CONFERENCE PROCEEDINGS

Scientific and Technical Research Association (STRA)

27th International Conference on Researches in Science & Technology (ICRST), 29-30 Dec 2017, Bangkok, Thailand

29-30 Dec 2017

Conference Venue

Asian Institute of Technology (AIT), Conference Center, Bangkok, Thailand

Keynote Speaker

Kottawa Gamage Anoja Priyadarshani Attanayake
Senior Lecturer attached to University of Ruhuna, Sri Lanka

Dr Anoja Attanayake has been working as a Senior Lecturer in the Department of Biochemistry, Faculty of Medicine, University of Ruhuna, Sri Lanka. Her research interests are on bioactivity studies of medicinal plant extracts of Sri Lankan origin, isolation and characterization of antidiabetic, antihyperlipidaemic and antioxidant compounds, antidiabetic and nephroprotective mechanisms of natural products; beta cell regenerative effects in animal models and in cell cultures, immunohistochemistry and histopathology in the pancreas of diabetic animal models, chemical standardization of traditional plant remedies . Her research findings have been published in a number of science citation indexed journals, peer review journals and presented short papers in local and international scientific forae. Further, she was able to won several awards related to research findings including a gold medal for the excellent performance during the post graduate study (in generating knowledge that has accepted internationally), post graduate research award of SLAAS, Sri Lanka in 2015, award for the most outstanding young researcher -2016, University of Ruhuna, Sri Lanka etc. Currently she serves as the principal investigator of research projects on bioactivity studies of natural products/medicinal plant extracts in in vivo models, clinical trial of a novel antidiabetic drug of herbal origin etc.

Keynote Speaker

Hajime Hirao
Department of Biology and Chemistry, City University of Hong Kong, Hong Kong, China

Dr. Hajime Hirao received his BEng and MEng degrees from Kyoto University and his PhD from The University of Tokyo. He underwent his postdoc training at The Hebrew University of Jerusalem, Emory University, and Kyoto University. Prior to that, he worked for three years on computer-assisted drug design at the Novartis institute in Japan. Before joining City University of Hong Kong, he worked as faculty at Nanyang Technological University in Singapore. Over the years, he has been interested in computational and theoretical aspects of chemistry, especially chemical reactions. One of the major goals of his research is to figure out how difficult chemical transformations can be achieved using simple catalytic platforms built from earth-abundant elements.

Dr. Zahedi **GICICRST1714051**	**Stepwise Optimization for Model of Integrated Batch Production and Maintenance Scheduling for Single Item Processed on Flow Shop with Two Machines in JIT Environment** **Zahedi Zahedi** **Mathematics Department, School of Computer Science, Binus University, Syahdan Street 9, Jakarta 11480, Indonesia** **Rojali Rojali** **Mathematics Department, School of Computer Science, Binus University, Syahdan Street 9, Jakarta 11480, Indonesia** **Ashadi Salim** **Mathematics Department, School of Computer Science, Binus University, Syahdan Street 9, Jakarta 11480, Indonesia** **ABSTRACT** **This paper elaborates an integrated model of batch production scheduling and maintenance scheduling on flow shop two machines producing single item to be delivered at a common due date. This model describes the trade-off between production cost and maintenance cost as the increasing of production run length on two machines. The objective function of the model is to minimize total cost consisting of in process and completed part inventory costs, setup costs, preventive and corrective maintenance costs and rework cost on two machines. The Model was a mixed integer quadratic that contains some integer and binary variables, so that analytic search solution could not be used for the model. It was developed a stepwise optimization to solve the model. An example is given to clarify how the model solved.** **Keywords: stepwise optimization, flow shop two machines, batch production, machine maintenance**
Won Sun Chen **GICICRST1714054**	**Mobile app to assist clinicians in assessing trauma outcomes in emergency environment** **Won Sun Chen** **Department of Statistics, Data and Epidemiology, School of Health Sciences, Swinburne University of Technology, Melbourne, Australia** **Shaun Wen Huey Lee** **School of Pharmacy, Monash University, Selangor, Malaysia** **Wei Kian Chen** **Division of Information Technology & Sciences, Champlain College, Vermont, United States of America** **Nicholas Boyle** **Division of Information Technology & Sciences, Champlain College, Vermont, United States of America** **Abstract** **The use of mobile devices has become a common practice in health care setting, especially with rapid growth in medical software applications (apps) which has transformed many aspects of clinical practice.[1,2] A wide range of apps are available to assist healthcare professionals (HCPs) with their tasks, such as: information and time management; health record maintenance and access; communications and consulting; reference and information gathering; patient management and monitoring; clinical decision-making; and medical education and training. [1-8]**

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	We recently developed a statistical model for predicting the probability of survival for patients with trauma related injuries presented to the emergency departments in Malaysia. This model was established using 5-year data from the National Trauma Database in Malaysia and it has been found to be valid and reliable. 9
	This paper concentrates on documenting the process in transforming the statistical model 9 into an app. The app prompts users for all the essential information, such as injury severity score (ISS), age, respiratory rate (RR), systolic blood pressure (SBP) and Glasgow coma scale (GCS), and translate this information into all the different component needed for the statistical model. The output of this app is the survival probability for the given patient with certain information of the sustained injuries. All calculations and predictions are heavily based on the developed statistical model (Figure 1).
	Keywords:Medical software application (app), Clinical decision-making, probability of patient survival
Sudan Hansraj **GICICRST1714055**	**Mathematical Modelling of Compact Astrophysical objects in Trace-free Einstein Gravity** **Sudan Hansraj** **University of KwaZulu Natal** **ABSTRACT** We develop the equations of motion governing the gravitational field of static spherically symmetric perfect fluids within the context of the trace-free gravity theory. The exact solutions of Tolman (1939) for the standard Einstein theory are analysed in this new theory. The boundary and central conditions applicable to the standard theory have been shown by Ellis (2013) to carry over into the traceless gravity area. We introduce the Tolman metrics into the field equations and examine the density and pressure profiles. We further compute the masses realizable in this theory and compare with that of the standard formulation. In addition, we study the behavior of the sound speed, compactification parameter as well as the surface gravitational redshift. With the help of Mathematica and other software packages we are able to critically analyse whether the matter variables conform to realistic matter configurations.
Yuli Yetri **GICICRST1714056**	**The Properties of Particleboard Cacao Peels and Bagasse by Urea-formaldehyde adhesive** **Yuli Yetri** **Mechanical engineering,Politeknik Negeri Padang,Padang, Sumatera Barat, Indonesia** **Sukatik** **Mechanical engineering,Politeknik Negeri Padang,Padang, Sumatera Barat, Indonesia** **Ruzita Sumiati** **Mechanical engineering,Politeknik Negeri Padang,Padang, Sumatera Barat, Indonesia** **Abstract** Particle boards as one kind of the reconstituted wood products in their manufacture still rely on the conventional wood material from natural forest, which in potency becomes limited and scarce. Consequently, use of alternative woods or other ligno-cellulosic fibrous stuffs deserves thorough consideration, with their potency abundant and mostly still unutilized, such as bagasse and cacao peels waste from home industry and factories. In relevant, a research on particle board manufacture was conducted using

	cacao peels and bagasse particles bonded together with urea-formaldehyde (UF) adhesive. This research aimed to look into the effect of variation cacao peels, bagasse, and UF on the physical-mechanical properties of the resulting particle board. Results revealed that increasing the UF content brought about a significant decrease in the thickness swelling and water absorption of the particleboard, and increases in MOR, MOE, and screw-withdrawal strength, but inflicted so significant changes on the moisture content, density, and internal bond. Particleboard properties that could favor the standards of consecutively Indonesia (SNI), Japan (JIS) and FAO either entirely or partially were density, moisture content, and MOR. The greater the UF content the more of those properties satisfying the JIS specification. Judging from in density, this experimented particleboard was more suitable for use as room sheathing and framed table-plane. With using 10% UF in blending, the particleboard that looks the most prospective for such purposes were. Keywords: Particleboard, Cacao peels, Bagasse, Urea-formaldehide, Adhesive, Properties
Mohammed Kamrul Hossain **GICICRST1714057**	**Synthesis of Novel Photochromic Compounds Metacyclophan-1-enes containing bridge** **Mohammed Kamrul Hossain** **Department of Pharmacy, Faculty of Biological Science, Chittagong University,Chittagong-4331 Bangladesh** **Michinori Takeshita** **Department of Applied Chemistry, Faculty of Science and Engineering, Saga University, Honjyo 1, Saga 840-8502, Japan** **ABSTRACT** The Synthesis of novel photochromic compound metacyclophane-1-ene containing bridge is reported. The newly synthesised compound exhibit photochromic properties upon irridiation with ultraviolet and visible light. The photocyclization quantum yield was determined. The relationship between the photocyclization quantum yield and distance between the reactive carbon atoms of metacyclophane-1-ene containing bridge was established. The thermal stability of newly synthesized photochromic compound has been studied and the compund exhibted thermal irreversibility. KEYWORDS : Photochromism ; Metacyclophane ; Quantum yield ; Thermal reaction
Ibrahim G Bassi **GICICRST1714063**	**ON THE THEORY OF NON - COMMUTATIVE PROCESSES AND THEIR MOMENTS** **Bassi, I.G.** **Department of Mathematics, Federal University Lafia.** **ABSTRACT** We consider the concepts of non – commutative white noises and show that for large classes of quantum processes one can make precise statements about the time behaviour of their moments. For a given stationary flow (BI) $I\square\square$ we put and call the corresponding quantum process. Keywords: Stationary flows, quantum processes, order invariant, Trace and Moments.
	Protective Effect of Minocycline Against Bacterial Infection-Induced Sickness Behavior in Rats **Maha G. Soliman** **Department of Zoology, Faculty of Science, Al-Azhar University, Cairo, Egypt** **Hanaa-Mansour** **Department of Pharmacology**

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Abstract

Many studies suggest that bacterial infection generate adverse effects on the cognitive, behavioral and emotional status. Inflammation, oxidative stress and altered level of immune-cytokines are involved in the pathogenesis of sickness behavior in rats. Minocycline is a broad spectrum second generation semi synthetic derivative of the bacteriostatic antibiotic tetracycline. The present study aimed to determine effects of minocycline on neurobehavioral and some other related parameters in bacterially infected and non- infected rats. The levels of Interferon gamma (IFN-γ) and nitric oxide (NO) were assessed in brain tissue, serum C-reactive protein (CRP) as well as total and differential leukocytic counts (WBCs), also brain histopathological examination was evaluated. Male Sprague-Dawley rats received (90mg/kg) p.o. minocycline for three days. The infected animals were intraperitoneally injected 48 hours before sacrificing with 200 µl of E. coli 24 hours bacterial culture in nutrient broth containing approximately 1.8 x 10 cfu / ml. Animals were divided into four groups: - (1) Control group, (2) Escherichia coli infected group, (3) Minocycline treated group, (4) Minocycline and Escherichia coli treated group. The results revealed that minocycline blocked bacterial infection-associated sickness behavior in rats, reduced signs of cognitive impairment, decreased CRP, IFN , NO and total leucocytic count (WBCs).
Key words: Escherichia coli, Minocycline, Interferon Gamma, C-Reactive Protein

