CONFERENCE PROCEEDINGS

5th International Conference on Researches in Science and Technology (ICRST), 1-2 September 2016, Istanbul

1-2 September 2016
Yildiz Technical University, 34349 Beşiktaş, Istanbul, Turkey
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KEYNOTE SPEAKER

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5th International Conference on Researches in Science and Technology (ICRST), 1-2 September 2016, Istanbul
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Enzyme Hydrolysis of Starch Rich Cellulosic waste (Cassava Peels)

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ABSTRACT
The enzyme hydrolysis of cassava peels provides an interesting research opportunity to convert starch rich lignocellulose waste into renewable fuel production and other value added products. The research involved the pretreatment of cassava peels with steam explosion and hot water pretreatment processes as well as combining both amylolytic and cellulolytic enzymes to produce simple sugars. This research compared the simultaneous hydrolysis by amylases and cellulases of the cassava peels and a consecutive hydrolysis process where cassava peels are resuspended for further enzyme treatment after an initial hydrolysis by a different set of enzymes. The hydrolysis rate and yield were compared for each process. Minor changes that incorporated steam explosion pretreatment and hot water pretreatment were also studied. Results showed that a consecutive treatment that incorporates an initial hydrolysis by cellulolytic enzymes followed by a subsequent treatment by amylolytic enzymes yielded reducing sugars of 0.64g per gram of milled cassava peels. A reverse treatment where the cellulolytic enzymes were used to first treat the peels before a second treatment by amylolytic enzymes yielded 0.61g reducing sugar per gram of milled cassava peels. A simultaneous hydrolysis by both cellulolytic and amylolytic enzymes produced a maximum reducing sugar of 0.58g per gram of milled cassava peels. A modification that incorporates hot water pretreatment, simultaneous and consecutive treatment was carried out. The milled cassava peels treated with hot water at 100°C and amylase enzymes for 2 hours were further subjected to a simultaneous saccharification by cellulases and glucoamylase enzymes yielding a reducing sugar of 0.62g per gram of peels.

“Synthesis, Biological Evaluation of 1, 3, 4-Oxadiazole, Triazole and Uracil Derivatives from Poly (ethylene terephthalate) Waste”

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ABSTRACT
Poly(ethylene terephthalate) (PET) was hydrolyzed in aqueous NaOH using solar energy. PET is used as versatile reagent for the synthesis of a variety of heterocyclic compounds. Uracil 6a, b, 1,3,4-oxadiazole 9, 12a, b, 1,3,4-triazole 10, 14, thiadiazole 11a, b and 15 derivatives were synthesized from PET. The antimicrobial and antioxidant activities of the synthesized compounds were evaluated and showed significant activities.
Keywords: PET waste, Oxadiazole, Triazole, Thiadiazol, Uracil, Antimicrobial, Antioxidant.
Study of Water Soaked Porous Media for Temperature Reduction in a Space

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ABSTRACT

This research aimed to study how to passively reduce the air temperature by means of direct evaporative cooling to lower the air temperature in usage areas and guidelines to adjust the application on architecture such as building façade and a garden. The research was conducted in porous materials with the focus on controlling the porosity of material considered to be an important variable in this research by controlling the mixture of organic material. Rice husk was used in the research as the independent variant in material production due to it being a porous organic material that has the ability to absorb water and can be easily found locally. There are 3 trial processes in the research process; controlling the ratio of the Rice husk; control the size of Rice husk, and testing temperature after having gone through the material. The porosity of the husk and the gap has much to contribute to the material absorbing water. However, if there is a lot of porosity, the material durability would be less. Therefore, medium-sized husk was used in the research to make the porosity and size of the gap to be more than small husk resulting in much better ability to absorb water. Meanwhile, mixture of medium-sized husk will make it less porous than rough husk resulting in more durability as a result, medium-sized husk is used for it both water absorption and good durability features. The test on the temperature of the material in the case of normal wind, the temperature reduction of the material is proportional to wind speed. The result from the 3rd level wind speed at 0.80 - 1.00 m / s through the material is the temperature dropping 0.4 - 0.7 °C, depending on the timing. The test on hot air at the speed of 0.15 - 0.25 m / s through the material resulted in the

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temperature dropping up to 2.1 °C, which means if the heat increases, the difference in temperature would also increase.

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ABSTRACT

The objective of this study is to analysis composition of exhaust gas from generator powered by the charcoal gasifier updraft system as gas recycle to the air inlet in reactor charcoal gasifier for clean alternative energy. Using a simple updraft system on charcoal gasifier the methodology consisting of 7 stages, namely: (1) Designing, (2) Prototyping, (3) Capacity of Fuel (Charcoal Biomass), (4) Check Syngas, (5) Test Syngas Ignite Generator, (6) Analysis Composition of Exhaust Gas, (7) Test Gas Recycle from Generator to Air Inlet in Reactor Charcoal Gasifier. Charcoal gasifier means incomplete combustion of charcoal biomass resulting in production of combustible gases consisting of Carbon monoxide (CO), Hydrogen (H2) and traces of Methane (CH4). This mixture is called Syngas. Syngas can be used to ignite internal combustion engines or generator (both compression and spark ignition). First, made a prototype of charcoal gasifier in accordance with the design and test syngas to ignite generator. With using capacity varied of charcoal biomass, the result has achieved 250 g charcoal biomass can ignite generator during 5 minutes. Power of Generator with 3HP (Horse Power). Next step, analysis composition exhaust gas from generator powered by charcoal gasifier and surely the result composition of exhaust gas reasonable to use as gas recycle to the air inlet in the reactor charcoal gasifier for convert to energy again.

