



Conference Proceedings

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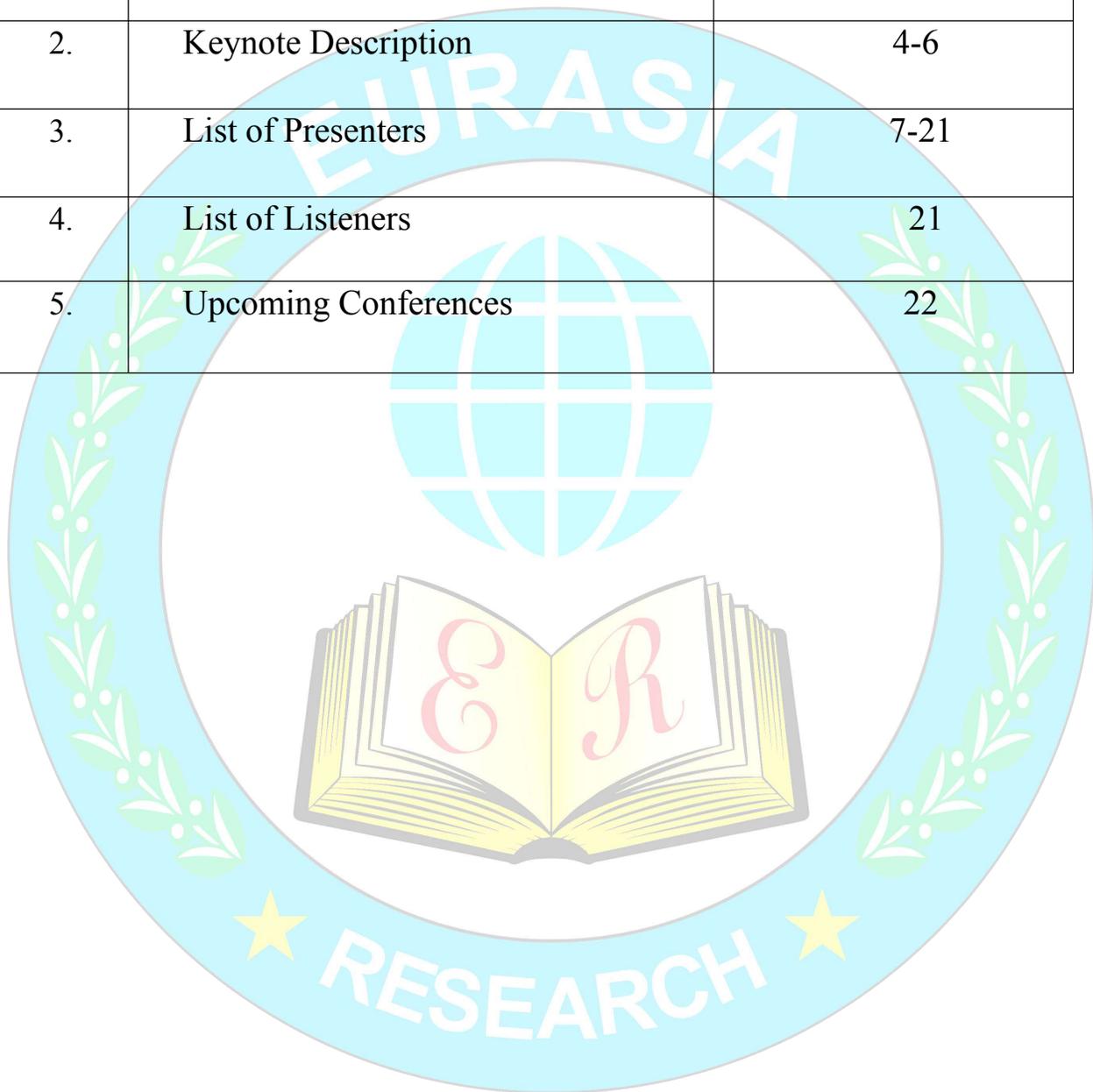
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Preface:

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KEYNOTE SPEAKER



Professor Dr. Hjh. Norma Binti Alias

**Ibnu Sina Institute for Fundamental Science Studies, Technology University of Malaysia,
Skudai, Johor, Malaysia**

Completed supervision for 5 Ph.D. students and 19 MSc students. Ongoing is supervising for 5 Ph.D. students, 7 MSc students and reviewing postgraduate students for Computing faculty, Science Faculty, Sports Science Research Center, Universiti Teknologi Malaysia, and Universiti Malaysia Sarawak. There are 8 innovations and invention medals received, completed 150 publications, 4 Intellectual property declarations, 2 patent disclosures, 1 product commercialization, Completed and ongoing task as project leader and principal researcher for 27 numbers of research grants with more than RM 1,000,000 budget. The three parallel computer systems laboratories have been developed and connected with LAN and MYREN network at IbnuSina Institute, Center of Excellence, Technology University of Malaysia. Principle researcher and leader for GRID Computing lab, mathematical parallel software, and multicore computing laboratories. The research plan is to contribute to grid technology and middleware combining the worldwide cluster of distributed computer systems for solving the grand challenge and big data applications.

KEYNOTE SPEAKER



Professor Sergei Gorlatch

Professor of Computer Science, University of Muenster, Germany

Profile: <https://www.uni-muenster.de/PVS/en/mitarbeiter/gorlatch.html>

Sergey Gorlatch has been Full Professor of Computer Science at the University of Muenster (Germany) since 2003. Earlier he was Associate Professor at the Technical University of Berlin, Assistant Professor at the University of Passau, and Humboldt Research Fellow at the Technical University of Munich, all in Germany. Prof. Gorlatch has about 200 peer-reviewed publications in renowned international books, journals, and conferences. He was the principal investigator in several international research and development projects in the field of parallel, distributed, Grid and Cloud algorithms, networking and computing, as well as e-Learning, funded by the European Commission and by German national bodies. Among his recent achievements in the area of communications and the future Internet is the novel Real-Time Framework (www.real-time-framework.com) developed in his group as a platform for the high-level development of real-time, highly interactive applications for entertainment. In the area of networking, his group has been recently working in the pan-European project OFERTIE on an application-oriented Quality of Service approach for emerging Software-Defined Networks (SDN).

PLENARY SPEAKER



Dr. Yousuf Alkhezi

Assistant Professor of Mathematics at the Public Authority for Applied Education and Training (PAAET) – College of Basic Education (CBE) – Kuwait

Yousuf Alkhezi is an Assistant Professor of Mathematics at The Public Authority for Applied Education and Training (PAAET) – College of Basic Education (CBE) – Kuwait. Alkhezi enrolled in Bowling Green State University – USA in September 2010 and received a Master degree in December 2010. In December 2014, he was awarded a Ph.D. in Mathematics from University of Texas at Arlington – USA, under the direction of David Jorgensen. Yousuf's recent publications are: "On Tensor Products of Complete Resolutions" and "Lie Algebras and Burger's equation: A Total Variation Diminishing (TVD) method on manifold". Yousuf's research interests lie in Algebra (Pure Mathematics), specifically in commutative algebra, Clifford algebra and Lie algebra.