Amy Balcita
GICICRST1714067

Level of Awareness and Competence of Science Teachers in Utilizing Educational Technology Tools

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Abstract

Science has been considered as a continuous process of inquiry and evidence-searching and in this dynamic world, change is known to be as eminently permanent. Coping up with the changes where virtual reality is the trend, ICT in education is one of the most reliable tools to deliver quality education making science and education essential part in the holistic development of the students, preparing them to become productive members of the society.
This descriptive-correlative research determined the technology integration

and competence of the 33 public secondary science teachers, perceived by: a) the students; b) by the administrators and c) by themselves, in the municipality of Bani. The study came out with the following salient findings: Young female teachers and administrators with varied qualifications dominate the schools of Bani, Pangasinan. Secondary School Administrators in Bani are all engaged in continuing studies as no one remained with a Bachelor's degree. There is still a need for attractive study programs so that every teacher could feel the need for further enhancing their capabilities. The classic educational technology tools such as blackboard, books and practice books, figures and tables, bulletin boards, measurement instruments, exercise books, graphics, drawing instruments and slides still tops the list of educational tools in Bani Pangasinan. Teachers in Bani, Pangasinan have low self-professed awareness of the computer literacy competencies in Science Instruction.

Administrators have the highest regard on teacher competences while the students rated the competence of their teachers as lowest. Compared to the teachers, the administrators have higher regard on the competence of the teachers based on the different learning approaches. To be effective teachers, they need to develop credibility and that is visible and known to the students. Ten significant barriers in utilizing computers in science teaching were identified include personal lack of interest, personal lack of knowledge and skills, time to preview applications, order materials and plan and prepare lessons, unavailability of computers, unavailability of software, lack of availability of equipment and supplies, lack of support from Administrators, lack of support from fellow teachers, lack of technical support, and lack of interests of students. There is no significant relationship between the profile of science teachers and their extent of utilization of the following categories of instructional technology used in science lessons in classical technology. There is however an inverse correlation on the years of experience in the use of the classical or traditional learning methods. Teachers would be more interested in improving their teaching capabilities based on what they believe is needed or expected of them.

Keywords: Technology Integration, Educational Technology, ICT in education

Fire Behavior Of Steel Pallet Rack Connections

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Abstract

The beam-to-column connections (BCCs) used in steel pallet racks (SPRs) possess different characteristics as compared to common steel connections. Therefore, the design of such connections is quite different from usual steel connections. In hazardous conditions, the design of such connections becomes more critical. This study examines the fire performance of rack connections and evaluate the reduction in their strength and stiffness at three different temperature ranges (300° C, 500° C and 900 °C). Findings

revealed that at 300 °C, the major failure mode was the distortion of the beam end connector (BEC) whereas, at 900 °C, the major mode of failure was shifted to the column buckling. Furthermore, the temperature affected the connection stiffness at an increased rate compared to its strength.

Keywords: Steel pallet racks, Beam-to-column connections, Fire, Stiffness, Strength

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Dipankar Sarkar
GICICRST1714071

Study The Behavior Of Asphalt Mix And Their Properties In Presence Of Nano Materials

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Abstract
Due to rapid development, increase in the traffic load, higher traffic volume and seasonal variation in temperature, asphalt pavement shows distresses like rutting, fatigue and thermal cracking etc. because of this pavement fails during service life so that bitumen needs to be modified with some additive. In this study VG30 grade bitumen modify with addition of nanosilica with 1% to 5% (increment of 1%) by weight of bitumen. Hot mix asphalt (HMA) have higher mixing, laying and rolling temperatures which leads to higher consumption of fuel. So that ZycoTherm, a chemical warm mix asphalt (WMA) additive added to bitumen. Nanosilica modification (NSMB) results in the increase in stability compared to unmodified bitumen (UMB). WMA modified mix shows slightly higher stability than UMB and NSMB in a lower bitumen content. The Retained stability and tensile strength ratio (TSR) is more than 75% and 80% respectively for both mixes. Nanosilica with WMA has more resistant to temperature susceptibility, moisture susceptibility and short term aging than NSMB
Keywords— HMA, Nanosilica, NSMB, Temperature, TSR, UMB, WMA.

Wadzani Dauda Palnam
GICICRST1714072

First Report of Die-back Disease of Onion (Allium cepa L.) Induced by Fusarium equiseti (Mart) Sacc in Nigeria

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ABSTRACT

In October 2015 and 2016, onion plants of cv. Barke exhibiting characteristic symptoms of dried leaves beginning from the tip, abnormal protrusion, root discoloration and curling of the stalk from was observed in Kebbi State, Nigeria. In both cases, disease was very severe on seedlings, and disease incidence was 50% or more in most farmer's fields. Diseased tissue was cut from advancing margin after sterilization and placed in agar plates. The Fusarium sp. isolated routinely from diseased tissue from the root tissues was identified at International Mycological Institute (IMI) Egham, London as Fusarium equiseti (Mart). Microscopic examinations showed the presence of septate (5-7) marcroconidia with tapered apical shape and aseptate microconidia in the Fusarium species. Pathogenicity test using Fusarium equiseti (IMI No. 604243) isolated from the roots and leaves of diseased plants showed typical symptoms. Three inoculation methods used confirmed multiple soil borne inoculum transmission after the Koch postulate.

Keywords: Onion, Farmers, Kebbi State, Fusarium equiseti, Danzzazalau

Priyank Gupta **GICICRST1714073**	**Performance and Emission Analysis of Single Cylinder SI Engine using Bioethanol gasoline blend from Salvinia molesta**

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Abstract:

Higher areal productivity with fast growth rate of microalgae and aquatic weeds makes them was a promising alternative feedstocks for bioethanol production. In this study, S.molesta (aquatic weed) used for the production of bioethanol using combined pre-treatment and hydrolysis followed by fermentation with yeast. The quantity of bioethanol produced from S.molesta was measured using Potassium dichromate test, distilled under vacuum and ordinary condition, and dehydrated using CaO and found to be 99.12% pure. The physical properties such as density and heating value of bioethanol were 792.2 kg/m3 and 26.12 MJ/kg, respectively. The performance and emission analysis of a single cylinder SI engine was analyzed using E5 and compared with that of gasoline. The test results showed an increase of 0.3% in brake thermal efficiency for E5. From the emission analysis, reduced emissions of 39 ppm unburned hydrocarbon, 1.55% carbon monoxide and 2% smoke opacity, respectively was observed with E5 at full load. An increase in CO_2 of 0.17% by volume and increase in NOx of 86.7 ppm was observed for E5 at full load.

Keywords: Bioethanol, Salvinia molesta, Emission Analysis

Partha Protim Das GICICRST1714074	**Application of grey-fuzzy approach in parametric optimization of EDM process in machining of MDN 300 steel**

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Abstract

Maraging steel (MDN 300) exhibits high hardness and difficult to machine material. Optimization of output measures is essential for effective machining. Past researchers have already used Taguchi for obtaining the optimal responses such as material removal rate (MRR), tool wear rate (TWR), relative wear ratio (RWR), and surface roughness (SR). In this paper, grey relation analysis (GRA) with fuzzy logic is applied to this multi objective optimization problem to check the responses by implementation of the derived parametric setting. It was found that the parametric setting derived by our method results in better response than that of the parametric setting given by past researchers. Our results are also verified using the technique for order of preference by similarity to ideal solution (TOPSIS). The predicted result also shows there is an improvement by 2.61% in compared to past researchers.

Keywords: Grey-relational analysis, Fuzzy logic, EDM process, TOPSIS

Comingstarful Marthong GICICRST1714076	**Retrofitting of RC Exterior Beam-Column Connections steel wire mesh**

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ABSTRACT:

The efficacy of galvanized steel wire mesh (GSWM) as a retrofitting material for RC beam-column connections damaged due to reversed cyclic loading was investigated. The repairing mainly consists of wrapping the damaged region by three types of locally available GSWM namely, (i) Coarser mesh of 25mm square opening (ii) Coarser mesh of diamond shape of 12.5mm opening and (iii) Finer mesh of 3mm square opening. A reduced scale RC beam-column connection which was detailed as per current codes of Indian Standard was considered. The retrofitted specimens were also subjected to similar cyclic displacement. Important parameters related to seismic capacity such as strength, stiffness degradation, energy dissipation,

	and ductility were evaluated. All retrofitted connections exhibited equal or marginally better performance. However, coarser mesh exhibited higher displacement ductility as compared to the finer mesh. From this study, it is concluded that GSWM can be effectively used for strengthening of damaged connections economically as compared to carbon fiber and glass fiber polymer. Keywords: RC beam-column connection, cyclic loading, mesh, seismic parameters
Musa Muhammad Tanko **GICICRST1714077**	**Phytoplankton And Limnological Variables As Water Quality Indicators Of River Rima, Sokoto, Nigeria** **Magami, M.I.** Department of Biological Sciences, Usmanu Danfodiyo University, P.M.B 2346, Sokoto State **Muhammad, M.T.** Department of Biological Sciences, Sokoto State University, P.M.B 2134, Sokoto State-Nigeria **Abstract** Water quality in the present study was measured using various physical, chemical and biological methods. The biological analysis (phytoplankton communities) was carried out in support of the interpretation of the results obtained from the physicochemical analysis of the water. The physical factors such as the temperature fluctuated from 18.500c to 23.500c to 20.500c then 23.500c respectively from January to April. Phytoplankton composition, Chlorophyceae was the highest with 8 species and 6870mg/l in total, followed by Bacillariophyceae with 4 species and 2310mg/l in number then Cyanophyceae with 3 species and 1920mg/l in number. In general, the overall average phytoplankton abundance in the study area was 11,100cells/l. On the other hand, the phytoplankton abundance was low in first two months as a consequence of relatively low temperatures, even though nutrient levels, especially nitrate levels, were high during this period. Phytoplankton reflects water quality through changes in its community structure, patterns of distribution and the proportion of sensitive species. Water quality was evaluated using water quality index which was 55.05 for January, 46.43 for February, 54.58 for March, and 48.16 for April. The average for limnological variables were taken and used to evaluate the water quality and the result was 50.45. Key Words: Phytoplanktons, Chlorophceae, Bacillariophyceae, Cyanophyceae, Limnological.
Sanjay Paul **GICICRST1714080**	**Landslides in Hilly Region of Guwahati in Northeast India: A Case Study** **Sanjay Paul** Assistant Professor, Department of Civil Engineering, National Institute of Technology Agartala, Agartala – 799046 **Rezaul Islam Choudhury** Postgraduate Scholar, Department of Civil Engineering, National Institute of Technology Agartala, Agartala – 799046 **ABSTRACT:** Landslides are major threats to life and property in the mountainous terrains around the world, which result from natural slope instabilities. There are different causes of Landslides, namely, Geological, Morphological, Physical and Human causes. Due to the growing urbanization and uncontrolled land use of the limitedly available mountainous areas, on global scale, there is an increasing trend of landslide

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hazard and associated risk.

