وكالة الجامعة للدراسات العليا والبحث العلمي

عمادة البحث العلمي

تقرير إنجازات

مركز البحوث

العلمية والهندسية

١٤٣٦هـ-١٤٣٨هـ

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١٤٣٦هـ - ١٤٣٨هـ

مقدمة

انطلاقًا من أن البحث العلمي من ركائز الجامعة، ومؤشرًا على تقدمها وتميزها، تسعى عمادة البحث العلمي في جامعة نجران من خلال المراكز البحثية إلى: تحقيق التميز البحثي في المجالات ذات الأهمية الوطنية بصفة عامة، والمجتمع المحلي بصفة خاصة، بإجراء البحوث في المجالات الاستراتيجية المختلفة للكليات التي تقع تحت مجال كل مركز؛ وتطوير العملية التعليمية بتوفير بيئة بحثية محفزة؛ وتنمية مهارات الابتكار والإبداع، والتوسع في الشراكات البحثية، من خلال توفير متطلبات ومستلزمات الباحثين حسب اختصاصاتهم للنهوض بمستوى أبحاثهم. وتعمل عمادة البحث العلمي على تشجيع الباحثين من أعضاء هيئة التدريس والطلاب (من الجنسين) على إجراء البحوث الأصيلة والمبتكرة التي تساهم في إثراء وخدمة المجتمع، وتعلن عن المشاريع البحثية السنوية وفق آلية موحدة، حيث تقوم المراكز المتخصصة بالإشراف عليها والتحكيم الأولي لها، دون تحديد عدد معين لكل مركز، وقبول جميع المشاريع البحثية المقترحة من أعضاء هيئة التدريس التي تؤدي إلى تطوير التخصص العلمي والمجتمع المحلي. كما تهتم المراكز البحثية بالخدمات المجتمعية بتقديم الاستشارات وإقامة الشراكات في مجالات كل مركز، وإثراء الوسط الجامعي من الناحية العلمية بتنفيذ مجموعة من الأنشطة التي تشمل إقامة وتنظيم المؤتمرات والندوات العلمية والدورات التدريبية (سواء الموجهة للطلاب أو أعضاء هيئة التدريس) بالتنسيق مع الكليات والأقسام المعنية، وتشجيع النشر العلمي والإشراف عليه، والتنسيق بين الباحثين من مختلف الكليات والتخصصات العلمية لإجراء بحوث مشتركة في المجالات المختلفة.

الهيكل التنظيمي للمركز

عن المركز:

تم إنشاء مركز البحوث العلمية والهندسية بجامعة نجران عام ١٤٣٠ هـ، الموافق ٢٠٠٩م لكي يساهم ويساعد في خدمة البحث العلمي بالجامعة إضافة إلى إسهامه في خدمة المجتمع من خلال الكوادر المؤهلة بالجامعة وكذلك بناء شراكات تعاونية مع القطاع الحكومي والخاص ومع نظرائه من مراكز البحوث الأخرى.

مهام المركز:

من مهام مركز البحوث العلمية والهندسية بجامعة نجران نشر البحوث التي يقرها مجلس المركز عن طريق عمادة البحث العلمي، كما يهتم المركز بتقديم الخدمات المجتمعية وتنظيم الندوات والمحاضرات والدورات العلمية والهندسية سواء الموجهة بالطلاب أو أعضاء هيئة التدريس وبالتنسيق مع الأقسام المعنية. كما يقدم المركز الاستشارات الفنية في المجالات الهندسية.

مجلس إدارة المركز

د. عبد الله بن سعيد الوادعي	رئيساً
د. خيران بن دباش رجب	عضواً
د. ابراهيم حكيم	عضواً
د. مصعب مرغلاني	عضوا
د رشاد بن الجوفي	عضواً

رؤية المركز:

الريادة في اجراء البحوث العلمية والهندسية التطبيقية والتميز في المساهمات المجتمعية لتعزيز مكانة الجامعة التنافسية في مجال البحث العلمي وطنيا وعالميا

رسالة المركز:

يسعى مركز البحوث العلمية والهندسية بجامعة نجران لتحقيق رؤية المركز من خلال:

- اثراء الوسط الجامعي من الناحية العلمية من خلال اقامة وتنظيم المؤتمرات والندوات والانشطة العلمية والتدريبية
- التشجيع والاشراف والتنظيم لعملية النشر العلمي
- الربط بين الباحثين من مختلف الكليات العلمية لتحقيق ابحاث مشتركة في المجالات العلمية المختلفة
- التواصل مع المراكز البحثية الوطنية والعالمية وتشكيل شراكات فاعلة في تطوير البحث العلمي.
- الاسهام في تنمية وخدمة المجتمع من خلال الابحاث التي يقوم بها المركز.

