

出國報告（出國類別：其他）

## 參加 2016 年 Global Conference on Engineering and Applied Science

服務機關：台灣中油股份有限公司 煉製研究所 石化產品組

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## 摘要

2016 年 Global Conference on Engineering and Applied Science (GCEAS)是一個多元的國際會議論壇，於 7/19-7/21 於札幌舉行，涵蓋以下主題：生物醫學工程，化學工程，土木工程，計算機與信息科學，電機與電子工程，環境科學，基礎科學和應用科學，地球科學和石油工程，材料科學與工程，機械工程，系統及船舶機電工程學。本次研討會共有來自五大洲等數十個國家及地區之多位學者專家及研究人員參與，以口頭報告或是海報張貼的方式發表其在專業領域的最新成果。

此次參加此研討會，關注會議中與石油工程、材料科學等方面的相關發表，藉此增廣見聞，對於有興趣的相關議題也積極向講者提問與交流互動，吸取了包括許多新型材料、CO<sub>2</sub> 吸附、薄膜技術、碳材應用及土壤復育等新知，會後並交換聯絡方式。本報告主要有兩部分，第一部分為參加此會議的過程，包括了參與的各個演講重點紀錄，與講者的提問互動。第二部分則為將所取得的資訊做總結，並且與公司或是自身研發工作的相關性啟發。附件則為本次會議的議程表，包括了所有講者的題目以及部分資料，可供後續之參考。相信相關資訊對與本公司目前在新材料開發以及節能環保的研發會有所助益。

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## 目的

參與學術研討會並與與會人士交流一向是研發人員吸取新知最有效率的方式，以往參與國內研討會所接觸的多半是國內的研究人員與發展成果，而至國外參與國際性研討會則可以將接觸的範圍進一步開展到全球，可開拓視野與增廣見聞，了解其他國家的最新發展方向，並以此作為自身未來研究發明的參考。GCEAS 的初衷是為科學家，學者，工程師和學生來自世界各地的大學和業界展示正在進行的研究活動，從而促進大學和產業之間的研究關係，會議將展示最近的一些特定領域的突破性的研究。參加此研討會，將會對於全球各產業的最新技術以及趨勢有相當的了解。此次參加此研討會，關注會議中與石油工程、材料科學等方面的相關發表，並與與會人士交流討論，開拓眼界，對於未來的研究發展與規劃有相當的幫助。

## 過程

此次研討會同除 Global Conference on Engineering and Applied Science 外，同時與 Asian Conference on Civil, Material and Environmental Sciences (ACCMES)、International Symposium on Biological Engineering and Natural Sciences (ISBENS)、International Conference on Social Science (CONFSS)及 International Business Research, Economics, Finance and MIS Conference (BREFM)共同舉行成聯合會，因此大會議題包羅萬象，並不局限於材料科學，也包括了包括教育、經濟、環境、人口等人文科學，每天的發表以口頭以及海報兩種形式進行，依照不同議題在不同的會議廳舉行，提供與會人士除本身專業領域之外不同的知識選擇。



