

Volume: 04, Issue: 31 August 02-03, 2018 Osaka, Japan

> Society of Engineering & Technology, Computer, Basic & Applied Sciences

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Academic Fora

CONFERENCE PROCEEDINGS

BOOK OF ABSTRACTS ECBA-2018

International Conference on "Engineering & Technology, Computer, Basic & Applied Sciences" (ECBA-2018), Osaka, Japan



Book of Abstracts Proceeding

International Conference on

"Engineering & Technology, Computer, Basic & Applied Sciences (ECBA-2018) Osaka, Japan

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Proceedings of the International Conference on

"Engineering & Technology, Computer, Basic & Applied Sciences

ISBN: 978-969-683-923-1

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International Conference on "Engineering & Technology, Computer, Basic & Applied Sciences" Venue: Osaka International Convention Center, Japan

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CONFERENCE CHAIR MESSAGE

Dr. Malika Ait Nasser

International Conference on "Engineering & Technology, Computer, Basic & Applied Sciences" serves as platform that aims to help the scholarly community across nations to explore the critical role of multidisciplinary innovations for sustainability and growth of human societies. This conference provides opportunity to the academicians, practitioners, scientists, and scholars from across various disciplines to discuss avenues for interdisciplinary innovations and identify effective ways to address the challenges faced by our societies globally. The research ideas and studies that we received for this conference are very promising, unique, and impactful. I believe these studies have the potential to address key challenges in various sub-domains of social sciences and applied sciences.

I am really thankful to our honorable scientific and review committee for spending much of their time in reviewing the papers for this event. I am also thankful to all the participants for being here with us to create an environment of knowledge sharing and learning. We the scholars of this world belong to the elite educated class of this society and we owe a lot to return back to this society. Let's break all the discriminating barriers and get free from all minor affiliations. Let's contribute even a little or single step for betterment of society and welfare of humanity to bring prosperity, peace and harmony in this world. Stay blessed.

Thank you.

Dr. Malika Ait Nasser Conference Chair Email: chair2018@academicfora.com ECBA-2018



Conference Schedule

DAY 01 Thursday (August 23, 2018)

Venue: Room 1

09:00 am – 09:15 am	Welcome Reception & Registration	
09:15 am – 09:30 am	Opening Ceremony	
09:30 am – 09:40 am	Welcome Remarks – Conference Coordinator Academic Fora	
09:40 am – 09:50 am	Introduction of Participants	
09:50 am – 10:55 am	Group Photo Session	
10:55am – 10:00 am	Grand Networking Session and Tea Break	



DAY 01 Thursday (August 23, 2018)

<u>Session I (10:00 am – 11:30 am)</u>

Venue: Room 1 Session Chair: Mr. Leon Yap

Track A: Engineering & Technology, Computer, Basic & Applied Sciences

Deng-Min Lin	Impact of the Development of Inquiry Teaching Materials on Nanotechnology Application on the Learning Outcomes and Communication of Senior High School Students	ISET-AUG18-103
Ying-Chi Chang	Impact of the Development of an Instructional Model for the Manufacturing of Nanoparticles on the Learning Outcomes and Motivation of Senior High School Students	ISET-AUG18-104
Hsiao-Wen Li	Study on the Development of an Instructional Module about the Characteristics of Nanoparticles in a Senior High School	ISET-AUG18-105
Hyoung-Joon Jin	Catalytic Effects of Oxygen and Nitrogen Groups on Activate Carbon Electrodes for Redox Flow Batteries	ISET-AUG18-106
Dr Ren Zuo Wang	Using Functional Bearing Model (FBM) on Bridge under Near Fault Ground Motion	ISET-AUG18-107

Lunch Break (11:30 am-12:00 pm)



DAY 01 Thursday (August 23, 2018)

<u>Session I (12:00 pm - 01:00 pm)</u>

Venue: Room 1

Track A: Engineering & Technology, Computer, Basic & Applied Sciences

Guan-Rong Li	A Novel Real-Time DDoS Detection System Using Machine Learning	ISET-AUG18-108
	Determination of Sources of Faults for An MIMO System Using	
Zh-Wei FAN	Artificial Neural Network and Rough Set Approaches	OSA-488-101E

