valves in Variable Rate Technology (VRT). This technology has an intelligent processor system that spread the toxicant based on soil needs. System performance has been evaluated at different temperature and humidity. Finally, it has been concluded that valve opener have a stepper motor and busted water which have higher performance speed rather than analog gas valve cutter. In addition, humidity and ambient temperature had little effect on the system and toxicant spraying by the system saving \$15 per acre and also is useful than traditional methods. By accurate available toxicant at the farm level, it's possible to plenty of products would die and has maximum environmental negative effects.

**Keywords:** sprayer, Variable rate, Electric valve.

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## RELATIONSHIP BETWEEN ECONOMIC GROWTH AND STOCK MARKET DEVELOPMENT IN PAKISTAN

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**Abstract:** Stock market is considered to be a sound indicator of the economic growth of a country. And that's why industrial bodies, government advisors including State Bank keeps an eye on the performance of the stock market of a country. This study will explore the relationship between economic growth and the stock market development in Pakistan from the year 2000 to 2013. Stock market development will be studied through total size of the stock market, its return and total value of traded shares derived as the stock market liquidity. Data on daily basis will be collected from KSE website, website of State Bank of Pakistan and bulletins of business recorder. Multiple regression analysis and t-test will be used for analyses. Augmented Dickey-Fuller testing will be used to check out the stationary of time series data. We hope that this research will be beneficial for the financial and the economic policy makers of Pakistan.

**Keywords:** Stock Market, Economic Growth, Size and Liquidity of Stock Market, Pakistan

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## ECOLOGICAL-ECONOMIC VALUES OF NATURAL CAPITAL AND SUSTAINABLE DEVELOPMENT

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**Abstract:** Natural capital is the extension of the economic notion of capital as applied to goods and services relating to manufactured means of production. Natural capital comprises a stock of natural ecosystems yielding at any time, a flow of valuable ecosystem goods and services. Natural capital can expand or contract with gain or loss of knowledge about the natural environment. The structure and diversity of ecosystems are important components or tools for the elucidation of natural capital in economic terms. Natural resources and ecosystems are valued by assigning economic values to them thereby rendering them as vital economic internalities (rather than externalities). In this regard, the economy of the world (a portion of the larger economy of natural resources) plus the total global ecological/ecosystem services like erosion control, recycling of wastes or water treatment, form a continuous sustainable system in which all things, phenomena and events, have value. This paper addresses a goal of sustainability- the idea of keeping the environment as pristine as naturally possible. An unsustainable situation occurs when Natural Capital (the sum total



of nature's resources) is used up faster than it can be replenished. It suggests the realization that Sustainability requires that human activity only uses nature's resources at a rate at which they can be replenished naturally. It identifies the relationship between the concept of sustainable development and that of the Carrying capacity of the environment. It recommends the adoption of strategies to avert natural capital depletion. Strategies entailing the internalization of ecological/natural phenomena into economic principles, decoupling the economy, upholding ethical consumerism, green economy, ecomunicipality and generally ensuring eco-efficiency within the context of the relationship between economics and natural capital.

**Keywords:** Ecological-economic value, Natural capital, Ecosystem services, Carrying capacity, Sustainability.

## **DETERMINANTS OF STOCK PRICE VOLATILITY IN KSE: THE MEDIATING ROLE OF CORPORATE DIVIDEND POLICY CASE OF PTCL AND WORLD CALL**

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**Abstract:** The paper will investigate the determinants of stock price volatility in Karachi Stock Exchange (KSE) indexed (KSE-100), and discuss the Case of two selected registered telecommunication firms i.e. PTCL and World Call. The research will measure volatility by calculating the standard deviation of the annualized returns of stock price over a given period of time and also investigate the role of corporate dividend policy in determining the volatility of stock prices. Study will focus on price volatility, earning volatility, dividend yield, leverage and firm size. Data will be collected for the last five years from 2008 to 2013. Data will be analyzed on SPSS software and Microsoft Excel. The results and findings will reveal the significance of stock price volatility of PTCL and World Call and the role of corporate dividend policy in determining the volatility of stock prices.

**Keywords:** determinants of stock price volatility, corporate dividend policy, price volatility, dividend yield, earning volatility, leverage, firm size, Telecom firms (PTCL and World Call)

## **FACTORS AFFECTING ADAPTIVE THERMAL COMFORT OF PRIMARY SCHOOL CHILDREN IN MANIPAL, SOUTH INDIA**

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**Abstract:** The predominant factor that affect the thermal comfort of any human being is the microclimate of that region. Other factors are such as building envelope, physical activities, food habits and clothing.

This paper focusses on the compilation of records of various ranges of these five factors that exist in Manipal in the recent years.

Microclimate is evaluated from the existing records available about the region. Various types of buildings both residential and school buildings are studied in terms of properties of materials and planning principles.