Keyword : Charcoal, Gasifier, Updraft System, Exhaust Gas, Gas Recycle

Evaluation of the antagonistic activity of Pseudomonas and Bacillus against Fusarium wilt of chickpea (Fusarium oxysporum f. sp. ciceris)

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ABSTRACT

Twenties isolates belonging to Pseudomonas and Bacillus genera (10 isolates for each genera) were sampled from several chickpea growing areas in Algeria, and their antagonistic activity were evaluated against Fusarium oxysporum f.sp. ciceris in preliminary test as potential biocontrol agents. Interesting isolates have inhibited the mycelia growth more than 40% in vitro tests. Fungal inhibition tests were performed using PDA medium in Petri dishes plate.
Morphological, physiological and biochemical properties were performed and it shows a high diversity between species and isolates. All isolates were evaluated for the production ability of protease, cyanide hydrogen, indole acetic acid, antifungal volatile and extracellular compound, showing various results. This is traduced in different rate growth inhibition by volatile compound method which B. subtilis (B39) and P. luteola (P39) have gave the highest efficiency to inhibit the mycelia growth of the FOC pathogen, 70.5% and 68% respectively. Regarding extracellular compounds, Pseudomonas P4 have given the highest inhibition mycelia growth with 66%, Whereas, P. luteola (P39) have given the highest zone inhibition with 18 mm. Concerning Bacillus strains, B61 and B45 had given the highest inhibition mycelia growth 77% and 12 mm in terms of inhibition zone, respectively. These encouraging results indicate that these bacterial isolates can be used in the control of Fusarium oxysporum f. sp. ciceris and must be completed by more In Vivo tests.

Keywords: Antagonistic bacteria, Bacillus, Pseudomonas, Biological control, Chickpea, Fusarium oxysporum.

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Estimation of Soil’s Pollution by Heavy Metals of the City Of Constantine

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ABSTRACT
The city of Constantine has known in last years a rapid urbanization and increasing of industrialization and urban transport density. These activities led to many ecological problems, due to different urban pollution. The quantitative and qualitative analysis of samples taken from the soil of the city of Constantine by X-ray spectrometer showed that they are characterized by a zinc, lead, nickel and chromium contamination. These heavy metals can result from contamination of human origin mainly related to agricultural and industrial activities and heavy vehicular traffic. On the other hand, natural contamination. Metals from anthropogenic inputs are present in fairly reactive chemical forms and entered thus far higher risks to naturally occurring metals that are often fixed at relatively inert forms. Analyzed samples also contain a metal trace element. This is mainly copper. These values do not exceed the limit values set by the AFNOR regulations.

Keywords: heavy metals, soil contamination
Pomace Olive Oil Extraction by D-Limonene as Alternative Solvent

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ABSTRACT
The present study is designed to evaluate the performances of d-limonene compared to n-hexane in pomace olive oil extraction. The extracted oils are quantitatively and qualitatively analyzed to compare the performance of d-limonene to n-hexane in terms of kinetics, fatty acid composition, and lipid yields. The fatty acids composition in extracted oils is quantified by gas chromatography-mass spectrometry (GC-MS). The effect of temperature extraction, particle size and the solid / liquid ratio on the yield of oil was also studied.
It appears according to the results, that d-limonene allows for the obtainment of higher yields without changing the most predominant fatty acids composition of different oils compared to n-hexane extraction.
The results also show that there is a highly significant difference in the effect of the extraction temperature, the particle size and the solid / liquid ratio used for this study, on the extraction yield using the n-hexane and the d-limonene as solvent.

Keywords: Pomace olive oil, Yield extraction, Green solvent, Fatty acids, Kinetic, Parameters.

Numerical Modeling of Unsteady Flow around Rotor Blades of Vertical Axis Wind Turbine

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ABSTRACT
The simulations of the aerodynamic field around a four-bladed straight–axis wind turbine (VAWT) are presented for different values of the Tip Speed Ratio λ (TSR), λ = 1.5 to λ = 3. Six different pitch angles are considered with symmetrical airfoil NACA0012. The Reynolds-Averaged Navier–Stokes equations are completed by the K-ω SST turbulence model. Multiple Reference Frames (MRF) model capability of a computational fluid dynamics (CFD) solver is used to express the dimensionless form of power output of the wind turbine as a function of the wind freestream velocity and the rotor’s rotational speed. The results show that the optimized turbine experienced maximum power coefficient of 0.41 in tip speed.
ratio of 2.5 and in pitch angle 6° for CFD simulations. The experimental data from the literature and computational results were then compared for verification.

Keywords: Wind Energy, Vertical Axis Wind Turbine, Computational Fluid Dynamics, Power Coefficient.

<table>
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<th>Antioxidant, Antimicrobial and Anti-Inflammatory, Activities of Essential Oils of Algerian Aromatic Plants</th>
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<td>Université des Sciences et de la Technologie Houari Boumediene (USTHB), Faculté de Génie Mécanique et Génie des Procédés, Département de Génie de l'environnement, Bab Ezzouar, Algeria</td>
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<td>Mohamed Hazzit</td>
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ABSTRACT

The present study was conducted to evaluate the in vitro antioxidant, anti-inflammatory and antimicrobial activities of the essential oils of Teucrium polium subsp.Capitatum and Origanum floribundum from Algeria. A total of 78 and 55 constituents were identified, representing 92 and 98.4% of the total chemical composition of Teucrium and Origanum essential oils, respectively. The essential oil of Teucrium was dominated by t-cadinol (18.3%), while that of Origanum was characterized by thymol (33.6%) as main constituent. The antioxidative potential of the samples was evaluated using two separate methods, inhibition of free radical DPPH and reducing power. Origanum oil was the most able to reduce DPPH (IC50= 250µg/ml). The both plants oils were able to inhibit the 5-lipoxygenase (IC50= 125.7µg/ml for Origanum and 482.52µg/ml for Teucrium). The antimicrobial test results showed that the essential oil of Origanum had the best antimicrobial property; it strongly inhibited the growth of test microorganisms studied.

Key words: Essential oils, total phenolic, Teucrium polium, Origanum floribundum, GC / GC-MS, biological activities.