圖. 筆者與會場看板合影

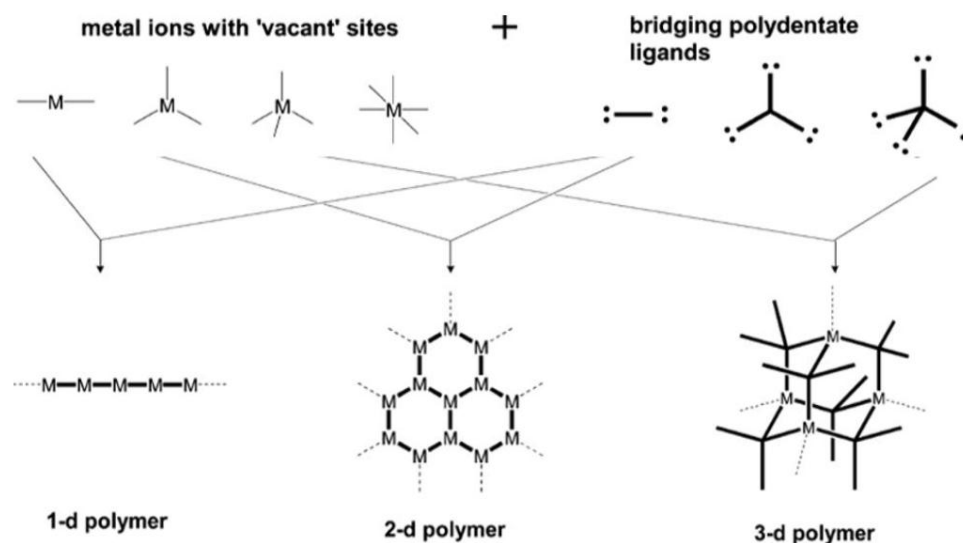


圖. 會議不同議題之流程表



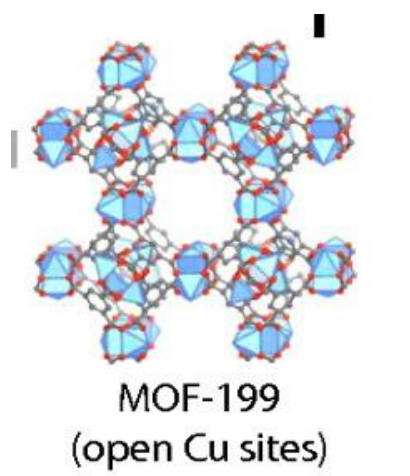
圖. 會場張貼之海報

於會議首日上午，本人參與了議題為 Biological Engineering & Natural Science 的演講，其中有兩位發表者的演講引起了我的興趣，並於發表完畢後進行提問。第一場為由來自馬來西亞 National Energy University (UNITEN) 的 Halina Misran 所發表之演講，題目為 Metal Organic Framework MOF199/GOx Nanocomposite for Simulated Salivary Glucose Detection in Diabetic Patients。研究內容主要是針對糖尿病患者血液中的血糖檢測，運用 Metal Organic Framework (MOF) 材料製作的基材，提供了另一種的檢測方式。近年來蓬勃發展的有機金屬骨架結構(MOF, Metal-Organic Framework)，在無機領域中屬於配位化學的範疇，主要乃是由中心金屬(Metal center)與外圍之有機配位基(Organic ligand)以共價鍵之形式鍵結形成的具有重複性且無限延伸之骨架結構。其中，中心金屬可為單一金屬、或可以金屬團簇的方式與配位基產生鍵結。若改變中心金屬及有機配位的配位數時，將可組合出相當多樣化的結構，因此除了可形成直線鏈狀的一維結構、二維平面的網狀結構外，亦可形成具有較強機械性質的三維骨架結構，如下圖所示：



由於其多樣化的構型，使得有機金屬骨架 MOF 具備許多特性，一般來說 最廣為人知的特色為其具有相當高的比表面積，約在 1000 ~ 3000 m<sup>2</sup>/g 以上或更高；而其孔洞之表面可具有功能性，此功能性根據所需可透過改變中心金屬或配基種類 及性質來自行調控，諸如對目標分子的親和力、對氣體的通透性等， 亦可調整孔洞大小。而透過孔洞內修飾等方式，同樣的 MOF 基材將可具備不同的性質，進而有不同的應用層面。另外，有機金屬骨架之孔洞亦可具有彈性，可容納比孔體積稍大的分子；而其他光、電、磁 等性質也將隨結構而異。在合成方法的部分，由於 MOF 乃是透過分子自組裝而生成，故通常其反應所需之條件相當簡單、反應快速而容易合成，屬於較不耗能且省成本之綠色化學範疇。