Food habits of children depend on the various culture of people living in Manipal as well as the availability of food items. The effect of these food intake in terms of heat and energy is briefly detailed out.

Clothing habits of children in a normal level is also observed and analysed.

ASHRAE standard discusses about the different comfort level of people in different set up. This paper opens up a venue to experiment on the adaptive thermal comfort level ranges at which normally the primary school children at Manipal should feel intellectually active and pleasant.

Enhancing the Adaptivity of Encryption for Storage Electronic Documents

**Keywords:** Adaptive Thermal Comfort of Children, Microclimate of Manipal, Building Types of Manipal, Population and Food Habits, Clothing.

## ENHANCING THE ADAPTIVITY OF ENCRYPTION FOR STORAGE ELECTRONIC DOCUMENTS

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**Abstract:** The rapid advancement in the domain of information technology has increased the amount of our sensitive documents stored on disk drives and removable storage media. Although many encryption applications and software protection systems are available to provide trusted protection of those documents, they often fail to pay sufficient attention to the increasing challenges of satisfying security implications on storage domain. This, thus, results in greater chances for security breaches and intrusion attacks, in addition to the greatly increased costs to business and end users. Developing a storage protection system based on involving the reuse approach in every phase of a system development can help in analyzing risks and security policies, identifying threats, and determining security requirements. This paper discusses the value of reusability for specifying security requirements of current storage cryptographic systems. Then, we propose a cryptographic model based on a filter

driver technology focuses on protecting storage document files. Such proposed model can be able to resolve obstacles to the security requirements identified, and to meet its goal of a high assurance storage protection system.

**Keywords:** Reusability, file system filter driver, transparent encryption, stored documents protection.

## ANALYSIS MARKETING COMMUNICATION STRATEGY KAMPOENG BATIK KAUMAN PEKALONGAN

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**Abstract:** The theme of this research is "Analysis Marketing Communication Strategy Kampoeng Batik Kauman Pekalongan". The purpose of this study describes marketing communication strategy which performed by Kampoeng Batik Kauman Pekalongan and Government. This study used a descriptive case study method. This study used primary data are in-depth interviews, while the secondary data used document. The technique used the validity of data triangulation source.

The results of this study indicate that Kampoeng Batik Kauman use advertising, sales promotion, event, public relation, direct marketing, and personal selling to promote batik industry. The success of these activities effect on the level of consumers awareness about benefits, and product attributes of SME (Small and Medium Enterprises) Kampoeng Batik Kauman. Meanwhile Government use advertising, event, public relation, and direct marketing to promote batik industry. The success of these activities effect on the level income of businessman and develop tourism.

**Keywords:** Strategy, Marketing Communication, Small and Medium Enterprises.

## Analyze and Design of Green Computing in Health Care Center

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**Abstract:** The regular data access control system is to maintain the selective sharing composite Personal Health Records (PHRs), cumulating from various healthcare providers in cloud is one of the open researches in the current IT trend. A PHR service permit a patient to creating, managing, and controlling the personal health data in one place through the web, which has made the storage space, retrieval, and distribution of the medical information more efficient. Specially, each patient is secure the full control of medical records and can share the health data with a large range of users with healthcare contributors and family members. Due to the high cost of building and keep up dedicated data centers, many PHR services are outsourced to make available by third-party service providers. Decentralized data centers the emission of CO<sub>2</sub> is high and the environment get polluted, by making reusable datacenters the

information's or data's can shared through the PHR's. By this we can avoid the high emission of CO<sub>2</sub>, the flexibility; availability and compatibility are increases as per Moore's law. To share the modern information's from other data center data with reusable resource and e-Health Care Service.

**Keywords:** Green computing, Heath Care, Data Center

## Normalized Clustering Algorithm Based on Mahalanobis Distance

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**Abstract:** FCM (fuzzy c-means algorithm) based on Euclidean distance function converges to a local minimum of the objective function, which can only be used to detect spherical structural clusters. The added fuzzy covariance matrices in their distance measure were not directly derived from the objective function. In this paper, an improved Normalized Clustering Algorithm Based on Mahalanobis distance by taking a new threshold value and a new convergent process is proposed.

**Keywords:** Normalized, Mahalanobis distance, Clustering algorithm

## Concept Diagram of Algebra Learning

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**Abstract:** Each cluster of data can easily describe features of knowledge structures. The purpose of this study is to analyze the concept diagram of Abstract Algebra concepts for university students and clustering based on concept proficiency. Besides, fuzzy clustering on concept proficiency expresses the cognitive characteristics. Methodology in this study is CAISM. it shows CAISM can provide useful information for cognition diagnosis. According to the results, some suggestions and recommendations for future investigation are discussed.