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ABSTRACT

Recently in the citadel of learning where I work in South West Nigeria, a group emanated with a campaign for the Green Sustainability in terms of keeping our environment tidy, recycling of some useful waste products, afforestation procedures to prevent erosion, deforestation, loss of habitats and evaluable resources to mention a few. Curiously as a history teacher I ruminated on how green sustainability could be practised in my locality south west prior the advent of colonial dictatorship in Nigeria. In light of this, this work will focus on various green sustainability measures and technology involvement in pre-colonial south west Nigeria. Majority of the research work will be from archival document, oral tradition via interview and related literature.
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Modeling And Simulation of A Streaming Plane Solar Collector of A Modular Solar Still

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ABSTRACT
In this paper, we present a numerical study of a streaming collector of a modular solar distillation system working in natural convection mode. Equations governing the heat and mass exchange are established using the nodal method. Results determined the temperature evolution of the various components of the streaming collector. These temperatures increase along the solar collector. The variation of the evaporated yield and the relative humidity are identical to water vapor temperature variation. The effect of different parameters as solar radiation, water flow rate and gap glass-absorber on the solar collector vapour production are also examined. Result shows that increasing the solar radiation leads to more production of the water vapour. On the other hand, increasing the water flow rate and the gap glass-absorber decreases the production of water vapour

Keywords: solar energy, water distillation, streaming collector

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Numerical Modeling of Unsteady Flow Around Rotor Blades of Vertical Axis Wind Turbine

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ABSTRACT
The simulations of the aerodynamic field around a four-bladed straight –axis wind turbine (VAWT) are presented for different values of the Tip Speed Ratio $\lambda$ (TSR), $\lambda = 1.5$ to $\lambda = 3$. Six different pitch angles are considered with symmetrical airfoil NACA0012. The Reynolds-Averaged Navier–Stokes equations are completed by the K- $\omega$ SST turbulence model. Multiple Reference Frames (MRF) model capability of a computational fluid dynamics (CFD) solver is used to express the dimensionless form of power output of the wind turbine as a function of the wind freestream velocity and the rotor’s rotational speed. The results show that the optimized turbine experienced maximum power coefficient of 0.41 in tip speed ratio of 2.5 and in pitch angle 6° for CFD simulations. The experimental data from the literature and computational results were then compared for verification.

Keywords: Wind Energy, Vertical Axis Wind Turbine, Computational Fluid Dynamics, Power Coefficient
Improved anaerobic digestion in the thermophilic phase by a thermal pretreatment

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ABSTRACT
The experimental study was conducted to evaluate the effects of thermal pretreatment of secondary sludge on anaerobic digestion using as substrate a dairy rejection consisting primarily of whey. The inoculum was subjected to heat treatment 120 ° C, 160 ° C, 180 ° C for 2 hours, while considering the slurry without a corresponding treatment temperature equal to 20 ° C.

The trials were conducted in a series of reactors of 250ml mesophile stage 37 ° C.

The effect of heat treatment on the physicochemical parameters of the sludge before incubation shows that:

- The soluble matter concentration greatly increases the required minimum time of treatment to achieve the highest dissolution rate is equal to 30 min.
- The solubilization of the COD increases proportionally with the treatment temperature, an increase in the treatment temperature of 120 ° C results in a COD of solubilization ratio of 7% and a temperature of 180 ° C it is 25%, and solubilization degree reached 34% for a temperature of 180 ° C.
- The best treatments (160 ° C and 180 ° C) result in a production of biogas from 2.7 to 3.5 times that of the untreated septage to a time equal to 25 days.

Keywords: Anaerobic Digestion, Biogas, prétraitement

Numerical Study of Transport of Insulin Aerosol into the Lungs at the Level of Trachea

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ABSTRACT
In this work, we investigate the transport of aerosols in the upper airways of the human lung. We adopt here a kinetic point of view: the aerosol is governed by a partial differential equation on a probability density which different variables describe particles. This approach is derived from the kinetic theory of gases of Maxwell et Boltzmann (Cercignani, et al., 1994). Given the complexity of the geometry of the alveoli our study was limited to the trachea, which is considered as a cylindrical pipe flattened back, expanded from larynx to the carina; its physiological role is: conduction, humidification and heating the air inhaled with the particle capture.

The numerical modeling of flow and transport of particles becomes an indispensable complementary tool allowing the numerical prediction of the behavior of the aerosol in the respiratory tract. The mathematical modeling of transport in the tracheobronchial tree has already been the subject of several studies, including theses (Mauroy, et al., 2004) and (Soualah, et al., 2008). We found in the previous two books a detailed description of the modeling of the pulmonary tree, its geometry and physiology as well as the ventilatory mechanics. This area of research is very active. Naturally, the complex geometry and the mobile of the lung, the different flow regimes of the air, the nature of the aerosol, the aerosol/liquid interaction are criteria to be considered when establishing the model.

This study focuses on the simulation of pulmonary transport in the trachea of insulin aerosol, the Vlasov equation (Moussa, 2009) is an equation describing the behavior of the aerosol into the trachea. To solve this equation, we used the finite difference method with the implicit scheme.

The simulation results show the variation of the density of the particles as a function of the time and the position. From these results it was found that the time of the Transport is very short, so the displacement of this drug is very fast at the trachea. This simulation gives us a general idea of how the particles are transported along the trachea.

Keywords: transport, kinetic equation, Vlasov equation, insulin, medicine, modeling, finite difference, lung, aerosol trachea.

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Issues and Challenges of E-Waste Management in Nigeria Towards A Sustainable Development
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ABSTRACT
The general issues of electronic waste (e-waste) is one of the major environmental challenges facing humanity today; yet it is not receiving enough attention from those responsible for the planning and designing of the built environment especially in Nigeria. After a review of extant literatures on many resource management materials, a list of factors, criteria and determinants were produced and utilized in other to provide strategic management solutions to Nigeria’s e-waste problems such as reduce, recycle and re-use. A good knowledge of the generation, transportation, collection/disposal, treatment/recycling and general management will go a long way towards helping the environmentalists in planning and designing, to handle the problems associated with e-waste. This paper therefore examines the e-waste systems with particular reference to the core areas of the Bauchi metropolis in Nigeria. Field surveys of interview schedules and observations were carried out in three selected zones with proper analysis and discussions. The results show that the (Information and Communication Technology) ICT sector produces the largest amount of waste in the city and also highlighted the implications of the result for the environment and provision of sustainable management of e-waste solutions with corresponding policy statements.