發表者所使用的為 MOF-199，代表著由 Cu<sub>2</sub>(COO)<sub>4</sub> 為連續單體組合合成的立體架構，具有高度孔洞性可以做適當應用，如下圖所示:



發表者本次研究將 MOF-199 導入葡萄糖的檢測機制中，運用其孔洞性對於目標物的吸附，達到檢測的效果，其研究突破之一為運用了 fatty alcohols-即帶有長碳鏈的醇類作為合成 MOF-199 的溶劑，提升了其合成時的效率。





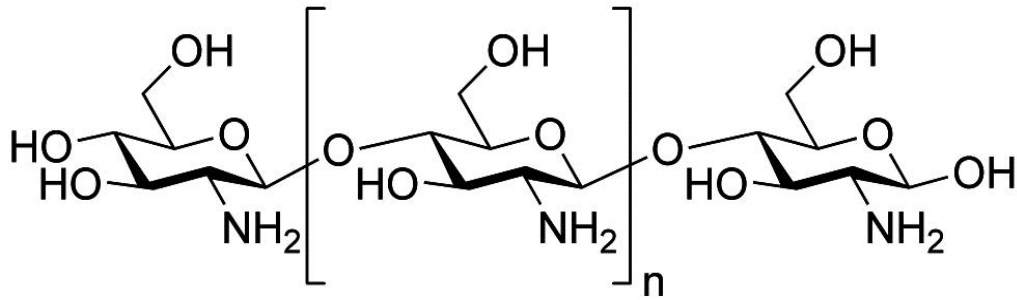
圖. 發表者 Halina Misran

另一場演講為由來自印尼 Diponegoro University 的 Retno Ariadi Lusiana 之發表，  
題目為 The Effect of Grafted Heparin on the Surface of Blend Membrane Citric Acid  
Cross-Linked Chitosan -PVA/PEG: Creatinine Transport ◦



圖. 發表者 Retno Ariadi Lusiana

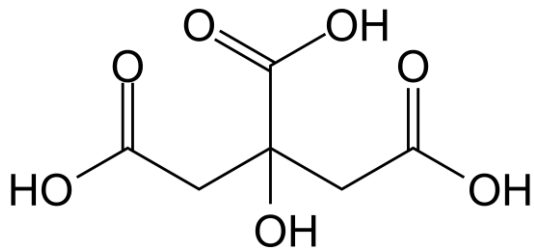
研究內容主要是利用 Chitosan 作為薄膜的合成原料。Chitosan 中文為殼聚糖，是一種線性多醣，當中由氨基葡萄糖（脫乙醯單位）和 N-乙醯葡萄糖胺（乙醯單位）隨機分布，並透過  $\beta$ -（1-4）糖苷鍵組合而成，如下圖七之結構



由於甲殼素（Chitin）也有多個譯名，如幾丁質或殼多糖等，因此由甲殼素經脫乙醯化作用製備的殼聚糖也有多個譯名，包括幾丁聚醣、幾丁胺醣、甲聚糖、脫乙醯殼多糖、脫乙醯幾丁質及聚氨基葡萄糖等。「幾丁質幾丁聚醣」為一應用範圍泛廣之生物聚合物，因其生物相容性強，可與材料結合，舉凡生醫材料、人工骨骼、藥物釋放、吸附體內毒素、吸附重金屬、提昇免疫系統、降低癌症藥物之副作用、降低膽固醇及血脂等，另可應用在食物保鮮、生物農藥及纖維紡織等的領域。它有廣泛的商業和生物醫學用途，在生醫材料上的相關應用研究非常多，目前認為其具有良好的生物相容性、無生物毒性，當作生醫材料的骨架是非常好的選擇。本所的生物科技事業中心對於幾丁聚醣也有相當程度的研究，生技產品中的纖可利體內環保膠囊為中油生物科技團隊精心研發，其成分即含有天然甲殼素（幾丁聚醣），不被腸道吸收，可執行體內環保工作，配方中更提升添加芽孢乳酸菌與寡醣，幫助維持消化機能，改變細菌叢生態，使排便順暢。先前由陳錦坤博士作為此研究的主導，並舉辦了許多相關的學術研討會，帶領著國內相關研究的進行。