In the present study an attempt has been made to carry out the geotechnical investigation of typical hilly landslide area of Guwahati city in northeast India. The landslide area near Geeta Mandir of Geeta Nagar area of Guwahati is considered for the analysis. Guwahati city is located 1900 kms towards east from New Delhi, the capital of India. In the site under consideration there are heavy damages to the houses and other structures constructed in the nearby areas of the slopes.

The disturbed and undisturbed samples have been collected from the Geeta Nagar landslide area to conduct the laboratory tests for the investigation of the soil characteristics. It is observed that, the soil profile contains poorly graded silty sandy clay with reddish colour. Also different engineering properties have been determined in the laboratory.

From the tests, the most probable reason of the landslides has been found as the poor shear strength characteristics of the soil. This phenomenon happened due to the development of excess pore water pressure as a result of heavy rainfall. These landslides effects can be prevented by improving the shear strength characteristics of the soil, which can be achieved by performing some soil improvement techniques in the existing soil slope. The important soil improvement techniques are mixing soil with optimum percentage of admixtures such as cement, lime, fly ash or their combinations on the soils of hill slopes.

Keywords: Landslides; Slope; Shear Strength Characteristics; Soil improvement Techniques.

Quality Management And Savings Estimation Of Regasified Liquified Natural Gas (Rlng) Using Nitrogen Blending Technique

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Laveet Kumar
GICICRST1714081

Abstract

With the substantial economic growth in Pakistan, the demand for natural gas has abruptly increased over the last two decades. Due to this unceasing growth, the transportation of natural gas has become more significant and liquefied natural gas (LNG) provides a safer and cost-effective alternative for transportation. But the development of LNG market which has additionally introduced themselves with different compositions and different Gross calorific values (GCV). Also, this difference in gas composition results in the loss of the huge amount since gas charges are ascertained on the premise of GCV. Thus, LNG producers are facing challenges to address new gas quality issues.

Therefore, this paper takes a specific LNG composition being imported as an example to address gas quality issues and savings estimation. The method of gas quality management by blending of different molar fractions (5%, 6% and 7 %) of Nitrogen (N_2) gas as per Oil and Gas Regulatory Authority (OGRA) specified limits and savings estimation of the same are the focus of this research. Mathematical calculations and computer

simulation using Aspen Hysis have been adopted to analyze the gas quality and savings estimation of RLNG product. It was also ensured that RLNG product meets OGRA Gas Sales specification and reveals optimum operating conditions. Results revealed that after blending of different molar fractions (5%, 6% and 7 %) of Nitrogen (N_2) gas, a decrease in calorific values by 5%, 6% and 7 % respectively compared to the original values and savings of 5%, 6% and 7 % of the original price in the current RLNG situation were achieved. The research concludes that the proposed nitrogen blending processes are the most effective one and an economical way to adjust the heating value.

Keywords: Regasified liquefied natural gas (RLNG); Gross calorific value (GCV); Quality Managment; Savings estimation and Nitrogen blending technique

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Nadila Tsurayya
GICICRST1714082

Determination of Components and Compositions Blending Product Dexlite with Sulfur Content 1200 ppm

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ABSTRACT.

Dexlite is the newest oil fuel from diesel-engined vehicles to Pertamina in Indonesia with a value of 1200 ppm sulphur content. Dexlite launched Tuesday, (12/4/2016) as a new variant for consumers who want fuel quality above the usual Solar (subsidized) but with a cheaper price. Solar products of PT Pertamina RU II Dumai is a product which can be said to be the product of dexlite due to the sulphur content of 3500 ppm. The process used to create the dexlite is blending process. The main raw materials in the process of refinery used to manufacture dexlite PT Pertamina RU II Dumai is Sumatra Light Crude (SLC) and mix it with Duri Crude Oil (DCO), and Banyu Urip Crude Oil (BUCO) due to limitations of the materials. The third of these materials produce kerosene, LGO, HGO, LVGO, Heavy Kero and Diesel, which later resulted in a mixed dexlite. With this blending process, Sulphur content contained on dexlite is of 658.11 ppm.

Key Words: Solar; Dexlite; Sulfur Content; Refinery

Conita
GICICRST1714083

Application of Data Mining in Analysis of Floods, Landslides, Tornadoes in Indonesia Using Association Rule Apriori Algorithm in 2012 – 2016

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Abstract.

The potential for increased rainfall, accompanied by strong winds, has the potential to cause floods, landslides, tornadoes to hit various regions in Indonesia, from Sabang to Merauke come and going. Trend the incidence of these three types of disasters continue to increase from year to year. Therefore, the use of data mining is used to solved this problem. Association rule mining is one of data mining methods that can identity similiarity relationship between items. The result using Arules Aprori methode given score > 1 there is indicated is given a great accuracy can be used become a reference for predicting disister. the result givens 69 rules with one of the rules in mounth July with cause information downpour can be occure flood with confidence 0.889 and support 0.012 from all transaction of disaster and all the lift score on this analysis method given score > 1 there is indicated

that is greats accuracy can use become a reference for predicting disaster.
Key Words : Data Mining, Association rules : Apriori; Floods, Landslides, Tornadoes.

Effectiveness of Technology in Learning English as a Second Language

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Institution: Department of Elementary and Secondary Education,
Polytechnic University of the Philippines
Year: 2017
Mr. Emejidio C. Gepila Jr.

Abstract
The main objective of the study was to determine the effectiveness of video technology on the teaching of English as a second language to Senior High School Students of Polytechnic University of the Philippines.
The researcher utilized the descriptive method of research with 30 Senior High School Students of Polytechnic University of the Philippines as respondents. The instruments used were a questionnaire and a language proficiency test.

Preparation and characterization of novel magnetic Fe-Ca-Zr metal oxide nanocomposite for toxic dye adsorption: Response surface methodology optimization

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Animesh Debnath
GICICRST1714085

Abstract
In this work, the adsorptive behavior of a novel magnetic Fe-Ca-Zr metal oxide nanocomposite was explored for removing toxic dye from aqueous media. The detailed surface morphological and elemental analysis of the synthesized adsorbent was accomplished by XRD, SEM, FT-IR, VSM, PZC and BET surface area measurements. XRD pattern depicted significant diffraction peaks of ZrO_2 and $CaFe_2O_4$ nanoparticles. The impact of various experimental parameters such as effect of reaction pH, initial methyl orange (MO) dye concentration, contact time, and adsorbent dose were explored systematically on to MO removal efficiency. The maximum removal of MO dye was found at pH 2.0 and the electrostatic interaction between the protonated adsorbent surface and the anionic MO dye molecules was the main driving force behind this adsorption. The equilibrium adsorption data found to follow Langmuir isotherm and the adsorption process followed second order kinetic model strictly. The prepared adsorbent showed maximum adsorption capacity of 370.37 mg/g as determined from Langmuir model, which is higher than nano-scale single Fe, Ca, and Zr oxides. Response surface methodology (RSM) was

	utilized for optimizing the experimental conditions for maximizing the MO dye removal (%) with desirability function approach. Three factors five level central composite design was implemented for RSM study and the simultaneous interaction of process variables on dye removal efficiency was studied by 3D response surface plots. Maximum MO dye removal of 99.11% was determined with MO dye concentration of 45 mg/L, adsorbent dose 0.37 g/L, and contact time of 75 min at pH 2.0. This work can be extended by preparing organometallic nanocomposite to optimize the effective solution pH near to neural range. Keywords: metal oxide composites; toxic dyes; adsorption capacity; kinetic and isotherm study; optimization.
Dwiyana Yogasari GICICRST1714090	**Enhancement of Biogas Productivity in Anaerobic Digestion by Hollow-structured Carbon Nanotube Media** **Dwiyana Yogasari** **Department of Civil and Environmental Engineering, Korea Advanced Institute of Science and Technology (KAIST), Daejeon 34141, Republic of Korea** **Seongmin Yang, Joosung Park** **Department of Civil and Environmental Engineering, Korea Advanced Institute of Science and Technology (KAIST), Daejeon 34141, Republic of Korea** **Changhyeon Bak, Huiyi Zhang** **Department of Civil and Environmental Engineering, Korea Advanced Institute of Science and Technology (KAIST), Daejeon 34141, Republic of Korea** **Seoktae Kang** **Department of Civil and Environmental Engineering, Korea Advanced Institute of Science and Technology (KAIST), Daejeon 34141, Republic of Korea** **Abstract** **Conductive carbon materials have been used to enhance performance of anaerobic digestion (AD) by accelerating direct interspecies electron transfer (DIET) between electroactive bacteria and methanogenic archaea. In this study, carbon nanotube hollow fiber (CHF) as potential material for DIET was employed to treat artificial palm oil wastewater in AD. Meanwhile, non-carbon based hollow fiber membrane was tested as control. The addition of CHF resulted in the increased both biogas production rate and biogas yield. The lag phase of biogas production on CHF-supplemented reactor shown the lowest value. In addition, microbial communities' activity on the surface of CHF analysed by scanning electron microscopy (SEM) in attempt to explain the attached growth of microorganism.** **Keywords: Carbon Nanotube Hollow Fiber (CHF), Biogas Production Rate, Direct Interspecies Electron Transfer (DIET)**
Djay Louis Obediencia GICICRST1714091	**Market Acceptability of an Application-Based Basic Education Tutorial Booking System in Tacloban City** **Djay Louis Obediencia** **University of the Philippines Visayas Tacloban College, Tacloban City, Philippines** **ABSTRACT** **This study determined the acceptability of an Application-Based Basic Education Tutorial Booking System in Tacloban City. By utilizing mobile technology, the researcher's end goal is to create an application which acts**