Track C: Business, Social Sciences and Humanities

Yuehjen ShaoForecasting PM 2.5 in Taiwan Using Multiple Regression and ARIMA Approaches		OSA-488-102B
Angel Nga Man LEUNG	Moral Disengagement, Hostility and Cyberbullying Involvement among Chinese Students	IRBEM SH-088- ANI101

Track B: Medical, Medicine & Health Sciences

	Establishment of the Shari'ah Framework for the Application of	
Zakiah Samori	Somatic Gene Therapy in Human	OSA-488-105M

Closing Ceremony



List of Conference Attendees

The following Scholars/ practitioners/educationist who don't have any paper presentation, however they will attend the conference as delegates & observers.

Sr. No	Official ID	Name	Affiliation Details
1.	OSA-488-104A	Song, Ho Cheol	The Catholic University of Korea



DAY 02 Friday (August 24,2018)

City Tour and Shopping Day

All respective guests are free to conduct their own sightseeing and tour. The second day of the event is reserved for this memorable purpose.



TRACK A: ENGINEERING & TECHNOLOGY, COMPUTER, BASIC & APPLIED SCIENCES



Determination of Sources of Faults for an MIMO System Using Artificial Neural Network and Rough Set Approaches

Zh-Wei FAN1*, Yuehjen SHAO2, Hong-Ci SYU3

Abstract Recently, the issue of determination of process faults has attracted considerable attention because it is able to greatly improve the process. Typically, for a univariate process, it is straightforward to investigate the sources of a fault since there is only one quality characteristic. However, because the quality characteristics of a multivariate process is equal to or more than two, it is complicated to identify which one or which set of quality characteristics are at faults. Although some statistical decomposition methods may provide the possible solutions, the mathematical difficulty could confine the applications. Also, although the issue of identification of process faults has been widely studied, there has been very little research focused on the identification of the faults for a multiple inputs and multiple outputs (MIMO) system. As a consequence, this study proposes the artificial neural network (ANN) and rough set (RS) mechanisms to determine the source of a multivariate process fault for a MIMO system. A series of computer simulations are performed to evaluate the effectiveness of the proposed ANN and RS approaches.

Keywords: Artificial Neural Networks, Rough Set, Process Fault, Multiple Inputs Multiple Outputs



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Impact of the Development of Inquiry Teaching Materials on Nanotechnology Application on the Learning Outcomes and Communication of Senior High School Students

Dr Deng-Min Lin^{1*}, Jang-Long Lin²

Abstract This study explored the impact of the use of inquiry teaching materials on nanotechnology application to teach senior high school students on their learning outcomes and scientific communication. In this study, a qualitative research method was adopted, and data collection and analysis were based on qualitative data supplemented by quantitative data analysis. The study participants were students in a class of first-year senior high school in central Taiwan. The quantitative data included the "Achievement Test for the Lesson of Nanotechnology Application" and the "Scientific Competence-Communication Ability Scale," which were tested before and after teaching. A paired sample t-test was performed to determine the difference between the pre-teaching and post-teaching results. The results of the study were as follows: 1.In terms of learning outcomes and scientific communication skills, significant differences were found between the pre-teaching and post-teaching scores of "Achievement Test for the Lesson of Nanotechnology Application" as well as between the preteaching and post-teaching scores of "Scientific Competency and Communication Skills Scale," indicating that the use of inquiry teaching materials about nanotechnology application can achieve good results in learning outcomes and scientific communication skills. 2. The qualitative data analysis shows that the use of inquiry teaching materials about nanotechnology application can significantly improve students' scientific communication skills and learning outcomes.