قيـم المـــركز:

القيم الجوهرية لمركز البحوث العلمية والهندسية في جامعة نجران

القيـــم	Value	التعريف
القيادة	**Leadership**	دعم وتعزيز المهارات والأدوار القيادية على كافة المستويات
المسؤولية	**Responsibility**	التفاعل الإيجابي تجاه الكلية والجامعة والمجتمع من واقع الإحساس بالمسؤولية
الأمانة	**Honesty**	أداء الواجبات والوفاء بالحقوق
الشفافية	**Transparency**	الوضوح في كافة الأنشطة والقرارات والتعاملات
المساءلة	**Accountability**	تحمل مسؤولية نتائج أعمالنا والاستعداد للتوضيح
العدالة	**Fairness**	إعطاء كل ذي حق حقه
الاحترام	**Respect**	التعامل بتحضر وإنسانية وحفظ للكرامة وفق القيم الإسلامية
العمل بروح الفريق	**Teamwork**	العمل الجماعي وتبادل الخبرات والمعارف
الإبداع	**Creativity**	تهيئة بيئة مناسبة لتحفيز التفكير الإبداعي المنتج وفقا لتعاليم الإسلام
الجودة	**Quality**	ضمان جودة الأداء وفقا للمعايير المحلية والعالمية

أهداف المركز:

يهدف مركز البحوث العلمية والهندسية بجامعة نجران إلى دعم وتشجيع البحوث العلمية والعناية بها ونشرها وتنظيمها وتطويرها لتحقيق الفائدة العامة خدمة للمجتمع، وتتركز هذه الأهداف فيما يلي: -

- المساهمة الفعالة في تقييم المشاريع البحثية في التخصصات الهندسية التي يتقدم بها أعضاء هيئة التدريس في الكليات التابعة لها.
- تبادل الخبرات وتحقيق التعاون بين المركز والهيئات العلمية والبحثية وطنيا وعالميا.
- تقديم الخدمات الاستشارية التي تطلب من المركز وطنيا وعالميا.
- نشر البحوث العلمية وتوثيقها عن طريق ما يتم إصداره من مجلات وإصدارات علمية لتسهيل الرجوع إليها، وتبادل النشرات الدورية والمطبوعات العلمية مع مراكز البحوث الوطنية والعالمية.
- أقامه ندوات وورش عمل لأعضاء هيئة التدريس في كليات الجامعة التابعة للمركز لنشر ثقافة البحث العلمي.

إنجازات المركز:

تحكيم البحوث المدعومة والمقدمة من قبل أعضاء هيئة التدريس للكليات المنطوية تحت مظلة المركز بالجامعة

حيث يتم تشكيل لجنة متخصصة لفرز البحوث المقدمة من قبل الكليات المنطوية تحت مظلة المركز، لتقوم بفرز البحوث وتقييمها وتحكيمها، وتقديم توصية بعد ذلك بقبولها أو رفضها بناء على مجموعة من الأسس والمعايير، والرفع بهذه التوصيات لعمادة البحث العلمي.

بناء على الخطوة السابقة فقد ساهم المركز بتقديم بحوث نوعية تم نشرها في مجلات علمية محكمة، عربية، وأجنبية مصنفة، من قبل أعضاء هيئة التدريس في جميع الكليات المنطوية تحت مظلة المركز (كلية الهندسة ، كلية علوم الحاسب ، كلية العلوم و الأداب ، كلية المجتمع).