發表者運用檸檬酸 citric acid(結構如下圖)來與 chitosan 進行 cross link，



企圖藉由交聯的作用來改變薄膜的機能，於其所展示之化學式中，展示了 citric acid 與 chitosan 同時具有 intermolecular cross-linking(分子間交聯)以及 intramolecular cross-linking(分子內交聯)，對此我向發表者提出疑問，如何得知其所進行之反應是具有分子內交聯的，由於受限於多官能基交聯劑本身分子鏈的柔軟度，分子內反應相較於分子間反應來的較為困難，因此對於如何得知反應中同時具有兩種交聯狀況感到好奇，對此發表者 Retno Ariadi Lusiana 無法給予一個明確的回答，僅表示說反應本身就會如此發生，針對此問題，與會者中原大學化工系周崇榮助理教授提出了建議，表示可以使用 FT-IR 來進行鑑定，分子間與分子內的鍵結，在官能基的 IR 吸收峰上會有些許的差異，不過可能很微小，不容易分辨；另外也可以藉由 XRD 來進行量測。

當天的下午，筆者參加了議題為 *Chemical Engineering* 的研討主題會議，第一位演講者為來自泰國 *Srinakharinwirot University* 的助理教授 *Siriwan Srisorrachatr*，研究領域為環境生物化學以及水質檢測，與本組的水質檢測專業領域有高度相關。



演講題目為 *Adsorptive Removal of Metal Ions from Solution by Bamboo Charcoal*。

*Bamboo Charcoal* 即為竹炭，由竹子的人為炭化處理得當。使用高溫令竹子炭化，分為  $800^{\circ}\text{C}$ 、 $1000^{\circ}\text{C}$  及  $1200^{\circ}\text{C}$  三種，因溫度的差異所以品質上也分作三個級別。因為竹子維管束的構造，燒製出來的竹炭成品有多孔的特性，使表面積增大，其細孔直徑約為  $0.4\text{-}0.25\text{mm}$ ，平均每公克竹炭的表面積約  $300\text{ m}^2$ ，活化處理過後的竹炭，表面積可高達  $1,200\text{ m}^2$  以上，遠紅外線輻射率量測得熱輻射係數超過  $85\%$ ，波長為  $4\sim 14\text{ }\mu\text{m}$ 。因為這些特性，竹炭的成品可用於居家用品類、寢具類、汽車用品類、化妝清潔用品類、運動保健類、工藝用品類、紡織纖維類等方面，工業應用方面可製為竹炭電容器。和奈米陶粉相較之下，竹炭纖維作為保溫紡織品不如奈米陶粉功效持久，而且其遠紅外線的波長無法控制。竹炭成品的功效強調除臭、淨化，是因為竹炭的主要官能基主為碳氫鍵(C-H)、雙碳鍵(C=C)，少部分為氫氧鍵(O-H)，能吸附硫化物、甲醛、苯、酚或三氯甲烷等化學物質，又因其多孔的特性，因此有較佳的吸附力，可被

用於吸收和分解室內塗料揮發氣體、化學合成製劑。運用其多孔的特性，竹炭也可用於水質淨化的用途上。經過竹炭過濾的自來水，酸鹼值由 pH7 增為 pH8-8.5 的弱鹼性。