	as a medium that allows the tutees to communicate with a tutor and "book" a tutorial session. The tutors will consist of college students from the University of the Philippines Visayas Tacloban College (UPVTC). On the other hand, the tutees will be composed of elementary and senior high school students in Tacloban City. Lessons taught in the tutorial are subjects from the K to 12 Basic Education Program; mainly, English, Science, Mathematics, and Reading Comprehension. Since this application is not yet existing in the market, the researcher conducted a market study on the acceptability of this application in Tacloban City. The participants of this study are elementary, senior high school and UPVTC students. By using a structured interview schedule, the researcher interviewed its participants to determine the acceptability of the application. This paper discusses the implications of the methods used and the results of the study. Keywords: Mobile application, Tutorial Booking System, tutor, tutee
Toya Tripura **GICICRST1714092**	**Effect of Rice Husk Ash on Acid Resistance of Concrete Made with Crushed Brick Aggregate** **Toya Tripura** Junior Engineer, Public Works Department, Govt. of Tripura, India **Joyanta Pal** Assistant Professor, National Institute of Technology Agartala, India **Gopinandan Dey** Assistant Professor, National Institute of Technology Agartala, India **Abstract** Use of supplementary cementitious materials (SCM) is common in the modern concrete industry, primarily to attain higher strength of concrete. The issues related to sustainability of concrete against various aggressive chemicals are also equally important to achieve longer service life of the structure. In this study concrete is made with crushed brick aggregate where Rice Husk Ash (RHA) is added as SCM at different proportions. Cement replacement of 5%, 10% and 15% are done with RHA alongwith the controlled concrete without any SCM. The samples are kept submerged in acidic environment under different exposure period after completion of normal curing. Compressive strength, tensile strength, flexural strength and loss of weight are investigated for controlled concrete and concrete with partial replacement of cement by RHA. Test results indicate that use of RHA upto certain proportion increases the strength properties on the other hand due to acid attack strength degradation occurs. Resistance against the degradation of strength and weight is found to be higher for RHA concrete made with crushed brick aggregate. Key word: Acid resistance, Durability, Rice husk ash, Crushed brick aggregate, Compressive strength
Syeda Kiran Shahzadi **GICICRST1714094**	**Cloning, expression and N-terminal Pegylation of human interferon alpha-2b analogs and their cytotoxic evaluation against cancer cell lines** **Syeda Kiran Shahzadi** William G. Lawrie Department of Chemical and Biomolecular Engineering, Columbus, Ohio, USA Institute of Chemistry, University of the Punjab, Lahore, Pakistan **Nasir Mahmood** Department of Biochemistry, University of Health Sciences, Lahore, Pakistan **Muhammad Abdul Qadir** Institute of Chemistry, University of the Punjab, Lahore, Pakistan

Abstract:
 In the current research, three recombinant human interferon alpha-2b proteins (two modified and one normal form) were produced and Pegylated with an aim to produce more effective drugs against viral infections and cancers. The modified recombinant human interferon alpha-2b proteins were produced by site-directed modifications of interferon alpha 2b gene, targeting the amino acids at positions 'R23' and 'H34'. The resulting chemically modified and unmodified forms of human interferon alpha 2b were conjugated with methoxy-polyethylene glycol propanealdehyde (400 KDa) and methoxy-polyethylene glycol Succinimidy Succinate (400 KDa). Pegylation of normal and modified forms of Interferon alpha-2b prolong their release time and enhance their efficacy. The conjugation of PEG with modified and unmodified human interferon alpha 2b protein drugs was also characterized with 1H-NMR, HPLC and SDS-PAGE. Antiproliferative assays of modified and unmodified forms of drugs were performed in cell based bioassays using MDBK cell lines. The results indicated that experimentally produced recombinant human interferon alpha-2b proteins were biologically active and resulted in significant inhibition of cell growth.
Keywords: Protein refolding, Antiproliferative activities, biomedical applications, Human interferon alpha-2b, Pegylation, mPEG-propionaldehyde, Site directed mutagenesis, E.Coli Expression.

Bunsong Khamon
GICICRST1714095

Study the ways to reduce distance of raw material transportation of the anti-vibration auto parts production department case study of sample factory

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Abstract
This research aims to study the ways to reduce distance of raw material transportation of the anti-vibration auto parts production case study of sample factory, by design and layout of the new production process to be related and the appropriate way to transfer raw materials. Following the principle of systematic plant layout, according to studies, it has been found that transportation of raw materials, steel and rubber to the production process the distant about 100 meters and 76 meters, respectively. Have an effect on the flow of raw materials in the production process is not continuous. So that have the plan is improved such as moving Sound Proof material department from the production line to replace receiving zone of the raw material outside the production line .Can reduce the distance transporting of steel materials by 67% of steel materials by 67% and the process of transporting rubber raw materials down 72.37% .These improvements can be used as a guideline for improvement to increase productivity and to improve the plant layout in the next opportunity when the capacity increase.
Keyword : Production efficiency, Transportation of raw materials, Systematic plant layout

Said Nasir Khisro
GICICRST1714099

Design of efficient upconverting scaffold material for perviskite solar cells

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Abstract
The mixed organic inorganic halide perovskite solar cells are a class of solar cells which have emerged unprecedented in recent years. The reported efficiency has been reached ~19% to date. To further increase its efficiency, broad range of concepts has been utilized. In this paper, we report on the synthesis of up-converting material that can be used as scaffold material for these cells to further enhance their efficiency. Most efficient of these cells reported has band gap of around 1.55 nm with the absorption edge at around 800 nm. Using up-converting materials at the rare side of solar cells to utilize below the band-gap portion of solar spectrum is widely used concept. Our designed material has absorption edge at around 980 nm and up converts it to 800 nm which is equal to the band gap of these materials. We consider that utilizing this material as a scaffold for these solar cells will further improve its efficiency.
Keywords: Molten salt synthesis, luminescence up-conversion

Joon Ching Juan
GICICRST1714100

Mesoporous Materials In Photocatalysis of Organic Pollutants

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Abstract
Many type of persistent organic pollutants have been identified as toxic compound in wastewater where it associated with aromatic rings and mostly resistance in biodegradation. Titanium dioxide (TiO2) is well established for its photocatalytic efficiency due to its cost, availability, chemical stability, photocorrosion stability, and environmental friendliness. When a commonly used TiO2 photocatalyst is irradiated with light having energy equal to or larger than the band gap, then electron-hole pair is will be generated which will lead to the formation of active radicals. These radicals are responsible for the decomposition of pollutants into harmless compound. However, the photodegradation activity of TiO2 was hampered by the large band gap (3.0-3.2eV), which consequently decreased the photonic efficiency under UV light irradiation. Several methods have been developed for enhancing photocatalytic activity of TiO2 such as doping (metal or non-metal), synthesizing TiO2 nanocomposites, and modifying the structure or electronic band structure of TiO2. In this study, various dopant and modification has been developed to enhance and increase the photocatalytic efficiency of TiO2 photocatalyst. We have managed to produce the mesoporous TiO2 has been synthesized and also doped with Fe has shown high efficiency under artificial sunlight because of the surface area and low band gap. Besides that, modification by hydrogenation of TiO2 (H-TiO2) and then doped with non-metal element has been evaluated under visible light for photodegradation of organic pollutants. The modified TiO2 has induced a red shift in optical absorption which narrowed the band gap between 2.90-1.60 eV. The photocatalytic activity of the various modified TiO2 photocatalytic managed to achieve complete

	photodegradation artificial solar light irradiation. Keywords: reduced TiO2, reactive black 5, photocatalytic, photocatalyst, pollutant
Yim S.H.L **GICICRST17140101**	**Development of a rapid assessment tool for evaluating the effectiveness of emission control policies on ozone reduction** **Yim S.H.L.1,* and Wong M.1** **1 Department of Geography and Resource Management, The Chinese University of Hong Kong, Hong Kong, Shatin, N.T., Hong Kong, China** **The emission control approach has been traditionally used to mitigate air pollution in atmospheric science and environmental management. However, the effectiveness of each emission policy especially those for reducing secondary pollutants such as ozone has not been fully understood, and thus a clear reference has yet to be provided for future policy formulation. An emission-concentration approach should be therefore used to assess the effectiveness of different emission control scenarios for formulating the most appropriate emission policies, especially when the evaluation of a wide range of policy scenarios is necessary. To this end, runtime consideration is particularly crucial when modeling and projecting long-term mean concentration levels for all possible scenarios with uncertainty quantification. In this study, a rapid assessment tool is developed based on an adjoint approach using the adjoint version of The Community Multiscale Air Quality Modeling System (CMAQ-adjoint), which computes the atmospheric ozone sensitivities to a unit of emission perturbation. The Pearl River Delta (PRD) region of China is taken as an example due to its substantial emission strength. In this presentation, we will introduce the development of the rapid assessment tool, and its potential applications in emission control policy evaluations. We will also analyze the annual and seasonal ozone sensitivity to nitrogen oxides emissions in the PRD region.**
 Manish Pal **GICICRST1714102**	**OPEN GRADED POROUS ASPHALT PAVEMENT** **Manish Pal** **Affiliation: Civil Engineering Department,N.I.T. Agartala,India** **Abstract** **Now a day the population being increased with a high growing rate as well as for fulfilling their demand the multi-storied and commercial buildings is increasing along a high demand of water. For every construction of multi-storied buildings, a huge amount of ground water is pulled out for the construction of deep foundation. After construction the total area is paved by dense graded bituminous mixes or concrete. So rain water doesn't get any chance to percolate the covered area to recharge the ground water table. In many state of India such as Bihar, Tamilnadu, Rajasthan water is pulling out at an alarming rate. Intelligent town planner, civil engineers are trying to way out the solution of this problem by incorporating the "Rainwater Harvesting Technique" in the design of pavement around the multi-storied buildings, parking lots and low traffic roads or streets. For example, PWD (Buildings and Roads) engineers can integrate govt. buildings with porous asphalt pavement parking lots. This would recharge the ground water in such critical area. As porous asphalt course is an open**

graded course, so it doesn't have that much of capacity that we expect in case of dense graded course. So it is advisable to use in parking lot, but variation of parameters and trying by trial and error we can modified the performance of road, which will be suitable for high traffic in future. It is also recommended that after a certain period the pavement surface should be free from dust, mud, contaminates etc.