**Keywords:** Concept Structure, CAISM, Cognition Diagnosis

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## EFFECT OF THE SEQUESTERING AGENTS ON THE LIGHT FASTNESS OF THE REACTIVE DYES

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**Abstract:**

One of the characteristic of sequestering agent is to reduce the hardness of water in order to make it fit for the use of in textile processing. Some of the sequestering agents have slightly adverse effect on the light fastness of reactive dyes; keeping in view this statement it is recommended that E.D.T.A and Sodium Hexa Meta phosphate may be widely used where there is non-availability of soft water which gives excellent results in pre-treatment and dyeing. Using the E.D.T.A and Sodium hexa Meta phosphate with different concentration with Reactive dyes (i.e. Cibacron), the effect on light fastness has been observed which is recorded through research work by plotting the graphs and making tables

**Keywords:** Textile, sequestering, E.D.T.A, Sodium Hexa Meta phosphate

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## Evaluation of *Haemoproteus columbae* prevalence in Iranian pigeons

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**Abstract:** *Haemoproteus* is a genus of protozoa that occurs greatly in avian populations, usually found in the peripheral blood of hosts from anywhere in the world. It is usually non-pathogenic and in pigeons only causes disease when they are stressed. The aim of this study was to determine the prevalence of *Haemoproteus columbae* in Iranian pigeons by a molecular technique (PCR). A study was done on 220 pigeons from September 2012 to April 2013 in the southwest of Iran. Blood samples were obtained from wing vein. This present study showed that the prevalence rate of *Haemoproteus columbae* was 23.18% (51/120). Considering the lack information about the prevalence of pigeon blood parasites in the southwestern of Iran, more precise molecular surveys seem to be necessary regarding the presence of *Haemoproteus columbae* parasite in Iranian pigeons.

**Keywords:** *Haemoproteus colusmbae*, Iran, PCR

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## PCR detection of *Toxoplasma gondii* from Iranian Native Cattle

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**Abstract:** Infections by the protozoan parasite *Toxoplasma gondii* are widely prevalent worldwide in animals and humans. *T. gondii* is the causative agent of toxoplasmosis, one of the most prevalent parasitic infections to humans and domestic animals. The disease occurs throughout the world and also in Iran. The present study aimed to determine of *T. gondii* isolates from native cattle in south west Iran by molecular methods. In this study, 155 blood samples were collected and genomic DNA was extracted using DNA extraction Kit (Cinna Gen, Iran) according to the manufacturer protocol and PCR was performed using specific primers (ITS-F and ITS-R). Sixteen (6.95%) cattle were positive to *T. gondii* infection. The positive control samples showed the expected amplification product specific for *T. gondii* (171 bp). The results present showed low prevalence of *T. gondii* infection in Chaharmahal va Bakhtiari native cattle. In our opinion control and eradication programs for prevent of prevalence this infection factor and also economic losses are necessary.

**Keywords:** *Haemoproteus colusmbae*, Iran, PCR

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## A COMPUTATIONAL ANALYSIS OF AIRFLOW IN MECHANICAL SHAFT OF THE SUBWAY TUNNEL TO APPLY THE DEVELOPED VENTILATION SYSTEM

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**Abstract:** The steady three-dimensional airflow in subway tunnel was analyzed using ANSYS CFX software and by solving Reynolds-averaged Navier-Stokes equations. A mechanical shaft of existing Seoul subway tunnel was analyzed to apply the developed ventilation system to the subway tunnel. Emergency duct between the ducts of the mechanical shaft was used to connect ducts and install the precipitator. The ducts of the

mechanical shaft were connected with two ways such as Duct 1&Duct 2, and Duct 1&Emergency duct. The mass flow rate was higher at the shaft in Duct 1&Emergency duct connection than Duct 1&Duct 2 connection. The guide vanes were installed in the shafts before the electric precipitator to obtain uniform flow. The uniform flow helps to increase the performance of the precipitator. The developed ventilation system was applied to the existing subway tunnel by connecting ducts and installing the guide vanes.

**Keywords:** indoor air quality, guide vane, mechanical shaft, twin-track subway tunnel, train-induced flow

## **E-GOVERNMENT WEB-BASED APPLICATIONS ADAPTATION TOWARDS CONTINUANCE ATTENTION IN MALAYSIA**



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**Abstract:** Previous study that conducted in Thailand, Cambodia and some Middle East country claimed that e-Government web-based applications adoption has significant relationship in influencing the citizens' continuance intention. However, the citizens' continuance intention rate is not as what has been expected in the context of Malaysian citizens. Although the rate of user acceptance to use the e-Government web-based applications services among the Malaysian increased, but no one can guarantee their intention to continue use such applications in the future. In consequences, with little intention to continue use, the study tries to examine the role of trust as the moderating variable between the relationship of e-Government web-based applications adoption and continuance intention among the Malaysian citizens. The study will be designed as a correlational research that requires survey as the method for gathering data. The study will be useful for the system designer and developer in outlining good quality of e-Government web-based applications, and to the government policy maker in drawing the necessary transaction and security control over the Internet as trust and privacy is the main concern of citizens when exposing their personal information on-line.