竹炭的吸附功能為可逆，經由加熱、降壓等方式處理後，可重新再利用。



在 Siriwan Srisorrachatr 的演講中提到，她量測了活性碳對於不同金屬離子的吸附能力，包括了  $\text{Pb}^{2+}$ 、 $\text{Cd}^{2+}$ 、 $\text{Ni}^{2+}$  以及  $\text{Cu}^{2+}$  等，均呈現不錯的吸附特性，其中又以對  $\text{Pb}$  離子的吸附效果最佳。廢水中金屬離子的移除或其他處理與我目前在積極研發的塑膠無電電鍍技術有高度相關，實驗後的廢液含有大量的金屬離子如  $\text{Pd}$ 、 $\text{Ni}$  甚至價格昂貴的  $\text{Au}$ ，如何進行妥善的處理是未來相當重要的課題，而利用基材進行吸附進而分離為其中一個相當具有效率的方式，但需要考慮吸附量程度以及後續的取出等問題。







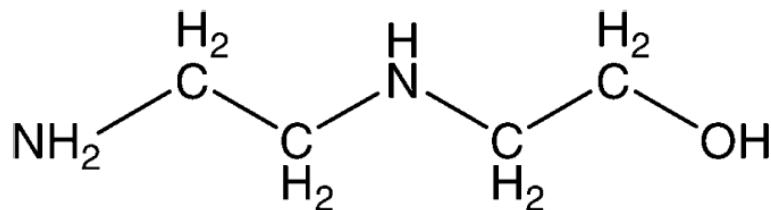
針對離子吸附的議題，筆者請教她所使用的活性碳在吸附離子之後，是否可以將金屬離子移除後重複使用，對此 Siritwan Srisorrachatr 表示由於她所使用的活性碳價格相當便宜，因此不需要考慮重複使用的問題。

接下來的演講者 Sholeh Ma'mun，來自印尼的 *Islamic University of Indonesia, Yogyakarta*，

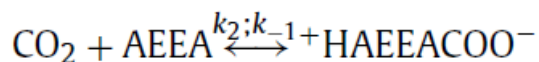


他一共發表了兩個演講，其題目分別為 Measurement of Indirect Carbon Dioxide Emissions in the Islamic University of Indonesia–An Energy Management 以及 Implementation of SOFT Model for the Solubility of Carbon Dioxide in Aqueous 2-((2-Aminoethyl)amino)ethanol Solution。皆與 CO<sub>2</sub> 的吸附與檢測相關，顯示其研究領域應該主要是在 CO<sub>2</sub> 的相關研究，也表示在全球暖化的議題之下，各國也紛紛重視 CO<sub>2</sub> 的檢測與回收再利用，包括本所在內，都積極投入資源希望可以將煉製後產生的 CO<sub>2</sub> 固化然後進一步轉化成可以利用的化學品，除減少溫室氣體排放之外，還可以進一步創造具有加值的附加商品獲取利潤。

在其第二個報告之中所提到的 2-((2-Aminoethyl)amino)ethanol，其結構如下圖：



是一個具有胺類官能基的小分子，由於其胺基可以與 CO<sub>2</sub> 形成吸引力，因此普遍認為是一個極具有潛力的 CO<sub>2</sub> 捕捉劑，針對此分子與 CO<sub>2</sub> 吸附機制的相關研究也相當熱門，其反應式如下：



二氧化碳捕捉與封存技術 (Carbon Capture and Storage, CCS) 是針對大氣 CO<sub>2</sub> 含量增高導致的全球氣候變暖而提出的全球性解決方案，是指將大型發電廠、鋼鐵廠、化工廠等排放的二氧化碳分離收集起來，可拿來再利用或儲存於地質構造、生物吸收（如藻類），以避免排放到大氣中的一種技術，約可使電廠減少 85%-90% 碳排放。該技

術可區分為捕集、運輸及封存等 3 部分。有機胺吸收法作為經濟與技術層面最成熟的技術，是實現二氧化碳捕捉的重要工藝過程。Sholeh Ma'mun 從有機胺法吸收二氧化碳的基本反應機理出發，系統評述了應用有機胺法吸收捕集 CO<sub>2</sub> 的熱力學與動力學性質的研究進展，介紹了 2-((2-Aminoethyl)amino)ethanol 與 CO<sub>2</sub> 捕捉溶解度和反應速度的關係。