ملخصات أبحاث المركز

Vertical Accuracy Assessment for Srtm and Aster Digital Elevation Models a Case Study of Najran City, Saudi Arabia

Ismail Abdel Hamed Elkhrachy

Abstract:

Digital Elevation Model is imperative to many earth surface process analyses. In this study, the quality of DEMs acquired by SRTM ver.3 and ASTER ver.2 is evaluated. The reference levels produced from GPS elevations, and the topographic map is used to assess the vertical accuracy of SRTM and ASTAR DEMs in Najran city, Saudi Arabia. The GPS reference elevations gave us the values of ±5.94 m and ±5.07 m for used SRTM and ASTER DEMs. Also, by using elevation from the topographic map as a reference elevations the obtained accuracy was ±6.87 m and ±7.97 m for SRTM and ASTER DEMs. For our study area, the 30 m SRTM elevations data featured a much greater absolute vertical accuracy than the absolute vertical accuracy value of ±16 m, which published in the SRTM data specification.

Ain Shams Engineering Journal

Photoluminescence Detection of Alpha Particles and X Rays using DAM-ADC Nuclear Detector

Ayman Mohamed Abd Elmoaty Abdalla

Abstract:

The photoluminescence (PL) and UV-Vis spectral analysis of DAM-ADC (diallyl maleate: DAM, polyallyl diglycol carbonate: ADC) nuclear detector are demonstrated for the first time. The DAM-ADC surfaces were exposed to thin 241Am disk source that emits alpha particles with activity 333 kBq. The obtained research findings revealed that the track density of the irradiated samples remarkably influences the PL characteristics of the DAM-ADC detector. The spectral peak heights and the integrated intensities under the peaks exhibit linear correlations with correlation coefficient R2 = 0.9636 and 0.9806, respectively for different alpha particle fluencies ranging from 8.16-40.82×107 particles/cm2. Additionally, a correlation coefficient R2 = 0.9734 was achieved for the UV-Vis spectral analysis. The linear fitting functions, along with the corresponding fitting parameters were evaluated in each case. Both the PL and the UV-Vis data displayed considerable spectral differences of the irradiated DAM-ADC samples, and hence they would be used to offer sensitive approaches for alpha particle detection.

Nuclear Instruments and Methods in Physics Research

Fabrication of Zno Nanomaterials Based P-N Heterojunction Diodes and Their Electrical Behavior with Temperature Dependent

Sang Hoon. Kim

Abstract:

Herein, we report the growth, characterizations and heterojunction diode application of aligned n-ZnO nanorods on p-silicon substrate. The nanorods were grown by low temperature aqueous solution process and characterized in terms of their morphological, structural, optical and electrical properties. The detailed characterization studies revealed that the as-grown nanorods are vertically aligned, well-crystalline possessing wurtzite hexagonal phase, grown along the [0001] direction. Presence of sharp and strong UV emission and suppressed green emission in the PL spectrum of as-grown ZnO nanorods confirmed that good optical properties. The electrical properties of the as-grown nanorods were examined by fabricating p–n heterojunction diode. The fabricated heterojunction diode exhibited good rectifying behavior of rectification factor of ~4 at voltage of 7.5 volts. Low values of quality factor of 1.2 and 1.07 obtained at temperatures of 30 C and 100 C emphasized the good stability of the fabricated device over temperature change The values of effective barrier height of 0.73 and 0.9 volts are determined at temperatures 30 C and 100 C, respectively

Journal of Nanoelectronics and Optoelectronics

Fabrication and Characterization of Dye-Sensitized Solar Cell Based on ZnO Nanostructures

Umar Mohmed. Ahmad
Ahmed Abdelbagi Ibrahim Mohammed

Abstract:

Herein, we report a facile synthesis, characterization and dye sensitized solar cell (DSSC) application of flower-shaped ZnO nanostructures. The flower-shaped ZnO nanostructures were synthesized by low-temperature hydrothermal process and characterized in detail by several techniques. The detailed morphological studies confirmed that the flower-shaped structures are formed by the accumulation of several Nano needles which are axially arranged through their bases in a special fashion that they made flower-like morphologies. The compositional, structural and optical characterizations revealed that the synthesized flowers possess high purity, well-crystallinity with the quartzite hexagonal phase and good optical properties. The synthesized flower-shaped ZnO nanostructures were used as photo anode to fabricate DSSC which attained a reasonable solar to electrical conversion efficiency of~1.1%, open-circuit current (VOC of 0.611 V, short circuit current (JSC of 3.53 mA/cm2 and fill factor (FF) of 0.51.