**Keywords:** e-Government Adoption; Continuance Intention; Trust

## **BIOCHEMICAL PROPERTIES AND PROXIMATE COMPOSITION OF CATFISH ENZYMATIC PROTEIN HYDROLYSATES MADE USING SUBTILISIN**

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**Abstract:** This study was designed to facilitate enzymatic protein hydrolysis of catfish (*Clarias batrachus*) using subtilisin. The effect of incubation time (30, 60, 120, 180 min) with enzyme concentration of 1% (v/w substrate); pH = 8.0; 55°C was studied to determine the degree of hydrolysis (DH), peptide content, amino acid profile and proximate composition of catfish protein hydrolysate (CPH). Results showed that CPH obtained with maximum incubation time had the highest DH; 59% and peptide content; 7200 µg/ml. The DH and peptide content of CPH significantly increased ( $p < 0.05$ ) as hydrolysis time increases from 0 min to 120 min. Regardless of hydrolysis time, the major amino acids of CPH were Glu, Lys and Asp. CPH showed significantly higher ( $p < 0.05$ ) crude protein content and lower fat, moisture and ash content compared to raw catfish. No significant difference in proximate composition between CPH with different hydrolysis time. From the findings, *C. batrachus* protein hydrolysates may contribute as an excellent source of amino acids, bioactive peptides and proteins.



**Key words**— Enzymatic hydrolysis, substilisin, catfish, biochemical properties, proximate composition.

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## **IMPLEMENTATION OF SAUDI UNIVERSITIES E-LEARNING CENTRE USING WIMAX TECHNOLOGY: SAMPLE APPROACH IN JAZAN UNIVERSITY, KSA.**

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**Abstract:** One of the recent developments in E-learning is the introduction of wireless technology communications through Internet. Saudi Arabian education system is under stress to provide additional educational opportunities for increasing population and a desire to increase literacy rate. Internet offers a viable and cost effective alternative to formal classroom learning. All most all Saudi e-learning centre providing education with existing network connections through internet. This proposed research using WiMax technology, which maintains a high speed connection to an internet service provider. Also, this paper discusses the benefits and establishment of WiMax connectivity to e-learning centre. WiMAX has emerged as an exciting technology with promises to offer high throughput and improved quality of services, key requirements for video surveillance on public transport.

**Keywords:** WiMax, E-learning, Mobile station, Base station, Backhaul.

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## **REPLACEMENT OF RACK AND PINION ARRANGEMENT WITH SERVO MOTORS AND MICROCONTROLLER FOR AUTOMOBILES**

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India

**Abstract:** Initially all the automobiles were controlled by rack and pinion gear arrangement as time passed it was improved to hydraulic arrangements and power steering were made which combination of electric and hydraulic concepts but all the above concepts have disadvantages like vibrations, leakage and over vibration during off roading . To overcome these drawbacks and to improve the efficiency of the turning radius of the automobiles we have proposed a system which is controlled by stepper motor instead of the rack and pinion arrangements, these servo motors are controlled by the microcontroller – 8051 which gets the command from the steering wheel produced by the sensors fitted to the steering wheel These stepper motors are high torque motors which are able to turn the wheel with the heavy load. Here the response time of the turning of the automobile wheel and steering wheel becomes highly efficient and the overall control of the control of the automobile is improved. These motors require very less maintenance compared the former techniques used which has lesser life time and more care has to be taken for

those methods. By giving stepper motors to the rear wheels we can improve the turning radius more effectively compared to the primitive methods used.

**Keywords**—Steering control, rack and pinion, 8051.

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## Facile access to benzoazepinoquinazolinone *via* a free radical cyclization

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**Abstract:** An efficient synthetic protocol based on a free-radical cascade reaction *via* 6-*exo-trig* and 7-*endo-trig* cyclization processes is described for a new substituted benzoazepinoquinazolinone system which can be used to form the cyclopropanequinone system found in duocarmycins.

**Keywords**— Free-radical; Benzoazepinoquinazolinone, Cyclopropanequinone; Quinazolinone; Duocarmycin

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## DRAG REDUCTION OF PASSENGER CARS WITH PUSHED-IN REAR DOOR AND REAR BUMPER

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**Abstract:** The introduction of CO<sub>2</sub> emissions legislation for European passenger cars and rising oil prices has seen the increasing focus on improving fuel efficiency through efficient engine and drive train and also reduction in weight and aerodynamics drag. For ground vehicles above 100 km/h, 75% of the total resistance to motion is coming from the aerodynamic drag. Therefore it is crucial to study drag reduction on passenger cars in order to reduce the fuel consumption. This paper focuses on drag reduction thru improving the design of the bottom rear side profile of a passenger car in order to have an attached flow across the sides of the body and smaller wake size at the back of the car. A simplified car model was used to represent a typical passenger car. The flow over the car model was simulated in CFD (Computational Fluid Dynamics) software to find the drag coefficient and parametric studies were done in order to obtain the best drag reduction configuration. Significant reduction of drag was found with the combination of a pushed-in rear door and rear bumper.