Muqet Atique
ERCICSTR1805051

Bitcoin Reality or illusion? Should consumer invest it or not?

Muqet Atique

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Abstract

This article analyses whether consumers should or should not invest in Bitcoin. This article emphasizes on the qualitative aspects related to Bitcoin, the major features, advantages, drawbacks, and potential developments regarding Bitcoin.

The article talks about the opinions of people regarding Bitcoin usage. A user interview with many respondents reveal that many people believe that Bitcoin advantages such as Ease and Convenience are more beneficial, while on the other hand many respondents claim that there are more disadvantages associated like Privacy, Trust Issues, Anonymity, Security and Instability involved with Bitcoin system.

Our findings have some implications for users, suggesting that how digital currency can or cannot be a better system than the old transaction processing system like banks in Pakistan

Keywords: Bitcoin, cryptocurrency, Ease, Privacy, Anonymity, User investment



Dr. Devendra Kumar Sahu
ERCICSTR1805052

Thermally stimulated depolarisation studies of Methyl Acrylic Acid (MAA) doped Ethyl Cellulose (EC)

Dr. Devendra Kumar Sahu

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Abstract

Thermally stimulated depolarisation current (TSDC) of polarised samples of methyl acrylic acid (MAA) doped ethyl cellulose (EC) films of about 25 μm thickness has been recorded as a function of temperature, electric field, heating rates and storage times. Two current maxima in positive direction and found around 60 and 110°C for doped sample with ethyl cellulose. SEM, FTIR & NMR spectra of doped EC are represented the different phenomena of TSDC. Thermal sampling technique showed that the relaxation is distributed. Differential thermal analysis gave a second-order transition at about 345K because of good correlation between both thermal techniques it is concluded that the TSD peak is associated with glass transition of the polymer, and therefore it involves the motion of large parts of the polymer chains.

K. Nwifior
ERCICSTR1805053

Growth and Characterization of Aluminium Zinc Sulphide ternary thin film for device applications

K. Nwifior

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M. N.Nnabuchi

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Abstract

Aluminum-zinc sulphide (Al_2ZnS_4) ternary thin films were successfully deposited on glass substrates using solution growth technique at temperatures 300K and 333K. The sources of Al^{3+} , Zn^{2+} and S^{2-} were AlCl_3 , ZnSO_4 , EDTA and thiourea. EDTA and aqueous ammonia were used as complexing agents. Al_2ZnS_4 ternary thin films were prepared at different concentrations, temperatures and at different deposition periods 24 hours and 2 hours. The films were characterized for elemental composition by using GBC enhanced mini-material analyzer x-ray diffractometer with a wavelength of 1.5418 Å. The structural characterization reveals that the films were polycrystalline with wurtzite hexagonal structure. The optical characterization was done using UV-

	<p>VIS-NIR Spectrophotometer. The optical properties of the films grown considered indicate that there is no transmittance in UV but high absorbance and reflectance in UV region; moderate transmittance accompanied with low values of absorbance and reflectance in visible in infrared regions. The device applications have been mentioned. Key words: Solution Growth Technique polycrystalline and optical properties.</p>
<p>Ashok Kumar ERCICSTR1805054</p>	<p>Influence of Habitat and Temperature on Species Composition of Butterfly (Order: Lepidoptera)</p> <p>Ashok Kumar Faculty of Science Deptt. of Zoology, BSNVPG College, University of Lucknow, Lucknow, India</p> <p>Abstract</p> <p>The wide distribution of butterfly is an important element in the dynamics of the ecosystem. Butterflies are recognized by the scientific community as bio indicators. The holometabolus life history of butterflies exposed them to a wide range of experimental influence. They are highly sensitive to changes in temperature, humidity and light; parameters that are easily influenced by habitat deterioration. Therefore butterflies are good indicator species to monitor ecological changes in a habitat. Evidence suggest that species from the Lepidoptera order are sensitive to environmental stress such as climate change, soil contamination, habitat fragmentation and water pollution. Present study was conducted in five sites at Lucknow. Counting five butterfly families during day time in five selected grassy and plant habitats. First tested the effect of temperature on the distribution and diversity of butterfly families in selected habitats. The results suggest that there is an equal range distribution of order Lepidoptera families around all five sites. Moreover the results suggest a relationship between temperature range and open grassy, plant habitat, because temperature and habitat play an important role in the phenotypic characteristics of this abundant group of insects. The survey was conducted during non-windy sunny days with a temperature range above 60-620F and recorded order Lepidoptera 5 families: Papilionidae (Swallowtails), Pieridae (Whites and sulphurs), Lycaenidae(Coppers and Blues), Nymphalidae (Brushfoots) and Hesperidae(Skippers)</p> <p>Key words: Lepidoptera, Temperature, Habitats, Butterfly diversity</p>
<p>Hezekiah Oluwole Adeyemi ERCICSTR1805055</p>	<p>Fuzzy Logic Approach to predicting unsecured workers work stations: Exploiting Injuries frequency</p> <p>Hezekiah Oluwole Adeyemi Mechanical Engineering Department, Olabisi Onabanjo University, Agoiwoye, Nigeria</p> <p>Abstract</p> <p>In this study, a fuzzy-based expert system called Accident Prone Workstations Prediction Expert System (APWAPES) was developed to forecast unsafe level of work stations. APWAPES used fuzzy set theory to make decisions based on the “Total-hours-worked” and “Injury-Count” as inputs and “Workstation-unsafe-ratings” as the output. Data collected from subjects in 20 workstations were run with APWAPES. The results were compared with an Existing Mathematical Model (EME). The validation result showed that there was a strong positive relationship between the EME and the developed APWAPES with a correlation coefficient of 0.710. The independent sample t-test for mean difference showed that EME had a statistically significantly higher level of rating (0.60 ± 0.30, SEM=0.004) compared to APWAPES (0.50 ± 0.02, SEM= 0.007), $t(38) = 1.613$, $p = 0.115$. With a significance level of 0.001 at 95% confidence, the APWAPES and the EME predicted values were not significantly different. The study developed an expert system, APWAPES, which can find its applications in any work place where hazards occur and capable of helping managers of industries, to measure work places and/or activities disposed to accidents.</p> <p>Keywords: Injury, unsafe, occupation, fuzzy, workplace</p>



Suryakumar Sivakumar
ERCICSTR1805056

Portable Equipment for Sterilizing

Suryakumar Sivakumar

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ABSTRACT

There are various surgeries done, in this world. But most, failures occur due to improper sterilization. The sterilization is basically made by boiling the surgical instruments. But in this case, the sterilization is not completely processed.