Journal of Nanoscience and Nanotechnology

Doped Zinc Oxide Nanomaterials for Chemical Sensor Device Application

Umar Mohmed. Ahmad
Ahmed Abdelbagi Ibrahim Mohammed

Abstract:

Herein, we report a facile synthesis, characterization and chemical sensing application of ytterbium (Yb) doped ZnO Nano pencils. The Nano pencils were synthesized by facile hydrothermal process and characterized by several techniques in terms of their morphological, structural, compositional and Raman-scattering properties. The detailed morphological properties confirmed that the Nano pencils are grown in high density with an average length and diameters in the range of ~4±1 m and ~100±50 nm, respectively. The synthesized Nano needles were used as effective electron mediator to fabricate high sensitive nitro aniline chemical sensor. The fabricated nitro aniline chemical sensor based on Yb-doped ZnO Nano pencils exhibited high sensitivity of ~2.701 A·mM−1cm−2, experimental detection limit of 0.313 mM and linear dynamic range of 0.625–5.0 mM.

Journal of Nanoscience and Nanotechnology

Synthesis, Spectroscopic and Antimicrobial Studies of Some Novel Cyanine Dyes Based on Bis-Coumarin Heterocycles Derivatives

Nagla Saleh. Mohammed

Abstract:

Novel symmetrical and unsymmetrical cyanine dyes, incorporating mero cyanine monomethine like, pentamethine cyanine, monomethine-meso-substituted pentamethine and mono-5[2(4)]-methine cyanine dye have been prepared through the synthesis of new starting compound derivatives named as 1,3-bis-(2-oxo-2H-chromen-3-yl) propane-1,3-dione and (Z)-(3-oxo1,3-bis(2-oxo-2H-chromen-3-yl) prop-1-enyloxy)copper(cobalt and/or nickel) chloride salt complexes. Structure determination of the new compounds has been characterized on the basis of elemental analysis, IR, 1H NMR and MS spectra. Structure photosensitization relationship of new dyes have been discussed on the basis of their spectral behavior as criteria of photosensitizing effect through the UV visible-absorption spectra of all synthesized dyes which investigated in 95% ethanol. Antimicrobial properties of some selected cyanine dyes have been investigated against Streptococcus sp, Staphylococcus sp, Salmonella sp. and Shigella sp.

European Journal of Chemistry

Radon Irradiation Chamber and its Applications

Ayman Mohamed Abd Elmoaty Abdalla

Abstract:

An irradiation radon chamber with a total volume of 87 liter was designed and constructed. This system is based on a natural radon source and a traceable reference radon detector (AB-5 Radon monitor), which allows the radon concentrations inside the chamber to be obtained in different ranges. The radon chamber was used to determine both the calibration factor of the radon detector and the equilibrium factor between radon and its short-lived daughters. In addition, the dependence of the equilibrium factor on the temperature and flow rate was studied. The equilibrium factor was observed to be linearly dependent on the flow rate and its value at 20 °C was found to be 2.2 times higher than the equilibrium factor value at 50 °C. These values are in good agreement with those reported using the surface barrier detector method

Nuclear Instruments and Methods in Physics Research A 786 (2015) 78–82

Thermoelastic Waves of Cylindrical Nano-Beam Subjected to Ramp-Type Heating

Eman Ageel Allehaibi

Abstract:

A mathematical model of cylindrical nano-beam with constant elastic parameters will be constructed and the governing equations will be taken when the beam is quiescent Laplace transforms techniques will be used to get the general solution for any set of boundary conditions. The solution will be obtained for a certain model when the beam is subjected to ramp-type heating and the two ends of the beam will be clamped. Inversion of Laplace transforms will be obtained numerically, and the results will be presented graphically with some comparisons to study the impact of the ramping time parameter and the relaxation time on the speed of progress of mechanical and thermal.