Keywords: Core areas, environment, generation, management, Waste

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ABSTRACT
A Knowledge Management System (KMS) refers to a system for managing knowledge in organizations, supporting creation, capture, storage and dissemination of information. KMS is viewed as an essential tool to extract tacit knowledge from data, convert it to explicit knowledge and preserve the same for future utilization. The system involves creation of a knowledge repository using the extracted knowledge and disseminating it in the form of query response systems. In this work, we have proposed the architecture for an administrator-centric KMS which revolves around the concept of Knowledge Administrator (KA) with a Knowledge Worker (KW) standard. KA is responsible for maintenance as well as security and efficiency of the framework which are essential for a reliable KMS. In this system, the Knowledge Worker (KW) structure is hierarchical which provides scope for building a knowledge repository which is often encountered to be critical in some of its applications. The Knowledge Base (KB) is built on tag extraction based on inverted indexing. The system was a learning automation which used the available client feedback in

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response to the query answered from the knowledge base. The knowledge repository interacted with data using a framework created based on inverted indexing. A salient feature of the architecture is the notion of Probabilistic Optimum Performance (POP) factor used for rating KWs. The rating which is determined by past performance and client feedback acts as a driving force for a more comprehensive KB as its interaction with its environment increases.

Index Terms: Knowledge management system, knowledge administrator, KMS architecture, POP factor, client feedback

### Query Optimization in Search Engines

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**ABSTRACT**

This paper aims to take a look at way a search engine works when a user query is posted for search. The query processing part involves optimization of the user queries so that unnecessary and redundant parts of the query may be removed. Only the keywords are forwarded to the next stage of searching, which decreases the length of the posted query as well as the load on the further stages to increase throughput as well as response time. A number of linguistic aspects like methods of optimization, (namely stop words and name words that can be deleted without any change to the meaning of the original query) have been discussed in this paper. The spellchecking of the user query has been looked upon so that it is lingual and in sync with an English Dictionary.

Keywords: - processor, optimization, stop word, name word, spell check

### Genetic analysis an in vitro selection for drought tolerance in wheat (Triticum aestivum L.)

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**ABSTRACT**

Selection for drought tolerance of fifteen wheat genotypes (five parents and their ten F1 hybrids) was performed under laboratory. Three different callus induction media were used to determine the optimum hormone balance for callus induction from mature embryos of wheat genotypes and also to study the genetic response of the studied wheat genotypes to callus induction. MS media supplemented with different concentrations of polyethylene glycol (PEG) were used to evaluate the obtained calli for drought tolerance. Then the drought stressed calli were then transferred to plant regeneration medium for studying their ability to regenerate.

M2 medium (2mg/l 2,4D +300 mg/l casein hydrolysate) gave the highest callus induction frequency (85.5%) followed by M1 (2mg/l 2,4D) medium (85%) and M3 (2mg/l 2,4D +4 mg/l AgNo3) medium (81.6%). The differences between the three callus induction media were significant for all characters except callus induction frequency (CIF %) and M2 medium
was the best media for callus induction. Regeneration was obtained in all genotypes under 0, 5 and 10% PEG, and in most genotypes under 15% PEG, but was completely absent under 20% PEG. Data obtained revealed that the parental cultivars, Giza168 and Sids13 and their hybrid (Giza168 x Sids13) were the most drought tolerant genotypes, while the parent Misr1 was the most sensitive to drought. A set of ISSR markers for drought tolerance and (BSA) approach were used in molecular studies. Five tolerant molecular markers appeared in positive molecular markers for drought tolerance.

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<th>Barka Mohammed Salih</th>
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Appreciated by its nutritional quality and taste, yogurt is a widely consumed food in Algeria. The incorporation of the flavoring ingredients such as carob powder in yogurt can strengthen its health properties and result in a significant consumption. A better understanding of qualitative properties of the formulation yogurt and carob adapts the most appropriate technological processes and reduce manufacturing defects. We conducted a follow-up assessment of physicochemical and microbiological parameters, having enriched the preparation of yoghurt by 2% of carob. The analyzes showed that overall, the average contents of dry matter, fat, protein and acidity are satisfactory, except for sugars or rate was slightly above the required standard. As for the microbiological quality, it has been satisfactory. We note the absence of all pathogens. One of the main objectives assigned to this work is to explore the impact of fortification with carob flour on the organoleptic properties of yogurt. The sensory evaluation that was conducted in this regard revealed that enriching the yoghurt with the carob was generally appreciated by the tasters. Finally, based on experimental tests, we have subsequently shown that the addition of a high concentration of 5% carob changes the rheology of yoghurt making it less firm. This effect is demonstrated by the study of the antibacterial activity of carob polyphenols on mixed fermentation Culture Streptococcus thermophilus and Lactobacillus bulgaricus, the results showed low inhibition therefore the affection of the texture of yogurt by polyphenols carob remains a probability.

Keywords: yogurt, carob, Analysis, Polyphenols.

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<tr>
<th>El-Kahina Sari</th>
<th>Numerical Evaluation of Stress Field and Fracture Mechanical Parameters using Energetic Method</th>
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<td>GICICRST1606056</td>
<td>El-Kahina Sari</td>
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<td>Mourad Zergoug</td>
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<td>Scientific and Technical Research center in Welding and Control Algeria, E-mail: <a href="mailto:mzergoug@yahoo.com">mzergoug@yahoo.com</a></td>
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5th International Conference on Researches in Science and Technology (ICRST), 1-2 September 2016, Istanbul
Yıldız Technical University, 34349 Beşiktaş, Istanbul, Turkey
ABSTRACT
The main purpose of this paper is to develop a code to determine the stress field and the fracture mechanical parameters of cracked thin plate made with aeronautical material. For that we are using G-θ method which is an energetic method calculates the energy release rate G by derivating the potential energy of a creaked structure, so we affect an integration on the ring surrounding the creak tip. The numerical resolution is done by finite element method using the concentric triangular mesh near the creak tip. The G-θ results are very good, requiring a single mesh, simple element and one mechanical calculation raising the problem of the singularity at the creak tip unlike some other method.

Keywords: G-θ method, the energy release rate, the stress intensity factor, the finite element method, Aluminum alloy, Gauss point numerical integration.