Raj Kumar Bansal GICICRST1714103	**Manual Iterative Design of Economic Single Sampling Plan: A Case Study**

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Abstract
The case study was undertaken in order to develop a sampling plan for both cleats and rivets to take care of some of the shortcomings of sampling plan currently being followed in one industry.
All the data concerned with the acceptance sampling of cleats and rivets was collected from an industry and on processing of this collected data fraction defective and cost associated with inspection were calculated. A comprehensive study of existing single sampling plan was made by usage of Total Cost Model and OC curve(s), from where shortcomings of existing plan were found.
The suggested sampling plan which addresses the shortcomings of current sampling plan like poor quality protection and high cost of inspection.
Using the developed sampling plan, it was observed that number of pieces of cleats inspected has been brought down by 24.12% and there was 41.13% reduction in the number of rivets inspected. On the whole there is 27.413% reduction in the amount of pieces inspected. This helped to save on the labour cost as well.
Keywords: Acceptance Sampling Plan, Inspection, OC Curves, Total Cost Model, AOQL

Aytak Mammadli GICICRST1714105	**COx Free Hydrogen Production For Fuel Cell Applications Using Cobalt Acetate and Cobalt Nitrate Incorporated Carbon Nanotube Supported Materials**

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Abstract
Due to the depletion of fossil reserves and increase in CO_2 emissions that causes global warming, researches on alternative energies has been increased. Hydrogen is one of the clean energy sources and its purity is very important especially for fuel cell applications. Conventional processes which are applied for hydrogen production, such as steam reforming, generally use hydrocarbons as raw materials, therefore, production of COx components that poison the fuel cells is inevitable. More recently, ammonia has become an alternative source for clean hydrogen by means of decomposition reaction. As well as having high hydrogen density, NH_3 can be easily liquefied, safely stored and transported. In this study, carbon supported cobalt incorporated nanocatalysts were prepared and tested for COx free hydrogen production for fuel cells. Impregnation procedure was used in the synthesis of the catalysts and the weight ratio of metal precursor to support material was changed between 0.05 and 0.5. Catalytic activities of catalysts on ammonia decomposition were tested in a fixed bed flow reactor using 0.1 g of fresh catalyst in a temperature range of 400 °C to 700 °C under the continuous flow of pure ammonia with a rate of 60 ml/min. Activities of Carbon Nanotube approach 35 % activity at 500 °C , 100% at

	600 °C. Different Cobalt-Nanotube precursors were compared under the same reaction conditions. Carbon Nanotube supported Cobalt catalysts prepared using Cobalt Acetate approach 30% at 400 °C, 100% at 500 °C, Activity while Cobalt Nitrate reached total conversion at 500 °C
Hanaa Ghareib **GICICRST1714106**	**Enrichment Ontology with Updated User Data for Accurate Semantic Annotation** **Hanaa Ghareib Hendi** **Faculty of Computers & Information, Fayoum University, Egypt** **Haytham Al-Feel** **Faculty of Computers & Information, Fayoum University, Egypt** **Ehab E. Hassanein** **Faculty of Computers & Information Cairo University, Cairo, Egypt** **Abstract** **Annotation is the process of adding semantic metadata to web pages to become more meaningful and readable for users and machines. Due to the nature of the semantic web especially ontology so the traditional users have no ability to insert the metadata by self to ontology directly. Because of this reason, we present a framework which enrich ontology with user data in order to more accurate and completeness semantic annotation results.** **Keywords—Semantic annotation ; RSS; Ontology**
Oindrila Halder **GICICRST1714107**	**Mn doping induced magnetic and optical properties of ultrathin CdSe nanosheets** **O. Halder** **School of Basic Sciences, Indian Institute of Technology Bhubaneswar, Jatni -752 050, Khurda, India.** **S. Rath** **School of Basic Sciences, Indian Institute of Technology Bhubaneswar, Jatni -752 050, Khurda, India.** **Abstract** **Cadmium selenide (CdSe) nanostructures have been contributing to the semiconductor technology for several decades in optoelectronics, luminous materials, lasing devices, etc. Nevertheless, there is a constant urge of improvement towards their performance, which could be approached by controlling substitution of transitional metals like magnesium (Mn) 1. Mn doping has constantly provided strong and stable substitution favorable with Cd due to their nearly equivalent atomic radius. Interestingly Mn substitution induces additional spin degrees of freedom depending on the degree of substitution for both optical and magnetic properties for next generation technology. This combination of magnetic and optical properties aspires to this current work, where we have synthesized optimized Mn doped ultrathin (thickness 1.5nm) CdSe layered nanosheets (LNS) by the scaffold mediated solvothermal technique2. Raman spectroscopy and energy dispersive spectroscopy were used to ensure the successful doping of Mn in the CdSe LNS lattice. The room temperature photoluminescence exhibited the role of additional spin degrees of freedom due to the Mn doping compared to the un-doped CdSe LNS. The Mn^{2+} (five localized electrons in the d-orbital) inside the host experiences a strong exchange interaction leading to the splitting d-orbital into excited , states and the**

ground state with the splitting gap at 2. 50 eV and 2.12 eV. Therefore, the emission line that appeared at 2.48 eV and 2.05 eV may be attributed to the and transition respectively. Again, the substitution of Cd by Mn creates the deep trap states originating from either single or double substitution phenomena. Thus, the presence of Mn states permits transitions from the forbidden states and the band observed at 2.28 eV and 1.87 eV may be assigned as deep trap states originating from the formation of divacancy structures3. This induced double exchange interactions have shown interesting temperature dependent magnetic hysteresis results. The M~H loop at 300K, varies linearly with low magnetic field upto 5000 Oe and achieve a saturation beyond it. The M~H curve at 10 K also shows a hysteresis loop with remanence as 3.0 milli-emu/g and coercivity as 3682 Oe. This value is much higher than that of the superparamagnetic sample which has gradually developed into finite M~H loops upon decreasing the temperature 4,5. This clearly states the multi-magnetic nature of the LNS, which could lead to very interesting applications for the next generation spintronic and magneto-optical device.

Keywords: Mn doping; nanosheets; Photoluminescence; spin degrees of freedom.

CHEBBI RACHID
GICICRST1714108

Electrode degradation phenomena after operating using XPS, XRD, and TEM studies for proton exchange membrane fuel cells (PEMFCs)

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Abstract
Electrode degradation is a serious problem for proton exchange membrane fuel cells. Therefore, our objective was to analyse the electrode microstructure degradation under diverse operating conditions, such as various air and hydrogen pressures, humidifier temperatures, and air and hydrogen flow rates using the XPS analysis. The XPS analysis showed a significant conversion of C, F, O, Pt and S in the cathode before operation (EB-opera) and after operation (EA-opera). Which the results of this analysis showed a 1.04% increase in the mass concentration of carbon C1s from 68.72 to 69.76; a 0.67% decrease in the F1s from 27.41 to 26.74, which was due to the conversion of (CF2) n- to C–O-(CF2)n; a 0.26% decrease in O1s from 2.34 to 2.08; a 0.1% decrease in S2p from 0.71 to 0.61; and a 1.73% decrease in platinum from 2.55 for to 0.82, which due to the detachment of the platinum from the support and dissolution into the Nafion☐ electrolyte. The XRD showed the decrease in intensity peaks after operating, which decrease in the cristallinity phases. The TEM photograph showed the size of the catalyst varies from 4.14-5.57 nm.

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Keywords: Cathode operation, cathode aging, XPS, XRD and TEM.

Effectiveness Of Eye-Movement Sophisticated System In Checking The Second Language Readings In Translation

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Bilal Khalid Khalaf
GICICRST1714110

Abstract
One of the main requirements in the process of translation is translator's familiarity in the vocabularies of both the languages s\he works on, i.e. the source and target languages. Taking into account the current study, the samples are native Arabic speakers. So, the study will be on their readings of their second language 'English'. The aim of the study is to measure the effectiveness of implementing sophisticated systems in gauging the attention of Arabic native translators during their reading and learning improvement in the process of translation using Eye-tracking method which had not been carried out in the Arabic countries yet as shown by the literature. The study will adopt Robinson's model (1995-2003) who suggested that both learning processes (Memorizing) and the attention are both related. Ten novice translators undergo a pre-test and followed by an immediate post-test using English text. The outcomes show us how translators spent gradual time and efforts in reading and translating words from the text according to their word's familiarity the negative role which the system topology implement on participants. Attention and vocabulary development would be related to the discussion, which leads to discuss a second language acquisition using Eye-tracking method in shorter view and the need to amend the system and the placement of the experiment for better results.
Key Words: Familiarity, Fixation, Long-term memory, Short-term memory, In-coding, Cognitive.

Rakesh K Wats
GICICRST1714120

Impact Of Unplanned Vertical Urbanization On Indoor Air Quality And Health Of Its Occupants

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Abstract
Exponently growing population in India is putting pressure on the limited available land and to accommodate it, the only viable solution seems to raise vertical cities. Such tall buildings have their own positive and negative

	impacts on the biotic as well as abiotic factors of the particular areas in specific and overall conditions in general. The most important side effects of such buildings, if not constructed in holistic sustainable approach, are localized climatic disturbances and health discomforts of their occupants and turning them slowly into sick buildings. The most vulnerable victims are children, elders and all those having long term exposure to such buildings. Their unplanned growth is also interfering with local climactic conditions, further aggravating the conditions. Current study has focused on a northern state, Haryana, in India which is witnessing such haphazardly growing vertical residential as well as commercial structures and facing the degradation of not only its climate but also increasing reports of health problems of the users of such buildings. The study has found a great negative impact of indoor particulate pollution and its reflection on rising health discomforts among their users. The air quality of Gurugram and Faridabad has been found to be in every bad sate and 66% and 56%, respectively, of their residents have reported suffering from one or another type of health discomforts while in Panchkula the air quality was reported to have better condition at most of its sites with about one quarter of people (28.6%) showing health problems related to particulate pollution.
Aanchal Wats **GICICRST1714121**	**Increasing Trends of Self-Medication among Young Girls in Chandigarh with relation to their Stress levels** **Aanchal Wats** **Prof and Head, Dept. of Media, National Institute of Technical Teachers training and Research, Chandigarh** **Rakesh K Wats** **Prof and Head, Dept. of Media, National Institute of Technical Teachers training and Research, Chandigarh** **Maansi** **Prof and Head, Dept. of Media, National Institute of Technical Teachers training and Research, Chandigarh** **Meenu Wats** **Prof and Head, Dept. of Media, National Institute of Technical Teachers training and Research, Chandigarh** **Abstract** **Chandigarh, UT, is an educational hub having all types of professional and non-professional educational institutions. The city and its two satellite city host three universities, more than two dozens of technical and non-technical colleges and number less other training institutions. The gush of students from all its adjoining states, far off states and other countries has made them to stay in all possible places like institutional hostels, paying guest accommodations, rented flats, working people hostels, own and relative houses and all other sorts of shared and independent accommodations. The city has also witnessed an exponential growth of young female students and early age female employees in the last one decade. Majority of them has been found to be first generation migrants from their native places. This fair sex young population is subjected to varied kinds of distresses which gets manifested in the forms of stress related health issues and it has been found to have a direct correlation with the rising trends of self-medication. The present study is the outcome of personal interactions and collection of data from questionnaires, group interactions from 150 young females from undergraduate, postgraduate students and young employees (50 each). Due consent was taken before the date collection from the respondents and the assurance of concealment of identity was also given.** **More number of stressed females were found belonging to the category of**

