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2nd International Conference on Economic Development and Growth, Economic Policy and Rural Development

February 23-24, 2019

Hotel Mystays Ochanomizu Conference Center

Book of abstracts

Volume 02, Issue 18

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Organizing Committee

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Conference Coordinator

2. Ishida Otaki

Conference Coordinator

3. Hideo Owan

Conference Coordinator

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Conference Chair Message

Dr Masayuki Otaki

International Conference on "2nd International Conference on Economic

Development and Growth, Economic Policy and Rural Development" 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 Masayuki Otaki

Conference Chair

EGER- Secretariat, 2019

Conference Schedule

DAY 01 Saturday (February 23, 2019)

Venue: Room 1

9:00 am – 9:15 am	Welcome Reception & Registration		
9:15 am – 9:30 am	Opening Ceremony		
9:30 am – 9:40 am	Welcome Remarks –Conference Coordinator		
9:40 am –9:50 am	Introduction of Participants		
9:50 am – 9:55 am	Group Photo Session		
9:55am – 10:00 am	m Grand Networking Session and Tea Break		

DAY 01 Saturday (February 23, 2019) <u>Session 1 (10:00 am - 12:30 pm)</u>

Venue: Room 1

Track A: Engineering, Technology & Applied Sciences

TPIEA-FEB19-101	The Sensitivity of Groundwater Level on Soil Liquefaction Potential in Ilan Area	Tsung-I Hsiao
TPIEA-FEB19-102	Application of Romberg Tree Integration Method in Numerical Calculation of Strong Oscillation Fourier Integral	Chao-Jung,Chiu
TPIEA-FEB19-103	Application of BIM to bridge engineering information delivery	Yihan Liao
TPIEA-FEB19-104	The Effect of Building Scale to Natural Ventilation of Shelter in Taiwan	Chen,Yi-Han
TPIEA-FEB19-105	Establishment of the Safety Potential Analysis Model for Anchored Slope	Huang, Cheng-Yu
TPIEA-FEB19-106	TPIEA-FEB19-106 Hydration Temperature and Shrinkage of High-volume Fly Ash Concrete using Ring Shrinkage Test	
TPIEA-FEB19-107	Secret QR Code Sharing Scheme	Pei-Yu Lin

Track B: Business, Economics, Social Sciences and Humanities

MRSSM-029-ANI105	A Study on Consumers' Purchasing Behavior, Brand Image, and Product Attributes: The Case of Huge Heavy Motorbikes	Chien-Chi Lin
EGER-FEB2019-103	Image Stitching and Fusion over a Whole Spherical Surface Using Geometric Parameters Calibratio	Ku Chin Lin
EGER-FEB2019-106 Farmers' Knowledge, Attitude and Practices of Smart Agriculture in Taiwan		Jui-Hsiung Chuang
EGER-FEB2019-108 Clarifying barriers to sustainable development: the contoursustainable behavior		Chong-Wen Chen

Lunch Break 12-30 pm to 01-30 pm

Closing Ceremony

List of Conference Attendees

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

Sr. No	Official ID	Name	Affiliation Details
01	TKM-428-101A	Emad D. J. D. Alawadh	Medical Group, Ahmadi Hospital Kuwait Oil Company

DAY 02 Sunday (February 24, 2019)

City History and Discussion Session

The purpose of the second day conference will be for the participants to learn more about the local history and culture, or get to know the other participants better. Therefore,

Option 1: City History and Culture Tour: All the participants are free to organize your own group tours together and get to know each other better.

Option 2: Discussion Session: All the participants are free to make group discussions on behalf of your same research interest and get a chance to cooperate in the future Research

Track A: Business, Economics, Social Sciences and Humanities

Image Stitching and Fusion over a Whole Spherical Surface Using Geometric Parameters Calibratio

Ku Chin Lin^{1*}, Min-Hsiung Ma², María José Rodezno Ayestas³

Abstract The purpose of this study is to construct a whole spherical surface image of a golf ball by using multiple local images of the ball, through image stitching and fusion. The main application is to carry out automatic optical inspection (AOI) of the golf ball. AOI plays a well-known and important role in quality control systems in the manufacturing processes. However, a ball is a non-traditional surface and defects of many types require precise zoom-in view to be identified. Traditional fusion techniques are only available for planar images. Due to a golf ball's non-planar geometry, new fusion algorithms are developed by implementing geodesic geometry. A non-planar positioning mechanism is essential and therefore is designed in this study to precisely control the ball's orientation and capture the images for stitching and fusion. Geometric parameter transformation between image and physical coordinate systems and image fusion are formulated in an expanded image coordinate system in this study. Contrary to previous approaches, the weighted sum approach is introduced for fusion of overlapping images. The final fusion results of the images can be severely affected by installation errors of the cameras' views. For this, calibrating geometric parameters such as viewing angles and compensating errors through mathematical derivations, are of utter importance to this study. This can be done by computer simulations and in addition, complementary lines are drawn on the real ball surface for alignment between neighboring images. With a commercial package with builtin functions such as LabVIEW, the ball surface image can be constructed to examine and visualize the outcome. Experimental work has been performed with a case study included in this paper to support the principle of this study.