Fahad Bin Abdullah
GICICRST1606057
Oil to Gas: LNG Import Multiplicity in Asia for Strategic Deliberation

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Professor, Department of Environment & Energy Management, Institute of Business Management (IoBM), Pakistan

ABSTRACT
Asia’s share of global demand for natural gas has increased from 13 to 18 percent over the past decade and liquefied natural gas (LNG) imports are estimated to increase by 60 percent by 2030 uncovering the natural gas as Asia’s “fuel of the future” as depicted in research studies [1]. Demand of natural gas in Pakistan estimated around 8 Billion Cubic Feet (BCF) against a total supply of 4 BCF, creating a shortfall of 4 BCF [2]. For this reason the fuel and energy segment in the country at present is in turmoil. The solid accentuation has been laid on importing gas in the form of LNG and also through cross-border gas pipelines. Although Pakistan and Asia is still the new entrants in the global natural gas market where regional legislative influences infrastructure developments. Nevertheless, this paper will argue for Pakistan & Asian nations to work towards the creation of robust trade policy of natural gas as a trading hub, keeping in mind the end goal to diminish the stun of oil value instability and advance territorial incorporation through LNG exchange. This study also explores LNG importers approaches and clarifies examples of LNG imports contrast between Asian states.

Fast Response Ambulance Air Drone

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ABSTRACT
Summary: This fast response ambulance drone is designed to reach a patient in record time, faster than any ambulance car can. While the idea of an ambulance drone exists, it is restricted to the function of a compact automated external defibrillator (AED). This drone is designed to respond to a wider range of patients, with different types of cases, such as cardiac arrest, anaphylactic shock, and trauma patients, while being operated by the control center’s aid.

Purpose: In Riyadh, Saudi Arabia, it takes an average of 36 minutes to respond to an emergency situation, due to traffic, amongst other factors. The drone will eliminate the need for roads, since it is very compact in size, and will be able to fly at speeds approaching 100 km/h.

The drone will have an arsenal of tools to deal with specific types of cases, as a preliminary model, which might eliminate the purpose of the ambulance car as a whole, for some patients.

Key Features

- Patient location approximation technology
- Very high resolution camera/thermal camera
- Automatic compact AED
- Injection selector
- Miniature first aid kit
- Compact neck cast

Conclusion
After modeling and calculating, the drone would weigh about 5 kg and would carry double its weight. That would allow it to fly at its full speed optimally, and give full patient assistance with minimal time requirement and with traffic out of the equation.

Lamfu Fabrice Yengong  
GICICRST1606059

Development of a Simple Biogas Digester as A Source of Renewable Energy and Sustainable Livelihood

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ABSTRACT
The Majority of Cameroonian living in the rural areas depend on agriculture for their sustainable livelihood. Many have no access to electricity and they use firewood as their major source of energy for cooking. This situation is not sustainable and also has a negative impact on the environment. The biogas digester is not only a cost effective solution to address these concerns but also presents less negative impact to the environment.

It is with is in mind that we have developed a biogas digester that is a simple, yet powerful sanitation technology option that is capable of: (i) processing human and animal feces into safe and free fertilizer; (ii) reducing cases of groundwater contamination by processing feces instead of having it discharged untreated; (iii) creating biogas for use in cooking and household lighting; (iv) empowering women and families by reducing their time spent on gathering fuel wood and cooking; (v) reducing indoor air pollution brought about by burning fuel wood; and (vi) eliminating carbon dioxide (CO2) and methane (CH4) emissions during fermentation of openly-discharged sewage, thereby helping to reduce the threat of
climate change. We therefore present this simple technology that has the potential of transforming lives especially in rural areas.

<table>
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<tr>
<th>Fuzzy Complex Valued Metric Spaces</th>
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<td>Fatma Mustafa Moftah Omiman</td>
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**ABSTRACT**

In this paper, we introduce the concept of fuzzy complex valued metric space by using the notion of complex fuzzy set, the topology induced by this space and some related results of them. In order to illustrate our results we equip the paper with some examples.

**Keywords:** Complex valued metric space, fuzzy metric space, complex fuzzy set, fuzzy complex valued metric space.

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<tr>
<th>Finite Element Analysis of Timber Used for Roofing Truss in Kano-Nigeria</th>
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<tr>
<td>Hamza Sulayman, Abdullahi</td>
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**ABSTRACT**

In northern Nigeria Timber is mostly used in making roof trusses. Engineers and architects choose timber because of its cost, availability, adaptability and high strength to weight ratio. Five timber species available in Kano market namely Abuba, Agba Black Afara, Mailana and White Afara were selected for experimental test to determine its engineering properties and using the parameters a finite element model was developed to determine the most suitable timber for roof trusses.

The results of the tests indicates that the engineering properties of timbers varies according to the species of trees, the direction of the applied load to its grain and its density and moisture content.

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<th>An Efficient and Fault Tolerant Resource-Management System in the Grid</th>
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<td>Bahman Arasteh</td>
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<td>Sajjad Pirahesh</td>
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<td>Department of Computer Engineering, Tabriz Branch, Islamic Azad University, Tabriz, Iran</td>
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5th International Conference on Researches in Science and Technology (ICRST), 1-2 September 2016, Istanbul
Yildiz Technical University, 34349 Beşiktaş, Istanbul, Turkey
### ABSTRACT

The likelihood of failure occurrence in the grid resources during a service execution is not negligible and should be considered in the grid resource management system. This paper proposes an efficient method to improve the reliability of the grid Resource-Management Systems (RMS). The proposed method improves the dependability of the grid RMS using a minimal amount of resource and information redundancy. This method uses a dynamic redundancy to enhance the reliability of RMSs with a limited overhead. An analytical approach (Markov Chain) is used to evaluate the effectiveness of the proposed method on the reliability of the grid services in the presence of permanent and transient faults.

**Keywords:** Grid system, Resource Management Architecture, Fault Tolerance, Re-liability

### ABSTRACT

Emulsion polymerization is one of the major techniques for the manufacture of adhesives, coatings, thermoplastics and elastomers. In miniemulsion polymerization, (Asua 2002) relatively stable oil droplets within a size range of 500 to 5000 Å are prepared by emulsifying a monomer in a medium, generally water, with the aid of a surfactant and a hydrophobic compound. The understanding of the mechanism ruling miniemulsion polymerization depends strongly on an accurate determination of the particle size and size distribution which are the most important miniemulsion parameters because they affect directly both the miniemulsion stability and droplet nucleation. Small angle neutron scattering (SANS) is the single technique which (Bouanani et Al) makes possible the miniemulsion structural study free of a specific sample preparation.