	young professionals or employees (< 65%) while less than half of the final year PG (< 45%) and approximately one quarter of first year and final year UG (< 25 & 35%) girls were found sufferer. The similar pattern of practice of self-medication was observed among these subjects. The most common drugs of this trend was found belonging to analgesics, antipyretics, antibiotics, weight reduction formulations, derma applications, anti-anxiety etc. in their decreasing order of consumption. Present study reflects the stressful conditions of the females of the tri-city along with some remedial measure to combat distress in current scenario.
Hajime Hirao **GICICRST1714053**	**Computational Studies of Organic Reactions on Various Catalytic Platforms** **Hajime Hirao** **Department of Biology and Chemistry, City University of Hong Kong, Hong Kong, China** **Abstract:** The physical principles used in computational chemistry underlie all branches of chemistry; as such, computational chemistry has unlimited potential to contribute to the advancement of fundamental chemistry in every different subdiscipline as well as to finding solutions to critical challenges that humankind faces today, such as healthcare and energy/environmental issues. With this in mind, our computational exploration of chemistry applies quantum chemistry, multiscale QM/MM and QM/QM approaches, and many other advanced computational chemistry techniques to a broad range of complex molecular systems such as metalloenzymes, transition-metal catalysts, drugs/drug targets, metal-organic frameworks (MOFs), and nanomaterials. In particular, using computational approaches and often with experimental collaborators, we seek to derive information about chemical reaction mechanisms and bonding patterns of these complex molecules. We are also developing efficient computational methods and algorithms, in the hope that our new computational methods will expand the capability of computational chemistry and thereby enable one to simulate the behavior of complex molecular systems with higher reliability and predictability in the future.
Giovanni Montejo **GICICRST1714058**	**Instructional Management of Principals and Organizational Culture of Teachers** **Giovanni Montejo** **Instructor of College of Education,Assumption College of Davao,Davao City, Philippines** **Abstract** Organizational culture is vital for the success of organization. Hence, this study aimed at determining what domains of instructional management of principals significantly influence the organizational culture of teachers. Quantitative research design was employed in the analysis of the gathered data. These data were obtained from 260 secondary teachers in Davao City utilizing validated survey questionnaires as research instruments. Data gathered from the instruments were described, analyzed and interpreted using mean, standard deviation, Pearson r, and linear regression. The findings showed a high level of instructional management of principals and organizational culture of teachers. A significant relationship between the two variables was found out to be evident. It was found out also that instructional management of principals significantly influenced organizational culture of teachers. Moreover, among the indicators of the independent variable only framing the school goals and coordinating the curriculum surfaced to be best predictors. Keywords: instructional management, organizational culture, framing the school goals, coordinating the curriculum

Joel Felicilda GICICRST1714059	**Folk Dance In The Eyes of Student and Teacher**
	Joel Felicilda **Instructor Graduate School,University of Mindanao,Philippines**

ABSTRACT

The study was conducted to explore folk dances in the eyes of teachers and students. It should be noted that the onslaught of popular music killed the interest of the new generation towards folk dance and mostly considered it as an art of the past; however, there is still a glimmer of hope on how folk dance can be revived and awaken the understanding and interest of the teachers and students alike to appreciate folk dance.

Descriptive qualitative research design was utilized in the study to come up with quality and accurate findings. The first district of Davao City was the venue of the research study, particularly among the selected 5 secondary schools, wherein Physical Education teachers and students were taken as informants of the study. The informants of the study were the 10 Physical Education teachers as well as 10 Physical Education students from the selected 5 public secondary schools in the first district of Davao City, which means that 2 teachers and 2 students (1 male and 1 female) would be taken as participants of the study from each school. There were three sections on the researcher-made guide questions; the first section was consisted of the demographic profile of the informants. The second section was consisted of the elements folk dance comprises of movement, steps, formation and shape. The third section of the questionnaire is all about appreciation of low land Christian folk dance comprises of creativity, artistry and musicality. The acquired data were subjected to transcription, translation, collation, interpretation, wherein the result was presented in the succeeding chapters. The findings disclosed that the teachers like the basic movement such as Waltz as well as balance, column, circle and formation; also fundamental steps, dealing with fast and moderate movement. On the other hand, the students declared they like movement, steps, formation and shape in folk dance, which includes movement of the body, in terms of steps, complex and in terms of formation, variety; also, hand movement. Steps should synchronize with music while in terms of shape, bending and body position; in terms of formations, single; in terms of shape, lifting, body positioning. The teachers and students have something in common particularly in the area of fundamental steps, which is simple and moderate movement.

The teachers declared that dancing folk dance is conveying a literature and its creativity is its uniqueness; pro-folk dance teachers made a comparison of folk dance and modern dance stating that modern dance is noisy while folk dance is soft able to feel that it's an old type of music. Its uniqueness to other type of dances and its creativity is the culture of the Filipino people. The students on the other hand, appreciate the creativity, artistry and musicality of folk dance. Creativity can be found in the costumes; in the eyes, they are so beautiful to behold; creativity, because there is a little bit of uniqueness, the stepping are a little bit different from the modern dance, the creativeness of folk dance is in the costumes, it's colorful while the music is soothing. It is unique and graceful and more interesting and the beat is mellow and graceful, props are graceful to watch.

Keywords: Folk Dance, Eyes, Teachers and Students

Rinante Genuba GICICRST1714060	**21st Century Skills of Teachers and Self-efficacy of College Students**
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Abstract

The intention of the study was to determine the influence of the 21st century

	skills of teachers on the self-efficacy of college students. The respondents were 191 fourth year college students of Davao City using universal sampling. Two sets of questionnaires on five-point Likert rating scale were prepared. The data obtained were tabulated, analyzed and interpreted utilizing the descriptive-correlation method with mean, Pearson r and linear regression. The researcher concluded that both indicators of the 21st century skills of teachers and the self-efficacy of college students are interpreted as high. Also, there is a significant relationship between the 21st century skills of teachers and the self-efficacy of college students. Moreover, the 21st century skills of teachers was found to have significant influence on the self-efficacy of college students, indicating that there is a need for professional trainings of all teachers on the use of technology as significant contributor to students' learning. Keywords: 21st century skills, self-efficacy, education, Philippines
Hyo Jeon Kim **GICICRST1714061**	**Characterization of Biofouling Residues After Chemical Cleaning of Reverse Osmosis Membrane** **Hyo Jeon Kim** **Department of Civil and Environmental Engineering, KAIST, Republic of Korea** **Am Jang** **School of Civil and Architectural Engineering, Sungkyunkwan University, Suwon, Republic of Korea** **Seoktae Kang** **Department of Civil and Environmental Engineering, KAIST, Republic of Korea** **Introduction** **Membrane processes for water reuse and desalination tend to undergo performance deterioration with time due to various types of fouling. Membrane fouling in reverse osmosis (RO) process is depend on the type of deposits such as organic foulants, inorganic scalants or colloidal and bacterial particles (Nguyen et al., 2012). Chemical cleaning has been widely used to manage RO membrane fouling, and the key issue to evaluate the efficiency of chemical cleaning is the amount of residual organic matters originated from the feed water and biofilm. In recent years, advances in analytical technique with the autopsy of fouled membrane provide a broad understanding of the interactions between organic matters and membranes, and between organic matters and cleaning chemicals, although there are still broad gaps in the understanding of the basic chemistry during the chemical cleaning (Gwon et al., 2003; Schaule et al., 2009). In this paper, we will present the characteristics of residual organic matters on autopsied RO membrane before and after the chemical cleaning to understand the cleaning effectiveness on the type of organic matters.**
Sello Alfred Likuku **GICICRST1714063**	**Assessment Of Heavy Metals In Green Peppers (Capsicum Annuum L.) And Tomatoes (Solanum Lycopersicum L.) Irrigated With Treated Wastewater From Gaborone, Botswana** **Sello Alfred Likuku** **Department of Basic Sciences** **Botswana University of Agriculture and Natural Resources Private Bag 0027** **Gaborone. BOTSWANA** **Khumoetsile B. Mmolawa** **Botswana University of Agriculture and Natural Resources Private Bag 0027** **Botswana College of Agriculture**

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Abstract
Heavy metal concentrations of Cd, Cr, Cu, Ni, Pb and Zn in green peppers (Capsicum annuum L.) and tomatoes (Solanum lycopersicum L.) irrigated with treated wastewater from the Glen Valley farms were determined. Concentrations of Cr, Pb and Zn were significantly high when compared with their respective recommended safe limits prescribed by the Joint WHO/FAO Food Standards Program Code Alimentarius Commission. The daily intake of metals, DIM values for Cr and Pb were also found to be higher than their recommended safe limit values, whereas those for Cd, Cu and Ni were within the safe limit values while that for Zn was far below the recommended safe limit value. In this study, we expect that consumption of Cr and Pb through vegetables poses substantial health risk to consumers and for this reason; these products are probably not recommended for consumption. Therefore, this emphasizes the need for proper method of wastewater management to reduce the health risk and the extent of heavy metals contamination.
Keywords—Cluster Analysis, Daily Intake of Metals, Enrichment Factors, Health Risk Index.

The production of C2/C3 species from CO2 electrochemical reduction on copper modified boron-doped diamond electrode

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GICICRST1714064

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Abstract
During these few decades, CO¬2 electrochemical reduction has widely been studied for producing valuable products, especially for higher carbon-containing compounds toward ready-to-use fuel production. In addition, recently several studies on CO2 electrochemical reduction using boron-doped diamond (BDD) electrode have been reported due to its wide potential window behavior, which may decrease the hydrogen evolution. Carbon monoxide, formaldehyde, formic acid, and methanol are known as dominant products so far [1,2]. However, the high carbon-containing compounds have not been observed. Meanwhile, copper (Cu) is a best-known metal catalyst for CO2 electrochemical reduction to produce hydrocarbon and oxygenated species. Here, we report the Cu modified on the surface of BDD electrode has successfully produced high faradaic efficiency of ethanol (42.4%), acetaldehyde (13.7%) and acetone (7%) as C2/C3 species at potential -1.0 V vs. Ag/AgCl. The Cu deposited on the surface of electrode remained stable, showing insignificant differences after

the CO2 electroreduction process in this particular condition. The efficiency was dropped with increasing Cu deposition time and at high potential reduction. Moreover, for comparison the reduction on Cu plate electrode and Cu-modified glassy carbon in same conditions were carried out, resulting in very low efficiency (<1%) of C2/C3 species. The production of C2/C3 species using BDD electrode will be the new sign for further study to possibly produce the higher carbon-containing compounds, leading to the ready-to-use fuel productions.