圖. Sholeh Ma'munm 與 Session Chair Prof. Siritwan Srisorrachatr 會後合照

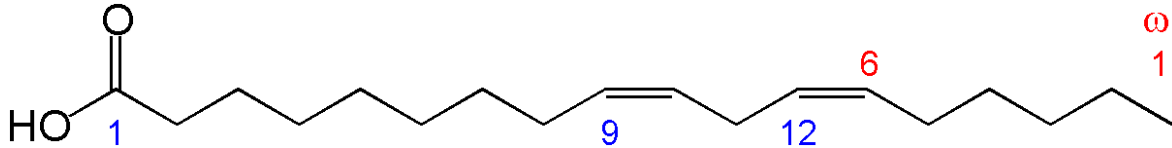
下一位演講者為來自泰國 *Thammasat University* 的 Tippabust Eksangri，演講主題為 *Linoleic Acid Recovery from Sunflower Seed Using Membrane-based Solvent Extraction*。







主要內容是敘述利用薄膜萃取的技術，將 Linoleic Acid 從向日葵中取出，並加以利用。Linoleic acid 即為亞麻油酸，向日葵籽油中約含 60% 的 Linoleic acid，其結構如下



Linoleic acid 在植物體內是從油酸的去飽和(脫氫)作用得到的。由於哺乳動物去飽和的能力有限，不能在 C-9 以外的碳原子上引入雙鍵，而植物細胞沒有此限制，因此亞油酸 12-位上的雙鍵在動物體內是無法引進的，只有在植物細胞才可以引入。所以亞油酸被稱為是一種必需脂肪酸，必須從食物中獲得，自身無法合成或合成很少。亞麻籽含極豐富歐米伽-3(Omega-3)必需脂肪酸：一湯匙亞麻籽含有 3800 毫克的歐米伽-3 脂肪酸，相當於魚肝油的 10 倍，但沒有腥味、高膽固醇和飽和脂肪酸的弊處，其對人體的功能包括：

1.改善皮膚脂肪含量，使肌膚更幼滑、滋潤、柔軟有彈性，同時令皮膚呼吸及排汗正

常，減輕種種皮膚問題。

2.減肥，Omega-3 可消耗身體多餘脂肪，是健康減肥法。

3.改善女性經前綜合症，有許多女性經前綜合症的例子，例如痛經等，症狀都在每天吃了新鮮的亞麻籽油後完全消失，當然需要配合維他命及礦物質。

4.提升抗壓力，Omega-3 可減少身體受壓力時所產生的有害生化學物質的影響，穩定情緒，保持平靜心態，減少憂鬱症及失眠症。

5.減輕過敏反應，Omega-3 有助減輕過敏反應，但由於整個身體要重新組織，要將過敏徹底消除需一段較長時間，更要全面性的營養輔助。

6.減輕哮喘，食用幾天後就可以明顯減輕哮喘發作。

7.改善關節炎，實驗證明，Omega-3 對治療及防止關節炎有極大作用。60%風濕關節炎患者接受 Omega-3 及 6 脂肪酸治療後，可以完全停止食用非類固醇的抗炎藥物，而另外有 20%則可次將非類固醇抗炎藥物減半。

8.改善器官組織發炎

Omega-3 對預防器官組織發炎有很大幫助，其中包括腦膜炎、腱炎、扁桃腺炎、胃炎、迴腸炎、結腸炎、動脈炎、靜脈炎、攝護腺炎、腎臟炎、脾臟炎、肝炎、胰臟炎、耳炎等，還有癬及瘡。