Keywords: Image Stitching and Fusion, Geometric Parameters Calibration, Geodesic Distance, Ball Quality Control.

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Farmers' Knowledge, Attitude and Practices of Smart Agriculture in Taiwan

Jui-Hsiung Chuang^{1*}, Jiun-Hao Wang², Yu-Chang Liou³, Szu-Yung Wang⁴

Abstract Due to integration of precision farming system and digital technology, the smart agriculture (SA) has been recognized as the most influential trends in agricultural development which may contribute to higher yields, less damage and fewer inputs of agricultural production. Given that human resource development is a key factor to developing smart agriculture, how to encourage farmers and agri-businesses adopting innovative digital technologies and intelligent mobile devices into farming practices is becoming a policy priority in Taiwan. The Council of Agriculture has launched the Smart Agriculture Project since 2017 which aims at incorporating farming robots, drones, image detection, wireless monitoring and control, farm management apps, IoT and big data analysis to increase agricultural productivity and efficiency. However, there is limited literature available on farm and individual characteristics and psychologic factors that drive farmers' intentions to adopt SA technologies. The purpose of this study is to investigate how farmer's knowledge and attitude of smart agriculture affects their adoption of SA technologies in Taiwan. A survey instrument was designed to measure farmer's SA adoption behavior as dependent variable as well as SA knowledge level and importance assessment as explanatory variables. A face-to-face interview was conducted and targeted the trainees of a series of SA training programs hosted by the National Taiwan University and Council of Agriculture in 2017 and 2018. A total of 321 farmers participated in the project's survey, from which the data was used to analyze the SA Knowledge & Importance Matrix and to perform an OLS regression model of SA adoption. The K/I Martix results show that farm management apps and automatic environmental control system are categorized into quadrant of more knowledge/high importance. By contrary, IoT and big data analysis is assigned to less knowledge/high importance quadrant. Moreover, the regression estimation of SA adoption revealed that higher perception of smart agriculture (knowledge and importance level) significantly increases the adoption behavior of digitalized and intelligent farming practices. As expected, age, education, farm revenue, and agri-business (compared with self-employed farmer) were significantly related to SA adoption level. This study contributes to a preliminary understanding of relationship between innovation and adoption of SA technologies in a small-scale farming economic context. The main policy implication of this study can be inferred. The findings of this study suggest that the policy makers and R&D institutes need to concentrate on improving market access for well-known and high important SA technologies. In addition, providing systematic training courses related to applications of IoT and big data in agriculture may serve farmers better to engage in smart agricultural practices.

Keywords: Smart Agriculture, Farming 4.0, Innovation Adoption, Digital Technology, Taiwan

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Clarifying barriers to sustainable development: the context of unsustainable behavior

Chong-Wen Chen^{1*}, Yi-Jheng Huang²

Abstract The idea goal of sustainable development is to balance the economic, environmental, and social systems. Many approaches and tools have been developed to promote sustainability. However, behavioral conflicts and contradictions that break balance between these systems are barely discussed and the whole context of unsustainable behavior still remains unclear. By discussing plenty of practical cases, this paper presents a short communication that summarizes fundamental barriers to sustainable development. A three-level hierarchical framework is then proposed to help recognize unsustainable behavior. Potential pathways towards sustainable development are also indicated based on the proposed framework. The proposed issues in this paper are aimed to provide a better understanding of sustainability and spark researchers' and practitioners' thinking and communication for collaborative problem solving.