**Keywords:** CFD, Drag, Rear bumper, Rear door, Vehicle Aerodynamics.

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## **EFFECT OF WATER-BINDER RATIO AND TREATED PALM OIL ASH (TPOFA) ON ALKALI-SILICA REACTION RESISTANCE OF ENGINEERED CEMENTITIOUS COMPOSITES (ECC)**

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**Abstract:** Coarse aggregates are eliminated in the ECC mixture, resulting in higher cement content compared with conventional concrete. High cement content leads to an increase in greenhouse gas emission, which is highly relevant to global warming. A plausible solution would be to replace a large portion of the cement in ECC by an industrial by-product, without sacrificing its mechanical properties, in general, and tensile ductility, in particular. This paper reports the durability performance of engineered cementitious composites (ECC) containing high volume of palm oil fuel ash (POFA) when subjected to accelerated alkaline environmental conditions. Three sets of ECC mixtures with water-binder ratios of 0.33, 0.36, and 0.38 were prepared, and for each set, the ECC mixtures were proportioned to have varying POFA contents equaling to 0, 0.2, 0.4, 0.8, and 1.2 from the mass of cement. The ECC bars were cured in water at 80 °C for 24 h. After initial reading of the lengths, the ECC bars were immersed in 1 mol sodium hydroxide (NaOH) solution at 80 °C. The expansion of the ECC bars was recorded up to 30 days. The alkali silica reaction was monitored for 3, 5, 10, 14, 20, 25, and 30 days. The test results show increasing POFA content is shown to have a negative effect in terms of ASR, but the length change due to ASR of POFA-ECC was within the limits of ASTM C1260.

**Keywords:** Engineered Cementitious Composites; Palm Oil Fuel Ash; alkali-silica reaction.

## **ASSISTIVE COURSEWARE FOR LOW VISION (AC4LV) LEARNERS BASED ON MULTIMEDIA LEARNING THEORY**

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**Abstract:** This paper reports an ongoing study regarding the development of Assistive Courseware (AC) that is specifically designed to cater the needs of low vision learners in learning activities. Currently, as reported in the previous studies, low vision learners are facing various difficulties in their learning activities particularly in terms of information accessibility, navigationability, and pleasure. Previous literatures also state that, most of the available courseware means too little to them especially in terms of content presentation. Therefore, this study attempts to solve the problem by developing an AC which is named as AC for Low Vision

Learners (AC4LV). The AC was developed by utilizing Multimedia Learning Theory as guidance. In addition, three basic steps, which are pre-production, production, and post-production have been utilized in developing the AC. As a result, an AC4LV based on Multimedia Learning Theory was successfully produced. Future works of this study is to test the experience of using AC4LV among the low vision learners particularly on primary school children from age nine to twelve.

**Index Terms**— Assistive Technology (AT), Assistive Courseware (AC), low vision learners, Multimedia Learning Theory.

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## NEW INNOVATION OF ARABIC LANGUAGE ENCRYPTION TECHNIQUE USING NEW SYMMETRIC KEY ALGORITHM

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**Abstract:** Security is the one of the biggest concern in different type of network communication as well as individual countries. Cryptography algorithms become much more important in data transmission through unsecured channel. One third of the world using Arabic language, unfortunately, there is no cryptography algorithm to encrypt/decrypt for the Arabic communication country. The main goal of this research is to introduce effective symmetric key algorithm on Arabic characters. In our research we have proposed a modular 37 and Arabic letters assigning to the integer value also numerals 0-9 also assigned as an integer number called as synthetic value. The procedure of encryption and decryption is simple and effective. We are selecting random integer and calculate inverse of the selected integer using modular 37. The symmetric key distribution should be done in the secured manner. Here we are attempting simple algorithm on Arabic language with ground-breaking sense.

**Keywords:** Symmetric, Private key, Asymmetric, Public key, Modular, Inverse etc.,

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## PHYTOCHEMICAL SCREENING AND ANTIMICROBIAL ACTIVITY OF ANTHRAQUINONES ISOLATED FROM DIFFERENT PARTS OF CASSIA PUMILA

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**Abstract:** Background: The study aims in investigating the phytochemical screening and antimicrobial activity of isolated anthraquinones from different parts of *Cassia pumila* against

various bacterial and fungal strains to confirm their effective use in different traditional medicines against these pathogenic strains.

Methodology: Fresh plant parts of *C.pumila* were collected, dried at room temperature, powdered and extraction of anthraquinones were done using standard protocol. Extracted compounds were screened by UV, IR, <sup>1</sup>HNMR, <sup>13</sup>CNMR techniques. Agar well diffusion method was used to test the antimicrobial activity of isolated anthraquinones against pathogenic microbial strains.