Keywords: 5E Inquiry Teaching, Nanotechnology Application, Learning Outcomes, Scientific Communication



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Catalytic Effects of Oxygen and Nitrogen Groups on Activate Carbon Electrodes for Redox Flow Batteries

Hyoung-Joon Jin*

Abstract Redox flow batteries (RFBs) have design flexibilities for a target application and long-term electrochemical stability, because active redoxcouples with no host structure were dissolved in two separated electrolytes which are stored in container with the desired size, allowing them to be one of the promising candidate as the large-scale energy storage systems. Carbon felt (CF) typically has been used as an electrode for vanadium redox flow batteries (VRFBs), because of their three-dimensional macroporous structure for mass transport, high electrical conductivity and chemical stability in strong acidic electrolytes as well as easy-of-use to mass production. However, owing to the poor electrochemical activity and kinetic reversibility, several researches have been focused on alleviating activation polarization of the CF through a surface modification including redoxand/or nanocomposites with active heteroatoms metal-based electrochemical catalysts. In this study, thin pyroprotein coating layers containing numerous oxygen and nitrogen heteroatoms were introduced on the surface of CFs, and their catalytic effects on the redox reaction of V2+/V3+ couples for VRFBs were investigated. In addition, in order to confirm the correlated catalytic effects of oxygen, nitrogen or oxygen and nitrogen co-doped carbonaceous coating layers on the surface of CFs were prepared by using glucose (O-CFs) or melamine (N-CFs) adsorption, respectively, and following heating. The pyroprotein coated CFs (P-CFs) showed significantly lower anodic and cathodic peak potential separation (ΔEp) of ~0.17 V, compared with them (~0.32 and ~0.24 V) of O-CFs and N-CFs, respectively, and even in the P-CF sample with smaller heteroatom contents than those of O-CFs and N-CFs, the superior ΔEp value was achieved. These results clearly demonstrate the synergistic catalytic effects of oxygen and nitrogen heteroatoms on the V2+/V3+ redox reactions. Furthermore, full cell VRFBs based on P-CFs shows an enhanced energy efficiency, rate capability and stable cycling behavior compared with those of CFs, O-CFs and N-CFs.

Keywords: Redox Flow Batteries, Activated Carbon, Polarization



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Using Functional Bearing Model (FBM) on Bridge under Near Fault Ground Motion

Ren-Zuo Wang $^{1\ast},$ Kuang-Yen Liu², Alfinna Mahya Ummati³, Chung-Yue Wang 4

Abstract In this paper, functional bearing model (FBM) on bridge system is adopted. Top and bottom of bearing have sliding behavior under near fault ground motion. In order to model sliding responses of bearing, FBM use three link elements under SAP2000 structural software. Top and bottom of two link elements are to simulate sliding response of bearing. These two link elements are called by frictional element. Friction element is in the top of sliding interface between bearing and deck. Middle link element is to simulate rubber deformation. There near fault ground motions such as Chi-Chi earthquakes TCU068, TCU102, and TCU052 are used. A numerical simulations of bridge using FBM is to compute responses of bridge under shaking table test. From simulation results prove the accuracy of proposed FBM. In addition, the effects of near fault ground motion for bridge using FBM are studied under different PGA of design spectra.

Keywords: Functional Bearing Model (Fbm), Near Fault Ground Motion, Design Spectra



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A Novel Real-Time DDoS Detection System Using Machine Learning

Hong-Yi Chang¹, Yu-Fong Wu², Tzu-Fan Hsu³, Yu-Shiang Shen⁴, Guan-Rong Li^{5*}

Abstract In recent years, DDoS attacks have caused huge losses in various industries due to their remarkable effects and easy implementation. Therefore, how to use information technology to help security staff identify attack traffic is the goal of researchers. The proposed prediction models in the previous researches has high accuracy, but there are few prototypes that can be monitored in the real-time environment. Due to proposed prediction models' limitations, the prediction model cannot determine whether the packet is attack traffic one by one, it can only be determined by batch method. In this paper, the proposed prediction model using machine learning algorithm by combining statistical features and original packet features. According to the experiment results, the accuracy of the proposed prediction model can accurately identify attack traffic in a real environment.

Keywords: DDoS Detection System, Intrusion Detection, Machine Learning, Real-Time, Network Security.