Keywords: boron-doped diamond, copper, CO2 electrochemical reduction,

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Innovation and User Behavior for Enhancement in Leisure Bike Sharing Programme

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ABSTRACT

Bike sharing is one of the fastest growing transportation mode for its environmental and economical benefits. Originated in Europe, more bike sharing programmes start up annually in major cities in the world. As one of the most populated cities in the world, Hong Kong has its first bike sharing system in 2017. This paper first identifies usages and operational problems of bike sharing within the existing systems and examines how innovation in user behavior can enhance and improve the relationship between bike sharing entrepreneurs and citizen's interest in sports facilities. By looking deeply into how innovation in bike sharing can change the mobility in the city, improving traffic network and connectivity in the urban setting, this study will identify key issues related to user behavior and other mis-use which lead to failure of most bike sharing operations. In essence, business operations, traffic departments and citizens can benefit from the insight of this study. By utilizing research methods such as case studies and questionnaire survey, the research compares and contrasts operational issues between Asian cities such as Hong Kong, Japan, Korea and Singapore. In addition, questionnaire survey will identify major bike usage pattern between leisure activities and daily commute use and therefore can shed light to the impact of bicycle mis-use and rationale. By identifying transportation pattern in high-density cities with relationship with urban amenities such as parking facilities, the research findings gained from this paper can be beneficial to other small and big business operators as well as city planners on how innovation can help or develop better bike-sharing systems. They also provide insights to the usage of leisure bike sharing programme and results on how the programme is offering a new leisure sport to other Asian cities.

Keywords: Innovation, Bike Sharing Hong Kong, Business Operation Model, Asian Urban Cities, User Behavior

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Mechanical Behaviour of Rammed Earth Wall, Subjected to Shear Loading

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Abstract

The paper presents a study on the mechanical behaviour of rammed earth wall, subjected to shear loading. This includes numerical method using finite element software ABAQUS CAE, for unstabilized rammed earth (USRE) wall, subjected to horizontal load and diagonal compressive load. The paper also presents an experimental program, to determine the diagonal compressive strength of rammed earth wall. The parametric study has been conducted to investigate the aspects of development of stress distribution, strain occurrence and relation between stress and strain on earth wall, due to shear loading. The results of numerical method for USRE wall subjected to horizontal loading, indicates that maximum stress and strain occurrence are highest from the top corner of the wall specimen where load is applied and diagonally in the downward direction towards the opposite bottom corner of the wall specimen. The results of numerical method as well as experimental program, for USRE wall subjected to diagonal compression indicates that stress and strain occurrence are highest at the centre of the wall specimen.

Keywords – Rammed earth wall; Stress, Strain, Diagonal, Numerical.

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GICICRST1714078

Novel terpenoids from Senegalia nigrescens: isolation, characterisation, antibacterial and anti-quorum sensing activities

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ABSTRACT

A phytochemical investigation of Senegalia nigrescens resulted in the isolation of a new ent-kaurene diterpenoid (ent-kaur-15-en-18,20-diol) alongside ent-kaur-15-en-18-ol, which has been isolated for the first time in a plant species. Other compounds isolated included, 30-hydroxylup-20(29)-en-3β-ol, 3β-hydroxy-20(29)-en-lupan-30-al, lupeol, stigmasterol, and three flavonoids (melanoxetin, quercetin and quercetin-3-O-methyl ether). The structures of isolated compounds were elucidated using different spectroscopic techniques including 1D and 2D nuclear magnetic resonance. All compounds, along with the crude extracts, were tested for their antimicrobial potential against nine bacterial strains including Chromobacterium violaceum, a commonly used quorum sensing inhibitor indicator strain. Crude extracts from S. nigrescens together with the novel ent-kaurene diterpene (ent-kaur-15-en-18,20-diol) and the flavonoids (quercetin, quercetin-3-O-methyl ether and melanoxetin) demonstrated promising anti-quorum sensing activity using the qualitative agar-overlay assay. Senegalia nigrescens may represent a new phyto-therapeutic candidate for the control of existing and emerging infectious diseases.

Keywords: ent-kaurene; quorum sensing inhibition; chromatography; spectroscopy

Ishak Hashim GICICRST1714079	**Efficient Sixth Order Iterative Method for Solving Nonlinear Equations**
	Obadah Said Solaiman **Preparatory Year Deanship, King Faisal University,** **31982 Hofouf, Ahsaa, Saudi Arabia** **Ishak Hashim** **School of Mathematical Sciences, Universiti Kebangsaan Malaysia,** **43600 UKM Bangi Selangor, Malaysia** **Abstract** In this paper, we present a new iterative method for solving nonlinear equations. We derive the method based on Taylor's series expansion and Halley's method. It is established that the new method has sixth order of convergence. Several numerical examples are given to demonstrate the capability of the method. **Keywords: Root finding method, Halley's method, Nonlinear equations, Iterative methods, Order of Convergence**
Daeseon Park GICICRST1714087	**Mechanism of non-oxidizing biocides for the mitigation of biofouling on nanofiltration membrane** **Daeseon Park** **Department of Civil and Environmental Engineering, Korea Advanced Institute of Science and Technology (KAIST), Daejeon 34141, Republic of Korea** **Youngkun Chung** **Department of Civil and Environmental Engineering, Korea Advanced Institute of Science and Technology (KAIST), Daejeon 34141, Republic of Korea** **Seungyeob Han** **Department of Civil and Environmental Engineering, Korea Advanced Institute of Science and Technology (KAIST), Daejeon 34141, Republic of Korea** **Seoktae Kang** **Department of Civil and Environmental Engineering, Korea Advanced Institute of Science and Technology (KAIST), Daejeon 34141, Republic of Korea** **Abstract** In the present study, we investigated the impact of a non-oxidizing biocide (NOB) on the build-up and structure of biofilm during the accelerated biofouling of NF membrane system. Although minimal toxic effect of NOB on suspended microbial growth was observed in results from the microbial growth curve and Live/Dead test, NOB hindered attached biofilm growth on the membrane surface, thereby, retarded flux decline compared to the absence of NOB. As the results of biofilm characterizations, extracellular polymeric substances (EPS) in the biofilm were decreased in the presence of 5 mg/L of NOB. Images from confocal laser scanning microscope (CLSM) clearly showed that the density of microorganisms and the biofilm thickness significantly decreased on the fouled membrane compared to control. In conclusion, the addition of NOB was effective at retarding attached biofilm growth on the NF membrane surfaces by suppressing microbial activity as well as secretion of EPS. **Keywords: Biofouling; Extracellular polymeric substances (EPS); Non-oxidizing biocide (NOB)**

Optimization of chemical cleaning conditions for reverse osmosis process by the response surface methodology coupled with forward osmosis testing set-up

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Abstract
Fouling is a major limitation of a reverse osmosis (RO) process not only due to decrease the water flux, but also change the solute rejection. The chemical cleaning to restore RO membrane performances can be distinguished into two steps; an acidic agent aims to remove inorganic precipitates and an alkaline agent aims to remove organic matters. In this study, the optimization protocols for the chemical cleaning conditions in RO process using response surface methodology (RSM) coupled with forward osmosis (FO) testing set-up was proposed. The fouled membrane pieces were chemically cleaned by a commercially available acidic and alkaline solution according to the RSM designed conditions of various pH, concentrations, and temperatures. Then, the membrane permeability and salt rejection were examined in FO mode. Based on response surface plots, the most influential factor to membrane permeability was the concentration of chemical agent, whereas pH and temperature were not significant as much as the concentration. The optimum cleaning conditions were 3% of an acidic agent concentration and ambient pH after adding acidic chemicals followed by 3% of an alkaline agent concentration and controlled pH lower than 13 due to the membrane operating limitation. The both steps carried out at 30°C. At the suggested optimal conditions, the water flux was recovered of 86.07% with salt rejection of 83.56%, compared to virgin membrane in RO mode. Therefore, the RSM coupled with FO testing set-up could provide the better understanding of the relationship between factors and significantly factors which affected to the membrane permeability. In addition, it could be used as the fast and effective method to determine optimal cleaning strategies for chemical cleaning agents in the RO membrane process.
Keywords: Reverse osmosis, Forward osmosis, Response surface methodology, Chemical cleaning

Yeo-Myeong Yun GICICRST1714089	**Biological treatment of phenolic wastewater produced from demineralization of low-grade coal**
	Yeo-Myeong Yun **Department of Civil and Environmental Engineering, Korea Advanced Institute of Science and Technology (KAIST), Daejeon 34141, Republic of Korea** **Hang-Sik Shin** **Department of Civil and Environmental Engineering, Korea Advanced Institute of Science and Technology (KAIST), Daejeon 34141, Republic of Korea** **Seoktae Kang** **Department of Civil and Environmental Engineering, Korea Advanced Institute of Science and Technology (KAIST), Daejeon 34141, Republic of Korea** **Abstract** **Demineralization process to increase the quality of low-grade coal leads to the production of a huge amount of phenolic wastewater, which should be treated before the discharge. In the present work, biological treatment of phenolic wastewater was performed under both aerobic and anaerobic conditions. For the preparation of phenolic wastewater, low-grade coal was demineralized by adding alkaline. Produced phenolic wastewater was then pretreated by ozone (80% conversion to ozone) and hydrogen peroxide (1% for 1 hr at 60 ℃) for both aerobic and anaerobic treatment. Cupriavidus necator was used for the aerobic treatment of phenolic wastewater. It shows that COD removal efficiency of pretreated phenolic wastewater increased about three times compared to that of control. The results of Excitation-Emission Matrix (EEM) and high-performance size exclusion chromatography (HPSEC) with fluorescence detector (FLD) analyses show that organic compounds in humic acid-like, aromatic-like, and fulvic acid-like were detected from the effluent of pretreated phenolic wastewater. Meanwhile, aromatic-like and fulvic acid-like were detected from control. In anaerobic treatment, membrane bioreactor using mixed culture was employed with adding co-substrates for facilitating co-metabolism. When yeast extract was added to phenolic wastewater as a cosubstrate, both COD removal efficiency and biogas production rate increased to around three and four times higher than that of glucose added one. The appearance of peaks in soluble microbial products (SMP)-like organic compounds show that anaerobic microorganism successfully degraded the phenolic wastewater.** **Keywords: Cupriavidus necator; Phenolic wastewater; Membrane bioreactor**
Budi Husodo GICICRST1714104	**Challenges and Opportunities for Grid-Connected Photovoltaic Power Plant in Supporting National Energy Security of Indonesia** **Budi Yanto Husodo** **Departement of Electrical Engineering, Faculty of Engineering, Universitas Indonesia, Depok, Indonesia** **Departement of Electrical Engineering, Faculty of Engineering, Universitas Mercu Buana, Jakarta, Indonesia** **Rinaldy Dalimi** **Departement of Electrical Engineering, Faculty of Engineering, Universitas Indonesia, Depok, Indonesia** **Abstract** **Grid-connected photovoltaic has many advantages over its counterpart off-**