Principle Findings: The phytochemical screening revealed the presence of Emodin and Rhein in the plant. Maximum level of Emodin(0.65mg/gdw) and Rhein(0.40 mg/gdw) was observed in leaves. The crude compounds exhibited a significant antimicrobial activity. The emodin demonstrated maximum activity against *F.moniliforme*(IZ=26.00mm) while rhein was more active against *A.flavus*(IZ=21.00mm).

Conclusion: The inhibitory effects of Emodin and Rhein extracted from various parts of *C.pumila* against various pathogenic micro-organisms had clearly demonstrated the usefulness of *C.pumila* in the treatment of various diseases caused by these pathogenic strains.

**Keywords:** *Cassia pumila*, Anthraquinones, Antimicrobial activity, Microdilution method.

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## MJHP - JOB SCHEDULING ALGORITHM FOR CLOUD ENVIRONMENT

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**Abstract:** Cloud computing can be defined as a type of Internet-based computing, where different services such as servers, storage and applications are delivered to an organization's computers and devices through the Internet. It is a cluster of network where the nodes interact to accomplish a big computational task. Due to its efficiency in running multiple programs simultaneously, cloud computing is emerging as a popular domain in technology. Intense research has thrown light on how the resources are shared and jobs are scheduled amongst the nodes. A proper job-scheduling algorithm is required for the efficient functioning of the cloud environment. The proposed priority based scheduling algorithm for cloud computing is based on factors that govern the functioning of a job.

**Keywords-** Cloud Computing, Job Scheduling, Priority, Computational Complexity and Level of Parallelism.

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## FACTORS EFFECTING ROLLOVER OF HEAVY DUTY COMMERCIAL VEHICLES EXPERIENCING LATERAL FLUID SLOSH

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**Abstract:** Statistics show that almost 10% of the total road accidents are because of the rollover of heavy duty tankers. This excursion inside the tanker results in the dynamic forces and moments which lead towards the instability of the tanker. Active rollover control system and baffles are some of the techniques currently used to prevent these catastrophic rollover accidents. Active control system can only limit the dynamic shifting of center of gravity (C.G), while baffles on the other hand found to be more effective in terms of minimizing the dynamic moments and forces on the tankers wall. Shape of the tanker, properties of the liquid, fills level of the tanker and the type and location of the baffles are the critical parameters that directly affect the rollover stability of road tanker. This research is mainly focus on determining the effect of different locations of horizontal baffles for different fill level of tank along with the effect of different fluid properties on the dynamic forces and moments induced in partially filled road containers during a constant radius maneuver. The effect of both baffle location and fluid properties was analyzed numerically in terms of dynamic moments and forces. The Volume of Fluid (VOF) Method was used as the numerical base for the research. Commercial CFD tool CFD-RC was used for grid generation and analysis. It was found that change in density of the fluid has a significant effect on the magnitude of dynamic forces and moments but no effect on slosh damping, whereas kinematic viscosity has negligible effect on the magnitude of dynamic forces and moments as well as on slosh damping. The results of the analysis also showed that both the fill level and the location of baffle directly influence the fluid sloshing. Therefore optimized location of baffle for each fill level was suggested based on the simulation results.  
**Keywords:** Fluid sloshing, damping factor, partially filled road tankers, lateral sloshing.

## **THE USE OF DNA TO NAIL MALE ENJOYER OF SEX: A CONTEMPORARY ANALYSIS FROM ISLAMIC LEGAL PERSPECTIVE**

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**Abstract:** The issue of using DNA technology to determine the paternity of a child is a controversial issue in Islamic law. Although vast majority of legal scholars acquiesce its use as a means of connecting unidentifiable children or dead bodies to their legal parents, they oppose its use to nail the male enjoyer of the illicit sex. Consequently, the child born out of wedlock is a liability on the female partner in terms of raising and supporting financially. The classic logic for such a lopsided application of child's paternity was that in the case of female partner, it is easy to ascertain that such a child is her biological progeny but this cannot be proved in the case of her male partner. Consequently, this kind of approach not only has triggered the culture of baby dumping normally by naïve but sexually active female believers but has financially burdened child welfare organizations, to say the least in terms larger implications for society. This paper, however, argues that in the age of technology invoking the conventional wisdom of non-traceability of male partner in a sexual act no longer holds true. Accordingly, since in Islam, illicit sex is a heinous crime, biological connection of ill-conceived babies to male partners, among others, goes a long way in saving public money for more worthy and pressing societal causes and in curbing promiscuity among Muslims in a given society.