While planning for complete sterilization, it requires an huge machineries with high initial amount and high maintenance. So, here the Portable Sterilizing equipment is used, it is very effective and it is mainly cost efficient. The equipment contains three step sterilizing process.

At the first step, the surgical instruments are sent into the cold chamber, here the chamber is fully covered with the cold coil and thus making it cold. And simultaneously the chamber is kept in vacuum pressure. This cold chamber makes germs inactive and germs are paralyzed. At the second step, the surgical instruments are sent into the hot chamber, here the chamber is covered up with heating coil. The electrical coil is energized and heat is produced. The chamber is also maintained with vacuum pressure. At this stage the germs are killed. This equipment has the in-build UV rays sterilization process, in which the surgical equipments are sent into UV light chamber, it is an add-on for providing complete sterilization.

KEYWORDS: hot Chamber, Cold Chamber, UV chamber



Sanusi Moyi Salame
ERCICSTR1805061

Analysis of the Extracts of the three varieties of Groundnut (*Arachis hypogaea* Spp) used by the Small scale Industry in Sokoto state, Nigeria

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Abstract

A research was conducted to find out the amounts of the extracts produce by the three different indigenous varieties of groundnut (*Arachis hypogaea* species) grown in Sokoto State. The varieties were Kamfala (creeping type), Yarmadani (erect type) and Bahausa (Bunch type). Each variety was planted and laid at randomized complete block design (RCBD) with four replications in the 70x70 meters field. The plot size was 4x4 meters. At the end of the season, 8.12 kilogram of raw groundnut was harvested randomly from each field. The same quantities of raw groundnuts were used as samples. All the three different samples of 8.12kg from each variety was replicated three times to obtain an average result of each. The same quantity of each sample was replicated three times and processed by drying, shelling, cleaning, roasting and skinning. The processed samples became 4.5kg for each variety, which has been further kneaded and squeezed for oil. The residues after the extraction of oil were fried to form a groundnut cake. The data obtained were analyzed statistically using analysis of variance according to Gomez (1984) procedure for randomized complete block design. All the three varieties produced the same mean values of the shell quantity of 1.6kg. Kamfala variety produced the highest mean values of 2.80kg groundnut oil and 3.0kg of groundnut cake. Yarmadani produced 1.80kg of groundnut oil and 2.50kg of groundnut cake. Bahausa variety produced the lowest with 1.50kg of groundnut oil and 2.30kg of groundnut cake. However, it has been recommended that the Sokoto State Government should provide loan and improved machines in order to increase production of groundnut oil and cake by the small scale industry. Cultivation of indigenous Kamfala Variety should also be encouraged due to its highest content of oil per kilogram.

Key words: Extract, groundnut, varieties, samples and quantity.

Growth Performance, Carcass Characteristics and Economic Analysis of Broiler Fed Processed *Faidherbia Albida*



Sanusi Bello Muhammad
ERCICSTR1805062

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Abstract

The research was conducted to compare the effect of raw, soaked and boiled *Faidherbiaalbida* pod meal (Fapm) based diet on the growth performance and carcass characteristics of broiler chickens. Eighty (80) broiler chickens were used for the study. The chicks were divided into four (4) different groups and each group is replicated twice with 10 chicks per replicate in a completely randomized design. *Faidherbiaalbida* pod meal was treated (raw, soaked and boiled) and included at 15% in the diets as a replacement for ground nut cake from 1st to 7th week. Group I were fed with 0% Fapm diet and serve as control, Group II were fed with 15% raw Fapm, Group III were fed with 15% soaked Fapm and Group IV were fed with 15% boiled Fapm. The whole experiment lasted for a period of seven (7) weeks. The results of the analysis indicate that there was no significant difference ($P>0.05$) in the feed intake, body weight gain, feed conversion ratio and protein efficiency ratio. Most of the organs were also not significantly affected except for the crop, large intestine as well as the gizzard and proventriculus. This study suggest that boiling could be employed as a treatment for Fapm in order to neutralize the toxic effects of anti-nutritional factors in it since the broiler chickens fed 15% boiled Fapm had least cost/kg body weight gain with higher net revenue.

KEY WORDS: *Faidherbiaalbida* pod meal, ground nut cake, broiler chicken, broiler diets, feed processing trial.



Aliyu Yusuf
ERCICSTR1805064

Multiphysics simulation of Photovoltaic-Thermoelectric module for power systems optimization in COMSOL

Aliyu Yusuf

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Abstract

Thermoelectric generation is an encouraging technology which transforms waste heat into electricity in a clean and efficient manner. Performance of thermoelectric generator module was investigated in stationary state heat conduction current model in COMSOL Multiphysics environment. Simulation based on the analytical model has been carried out to study the performance and design optimization of the module. Experimental data obtained such as ambient and panel temperature amount of irradiance and panel area were used in the simulation, results show that there is a unique flow rate that gives maximum net-power in the system at the each temperature difference.

Keywords: Thermoelectric generator, Hybrid Photovoltaic-Thermoelectric, Heat Transfer coefficient.



Azadrachea Indica Leaves Extract Assisted Green Synthesis of Ag-TiO₂ for Degradation of Dyes in Aqueous Medium

Muhammad Saeed

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Abstract

Aqueous pollution due to textile industry is an important issue. Photo catalysis using metal oxides as catalysts is one of the methods used for eradication of dyes from textile industrial effluents. In this study, the synthesis, characterization and evaluation of photo catalytic activity of Ag-TiO₂ is reported. TiO₂ catalysts with 2, 4, 6 and 8% loading of Ag were prepared by green methods using *Azadrachea indica* leaves extract as