In this work, the SANS spectrum was exploited to investigate the inner structure of poly(trifluoropropylmethyl)siloxane (PTFPMS) nanoparticles obtained by the miniemulsion polymerisation of the1,3,5-tris (trifluoropropylmethyl) cyclotrisiloxane (D3F) (Bouanani et Al) with hexadecyldimethylammonium bromide (HTAB) employed as emulsifier. The results of the SANS spectra analysis are compatible with the co-existence of two populations of polydisperse mixed micelles, one of large particles with a narrow size distribution (R1 =1160 Å and p1 = 0.12) as deduced from the DLS precedent experiments and the other consisting of very a small polydisperse spherical particle population (R2 =190 Å and p2 = 0.40). It was shown that the contribution to scattering of the large particle component consistent with the SANS data should be less than about 45% of the total particle volume fraction. These results were corroborated by the spherical particle shape and the quite large particle size distribution observed on the TEM images.

### ABSTRACT

Treatment of Urban and Reject Industrial

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5th International Conference on Researches in Science and Technology (ICRST), 1-2 September 2016, Istanbul
Yıldız Technical University, 34349 Beşiktaş, Istanbul, Turkey
ABSTRACT
Summary: Industrial development and urban concentration are sources of pollution. Industrial development creates a new kind of pollution resulting from discharges of industrial wastewater. With modern industrial expansion, this type of pollution has taken in certain sectors in developed countries an aspect that can be described as catastrophic. With urbanization, the impervious surfaces of cities have developed considerably and pollution of urban runoff water (which may contain inorganic or organic materials, hydrocarbons and pesticides) is in addition to other types of pollution. The domestic, urban, industrial and agricultural water are manifold. Water is the recipient of many wastes, residues, urban waste, agriculture and industries. It is therefore inevitable to have polluted water. The method of treating waste water depends on the nature and composition of the water to thereby treat and the use for which the treated water is intended [1]. Among the most effective method of treatment of industrial waste is adsorption on siliceous materials [2]. In addition to the industrial pollution problem making the scarce drinking water, siltation Algerian dams, due to the deposition of sediments is a major concern of hydraulics and jumpoff, as it leads to a reduction of capacity in stored water. For example, for Fergoug dam, located north-west Algeria, the siltation rate reached 78.3% in 1997 [3]. The mud of this dam has attracted attention for its various applications as fertilizer for agricultural land as an addition in cement and as an adsorbent. We have undertaken a work promoting this clay based material sediments and available in large quantities from dredging the dam. In this study we chose siliceous materials for treating certain discharges, such as mud activated. We chose to study a rejection of an urban site that is not located near an industrial site, and we treated rejection with silt heat treated (V300) and hydrotalcite [Zn-Al-CO3] for comparison; we processed more releases of the company textile SOTEXHAM (industrial area ORAN) by various materials. Regarding urban rejection, hydrotalcite shows a strong affinity to anions while the mud heat treated exhibits a high affinity for cations and organic compounds such as phenol. For the discharge of textile, a large reduction of the phenol concentration in the rejection of the textile is obtained particularly with the activated sludge with the ammonium chloride solution and the reduction in COD and BOD.
Keywords: absorbent, polluted water discharges, activated mud.

Framework for Antecedents of Trust in social Commerce
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ABSTRACT
While technology is upgraded rapidly, Web 2.0 has moved the traditional e-commerce into a social one where consumers-buyers interaction has been changed from being one-to-one into a community based which gives all parties the opportunity to collaborate online. Trust is essential in traditional e-commerce as it has an essential role in the social commerce environment where consumers should rely on feedback and advices that they usually collect from social platforms. While trust is essential in traditional e-commerce, it has also an essential role in the social commerce environment where consumers should rely on feedback and advices that they usually collect from social platforms. Despite the importance of factor in virtual environments, there are a limited number of studies in this field and thus what
factors are important to establish this behavior? As a result, many issues are still unknown. To fill this gap, this paper has the opportunity to review the literature of trust in social commerce environment and propose a framework for the antecedents of trust in social commerce environments.

Keywords: social commerce, trust, web 2.0, social media, ability, service quality, risk, social support

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ABSTRACT
Effective communication of the sensitivity of risk to uncertainty in the values of input variables is central to decision making. Visualization – through its numerous explorative and communicative advantages – can provide a means for exploring the influence uncertainties in model input variables have on model’s output and risk. Also, it facilitates decision making by interactive communication of possible risks under different hypothesized conditions. The literature shows how uncertainty and risk communication can contribute to improve risk perceptions and the decision-making process, but little work has been done on the development of interactive visualization techniques for exploring model and risk sensitivity to the uncertainty of the input variables. This paper addresses the role of visualization as a means of model and risk sensitivity exploration. In addition, it presents two interactive visualization techniques under development to help the decision-maker explore the effect uncertainties in model input variables have on output and risk. To illustrate the technique, we describe an application prototype for investigating financial modeling.

Categories and Subject Descriptors
I.6.9 [Simulation, Modeling, and Visualization]: Visualization - information visualization, visualization techniques and methodologies.
H.5.2 [Information Interfaces and Representation (HCI)]: User Interface – graphical user interfaces, interaction styles.

Keywords: Information visualization, Interaction Design, Uncertainty, Risk Sensitivity.

Insight into the Distribution and Diversity of Fungal Communities in Non-polar Karakoram Valley Glacier (Passu), Pakistan

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5th International Conference on Researches in Science and Technology (ICRST), 1-2 September 2016, Istanbul
Yildiz Technical University, 34349 Beşiktaş, Istanbul, Turkey
ABSTRACT