Keywords: Sustainability; Conflicts; Ethics; Behavior Change; Competition; Collaboration

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A Study on Consumers Purchasing Behavior, Brand Image, and Product Attributes: The Case of Huge Heavy Motorbikes

Chien-Chi Lin^{1*}, Tsu-Ming Yeh², Tsung-Lin Lee³

Abstract With the opening of huge heavy motorbikes, consumers to buy huge heavy motorbikes as a tool for leisure activities are gradually increased. Making based on huge heavy motorbikes related activities rise, motorcycle sports and motorcycle leisure as a new leisure trend and issues. Through the questionnaire survey, while 300 questionnaires were given, 280 valid sample were returned, the questionnaires content including brand image, product attributes, consumers' purchasing behavior and personal information. The data were analyzed by reliability analyzsis, validity analyzsis, descriptive statistics analyzsis and variance analyzsis. The research conclusions are as follows: The main consumers of huge heavy motorbikes gender for male, age for 30-39, education level for university, monthly income for 3-5 million, occupation for industry and commerce service industry and residential areas for northern region based. The main consumers' purchasing behavior of huge heavy motorbikes motivation for leisure amusements, information sources for internet information, brand for Japanese brand, price for below 300,000 and function for street vehicle based. Different consumers' purchasing behavior regarding brand image, product attributes and lifestyle had significant differences.

Keywords: Huge Heavy Motorbikes, Brand Image, Product Attributes, Lifestyle, Consumers' Purchasing Behavior

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Track B: Engineering and Technology, Computer, Basics and Applied Sciences

The Sensitivity of Groundwater Level on Soil Liquefaction Potential in Ilan Area

Tsung-I Hsiao^{1*}, Sao-Jeng Chao², Chien-Wei Pan³

Abstract Ilan area is located between the eastern and the northeast seismic belt of Taiwan, which the earthquake occurs quite a lot. The central part of Ilan area, Langyang Plain, is alluvial plain coupling with fine particles of loose granular soil and high groundwater level. Therefore, the possibility of soil liquefaction in Ilan area is very high once the earthquake occurs. In order to prevent the liquefaction damage caused by strong earthquakes, we conducted comprehensive geotechnical investigation project with a density of 4 holes per square kilometer in the middle and lower ranges of the Lanyang River, which flows through the Lanyang Plain. After completing the liquefaction analysis of about 200 soil boring samples, it is estimated that the Langyang Plain with an area of about 70% or more in the Ilan area is in a high potential for soil liquefaction. Considering the effect of groundwater level in the soil deposits has always been a matter of concern to geotechnical engineers, this study uses the valuable results of the soil boring samples to study the sensitivity of the groundwater level on soil liquefaction potential and explore the feasibility of controlling groundwater level for disaster reduction.

Keywords: Convergence; Inequality; Spillovers; Chinas economic growth; Rolling window approach.

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Application of Romberg Tree Integration Method in Numerical Calculation of Strong Oscillation Fourier Integral

Yihan Liao^{1*}, Hsin Yu²

Abstract It is well known that the dynamic responses of viscoelastic medium induced by moving loads can be expressed as linear combinations of some Fourier integrals which contain some intervals involved with violently oscillatory integrands. The purpose of this article is aiming at the numerical quadrature scheme for this kind of violently oscillatory Fourier integrals. In this scheme, the whole semi-infinite integration range are partitioned into a sequence of intervals according to section points posited at all roots of cosine and/or sine functions involved in these Fourier integrals. Next, numerical quadrature of each of these intervals are analyzed by using Romberg-Tree integration method which can adjust the distribution of integration points adaptive to the characteristics of the oscillatory integrands. Theoretically, all numerical quadrature values corresponding this sequence of intervals constitute an infinite series. By using epsilon-algorithm, we can estimate the limit of this infinite series while only finitely truncated series of numerical quadrature values are calculated. The efficacy of this numerical scheme is validated by numerical experiment on some typical cases of this kind of Fourier integral.

Keywords: Fourier Integral, Numerical Quadrature

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Application of BIM to bridge engineering information delivery

Yihan Liao*

Abstract In recent years, application of BIM (Building Information Modeling) in Taiwan has become more and more mature in building projects, but it is relatively rare in infrastructure projects such as bridges and roads. The bridge project covers a wide area and a large scale, and it takes a lot of manpower in the construction, maintenance management ect. Therefore, the concept of BIM is used to assist the bridge engineers to reduce the manpower required. In the maintenance management phase, 2D drawings and paper forms are mostly used in the past, and many defects of maintenance management often occur in this mode. In order to improve this problem, the COBie (Construction Operations Building Information Exchange) data form can not only display the model equipment information, but also transmit the information to the maintenance unit or related personnel as the management basis. With the help of COBie, maintenance personnel without operating BIM models can also understand the information of their equipment status. In this regard, this study will use the existing bridge case in Taiwan to explore the application of COBie to bridge engineering. In this way, the purpose of quickly recording or extracting information of various elements in the model is achieved, so as to assist the engineers to reduce manpower in the maintenance management phase of bridge engineering.