<p>Muhammad Saeed ERCICSTR1805065</p>	<p>reducing agent and titanium dioxide and silver nitrate as precursor materials. The 4% Ag-TiO₂ exhibited the best catalytic activity for degradation of dyes. Prepared catalyst was characterized by advanced techniques. Catalytic degradation of methylene blue and rhodamine B were carried out in Pyrex glass batch reactor. Deposition of Ag greatly enhanced the catalytic efficiency of TiO₂ towards degradation of dyes. Irradiation of catalyst excites electrons from conduction band of catalyst to valence band yielding an electron-hole pair. These photo excited electrons and positive hole undergo secondary reaction and produce OH radicals. These active radicals take part in degradation of dyes. More than 90% dyes were degraded in 120 minutes. It was found that there was no loss catalytic efficiency of prepared Ag-TiO₂ after recycling it for two times. Photo catalytic degradation of methylene blue and rhodamine B followed Eley-Rideal mechanism which states that dye react in fluid phase with adsorbed oxygen. 27 kJ/mol and 20 kJ/mol were found as activation energy for photo degradation of methylene blue and rhodamine B dye respectively. <i>Keywords: TiO₂; Ag@TiO₂; Methylene blue; Rhodamine B; Photo degradation</i></p>
<p>Alexander Mamishev ERCICSTR1805070</p>	<p>Methodology for Energy Efficiency Analysis of EHD-based Air Filtration Systems</p> <p>Alexander Mamishev Department of Electrical and Computer Engineering, University of Washington, Seattle</p> <p>Abstract</p> <p>Conventional air filtration systems use fabric or paper filters, most commonly known as HEPA or bag filters, to remove particulates and aerosols from the air. A high pressure drop is needed to allow an adequate amount of air flow to pass through them, which requires large amounts of energy. Nowadays, an increasing number of designs and approaches of EHD-based filters that do not require an associated flow-through paper filter are being studied and introduced to the market. Most significant figures of merit for this approach are energy efficiency and particle collection efficiency. A methodology for proper comparison of key performance metrics is presented and illustrated with laboratory and in-field based examples. A detailed case study is presented for modulated ionic wind approach, which allows generation of air flow with the energy expenditure two to three times less than by using rotary air fans. The transfer of energy of the electric field via electrostatically charged particles allows generation of laminar unidirectional air flow of a broad range of applications. Most relevant to this application are macro-scale devices that operate at air speeds 2 m/s to 4 m/s. Air modulation allows more precise formation of air flow in open environment as opposed to constant voltage operation. The presentation provides a comparison of modulated ionic wind devices to other devices based on plasma discharge, demonstrating high longevity, low levels of ozone generation, suppression of plasma discharge, and filtering capability. Additionally, ionic wind generators do not require any moving parts, and therefore, extremely low acoustics signatures and vibrations are expected.</p>
<p>Shweta Gupta ERCICSTR1805071</p>	<p>Removal of Ni (II) ions by A.barbadensis miller leaves residue using Fixed bed Column (Continuous Mode)</p> <p>Shweta Gupta University School of chemical Technology, Guru Gobind Singh Indraprastha University, New Delhi, India</p> <p>Abstract</p> <p>The heavy metals Ni (II) are menace to environment and present in the effluents of various industries. Increasing demand of the A. barbadensis miller (popularly knowns as Aloe vera) has led to the generation of lot of solid waste in terms of their leaves residue. However, this waste can be used as bio-adsorbent. This study addresses the use of this waste as adsorbent for the removal of theNi(II) from Industrial wastewater. The results are promising and has shown the potential of using this solid waste as bio-</p>

	<p>adsorbent. Various studies in Continuous mode have been done to optimize the effect of initial concentration, Effect of bed Height, effect of Flow rate. column studies using the empirical relationship based on the Yoon Nelson model is best fitted in the removal of Ni ions.</p>
<p>Siew Mee Bong ERCICSTR1805073</p>	<p>Infectious Diseases and Changing Climates: Quantifying Threats to Freshwater Fish from Multiple Stressors</p> <p>Siew Mee Bong School of Veterinary and Life Sciences, Murdoch University, Perth, Western Australia</p> <p>Abstract Freshwater fishes are increasingly threatened by a number of anthropogenic process, including the introduction of exotic fishes and pathogens. Climate change represents another significant threat, both directly, by increasing water temperature and indirectly, by exacerbating existing stressors. Increasing water temperature may increase the incidence and severity of infectious disease by enhancing the survival of pathogens and parasites, and compromising host defenses. The aim of this study was to determine the joint effects of infectious disease and temperature on the survival and metabolic response of freshwater fishes, using as model species the Western pygmy perch, <i>Nannoperca vittata</i>, a species endemic to south-western Australia, and the bacterium <i>Photobacterium damsela damsela</i> (Pdd). Fish were challenged via immersion at bacterial concentrations of 10^4, 10^5, 10^6 and 10^7 CFU/ml and temperatures of 17°C, 23°C and 28°C. Mortality increased significantly with increasing temperature. When Pdd was grown <i>in vitro</i> at 17°C, 23°C and 28°C, there was a significant positive relationship between temperature and growth rate. Standard metabolic rate (SMR) and maximum metabolic rate (MMR) were compared between fish either exposed or not exposed to sublethal concentrations of bacteria, and maintained at temperatures of either 17°C, 23°C or 28°C. Both SMR and MMR increased with increasing temperature and with bacterial exposure. There was also a significant interaction between temperature and exposure level for both SMR and MMR. As a consequence, aerobic scope (the difference between MMR and SMR) was reduced by bacterial exposure at 17°C and 23°C, but not at 28°C. Keywords: infectious disease, metabolism, survival, temperature</p>
<p>Ziran Fan ERCICSTR1805074</p>	<p>A method to control children's smartphone use based on the motif of analog fuel system</p> <p>Ziran Fan Graduate School of Information Sciences and Arts, Toyo University, Tokyo, Japan</p> <p>Abstract Today, with the spread of smartphones, the needs of the smartphone use among children are increasing. Although some applications for children and control functions for parents have been developed, there are still few solutions to govern the children's use of smartphones directly. Therefore, this study proposes a more direct way to optimize the children's smartphone use. It is a method to apply the motif of analog "fuel" system, which is similar to the battery system of smartphones. Smartphones will stop working when the battery is zero. Following that way, we contrive a mechanism upon which the smartphone use will be automatically impossible when the users run out of "fuel". As a part of the proposal, we first investigate the most battery-draining functions of smartphones using the tool, "Instruments" in "Xcode". We clarify the actual circumstances of the smartphone battery drain from the aspect of CPU Activity, Network Activity, Display Brightness and Wi-Fi/GPS. Based on the results, we propose an application that incorporates the most battery-draining functions to allow users to adjust the life of the battery according to their ideal use situations. In this way, this system can meet the users' particular needs. This application controls the children's smartphone use by the adjustment of fuel (battery) life. With the previous</p>