**Keywords:** DNA, male partner, child legitimacy, biological connection

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## **DYNAMIC ANALYSIS OF LOW AND MEDIUM WIND SPEED SMALL HORIZONTAL AXIS WIND TURBINES**

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**Abstract:** This paper describes the starting behavior of small horizontal axis wind turbines at high angles of attack and low Reynolds number. The unfavorable relative wind direction during the starting time leads to low starting torque and more idling time. Wind turbine models of sizes less than 5 meters were simulated at wind speed range of 2 m/s to 5 m/s. Wind turbines were modeled in Pro/E and based on the optimized designs given by MATLAB codes. Wind turbine models were simulated in ADAMS for improving the starting behavior. The models with high starting torques and less idling times were selected. The starting behavior was successfully improved and the optimized wind turbine models were able to produce more starting torque even at wind speeds less than 5 m/s.

**Keywords:** Starting Analysis; Low Speed Behavior; Horizontal axis wind turbine.

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## **TECHNOLOGY IN HIGHER EDUCATION: STUDENT ATTITUDES TOWARDS THE USE OF LAPTOP COMPUTERS**

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**Abstract:** Laptop computers have become an important and essential for students to acquire for their studies, and careers. laptop computers in the classroom can lead to positive education outcomes.

This study aims to examine student's perceptions concerning the usage of laptop and the acceptance of laptop in the AZZAYTUNA UNIVERSITY in LIBYA. Also, to investigate the level of usage on the use of Laptop computers among students, and to examine the relationship between the perceptions of students concerning the use of laptops and the acceptance of laptop.

This study uses a survey as 98 students from the AZZAYTUNA UNIVERSITY from different faculties have taken as the sample and based on TAM model which explains the computer usage behavior which divided to (Perceived Usefulness) and (Perceived Ease of Use)

The result of this survey, clearly indicates that there is a statistically positive significant relationship between the usage of Laptop and the acceptance of the Laptop ( $r=0.591$ ,  $p<0.001$ ). Also, the result indicates that the higher level of the Laptop usage is linked to the higher level of the acceptance and vice versa.

**Keywords:** Finally, computers, have become standard equipment in the higher education.

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## LIMIT EQUATIONS FOR AVOIDING ABNORMAL COMBUSTION OF HYDROGEN POWERED CAR

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**Abstract:** In this paper, the Toyota Corolla 4 cylinder, 1.8l engine running on petrol was systematically modified in such a way that it could be operated on either gasoline or hydrogen at the choice of the driver. The design and construction of a hydrogen car was based on seven basic systems: the hydrogen storage, hydrogen re-fuelling, hydrogen piping, pressure regulation, fuel delivery, fuel and engine management and safety. Attention is directed towards abnormal combustion related to the basic tuning of hydrogen engine such as: knock, pre-ignition, self-ignition and backfire. These abnormal combustion could be overcome by an appropriate air to fuel ratio operating conditions, ignition timing and injection timings at different engine speed and throttle position. Based on the experimental data, a suite of linear regression limit equations were developed and tested to accurately predict the operational limit of individual hydrogen engine control parameters to avoid the abnormal combustion of hydrogen engine. Limit equations were found to be conservative and between 1 % to 10% of the marginal unstable combustion of experimental tuning hydrogen engine on dynamometer. The limit equations also provided a simple and better understanding of the effect of engine control parameters on the abnormal combustion conditions of hydrogen fuelled engine.

**Key Words**– Hydrogen powered car, abnormal combustion, limit equation, ignition timing, injection timings hydrogen engine tuning

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## HYDROGEN POWERED CAR: OPTIMISING PERFORMANCE OF TORQUE SUBJECT TO LOW NO<sub>x</sub> EMISSIONS

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**Abstract:** This paper presents model validation of a constrained single objective optimisation control technique at engine speed around 3000 round per minute (rpm) to 4000 rpm for a Toyota Corolla 4-cylinder, 1.8litres hydrogen powered car using model based calibration. Based on the extensive experimental tuning data, a two-stage modelling system of torque and exhaust emissions of nitrogen oxides (NO<sub>x</sub>) is built up and calibration generation methodology is carried out, in which ignition timing, injection timing, injection duration and corresponding exhaust lambda value (indicate air to fuel ratio) are chosen as control variables while engine output torque and exhaust NO<sub>x</sub> emissions are chosen as hydrogen engine performances. The single objective study is employed to optimise performance of hydrogen engine's torque subject to constraint of low NO<sub>x</sub> emissions and stable combustion. Calibration results of look-up control tables for ignition advance, lambda, and injection duration and injection end angle are programmed into the hydrogen engine control unit and it is found to have good drivability and



reliable on-road optimisation. This work is a step towards establishing intelligent optimising control methodology of hydrogen powered car via application of advanced power train techniques.

**Key Words**– Hydrogen powered car, ignition timing, ignition advance, two stage model, statistical engine modelling, hydrogen engine fine tuning, constrained single objective optimization.