Keywords: BIM, COBie, Maintenance Management, Bridge

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The Effect of Building Scale to Natural Ventilation of Shelter in Taiwan

Chen, Yi-Han*

Abstract The annual average temperature is increasing because of the increasing greenhouse effects of the earth. Taking a sheep house in Taiwan as an example, the temperature and humidity index (THI) in the summer of 2017 is only 2.11% in normal condition, 49.67% in warning condition, 39.13% in dangerous situation and 9.09% in emergency situation, thus the heat stress situation of the sheep house is very serious. There are many shelter-type buildings of factories, animal barns and other buildings in Taiwan. In order to prevent the heat stress problems in animals and people, natural ventilation must be induced in the design of the building to improve the thermal environment. The variance of different aspect ratios in shelter design generates different velocity fields and temperature fields which result in the different efficiency of natural ventilation. The object of this study is to find the optimal building scale of the shelter-type building in Taiwan which will induce natural ventilation efficiently and improve the discharge rate and thermal environment. The software of computational fluid dynamics is used to simulate the velocity fields and temperature fields based on the existing shelter-type buildings in Taiwan. The effects of different scales on the wind field and thermal environment are analyzed to explore the efficiency of natural ventilation. The research results can simulate the wind and temperature fields to obtain the optimal configuration of the sheltered-type building design and provide best ventilation rate and thermal environment.

Keywords: Natural Ventilation, Computational Fluid Dynamics, Building Scale

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Establishment of the Safety Potential Analysis Model for Anchored Slope

Huang, Cheng-Yu^{1*}, Chao, Sao-Jeng²

Abstract Topography of Taiwan are dominated by mountains and hills. In order to stabilize the safety of the slope, the ground anchor method is used to improve the stability of the slope. With service life of ground anchor increasing, the function of ground anchors is highly valued. Particularly, there have been many slope disasters of ground anchor in recent years, so ground anchor inspection has also received attention. The article introduces the concept of safety potential analysis, and use the concept for the anchored slope. Then collect basic map, historical slope inspections, monitoring data, ground anchor inspections and maintenance practices and further use the geographic information system to establish the slope model. Finally, provide the result of safety potential analysis and offer the dangerous area of the slope to government entities for immediately handle.

Keywords: Anchor, Slope, Safety Potential, Geographic Information System

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Hydration Temperature and Shrinkage of Highvolume Fly Ash Concrete using Ring Shrinkage Test

Yu-Chen Hsu¹, Wei-Ting Lin², An Cheng³

Abstract: During the hardening period of conventional concrete, the consumption of water and temperature variation in the hydration reaction of the Portland cement led to drying shrinkage and deformation of concrete volume, which can cause cracking and even failure over the long term. Traditionally, the inclusion of fly ash as cement replacement substance in concrete was used to reduce the hydration temperature in produced concrete. This study is aimed to evaluate the effect of highvolume fly ash on the hydration temperature and shrinkage of concrete, which was dosed with 20 %, 40 %, 60 % and 80 % replacement of cement by weight as well as the water-cementitious ratio of 0.42 was mixed. The volume stability was conducted by ring shrinkage test in accordance with ASTM C1581. The results indicated that the specimen containing 80 % fly ash had lower hydration temperature, lower strain, lower average stress rate and lower compressive strength for early age. In conclusion, the inclusion of high-volume fly ash in concrete can reduce the strain generated during the hardening period and delay cracking, whereas the addition of fiber was shown to increase the resistance of the specimens to cracking strain.

Keywords: Ring Test, Drying Shrinkage, Cracking, Hydration Temperature, Strain.

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Secret QR Code Sharing Scheme

Pei-Yu Lin*

Abstract QR (Quick Response) code is widely-used with the advantages of small tag, large data capacity, reliability and high-speed scanning. Many protection and security issues have been raised for QR code recently. A secret QR data sharing system is proposed in this article. The new system divides the secret into n individual shares and then generate the corresponding n secret QR tags. The normal user still can scan and thereby read the original QR content from the secret QR tags. In the (n, n)-threshold sharing system, the authored users with the n secret QR tags can furthermore cooperate to reveal the secret. The new approach can satisfy the essentials of the readability of secret QR tags and the lossless content of secret in the (n, n)-threshold sharing system.

Keywords: Secret Sharing, QR Code

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Scientific Board for Business, Economics, Social Sciences and Humanities

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Mae Fah Luang University, Thailand

Shumi Akhtar, Discipline of Finance, University of Sydney Business School,

NSW, Australia

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Venue



Hotel Mystays Ochanomizu Conference Center

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