Jökull journal

Facile and Rapid Synthesis of Zno Nanoparticles for Photovoltaic Device Application

Sang Hoon. Kim, Mohamed Eisa Abaker Adam, Ali Alhajry

Abstract:

Well-crystalline ZnO nanoparticles were prepared through simple, facile and rapid solution combustion process and utilized as photo anode material for the fabrication of dye-sensitized solar cell. The detailed characterizations of the ZnO nanoparticles revealed that the crystalline product with quartzite hexagonal phase was grown in high-density. The chemical composition analyzed through FTIR and EDS confirmed the purity of the ZnO nanoparticles. UV-vis and Raman spectral studies were applied for studying the optical and vibrational properties of as prepared ZnO nanoparticles, respectively. The fabricated dye-sensitized solar cell exhibited overall photo-to-electricity conversion efficiency of 0.94%, open-circuit current of 0.531 V, short circuit current of 4.11 mA/cm2 and fill factor (FF) of 0.43.

Journal of Nanoscience and Nanotechnology

Synthesis and Properties of Aligned Zno Nanorods on Si Substrate and their Applications for P-Si/N-Zno Heterojunction Diode

Sang Hoon. Kim, Ghulam N. Dar Ahmed
Abdelbagi Ibrahim Mohammed

Abstract:

This paper reports the successful growth of aligned ZnO Nano rods on p-Si substrate via low temperature simple aqueous solution process. The prepared Nano rods were examined in terms of their morphological, structural, compositional and optical properties using several analytical tools such as field emission scanning electron microscopy (FESEM), energy dispersive spectroscopy (EDS), X-ray diffraction (XRD) and room-temperature photoluminescence (PL) spectroscopy. The detailed characterization studies revealed that the as-grown Nano rods are vertically aligned, well crystalline possessing quartzite hexagonal phase, grown along the [0001] direction and possessing good optical properties. Furthermore, the prepared n-ZnO Nano rods/p-Si heterojunction assembly was used to fabricate heterojunction diode. The fabricated heterojunction diode exhibits good rectifying behavior of rectification factor of 16 at voltage of 7.2 volts. High values of quality factor and series resistance of the device of ~4 and 52 k Ohm, respectively, are obtained from I–V characteristics. The high series resistance may play the role of a shunt resistance that causes a partial drop in the output current of the whole assembly.

Journal of Nanoelectronics and Optoelectronics

Study of Resilient Modulus for Different Subgrade Najran Soils

Ammar T. Rouaiguia, Mohammed A Dahim

Abstract:

This paper presents the importance of natural water content and degree of saturation as factors influencing the collapse potential of hydro collapse on semi-arid soils. It describes also the comparison between the values determined by using empirical equation and the values measured by using single and double Oedometer tests.

Indian geotechnical Journal - SPRINGER

Recognition of Similar Shaped Handwritten Arabic Characters Using Artificial Neural Network

Rashad Abdullah Saleh Aljawfi

Abstract:

Recognition of Arabic handwriting characters is a difficult task due to similar appearance of some different characters. However, the selection of the method for feature extraction remains the most important step for achieving high recognition accuracy. In this paper a novel method is provided to recognize handwritten Arabic characters based on their features extraction and adaptive smoothing technique. In this paper Combination of two approaches will be introduce, one of them is feature selections methods and the other is adaptive smoothing technique from smooth shape of character. Combination of both these approaches leads to the better results

International Journal of Soft Computing

PASSMA a New Way of Electronic Payment on Your Figure Tips

Mohammad Arif. Siddiqui, Muhammad Akram,
Mohammed Kafil Uddin

Abstract:

Now a day when a person goes to the market to buy some products, he or she may face problem in payment either for lack of cash, loss of ATM cards and Visa or need to pay a fraction in cash. Most of current payment systems are difficult and not available for most of people around the world. In this research, we will provide a payment system that allow customers to save his money and his time by an available, secure and easy payment system based on customers' fingerprints. PASSMA is a proposed payment system based on fingerprints. Our research concluded that it is possible to make a payment system based on the use of fingerprint as a new type of fast and secure payment system , and no need to carry cash or ATM and Visa cards, so that all sectors of society of young and old, men and women are able to use the proposed system. PASSMA will provide enormous benefits to the customers as well as to sellers by providing accurate and fast processing time. This project will open a new door in e-commerce business systems

International Journal of Computer and Information Technology

Numerical Treatment for Solving Delay and Neutral Differential Equations by Using Numerical Integration Method

Mohamed Ali Hafez Abdelaal

Abstract:

In this paper, we present numerical integration methods to solve singularly perturbed Two-Parameter delay differential equations (DDEs) of second-order in which the highest order derivative has multiplied by a small parameter □ and both the convection and reaction terms are with negative and positive shift. In this method, we approximate the terms containing negative and positive shifts using the Taylor series expansion. We employ the Taylor and Simpson numerical integration, which has solved easily by discrete invariant imbedding algorithm. Several test examples are considered by taking various values for the delay, advance and perturbation parameters.