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## EFFECT OF DIFFERENT ORGANIC SOLVENTS AND ANNEALING TEMPERATURES ON OPTICAL PROPERTY OF TiO<sub>2</sub> NANOPARTICLES

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**Abstract:** Two types of titanium di-oxide nanoparticles are synthesized by non-hydrolytic sol gel method. The effect of variations in heat treatment temperatures along with the presence of different organic solvents during the synthesis is studied with respect to particle size, absorption in visible range and band gap. The organic solvents used in this study are ethanol and benzyl alcohol. The nanoparticles were heat treated for 1 hour at 500°C when synthesized with ethanol and for 5 hours at 450°C when synthesized with benzyl alcohol. The ‘as synthesized’ nanoparticles are analyzed by DSC, XRD, FESEM and UV-Vis spectroscopic techniques. Surface area and pore size are analyzed by BET. Similar XRD patterns confirm the presence of pure anatase phase in both types of TiO<sub>2</sub> nanoparticles. Morphological analysis by FESEM reveals that both types of nanoparticles are spherical in shape with different sizes. The average size for the particles synthesized with ethanol is in the range of 20 to 30 nm and particles synthesized with benzyl alcohol in the range of 40 to 60 nm. More surface area and better pore volume was observed for smaller particles. However it is noticed that the films fabricated by particles synthesized with benzyl alcohol demonstrate better absorption, better transparency, uniformity and fewer aggregate in comparison with that of the particles synthesized with ethanol.

**Key words:** TiO<sub>2</sub> nanoparticles, band gap, surface area, heat treatment.

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## WEAR BEHAVIOR OF ELECTROLESS NI-P-ZRO<sub>2</sub> NANOCOMPOSITE COATINGS

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**Abstract:** Zirconia-reinforced nickel phosphorus matrix (Ni-P-ZrO<sub>2</sub>) nanocomposite coatings were prepared by electroless (EL) coating. The wear behavior was examined and compared with Ni-P deposits. Nanosized second phase ZrO<sub>2</sub> particles (5–10nm) were first synthesized by chemical method. These fine precipitates of zirconia were then co-deposited (4g/l) within the Ni-P matrix to form EL Ni-P-ZrO<sub>2</sub> nanocomposite coatings. The phases, size range, surface morphologies and compositional analysis of the coatings and the powder were examined under X-Ray Diffraction (XRD), Field Emission Scanning Electron Microscope (FESEM) and Energy Dispersive Spectrometry (EDAX) respectively. Heat treatment of the EL coatings was done at 400°C for 1h in argon atmosphere. The wear and friction coefficient behavior of the coatings were carried out using ball-on-disc tests. The results show that particles are spherical in shape and are in the range of 5-10nm. Also Ni-P-ZrO<sub>2</sub> nanocomposite coatings exhibit enhanced wear resistance as compared to Ni-P coating. Heat treatment further improves the properties.

**Keywords:** Electroless (EL), Ni-P-ZrO<sub>2</sub>, Nanocomposite, Wear.

## A NEW MICROSTRIP BANDPASS FILTER DESIGN BASED ON SLOTTED PATCH RESONATOR

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**Abstract:** A narrowband, compact, and flexible fabricated microstrip bandpass filter design is introduced in this paper as a candidate for use in modern wireless systems. The proposed filter design is based on the use of dual-mode (two pole) patch microstrip resonator with uniform geometrical slot. This filter has the advantages of possessing much narrower and sharper performance responses as compared to single mode resonator and other conventional square patch filters. The performance of filter structures, based on dual-mode resonators, has been evaluated using Microwave office electromagnetic software package. This filter has been designed at resonant frequency 4.16 GHz using a substrate with a dielectric constant of 10.8 and thickness of 1.27mm. Performance simulation results show that these filter structures offer very good frequency responses in addition to narrow bands gained, compactness properties and 2<sup>nd</sup> harmonic suppression in out of band region.

**Keywords:** Dual mode filter, microstrip bandpass filter, slotted patch resonator.

## A NEW COMPACT MICROSTRIP BANDPASS FILTER BASED ON STEPPED IMPEDANCE CONCENTRIC SQUARE LOOP RESONATORS

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**Abstract:** In this paper, a new dual mode microstrip bandpass filter has been presented for the requirements of modern wireless communication systems. The filter has been constructed from double concentrated square loop resonators; each resonator is based on applying step impedance resonator generator on each side of closed resonator. The proposed bandpass filter has been designed using a substrate with a dielectric constant of 10.8 and thickness of 1.27mm at 2.45 GHz center frequency. This filter has compact size and narrow band response which are the requirements of mobile wireless communication systems. The performance of filter has been analyzed using Microwave office software package, which is widely adopted in microwave research and industry. The output results showed that this filter possesses very good frequency responses and high selectivity as well as blocked 2<sup>nd</sup> harmonic in out of band regions.

**Key Words:** Narrowband filter, dual mode bandpass filter, double concentric square loop resonators, step impedance resonator, 2<sup>nd</sup> harmonic suppression.

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