It is the first report on the isolation and culturable diversity of psychrotrophic fungi from glacial ice, water and sediment samples collected from Passu glacier, Pakistan, and study of some important characteristics related to their physiological requirements and growth. A total of 24 fungal isolates were identified through conventional and molecular techniques (18S rDNA sequencing). The most predominant genus was Penicillium, followed by Mrakia, Cladosporium, Pseudoeuotium, Fontanospora, Trichoderma, Sporobolomyces, Phoma, Beauveria and Pseudogymnoascus while one isolate belonged to Pleosporales order and one belonged to class Dothideomycetes. Tolerance of all isolates to wide pH and temperature range and increasing salt concentrations was studied. All the fungal isolates showed growth between 4 and 37°C, whereas some fungal isolates were also able to grow at 45°C. Most of the isolates (~80%) showed growth at pH 1-13 except 5 isolates that could not tolerate pH 1. Fungal isolates were able to grow at salt concentration between 2-26% with maximum range of all-around 16% and above, i.e. all were found moderate to extreme halophiles. Fungal isolates were screened for their antimicrobial activity against clinically isolated bacterial and fungal strains and the findings were quite promising. Fontanospora sp. was showed activity against Staphylococcus aureus and Candida sp. Fungal isolates were screened for the production of extracellular enzymes (amylase, cellulase, deoxyribonuclease, lipase, phosphatase and protease) of valuable commercial and economic importance. Many isolates were able to produce one or more enzymes, whereas, Sporobolomyces ruberrimus produced all enzymes except lipase. We conclude that polyextremophilic fungi from Passu glacier have a very promising potential as a new source of antimicrobials and enzymes and also several applications as halophiles.

Key words: Non-polar glacier, Hindu Kush-Karakoram-Himalaya glaciers, fungal diversity, phylogenetic analysis.

Phytochemical Screening and Antifungal Activity of Moringa Oleifera on Some Selected Fungi

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Bichi S.S
Department of Science Education, Ahmad Bello University, Zaria

Mari J.S
Department of Science Education, Ahmad Bello University, Zaria

ABSTRACT

Phytochemical screening of the ethanolic extract of Moringaoleifera and its antifungal activityon some selected fungi was investigated using the disc diffusion and broth dilution techniques. Results ofphytochemical screening of the ethanolic extract shows the presence of alkaloids, glycoside, flavonoids, reducing sugar, saponins and tannins. Similarly, it was found that the ethanolic extract has antifungal potential on the tested fungi. The minimum inhibitory concentration for the leaf ethanolic extract was found to be 375mg/ml. therefore Moringaoleifera could be used against these fungi pending further research.

Keywords: Moringaoleifera, ethanolic extract, phytochemicals, antifungal activity.

5th International Conference on Researches in Science and Technology (ICRST), 1-2 September 2016, Istanbul
Yildiz Technical University, 34349 Beşiktaş, Istanbul, Turkey
Calculations of Curved Space-Time within Sun and Mars

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ABSTRACT
One aspect of the relativistic space-time curvature due to the presence of mass is the breakdown of Euclidean (at-space) geometry. For example, the diameter of a spherical mass is greater than the result obtained by dividing the circumference by Pi. The objective of this article is to determine the amount of discrepancy between "relativistic" and "non-relativistic" diameters for objects such as the Sun and Mars. This is the outcome of a small exercise I engaged in with my tiny understanding of relativity; serious relativists please forgive me (and set me straight as necessary!) (In this article equations in geometrized units are denoted by an asterisk.)

Keywords: Space-time/Sun/mars/relativity/Curvature/ Euclidean

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<th>Cheurfi Wassila</th>
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<td>Use of the Sludge of Sewage Treatment Plant in Agriculture</td>
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<td>W. Cheurfi</td>
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<tr>
<td>Constantine Mentouri University, Department of Chemistry, Faculty of Sciences, Pollution and Water Treatment Laboratory, Route Ain El Bey, Constantine 25000, Algeria</td>
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<td>H. Bougherara</td>
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<td>Constantine Mentouri University, Department of Chemistry, Faculty of Sciences, Pollution and Water Treatment Laboratory, Route Ain El Bey, Constantine 25000, Algeria</td>
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<td>B. Kebabi</td>
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ABSTRACT
Algeria has more than 2 million km² of drylands, representing approximately 4/5 of the total area of the country. Soils are skeletal and low in nutrients essential to plant life. The use of sludge of sewage treatment plants proves an alternative for improving the bio-physical and chemical properties of soil.
The purpose of this study is the characterization of sludge produced in the sewage treatment plant from the city of Khenchela before spread them.
The sludge analysis shows that it contains an acceptable organic material 0.476 mg/g and primary nutrients such as N, P, K with values 0.05 mg/g, 32.69 mg/g, 23.19 mg/g, respectively, and secondary nutrients such as Ca particularly high content, Mg and S that justify their use in agriculture. The analyzed sludge also contains trace metals. These are mainly the following: Fe, Cu, Cr, Ni, As, Pb, Zn with the following concentrations: 53.3 mg/g, 0.54 mg/g, 0.17 mg/g, 0.06 mg/g, 0.04 mg/g, 0.63 mg/g, 3.13 mg/g respectively. These values do not exceed the limit values laid down by the CEE regulation, which therefore limits vis-à-vis risk of contaminating crop up and man.
Keywords: sludge, sewage treatment plants, agriculture.
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<th>Author(s)</th>
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<tr>
<td>Zainab Ibrahim Rafindadi</td>
<td>Measurement of Doppler Shift of Sound with the Observer in Motion</td>
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<td>ABSTRACT</td>
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<td>Doppler effect is the apparent variation in frequency of any emitted wave, such as wave of light or sound, as the source of the wave approaches or move away, relative to an observer (Kashimbila, 2004). Doppler shift is found useful in Astronomy, Medical imaging, satellite communication etc. In this research the study of Doppler effect was conducted in order to determine the Doppler shift of sound waves. The Doppler shift measurements were made by a sound receiver fixed on a turning disc in motion relative to a stationary source. The study describe measurement of the Doppler shift of sound waves under the less than the ideal conditions found in classroom or laboratory, using simple available materials. The signal sent out by the source is received by the microphone (observer) periodically as the disc turns and an FM radio receives the signal at about 104 MHz and transmits it to the oscilloscope after amplification. The frequency appears to increase when the observer is moving towards a stationary source and decreases when the observer is moving away from the source.</td>
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<td>Kabiru Muhammad</td>
<td>Performance Analysis of two Modified Broyden Methods for Solving Systems of Nonlinear Equations</td>
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<td>ABSTRACT</td>
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<td>In this paper an analysis on the performance of two modified Broyden method is presented: Broyden – like Method (BLM) and Trapezoidal Broyden Method (TBM) as proposed by [1, 2]. Four test problems with standard initial points [3,4] were used to compare the performance of the two methods in terms of CPU time and Number of Iterations. Numerical results have shown that there is little difference between the two methods in terms of Number of Iterations. Further analysis using the indices of [5] has also shown that TBM is superior to BLM in terms of CPU time.</td>
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<td>Asgarali Bouyer</td>
<td>Artificial Bee Colony Algorithm for Load Balancing in Decentralized Grid scheduling systems</td>
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ABSTRACT