European Journal of Scientific Research

Numerical Solution of Hyper Singular Integral Equations by Using Differential Transform Method

Mohammed Abdulkawi Mahiub Abdalmoghny
Wadia Faid Hassan Al-Shameri

Abstract:

In this paper, the differential transform method is extended to solve the hyper singular integral equations. New theorems for transformation of singular integrals are given with proofs. Numerical results are shown to illustrate the efficiency and the accuracy of present numerical method.

European Journal of Scientific Research

Nonlinear Propagation of Surface Plasmon Polaritons in High K-Dielectric

Muhammed S. Akond, Muhammad Selim. Reza

Abstract:

Analysis of ultra-short pulse interaction inside widely used optical structure, such as directional coupler is conveyed using the well-known Finite Difference Time Domain (FDTD) technique and Time Domain Beam Propagation Method (TD-BPM). The optical device consists of GaAs material having dispersive property which is modeled using Lorentzian mathematical representation. The nonlinearity on the material can be achieved with the application of intense electric field. Modeling on such environment requires high performance computational tools. However, the implicit TD-BPM is innovated with higher order non-paraxial equation that is suitable for femtosecond pulse. The result obtained by the one-way technique, applied on the dispersive directional coupler, is verified with that of the widely used FDTD. A rigorous study is conveyed in order to distinguish the material dispersion from the intermodal dispersion. The analysis reveals that the material dispersion causes energy loss, in addition to extra pulse broadening and splitting that happens in case of intermodal dispersion in less extent.

O P T I C A L R E V I E W Vol. 21, No. 3 (2014)

Nanoclusters as Potential Electronic Sensors for Some Gases Theoretical Study

Dr. El-Sayed Rashad Hassan El-Gharkawy
Hussein Youssef Hassan Ammar

Abstract:

The density functional theory (DFT) has been used to study the interactions of gaseous CO molecule on (MgO)12 Nano-cage and TM-deposited (MgO)12 Nano clusters; TM=Ni, Pd and Pt. The adsorption properties of CO were analyzed in terms of the adsorption energies (Eads), atomic charges (Q), frontier orbital analysis (FOA), the dipole moments (D), molecular electrostatic potentials (MEP) and the densities of states (DOS). Our calculation results show that, CO with its carbon head favors adsorption on TM-deposited (MgO)12 Nano clusters. The depositing of TM atom on (MgO)12 Nano-cage increases its absorptivity to CO molecule. The depositing of Pt atom on (MgO)12 Nano-cage increases its absorptivity and electronic sensitivity to CO molecule more than the depositing of Ni and Pd atoms.

Journal of Nanoelectronics and Optoelectronics

Estimating Water Requirements for Irrigation Purposes from Climatic Data in Najran Region

Ahmed H. Elsayed, Mohammed A Dahim

Abstract:

Saudi Arabia (SA) is facing a severe scarcity of its water sources. The gap between sustainable irrigation water sources (SIWS) and irrigation water requirements (IWR) in SA is in a continuous increase. Groundwater is considered the primary source of irrigation water in SA and a huge part of which (non-renewable groundwater) is used to bridge this gap leading to a continuous depletion of this vital source. In the current study, present and future IWRs have been estimated and predicted. IWRs for principal crops in SA has been calculated based on available climate data for the period from 1985 to 2011 in Najran Region (NR), in the southwestern part, as a case study. IWR for the main perennial crops (dates, citrus, and alfalfa) has been calculated as an average for the 13th regions contributing to agriculture in SA. These regions include Riyadh, Makkah, Madinah, Qaseem, Eastern, Aseer, Tabuk, Hail, Northen, Jazan, Najran, Baha, and Jouf. Reference evapotranspiration (ETo) has been calculated using FAO56 Penman-Monteith equation. Five reform scenarios for the future use of agricultural areas have been proposed hoping to reach sustainable irrigation water requirement (SIWR). The results proved the opportunity of SA to reach SIWR in the coming twenty years by: phasing out the cultivation of forage crops by the year 2036, and keeping current rate of growth (or decline) trend in the agricultural land areas of both fruits and vegetables. Supporting farmers to shift 1% annually of the current planted area of each crop from the traditional to the modern irrigation system is also a must. **Journal of Current Research in Science**