	<p>controlling way in which the playtime can be set in applications and when a certain amount of time has passed the children will be unable to use them, children may oppose their parents, saying, “Let me play the application a little more.” However, regarding this application, the run out of the battery means unavoidable stop of continuous smartphone use. This method can realize an excellent educational value as a children’s smartphone use because of our proposal aim: children would not oppose their parents with regards to the control.</p> <p>Keywords: Information Media, Digital Method, Analog Design, Information Education</p>
<p>Threem Zia ERCICSTR1805076</p>	<p>Micro RNA identification associated with Endometriosis in Pakistani Women</p> <p>Threem Zia Faculty of Zoology, Government College University, Lahore, Pakistan</p> <p>ABSTRACT</p> <p>Endometriosis is a gynecological condition that affects the female reproductive system and ultimately causes infertility. This disease is present worldwide in all racial groups. Incapacitating signs and symptoms with global prevalence were the reasons of unrevealed pathogenic mechanism of endometriosis. Various risky health phenomenons in relation to endometriosis may triggered by plasma micro RNA (miRNAs) which possibly, could be changed by therapeutic techniques used for endometriosis. For early diagnosis of endometriosis, the miRNAs role as biomarker is crucial. The blood samples of genetically unrelated endometriosis women and controls, 80 each, were used to isolate RNA. This total RNA was used to synthesize cDNA. This cDNA was used to identify miRNAs either down regulated or up regulated for further confirmation of endometriosis by real time PCR. Twenty microRNAs were differentially expressed in women with endometriosis and their controls. Out of which six microRNAs (miR-15a, miR-15b, miR-16-1, miR-16-2, miR-195 and miR-497) were selected for validation. MiR-15a, miR-15b and miR-195 were significantly down-regulated in women with endometriosis when compared with controls ($p= 0.011, 0.002$ and 0.002, respectively), yielding an area under the receiver operator characteristics curve of 0.74 (95% CI: $0.58-0.90$; 0.79 (95% CI: $0.65-0.93$) and 0.85 (95% CI: $0.71-0.98$) in endometriosis from controls respectively. miRNAs appear to be potent regulators of gene expression in endometriosis and its associated reproductive disorders, raising the prospect of using miRNAs as biomarkers and therapeutic tools in endometriosis. Identification of miRNAs lessens the health care cost and improves the work productivity of endometriotic females.</p> <p>Key Words: Endometriosis, Infertility, Diagnosis, miRNA, Biomarker, Therapeutic tool</p>
 <p>Muhammad Amar Gul ERCICSTR1805077</p>	<p>Characterization of Datta Formation as Shale Gas Reservoir</p> <p>Muhammad Amar Gul School of Earth and Space Sciences, University of Science and Technology of China, Hefei, China</p> <p>Abstract</p> <p>The discovery and extension of alternative plays, have been accelerated worldwide due to mounting cost of hydrocarbons. Shale gas is not only copious in Pakistan but also inexpensive. Shale gas plays a key role to overcome the energy crisis existing within the country. No exploration have been made in shale gas reservoirs until now in Pakistan. To find out the potential of the shale gas in Kohat-Potwarbasin, this research work is completed.</p> <p>In this study, the wireline logs and well cuttings, data is utilized to calculate total organic carbon (TOC), thermal maturity, kerogen type, mineralogy, brittleness index (BI) and elastic properties. TOC was measured from well cuttings by Loss on ignition method as well as from wire line logs by using Passey’s method. Kerogen type, maturity and genetic potential were also evaluated in lab by Rock Eval Pyrolysis. Vitrinite Reflectance of Datta Formation in each well, calculated by the help of burial</p>

	<p>history curve using PetroMod. BI calculated using formulations proposed by Jarvie and Wang based on brittle and ductile content.</p> <p>The shale gas prospect of Datta formation of Kohat-Potwar Basin is determined based on geochemical studies and on formational evaluation data. Gross thickness of Datta formation ranges from 40-300 meters in the Potwar-Kohat Basin and the formation is almost 80 meters thick in study area and is almost 4.5 Km deep. Geochemical Analysis indicates that TOC of the formation ranges from 0.3 to 2 % by weight with 58-158 mg HC/g Rock Hydrogen Index (Kerogen type III). T_{max} (436 °C) & R_o (0.5-1.4%) suggest that kerogen in the Datta Formation is well mature”.</p> <p>In Shale Interval of Datta Formation, clay minerals content is ranging from 35% to 50%, while Brittle mineral content is ranging from 40% to 50% including Quartz. High Brittleness Index, ranging from 0.48 to 0.65, lower values of Poison Raito and higher values of Young’s Modulus shows that Shale of Datta formation lies in brittle region. Hence suitable for hydraulic fracturing for the development of Shale Gas Reservoir in Datta Formation which may have good Shale Gas prospects.</p> <p>Key Words: Shale Gas, Geochemistry, Geomechanics, Datta Formation, Unconventional</p>
 <p>Sameer Annon Abbas ERCICSTR1805078</p>	<p style="text-align: center;">New Type of Soft Connected in Soft Ideal Spaces</p> <p style="text-align: center;">Sameer Annon Abbas Department of Mathematics, Iraqi Ministry of Education, Iraq-Babylon</p> <p style="text-align: center;">Abstract</p> <p>In 1999 [1], the researcher Molodtsov discovered a new kind of sets called "soft set" which islet $p(x)$ denote the power set of X and A be a non-empty subset of set of parameters E.</p> <p>A pair (F, A) denoted by F_A is called a soft set over X, where F is a mapping given by $F: A \rightarrow P(x)$. Which later received great interest and many studies were conducted by researchers and have many applications in various fields including medicine, engineering and other sciences, including mathematics.</p> <p>In 2011, these sets were used in topology the researchers [2] introduced the concept of soft topology and they reached many results as well as introduced many definitions including a soft open set, soft closed set soft neighborhood set ...</p> <p>In 2014, the researchers [3] introduced a new concept called "soft ideal" and study some of its properties. They also introduced the definition of soft ideal topological space and reached many conclusions.</p> <p>The main ideal of this paper is to provide the definition of soft semi- local function in soft ideal topological spaces we denoted by F_{A^*} and study some of its properties and its relationship with soft local function. Also the notion of a semi – compatibility of soft ideal with soft topologies is introduced where we reached the following result.</p> <ol style="list-style-type: none"> 1. If a soft topological space \tilde{T} is a semi-compatible with \tilde{I}, then $F_{A^{**}} = F_{A^*}$ 2. If a soft set F_A contains no non – null soft set G_A with $G_A \subseteq G_{A^*}$, then $F_A \in \tilde{I}$ 3. For every soft set $F_A, F_A \cap F_{A^*} = \tilde{\varphi}$
<p>Jafariah Jaafar ERCICSTR1805079</p>	<p style="text-align: center;">Organochlorine pesticides in River Water Samples by Liquid-Liquid-Liquid Extraction Combined with Dispersive Liquid-Liquid Microextraction</p> <p style="text-align: center;">Jafariah Jaafar Department of Chemistry, Faculty of Science, Universiti Teknologi Malaysia, Johor Bahru, Johor, Malaysia</p> <p style="text-align: center;">ABSTRACT</p> <p>Aldrin and dieldrin are organochlorine pesticides (OCPs) which are widely used in agriculture industry and known to be highly persistence with slow degradation. Leaching from agricultural runoff caused them to enter nearby water bodies, which can pose threat to human and aquatic organism. Determination of OCPs in Skudai River is crucial because the river serves as drinking water resources for part of Johor</p>