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TRACK B: MEDICAL, MEDICINE & HEALTH SCIENCES



Establishment of the Shari'ah Framework for the Application of Somatic Gene Therapy in Human

Zakiah Samori¹, Fadilah Abd Rahman²

Abstract Human gene therapy is best known as a transfer of nucleic acids to either the somatic cells or germ cells of an individual. It introduces genetic materials which have therapeutic purpose ranging from inherited genetic disorders to certain malignancies and infectious diseases. This medical scientific breakthrough has received lucrative demand worldwide as it offers potential treatment to cure genetic diseases in human at the molecular level. Since then, thousands of people have already participated in the trials thus it is likely to be part of medical practice in the future. Despite of the tremendous benefits that it promises, this new biomedical technology has given rise to several contentious issues from the ethical and religious point of view. Since it comprises of two different therapies namely somatic and germ line gene therapy, each involves different procedures thereby poses different legal ruling and decision. This study attempts to propose a complementary model of the Shari'ah framework on the human gene therapy with special reference to the somatic gene therapy. This proposed framework is designed and developed to fulfil the lacuna of the Shari'ah Framework on the application of the somatic gene therapy after an in depth study of its position from the Shari'ah point of view. In achieving this, a detailed analysis and outlook into the Our'anic evidences along with the Hadith of the Prophet Muhammad pbuh were carried out. Following this, its position from the pragmatic approach of the Magasid al-Syariyyah (Objective of the Shari'ah) and the Oawa'id Fighiyyah (Islamic Legal Maxims) is also analysed in further detailThis model of Shariah Framework would serve as the ethical basis for the application of somatic gene therapy in Malaysia and beyond (particularly Muslim countries) especially for Muslim doctors, scientists and Muslims at large. For Muslim countries such as Malaysia where Muslims makes the majority of the population and Islam as the official religion in Article 3 of its Federal Constitution, this framework is deemed to be important reference in providing the essential guidelines on the permissibility of this therapy. Consideration of the position of Somatic Gene Therapy from the Shari'ah perspective is undeniably crucial in any attempt to regulate Somatic Gene Therapy in any Muslim countries in the future.

Keywords: Somatic Gene Therapy, Shari'ah Framework, Islamic Principles Maqasid Syariyyah Qawaid Fiqhiyyah

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TRACK C: BUSINESS, ECONOMICS, SOCIAL SCIENCES & HUMANITIES



Forecasting PM2.5 in Taiwan Using Multiple Regression and ARIMA Approaches

Yuehjen Shao*

Abstract Recently, air pollution is growing worse in Taiwan. The PM2.5 is the particulate matter (PM) that has a diameter less than 2.5 micrometers. Because high level of PM2.5 can cause immediate health problems, the accurate prediction of PM2.5 is an important issue. This study uses the multiple regression (MR) and autoregressive integrated moving average (ARIMA) approaches to forecast the PM2.5 in Taiwan. In this study, the forecasting accuracy measure is based on the mean absolute percentage error (MAPE). The practical dataset, from the years 2003 to 2017, for PM2.5 in Taiwan, are collected and analyzed. The empirical forecast results are used to evaluate the effectiveness of the proposed MR and ARIMA approaches.

Keywords: Forecast, PM 2.5, Multiple Regression, ARIMA

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Moral Disengagement, Hostility and Cyberbullying Involvement among Chinese Students

Angel Nga Man LEUNG^{1*}, Ray CHEUNG², Hildie LEUNG³

Abstract This study aims at investigating the predictors of cyberbullying involvement among Chinese students. Moral disengagement and hostility have been found to be related to cyberbullying perpetration, yet, few studies investigated the pattern in a Chinese population. 253 Chinese students filled out questionnaires which asked about their basic demographics, frequency in cyberbullying perpetration, moral disengagement and hostility. Results showed that there were positive correlations among moral disengagement, hostility and cyberbullying perpetration. After controlling the total time spent on social networking sites and gender, hostility and moral disengagement still positively and uniquely explaining 9.5% of the variance in cyberbullying perpetration. The findings implied the importance of enhancing students' morality and reducing their hostility for future anticyberbullying regimes.

Keywords: Modal Disengagement, Cyberbullying, Hostility

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