Energy Efficiency and Thermal Performance Analysis for Educational Building Envelope in Saudi Arabia

Nedhal Ahmed Mahmood Al-Tamimi

Abstract:

The paper has been published in the International Conference on Sustainability in Energy and Buildings 2014, which hosted in the vibrant city of Cardiff, organized by the Ecological Built Environment Research and Enterprise (EBERE) group at Cardiff School of Art and Design, Cardiff Metropolitan University in partnership with KES International. The paper will be published by Elsevier's "Energy Procedia", an open access journal, available in Science Direct and indexed/abstracted in EI Compendex, Engineering Index and Scopus

Energy Procedia

Biotransformation of Some Natural Products, Affording More Active and Less Toxic Compounds

Abou-El-Hamd Hassan Mohamed Hassan
Nagla Saleh. Mohammed

Abstract:

In continuation of our chemical investigation on some medicinal plants of the genus Achillea, chromatographic investigation of the methylene chloride/methanol (1:1) extract of the air-dried aerial part of Achillea biebersteinii Afan. (family Asteraceae) afforded a new natural monoterpene (2), in addition to two known sesquiterpenes (3 and 4). Compound 1 was isolated as light needle crystals. Structures were established on the basis of MS and NMR spectroscopic (1H, 13C, 1H-1H COSY, HMQC and HMBC) data and in case of compound 1 was confirmed by X-ray analysis. All isolated compounds were examined for their anti-inflammatory activity to inhibit LPS-induced NO production in RAW264.7 macrophage cells. Compounds 3 and 4 produced a promising anti-inflammatory effect (76% and 80% inhibition, respectively). However, compounds 1 and 2 produced moderate inhibition of NO release recording a 41% and 36% inhibition of NO production, respectively

Journal of Biosciences

Applications on Simply Alpha Approximation Space Based on Simply Alpha Open Sets

Mohamed El Sayed Mahmoud Badria

Abstract:

In this paper we introduce new types of lower and upper approximations namely simply α-lower and simply α-upper approximations for any set based on the concept of simply α-open set, which generated from general relation. Also we study α-rough approximations. Finally, we show the relation among of these types and other types of approximations and we study some of their basic properties.

European Journal of Sci Entice Research

Application Specific Energy Efficient Mac Protocol for Lecim Systems

Mohammad Arif. Siddiqui, Mohmed Basit. Kamal
Shah Rashid. Almasud

Abstract:

Wireless networking system is quickly growing in the field of communication technology due to its usefulness and huge applications. To make the system more effective to the users its lower energy consumption, security, reliability and lower cost issues must be considered under any circumstances. Low energy wireless is exceedingly required because the sensors are frequently located where mains power and network infrastructure are not reliably available. The recent development of Low Energy Critical Infrastructure Monitoring (LECIM) has vast applications including: Water leak detection, Bridge/structural integrity monitoring, Oil & gas pipeline monitoring, electric plant monitoring, public transport tracking, Cargo container monitoring, Railroad condition monitoring, Traffic congestion monitoring, Border surveillance, Medical alert for at-risk populations and many more. This proposal Low Energy Critical Infrastructure Monitoring (LECIM) is proposed by the Task Group 4k under IEEE P802.15 WPAN. Although many issues related to its quality are involved, but several Media Access Control (MAC) protocols with different objectives were proposed for LECIM. In this research paper, issues related to energy consumption and wastage in LECIM system, energy savings mechanism, relevant energy conscious MAC protocols have been briefly

studied and analyzed. Science Direct, Elsevier, Springer, IEEE Explore, Google Scholar and Wiley digital Library databases were used to search for articles related to the existing MAC protocols well suited for LECIM system. Finally, some ideas have been proposed towards developing energy efficient MAC protocol for LECIM applications in order to fulfill and satisfy the major issues of LECIM quality

International Journal of Advanced Computer Science and Applications (IJACSA)