	<p>population. A new extraction technique termed liquid-liquid-liquid extraction (LLE) combined with dispersive liquid-liquid microextraction (DLLME) followed by gas chromatography-microelectron capture detector (GC-μECD) was applied to determine aldrin and dieldrin in river water samples. Three phases in the LLE-DLLME are water sample, acetonitrile (ACN) and n-hexane (clean up solvent). Targeted pesticides with medium polarity were extracted into the ACN phase, non-polar interference into n-hexane, and polar compound remained in the sample. ACN phase is separated from aqueous phase using sodium sulfate as a phase separating agent. Calibration curves for aldrin and dieldrin were linear in the range of 2-20 μg/L with good coefficient of determination, r^2 of 0.9995 and 0.9985, respectively. Percentage recovery obtained for aldrin and dieldrin were 39 and 76% and RSD of 15.97 and 9.81% respectively. Analysis on river water samples revealed that aldrin is present at concentration of 0.27 μg/L while dieldrin at 0.089 μg/L. Both pesticides studied were above limit of Ministry of Health Malaysia and WHO (World Health Organization) on drinking water quality which is 0.03 μg/L for combined aldrin and dieldrin. LLE-DLLME method is simple, inexpensive and allows extraction of samples without the need of filtration to remove suspended solid as in SPE.</p> <p>Keywords: Aldrin, dieldrin, LLE-DLLME, GC-μECD, river water analysis.</p>
<p>Elda Septiyani ERCICSTR1805083</p>	<p>Sustainable Regeneration of Mordenite Mineral as Ion Exchanger for Removal Iron and Manganese in Groundwater</p> <p>Elda Septiyani Department of Environmental Engineering, Faculty of Civil and Environmental Engineering, Bandung Institute of Technology, Bandung, Indonesia</p> <p>Abstract</p> <p>Access to clean water is a basic need for humans. There are lot of problems that require special attention, especially problems of water quality. This problem is often caused by the presence of iron (Fe) and manganese (Mn) in water. At present, groundwater quality is a fundamental consideration factor in its utilization. Metal removal in ground water with filtering techniques has been done quite a lot with various media, one of which is zeolite. Mordenite with the formula compound $\text{Na}_8\text{Al}_8\text{Si}_{40}\text{O}_{96}\cdot 24\text{H}_2\text{O}$ is one of the types of natural zeolite which has the highest silica content. Mordenite minerals that can be found in Sukabumi Green Natural Stone have high potential in the removal of iron and manganese in water. However, the pore blockage often becomes a problem, so it inhibits the process and shortens the life of the stone in adsorbing iron and manganese, to overcome this problem regeneration is needed so that Mordenite can be reused. This research aims to study the method of regeneration chemically and biologically so as to improve the ability of Mordenite in removing iron and manganese by using a continuous bed reactor with up-flow system for 60 minutes. Activation and regeneration of Mordenite from natural zeolite is carried out chemically using NH_4Cl by immersion method, while biological regeneration is carried out by immersion method and utilizes <i>Thiobacillusferrooxidans</i> bacteria. In the preliminary results using artificial solution, data obtained that the activated Mordenite minerals were able to provide better performance in removing iron and manganese. The removal efficiency obtained will decrease as the adsorbent is used. Efforts to increase the adsorption capacity will continue to be carried out by giving chemical and biological regeneration. Furthermore, adsorption capacity and removal efficiency in each variation of Mordenite mineral adsorbents are included in the scope of the research.</p>
<p>Yuniati Zevi ERCICSTR1805084</p>	<p>Technology for Removal Iron and Manganese Ion from Groundwater</p> <p>Yuniati Zevi Department of Environmental Engineering, Faculty of Civil and Environmental Engineering, Bandung Institute of Technology, Bandung, Indonesia</p> <p>Abstract</p>

	<p>High concentrations of iron and manganese in groundwater often cause problems. Based on research carried out with the method of grab sampling in several cities in West Java, the average value of iron concentration in groundwater in West Java is 0.97 mg/l and manganese is 0.64 mg/l. This shows that the two parameters exceed the drinking water quality standard limit of 0.3 mg/l for iron and 0.1 mg/l for manganese. From these conditions, technology to remove iron and manganese is needed. One of the processing carried out to remove iron and manganese is to adsorb the two compounds by filtration method. The filtration method used utilizes mordenite minerals contained in Sukabumi Green Natural Stone. This study used two types of adsorbents which were activated and natural mordenite. Activation of mordenite is carried out by heating 400-600°C for two hours for physics activation and chemical activation using immersion method with NH₄Cl solution. The batch experiments proved that both activated and natural mineral mordenite were capable in reducing the concentration of iron and manganese from groundwater affected by some factors which were the initial concentration as well as detention time during the adsorption process, so that the adsorption process was then continued with experiments using the continuous experiment. The continuous reactor experiment indicates clogging during the adsorption process so that the efficiency of the removal obtained will decrease with the usage period of the adsorbent. This condition inhibits the process and shortens the life-time of the mineral in adsorbing iron and manganese. From that condition, regeneration is needed to make the life-time of mineral be longer and can be reused. The regeneration method used in this study is chemical and biological regeneration. There was a change in the efficiency of removal of iron and manganese after being given regeneration treatment for mordenite minerals, so it can be concluded that the regeneration treatment gives an impact to the adsorption process and the life-time of the mineral in the process.</p> <p>Keywords: Groundwater, Iron, Manganese, Mineral Mordenite, Regeneration</p>
<p>Dr. Yousuf Alkhezi ERCICSTR1805057</p>	<p>Shift and Morphism of the Pinched Tensor Product Over Special Rings</p> <p>Dr. Yousuf Alkhezi Mathematics Department - College of Basic Education, PAAET, Kuwait</p> <p>Abstract The purpose of this paper is to continue to examine more properties of the pinched tensor product. These properties are compared to the ordinary analogue ones. The main tool of this paper is a variant of the tensor product of complexes, called the pinched tensor product. We will prove that the associative property hold here for some conditions and provide a counter example in which the tensor product no longer holds for the pinched tensor product.</p>
<p>Yacine Benhadid ERCICSTR1805058</p>	<p>A Weighted Essentially Non-Oscillatory Scheme for Burger s Equation</p> <p>Yacine Benhadid Mathematics Department, College of Basic education, Paaet, Kuwait</p> <p>Abstract We present numerical scheme based on the weighted essentially non-oscillatory method to Burger's equation. This scheme is found to stabilize and represent the solution for small viscosity. The oscillations at a shock associated with Gibbs phenomena are, in comparison with wavelets and Galerkin approximations, reduced and confined to the vicinity of the shock. Numerical results and comparison with classical algorithms are provided.</p>
<p>Dr. Irfana Liaqat ERCICSTR1805063</p>	<p>Risk Factors of Infertility due to PCOS in Pakistani Women</p> <p>Dr. Irfana Liaqat Department of Zoology, GC University, Lahore, Pakistan</p>