	grid photovoltaic or stand-alone photovoltaic, which is commonly installed in Indonesia. Meanwhile, Indonesia has a very high potential of grid-connected photovoltaic, about 37 TWh/year, equivalent to that of geothermal's. Nonetheless, solar energy development policy in Indonesia has not yet explored this potential maximally. In this paper, an analysis is conducted to reveal any obstacles that limit maximum growth of grid-connected photovoltaic in Indonesia. Some recommendations on how to overcome the above-mentioned obstacles are proposed. By doing these recommendations, development and installation of grid-connected photovoltaic could be alternative strategy to strengthen the national energy security of Indonesia
Hanaa Ghareib Hendi GICICRST1714109	**AnnoBic Annotation of Arabic RSS Feeds** **Hanaa Ghareib Hendi** **Faculty of computer and information, Fayoum university ,Fayoum,Egypt** **Abstract** Annotation is adding metadata to pages to become more meaningful and readable for machines. However, many Semantic annotation tools developed which proved their success in multiple languages, but Arabic is none of them. We present AnnoBic which is an Arabic semantic annotation tool for RSS feeds. Keywords—Semantic annotation ;Arabic language; RSS; Ontology.
Minhyung Song GICICRST1714111	**Biofouling on Cartridge Filters (CFs) by Algal Organic Matter (AOM) in SWRO Plants** **Minhyung Song** **Graduate School of Water Resources, Sungkyunkwan University (SKKU), Suwon, Republic of Korea** **Jae Won Kim** **Graduate School of Water Resources, Sungkyunkwan University (SKKU), Suwon, Republic of Korea** **Sanghyun Jeong** **Graduate School of Water Resources, Sungkyunkwan University (SKKU), Suwon, Republic of Korea** **Am Jang** **Graduate School of Water Resources, Sungkyunkwan University (SKKU), Suwon, Republic of Korea** **Abstract** Algal bloom is one of the critical issues for seawater desalination plants, especially in the Middle East. Algal bloom can cause severe fouling, increase of transmembrane pressure (TMP), and flux decrease in the downstream of SWRO system. Algal organic matter (AOM) produced by algal cells can pass through the pretreatment systems. Moreover, they proved that AOM have a high fouling potential than the algal cells. For these reasons, in UAE SWRO plants severe fouling occurs on CF and it requires frequent replacement, once every 2~8 weeks. Therefore in order to operate SWRO plants efficiently, in-depth study on major foulants of CFs is needed. This study aims to better understand about adsorption and biofilm forming on cartridge filter by AOM. To simulate biofouling by AOM three model compounds were chosen: sodium alginate, humic acid and bovine serum albumin with high concentration (10ppm). Also, to compare fouling tendency by CF types, two type of commercial CF were used: 5µm pleated filter and depth filter. Other conditions were chosen according to the Middle East seawater conditions; 1) Concentration: 40‰, 45‰ 2) Temperature: 30℃, 35℃. As expected, In high concentration (45‰) and temperature (35℃) the model compounds were highly adsorbed on CF because of the ionic strength and

	viscosity.
Won-il Park **GICICRST1714112**	**Optimization of nanofiltration membrane process to treat brackish water with various pretreatment methods** **Won-il Park** **Graduate School of Water Resources, Sungkyunkwan University (SKKU), Suwon-si, Republic of Korea** **Hyunho Lee** **Graduate School of Water Resources, Sungkyunkwan University (SKKU), Suwon-si, Republic of Korea** **Sanghyun Jeong** **Graduate School of Water Resources, Sungkyunkwan University (SKKU), Suwon-si, Republic of Korea** **Am Jang** **Graduate School of Water Resources, Sungkyunkwan University (SKKU), Suwon-si, Republic of Korea** **Abstract** The use of membranes for brackish water treatment has been increasing worldwide. Compared to reverse osmosis, nanofiltration (NF) membrane is more efficient water treatment because of its relatively low energy consumption and high water flux. Due to the fouling, the pretreatment process is always essential, and the performance of the NF membrane is dependent on the pretreatment. Therefore, in this study, we compared the effect of various pretreatment methods on the NF operation. We used two different kinds of NF membrane (NF4040-90, and NF4040), which were operated in crossflow mode at 5 bar. Based on the database available for typical brackish water, we made artificial feed solution to be used as the feed solution for NF process. The pretreatments included coagulation (FeCl3), powdered activated carbon (PAC) adsorption, microfiltration, and ultrafiltration. With coagulation alone, there was rapid fouling occurring on the NF membrane due to formation of flocs. PAC was less loaded on the NF membrane than the coagulation. MF membrane had higher water flux, but lower rejection rate than UF membrane. Keywords Membrane, Nanofiltration, Pretreatment, Brackish water
Jungwon Choi **GICICRST1714113**	**Comparison of EDTA-4Na and PSS as the draw solute in VRO process.** **Jungwon Choi** **Graduate School of Water Resources, Sungkyunkwan University (SKKU), Suwon, Republic of Korea** **Sanghyun Jeong** **Graduate School of Water Resources, Sungkyunkwan University (SKKU), Suwon, Republic of Korea** **Am Jang** **Graduate School of Water Resources, Sungkyunkwan University (SKKU),**

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Abstract
Forward osmosis (FO) has been gaining interests for its unique process of transporting water from feed solution to draw solution by osmotic pressure difference. Although it seems FO might be able to reduce the total energy consumption in water treatment processes, the total energy consumption does not change since the product of FO process require further process to produce permeate since diluted draw solution contain draw solute. However, if the draw solution can be regenerated with a low-pressure membrane (LPM) process, the total energy required will be less. This can be achieved by using solutes with large molecular sizes with the use of FO-LPM hybrid process, also known as a VRO process. Researches on large molecular size polymers as the draw solute for FO have been increasing for their possibility in being regenerated by the LPM process. Examples of the polymers that can be used as draw solutes (DS) include, Polystyrene sulfonate (PSS) and Ethylenediaminetetraacetic acid tetra sodium salt (EDTA-4Na) [1]. In this study, the two polymers mentioned above were evaluated for their suitability as the DS in VRO process at three different concentrations. The three concentrations were chosen so that they have same osmotic pressure values. The three osmotic pressure values tested are 8.9, 12, 13.2 bars. As expected, for FO process, with increasing osmotic pressure, the flux for FO increased and the flux for UF and NF decreased for both EDTA-4Na and PSS. Since flux of UF membrane was noticeably higher than the flux of NF for both EDTA-4Na and PSS, UF was used to have balanced permeate flow between FO and UF process. With VRO process, EDTA-Na showed better performance in terms of flux, and thus EDTA-Na could be the better DS for VRO process.

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GICICRST1714114

Coal gas composition as a critical profitability factor of coal bed methane & coal mine methane production

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Abstract
On post-mining areas production of coal mine methane or coal bed methane may be valuable opportunity of clean energy carrier acquisition. However, profitability of coal gas extraction is limited by methane concentration in produced gas. Percentage fraction of hydrocarbons in extracted gases depends on total amount of hydrocarbons (mostly methane) previously adsorbed on coal. In various regions of coal deposits occurrences, different amount of methane were measured and observed. Total amount of gases adsorbed on coal matrix is a function of coal seams depth, burial and geological history, petrophysical composition, ash content, temperature etc. In the area of the Upper Silesian Coal Basin, various coal seams, laying on the same depth, but dozens kilometres from each other may have extremely different methane' content. Due to this reason, properly localization of drilling pad is important parameter for getting economical profitability. Within this article methane content as a function of coal depth was presented. Authors showed results of gas composition measurement using various technologies e.g. Raman spectrometry. Some tips and recommendation for better borehole localization were also pointed out. Key words: coal mine methane, gobs, Upper Silesian Coal Basin (USCB), gas composition, Raman spectroscopy

Optimal Control of Neutral Lipids in Microalgae Production with Nutrient Limitation

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Abstract

Consumer demand for fuel was increasing, while the supply of fuel has began dwindling. Therefore, it is necessary to undertake an effort to develop a renewable alternative energy such as usage of microalgae. Microalgae has four main components of substance i.e carbohydrates, proteins, nucleic acid and lipids. The relatively high lipid levels can be used as a source of biomass with using light, glucose, nutrients, carbon dioxide and water. Nutrient concentration is modified to keep the concentration of biomass through the dilution rate. In addition, carbon dioxide regulated also influence of microalage production in photobioreactor. Thereby, we used dilution rate and carbon dioxide mobilization as optimal control using Pontryagin Maximum Principle method to increased biomass and quota lipid production. Hence, the result is biomass increased as 4, 5678% and quota lipid increased 44, 9727%.

Keywords : Microalgae, Carbon Dioxide, Nutrient Limitation, Optimal Control, Pontryagin Maximum Principle.

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GICICRST1714115

Reducing the Drag on a Circular Cylinder by Upstream Installation of Cylinder Type-I and Downstream Installation of Ellipse Cylinder

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Abstract

Passive control is one of method to reduce the drag received by the circular cylinder. Passive control is used by placing an object around the cylinder. Variations in the shape or number of passive control and the distance between the passive controls with the cylinder affect the drag received by the circular cylinder. In this study, passive control is placed in front of the

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cylinder and behind the cylinder. Passive control cylinder type I is placed in front of cylinder with distance S/D = 0.6, 1.2, 1.8, 2.4 and 3.0. While behind the cylinder was investigated by comparing the horizontal cylinder type I shape and ellipse shape at distance T/D = 0.9, 1.2, 1.5, 1.8 and 2.1. Investigation have done on Reynolds 5000, produced passive control cylinder type I and ellipse able to reduce drag greater than passive control cylinder type I and horizontal cylinder type I. At the distance S/D = 1.8 and T/D = 1.5 the maximum decrease of the drag got by two passive controls up to 39.9% against the drag received cylinder without passive control. Mathematical model of drag coefficient for circular cylinder with passive controls cylinder type I and ellipse is .

Keywords— Reducing the drag, computation fluid dynamics, cylinder circular with two passive controls.

Recognition-based Content Delivery Service for Internet Service Providers

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Abstract
This study proposes a recognition-based content delivery services for Internet service provider. A user requests a set of blocks called chunks periodically in video streaming. The proposed scheme recognizes whether the user is watching video content or not. If the user does not watch the video content, the chunk request is paused. In this manner, the traffic can be reduced for Internet service provider in the proposed scheme. Therefore, the proposed content delivery services based on recognition are expected to be useful for reducing the data traffic. Keywords - content delivery, content delivery network, recognition, YouTube, streaming

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