Analysis of Ultrashort Optical Pulse Interaction in Composite Dispersive Optical Structures

Muhammed S. Akond, Abdullah Alwadie

Abstract:

In this paper, time domain beam propagation method (TD-BPM) has been developed and implemented for analyzing short and ultra-short pulse interaction inside optical power splitter. The results obtained by the technique has been compared the finite difference time domain (FDTD) technique. The TD-BPM is as effective and stable on the properly designed device as on waveguide and directional coupler. Proper design of the device ensures minimum radiation loss enhancing the output the TD-BPM provides complete visualization of the pulse in course of its propagation as the technique updates the spatiotemporal pulsed window with propagation step, unlike the FDTD where finely gridded device is updated with time. Being an implicit is free from Courant–Friedrich–Levy constraint and infinitesimal gridding.

Optical and Quantum Electronics

An Efficient Visible Light Mediated Photocatalytic Approach for Waste Water Treatment

Mohd Faisal. Ahsan, Ahmed Abdelbagi Ibrahim Mohammed

Abstract:

A simple and facile chemical method to synthesize SnO2 doped ZnO nanostructures have been investigated in the presence of polyethylene glycol (PEG) as a surfactant for highly efficient photo catalyst. The structural investigation indicated that the XRD patterns reveal highly crystalline ZnO nanoparticles. The FE-SEM images show that the synthesized SnO2 doped ZnO has aggregated layers with caves like structure. The newly prepared SnO2 doped ZnO nanostructures have been evaluated for photo degradation of methylene blue (MB) under visible light. The photo degradation of MB proceeds much more rapidly in the presence of SnO2 doped ZnO compared to the undoped ZnO nanoparticles. The photocatalytic performance was in the order of 0.5 % SnO2/ZnO> 1.0 % SnO2/ZnO> 0.2 % SnO2/ZnO> undoped ZnO, suggesting that doping of SnO2 improves the photocatalytic activity of ZnO. These results indicate that SnO2 doped ZnO nanostructures are very promising to fabricate highly efficient photo catalysts

Journal of Molecular Catalysis. A, Chemical

A Study of Smart Phone Usage among Najran University Community

Hejab Maazer Khaled Al Fawareh, Shahidah B. Jusoh

Abstract:

This paper presents a study on trends in smartphone usage among university students i Students (N=324) from various academic levels and programs at Najran University, Saudi Arabia had participated completing survey questionnaires. Of participants, 94.4% (n=305 /324) owned smartphones. Based on this , the trends are evaluated, by categorizing usage into 2 types; normal usage and usage for learning. Results that majority of students in Saudi Arabia used smartphones as a regular mobile phone, as a computer an internet connection, and as a digital camera. To study, the trends in smartphone usage for learning, related to learning activities such as login to academic portal, use Blackboard, download class , taking and recording lecture notes using smartphones, were asked. Research results indicate that % of students have used smartphones to login to their academic portal. However, results also indicate that % of participants never used smartphones for Blackboard, 66.01% students never used smartphones as a for taking notes in a classroom and 66.89% participants never used smartphones to record class lectures. better percentage is shown for downloading class materials, where 54.49% of the participants used for downloading class materials. Research findings indicate nearly every student owned a and used for normal usage. However, the findings also suggest that university students in Saudi did not fully utilized smartphones for learning purposes.

International Journal of Academic Research

A Knowledge-Guided Approach to Line NURBS Curve Intersection

Khairan Dabash Ahmed Rajab

Abstract:

This work presents a robust algorithm to solve the line-curve intersection problem used frequently in design, manufacturing, graphics, art, etc. A global solution is proposed, i.e. all the intersections are found and computed to high accuracy requirements. The emphasis is on robustness, reliability and to handle geometric as well as numerical anomalies. The main thrusts of the method lie in the use of a knowledge-guided NURBS system, a tight biarc decomposition and proper pre- and post-processing of the entities as well as the intersections. All these contribute to achieve a high level of reliability: the method is immune to such cases as tangential intersections, inflection points, or line-curve overlaps. The intersection points produce various relationships that are recorded in the knowledge-guided system so that all the results are reproducible in the receiving system, should the intersection point be recomputed with a different level of accuracy.

International CAD Conference and Exhibition

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