Abstract

Infertility is the most common gynecological problem in women of reproductive age and affects about 5-15% women. In Pakistan, Polycystic ovarian syndrome PCOS has an increased incidence and high prevalence. PCOS causes infertility in women due to major risk factors including chronic anovulation, hirsutism, obesity, insulin resistance, hypertension, hyperandrogenism, lipid abnormalities, developing ovarian cancer and diabetes. The current study was designed to find out the epidemiology of polycystic ovary syndrome in a Punjabi population. This study was carried from March 2011 to May 2016; more than 2500 patients visited the tertiary hospitals during this period. Among these subjects, 250 were genetically analyzed to find out the single nucleotide polymorphism in selected genes. The patients suffering from PCOS belonged to different age groups i.e. 15-30, 31-45 and above 45. Highest number of PCOS patients was recorded in the age group of 15-30 years (Married= 52.8%; Unmarried= 93.33%). The most important factor that was studied in majority of women was weight gain i.e. 82.4% in married women and 60% in unmarried women. The irregularity in the periodic cycle was seen to be significantly high in married women. Similarly body mass index of married women was higher than unmarried women. In conclusion, the present day study demonstrates that PCOS is a disease affecting the health of young women and is associated with many genetic and environmental factors.

Keywords: PCOS, BMI, hirsutism, obesity, insulin resistance

Dirt or Beauty? - Crack Patterns in Drying Pastes

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Abstract

Desiccation cracks are found everywhere in daily life; examples include those in dried mud and old paintings. These cracks are the result of drying of moist granular pastes. In general, pastes are composed of liquid and insoluble grains. Evaporation of liquid content from the pastes, therefore, causes volume shrinkage followed by surface cracking formation. The cracks exhibit a specific network structure, splitting the entire surface into many polygonal cells. Despite the ubiquity of desiccation cracks and the patterns they form, it remains unclear what physical factors determine the geometry of the crack patterns.

A possible conjecture is that the geometry is affected by the degree of irregularities in the size and shape of the constituent grains. To examine the validity of our conjecture, we have conducted desiccation crack experiments using starches made from two different materials, potato and corn. The two different starch pastes were found to show distinguished crack evolution. In addition, the probability distributions of the polygonal cell area showed contrasting dependences on the paste thickness. These findings are believed to result from the difference in the shape and size of starch grains, because they strongly affect the capillary transport of water and tensile stress field that drives the polygonal cracking.

Besides the starch experiment, we have also investigated drying pastes made of calcium carbonate powder. A salient feature of the pastes is that forced vibration prior to drying results in an anisotropic crack pattern after drying. We found the preferred direction along which many long cracks develop depends on the velocity of vibration; namely, it changes from vertical to parallel with respect to the vibration direction at the threshold velocity. The transition is attributed to the reorientation of constituent grains subjected to the forced oscillatory flow of fluid in the paste.

Keywords: Desiccation crack, Pattern formation, Particle geometry, Anisotropic crack

Formation Mechanism of Unpaved Road Corrugation

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Abstract

On unpaved road, striped corrugation that looks like washboard may be formed naturally. The corrugation is composed of ridges lined up vertical to traveling direction of vehicles; the wavelength and amplitude of the corrugation are typically on the order of 1 meter and 0.1 meter, respectively. At first glance, it may seem that the corrugation would be smoothed by the weight of the running vehicles. However, it is not true; in fact, the rougher road with heavy traffic, the more frequently such corrugations are formed. Such the irregularity on the road surface often causes a slip accident of a traveling vehicle and degradation of vehicle's components due to transient vibration. From a standpoint of road safety management, therefore, it is significant to explore the forming mechanism of unpaved road corrugation. In this study, we conducted consolidation tests to evaluate the compression characteristic of the soil particles, followed by computational simulations for vehicle weight-induced deformation of unpaved road surface. Numerical conditions used in the simulations were based on the data obtained by the consolidation tests. The results allowed us to suggest a possible theoretical model for the formation process of road corrugation in which the compressive force exerted by the vehicle weight on the road plays a vital role. We also found that the value of the damping constant of the tire should be responsible to determine whether the corrugation is formed or not. In our future work, we plan to develop a new experimental setup aiming at reproducing the time evolution of the road corrugation that we have obtained by simulations.

Keywords: Dirt road, Corrugation, Nonlinear model, Numerical simulation, Pattern formation, Unsaturated soil, Consolidation test

Mustafa Avci
ERCICSTR1805085

Administrative Law in Turkey

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Abstract

Administrative Law is one of the main and important branches of the Public Law, which develops day by day. The over population problem has caused immigration from villages to cities and the habitation in the suburb of the cities urges the administrative organs to take new social precautions, such as new city plans and other regulations. On the other hand the concept of the "right of environment" has also enlarged the scope of the Administrative Law, because the duty to take care of the citizens against pollution of every kind has been loaded to the administrative organs as a responsibility.

It may be discussed theoretically that the Administrative Law has not been yet codified in its technical meaning. Codification (legislation) is the enactment of rules in a systematical order so that the articles are in accordance with each other. In Administrative Law there is a lack in general and systematic principles which initiate legislation. Administrative Law has developed quite later than the other law branches. Because the idea of "lawful administration" and the "restricted power of administration" was not acceptable in the days during which the state concept was equal to sovereignty. But it is the most effective branch of public law which is related to social life at the first hand in comparison with the other sub-branches. The concept of the "State of Law" (German: Rechtsstaat, French: Etat de droit) is the result of this development, to which mankind has been reached after a long period of human and the State history, uncovering the different stages of the State, such as "Territorial State" and "Police State". Territorial State (MülkDevlet) is shaped and administered by the supreme power of the only sovereign of the State, who holds in hand all of the authorities which are in the democratic states indexed to law and are separated between the three; legislature, judiciary and executive organs. Police State is a system of government whereby control over political, economical and social life is exercised

usually by the police and coercive measures instead of the judicial and administrative organs.



Aika Takashima
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Crack Pattern Analysis of Columnar Joints

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Abstract

Columnar joint is a regular array of polygonal prisms made by cooled lava. The array of prisms has formed as a result of gradual extension of thermal contraction cracks into the cooling volcanic rock. Columnar joint can be found worldwide: Devil's Tower in USA and Giant's Causeway in Northern Ireland are only a few to mention. Intriguing examples observed in Japan include: Tatami-ishi in Okinawa prefecture, Tatami-ga-huchi in Yamaguchi pref., and Tawara-iso in Shizuoka pref. The three show an exceptional structure in the sense that their top surfaces are nearly flat. These features are possibly the consequence of wave erosion by the neighboring sea/river water that has worn the top surface of the prismatic array over the years. Such the class of columnar joint is rare in the world; nevertheless, there was no attempt to investigate the geometric feature of the polygonal crack pattern. Against the background, we conducted statistical analysis of the crack pattern at the abovementioned three spots, using the geological data obtained by drone aerial photography and computational analyses. A series of aerial pictures was captured by a high-resolution camera installed in a drone (Phantom4, DJI). The images obtained were then orthorectified by a PC software (PhotoScan Professional 1.2.6, Agisoft), which allows to remove distortion in the images and achieve accurate evaluation of cracking geometry. Finally, a geographical information system (ArcGIS 10.4.1, ESRI) was used to analyze the polygon's areas, crack lengths, joint angles and vertices positions. From the measurement data, we have uncovered that the total number of polygons at each spots are 3,989 in Tawara-iso, 1,541 in Tatami-ishi, and 894 in Tatami-ga-huchi, respectively. Statistical distribution of the four geometric quantities extracted from the crack patterns as well as comparison with those observed in other countries will be demonstrated in the session.