There are a couple of schedulers in decentralized grid scheduling systems, which work together in a parallel manner. In most cases, these schedulers have no information about the scheduling status of other schedulers. As a result, there might be lack of balance in different domains of a grid system. In this paper, we have developed artificial bee colony (ABC) algorithm for dynamic dividing and scheduling jobs via decentralized schedulers. The proposed method significantly enhances the load balance on the resources. Furthermore, in the proposed method, the schedulers do not communicate with each other; rather, each scheduler functions independently. Hence, it can be argued that the amount of overload produced in the proposed method is less than those produced in the methods where the schedulers communicate with each other. Moreover, the proposed method does not need primary information about the capacity and power of the resources which is compatible with the variable and heterogeneous nature of decentralized scheduling. In this paper, Matlab simulating software was used to compare the proposed method with the OSL decentralized scheduling method. The results of the simulations revealed that the proposed method is significantly better than the OSL method.

Keywords: Scheduling, task load, load balance, schedulers’ communication, decentralized grid

Constant DC Output Boost Converter For Solar System Source Model

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ABSTRACT

In this paper, we introduce a subclass of analytic functions by using the subordination concept between this function and generalized derivative operator. Some interesting properties of this class are obtained.

Keywords: Analytic functions, derivative operator, subordination.
Evaluation of the antagonistic activity of Pseudomonas and Bacillus against Fusarium wilt of chickpea (Fusarium oxysporum f. sp. ciceris)

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Abstract
Twenty isolates belonging to Pseudomonas and Bacillus genera (10 isolates for each genera) were sampled from several chickpea growing areas in Algeria, and their antagonistic activity were evaluated against Fusarium oxysporum f.sp. ciceris in preliminary tests as potential biocontrol agents. Interesting isolates have inhibited the mycelia growth more than 40% in vitro tests. Fungal inhibition tests were performed using PDA medium in Petri dishes plate. Morphological, physiological and biochemical properties were performed and it shows a high diversity between species and isolates. All isolates were evaluated for the production ability of protease, cyanide hydrogen, indole acetic acid, antifungal volatile and extracellular compound, showing various results. This is traduced in different rate growth inhibition by volatile compound method which B. subtilis (B39) and P. luteola (P39) have gave the highest efficiency to inhibit the mycelia growth of the FOC pathogen, 70.5% and 68% respectively. Regarding extracellular compounds, Pseudomonas P4 have given the highest inhibition mycelia growth with 66%, Whereas, P. luteola (P39) have given the highest zone inhibition with 18 mm. Concerning Bacillus strains, B61 and B45 had given the highest inhibition mycelia growth 77% and 12 mm in terms of inhibition zone, respectively. These encouraging results indicate that these bacterial isolates can be used in the control of Fusarium oxysporum f. sp. ciceris and must be completed by more In Vivo tests.

Keywords: Antagonistic bacteria, Bacillus, Pseudomonas, Biological control, Chickpea, Fusarium oxysporum.

Quantitative Assessment of Heavy Metals in Coal-Fired Power Plants Waste Water

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Abstract
Coal fired power plants are water intensive sources of energy generation. Waste water production from power plants contain heavy metals that can cause serious environmental and health problems.
dumped by these coal-fired power plants is significant threat to our environment and human health. The electric power sector is the major source of toxic wastes in Pakistan, due to coal ash and coal waste, which contain toxic heavy metals such as Cr, Co, Cu, Pb, Mn, Ni, Zn, Hg, Ag, and As. Different Environmental report shows nearly all power plants in Pakistan discharge toxic coal ash or wastewater into public water. This paper will shed some light on how badly Coal Industry is poisoning our water and will discuss the characteristics of wastewater discharge from coal based thermal plants. The objective of this paper is to quantitatively evaluate heavy metals Cr, Ni, Hg, As, Cd, Pb, Co, and Mn emissions in coal ash or coal combustion waste water of a coal power plant with a capacity of 1 MW for various types of coals. At the end, some plausible recommendations are given for government of Pakistan to handle with these issues.

Key Word: Coal Fired Power Plant, Waste Water, Heavy Metals, Ash.

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Survey of Similarity Join Algorithms based on Map Reduce

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ABSTRACT
Map Reduce stays an important method that deals with semi-structured or unstructured big data files, however, querying data mostly needs a Join procedure to accumulate the desired result from multiple huge files. Indexing in other hand, remains the best way to ease the access to a specific record(s) in a timely manner. In this paper the authors are investigating the performance gain by implementing MapFile indexing and Join algorithms together. Keywords— Hadoop, BigData, MapReduce, Join Algorithms, Indexing.
**ABSTRACT**

Similarity Join is a data processing and analysis operation that retrieves all data pairs whose their distance is less than a pre-defined threshold. The similarity join algorithms are used in different real world applications such as finding similarity in documents, images, and strings. In this survey we will explain some of the similarity join algorithms which are based on MapReduce approach. These algorithms are: Set-Similarity Join, SSJ-2R, MRSimJoin, Pair-wise similarity, multi-sig-er method, Trie-join, and PreJoin algorithm. We then make a comparison between these algorithms according to some criteria and discuss the results.

**Keywords**—Hadoop, MapReduce, Similarity Join

**Keywords:** Google Apps-Suit of Services, FMCG-Fast Moving Consumer Goods, Challenges Competitive Situation
Face recognition with illumination varying conditions and occlusions

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Abstract
Face recognition with illumination varying conditions and occlusions is one of the most important challenges in the field of digital image processing. Despite of the fact that a number of studies [1, 2] have improved the accuracy of different techniques by normalizing and compensating the illumination variations using some pre-processing methods, a lot of these methods are still facing many serious challenges with illumination changes and occlusion. In this paper we suggest the use of two pre-processing methods that will have a great impact on the performance and the robustness of the recognition procedures.

Keywords: face recognition, illumination normalization, occlusion.

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