Key words: Shrinkage crack, Pattern formation, Columnar joint

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Overdriven transmission system for reducing carbon dioxide emission from vehicles

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ABSTRACT

Huge amount of motorized vehicles is the main reason for heavily polluted air in city centers. Therefore car manufacturers always try to reduce exhaust gas emission by introducing some proven technology, such as fuel-saving transmission system. The research is aimed to reveal quantitatively the advantages of overdriven transmission systems in most vehicles, which is able not only to reduce fuel consumptions during high speed run but consequently also to lower carbon dioxide emissions. Data are collected from chassis dynamometer tests, where a typical city car is statically run on a dynamometer while its torque, power and AFR (air-fuel ratio) are recorded. The measurements are carried out between 60 and 130 km/h, which can be categorized as normal vehicle speeds (using 3rd gear) and overdriven vehicle speeds (using 4th and 5th gears). Two types of locally available gasoline, with RON (research octane number) of 88 and 92, are used as fuel. After revealing the fuel consumption, the emitted carbon dioxide can be calculated. It is shown that different types of gasoline do not play any significant role for reducing the carbon dioxide emission, which means that the more expensive fuel with RON 92 is not necessarily environmental friendlier. It is highly advisable to switch the gear up because the carbon dioxide emission will be significantly lowered. The percentage of emission decrease may vary between 31% - 33% if the 4th

	<p>gear is used instead of maintaining the 3rd gear, while such emission drops amount only to 19.3% - 26% if the highest 5th gear is applied rather than the 4th gear. Keywords: Carbon dioxide emission, Fuel consumption, Overdriven transmission, Gear switch-up.</p>
<p>Sangmin Kim ERCICSTR1805082</p>	<p>Effect of DC Electric Field on the Length of Propane Diffusion flames</p> <p>Sangmin Kim Department of Aerospace Engineering, Korea Advanced Institute of Science and Technology, Daejeon, South Korea</p> <p>Abstract The flame length characteristics of propane diffusion flame were investigated experimentally. Electric fields produce ionic winds that act on ions in a flame, and the effect of ionic winds increases the diffusion coefficient of flame. For the diffusion flame, the longer the length, the more instability increases and affects the generation of NO_x. With the influence of an electric field acting parallel to the flame, as the strength of the electric field acting on the flame grew stronger, the length of the flame shortened. The maximum reduction in flame length was 70% when a voltage of +5 kV was applied. Keywords: Propane, Flame, Voltage, Electric field</p>
<p>Ahalya Ravendran YRSICSTR1805051</p>	<p>Low Cost Collision Avoidance System on Holonomic And Non- Holonomic Mobile Robots</p> <p>Ahalya Ravendran School of Manufacturing Systems and Mechanical Engineering, Sirindhorn International Institute of Technology (SIIT), Thammasat University, Thailand</p> <p>Abstract Technological advancement in industries necessitates development in autonomous mobile robots with obstacle avoidance for applications in industries, hospitals and educational environment. Holonomic motion allows the mobile robots to move instantaneously in any direction with no constraints while non-holonomic motion restricts the motion in limited directions. This study presents the comparison of obstacle avoidance performance using low cost sensors on holonomic and non-holonomic mobile robots. The robot prototypes are developed and implemented with stable control system for better mobility. Experimental results show that the omnidirectional mobile robots avoid collisions with limited space and less time while non-holonomic mobile platforms exhibits reduced computational complexity and efficient implementation. The developed mobile robots can be used for diverse task specification applications. Keywords Obstacle avoidance, Multi-Ultrasonic Sensor Fusion, Navigation, Mobile Robots</p>
<p>Muhammad Harunur Rashid ERCICSTR1805088</p>	<p>Effect of Elevated Temperature on Bond Strength of Concrete</p> <p>Muhammad Harunur Rashid Department of Civil Engineering, Khulna University of Engineering & Technology, Khulna, Bangladesh</p> <p>Abstract In the case of accidental fire on reinforced concrete structures, an assessment of its residual capacity is needed. Bond strength of concrete was observed under elevated temperatures (150°, 250°, 350° and 500°C) in this study. Cylindrical specimens were prepared to find out the bond behavior by pull-out test and also observe the mechanical properties of concrete. All the specimens were 100 mm diameter and 200 mm height. The pull-out specimens contain a 10 mm steel bar at its center. The specimens were tested at 52 days age following a 28 days water curing. Samples were preheated for 3 hours at 100°C temperature and then put into the furnace for 1 hour at</p>

	<p>the target temperature. Samples were tested before preheating as controlled specimens. In case of mechanical properties and the bond strength of concrete, there were no remarkable changes due to elevated temperature up to 150°C. However, the mechanical properties and bond strength were decreased gradually after 150°C temperature. Maximum reduction of bond strength observed was 52.13% and 49.8% at 500°C for testing within 1 hour and after 24 hours of heating respectively when compared to the controlled specimens. Bond strength was found to reduce at a greater rate than compressive strength due to the elevated temperature.</p> <p>Keywords Bond strength, pull-out test, elevated temperature, curing, reinforced concrete</p>
<p>Taishi Nemoto ERCICSTR1805086</p>	<p>A Proposal of a Communication System Expressing Basic Motions and Proper Nouns in a Single Stroke</p> <p>Taishi Nemoto Faculty of Information Sciences and Arts, Toyo University, Tokyo, Japan</p> <p>Abstract In recent years, casual communication is increasing with SNS and messenger apps. For example, it is a conversation for killing time that is mainly done among young people, called “communication without contents”. Furthermore, you can also see conversations with pictograms and stickers that do not even use letters. What is necessary for such simple communication is not an enumeration of existing keyboards and pictograms. It is a simple input method that expresses minimum motions and proper nouns. Specifically, it is a system that can input four to nine action verbs and proper nouns that are minimum necessary for communication with one stroke similar to graffiti. Graffiti is a character input system that was installed on the predecessor Palm of smartphones. A new input interface that has evolved this existing input system is widely accepted for modern instant communication style. In this research, we propose the basic concept of this input system.</p> <p>Keywords—SNS, information, communication, Palm, Graffiti, Single Stroke, input system</p>

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