9.降低膽固醇

Omega-3 可降低血液中高膽固醇 25% 及三酸甘油酯 65%，將多餘的低密度膽固醇(LDL) 轉變成膽酸排出體外。

這個 session 最後一位演講者為來自台灣中原大學化工系的周崇榮助理教授



在其學校網頁上的資訊顯示，其研究專長為化學生物學，分子生物學，生醫高分子科學，研究領域的介紹為：

*化學生物學研究為利用有機化學方法合成特殊設計的分⼦，以操作生物體內的生化反應。蛋白質是由二十種天然氨基酸構成的生物高分子，其反應性受到許多局限，阻礙了將其使用在材料複合結構的組裝和利用新穎的化學反應。*

*以轉殖與分子生物技術修改古細菌屬氨醯-tRNA 合成酶與 tRNA 配對，使細菌和細胞*

可以使用二十種天然胺基酸已外，全新合成的氨基酸，便能經由轉譯過程，在生物體中合成新合成氨基酸的改良蛋白質。這一技術可應用在

一 將光罩酪氨酸安置於蛋白質的活性中心。此一合成氨基酸可以被長波紫外線照射轉化成酪氨酸，從而回復酵素的活性。利用此方法，可以用光照控制生物化學反應。

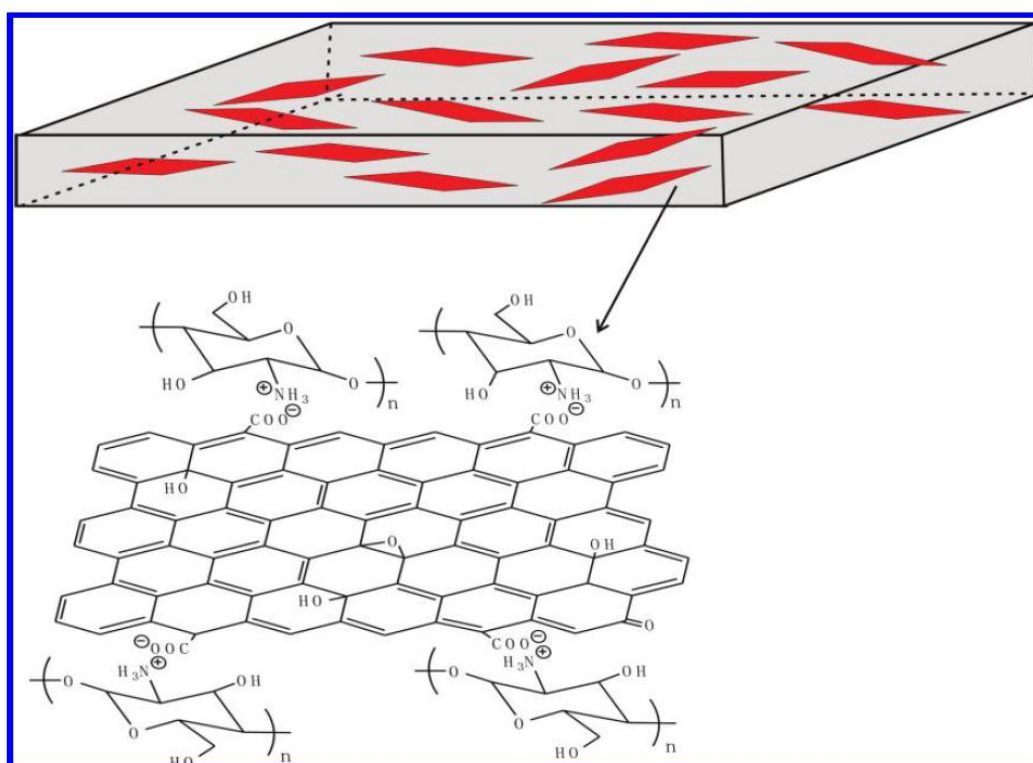
二 合成光啟聚合氨基酸，將其安置於蛋白質的辨識表面，在長波紫外線照射後，氨基酸被活化，從而利用插入反應和臨近碳鏈形成雙體。此技術可以廣泛應用在蛋白質結合位置的辨識上。

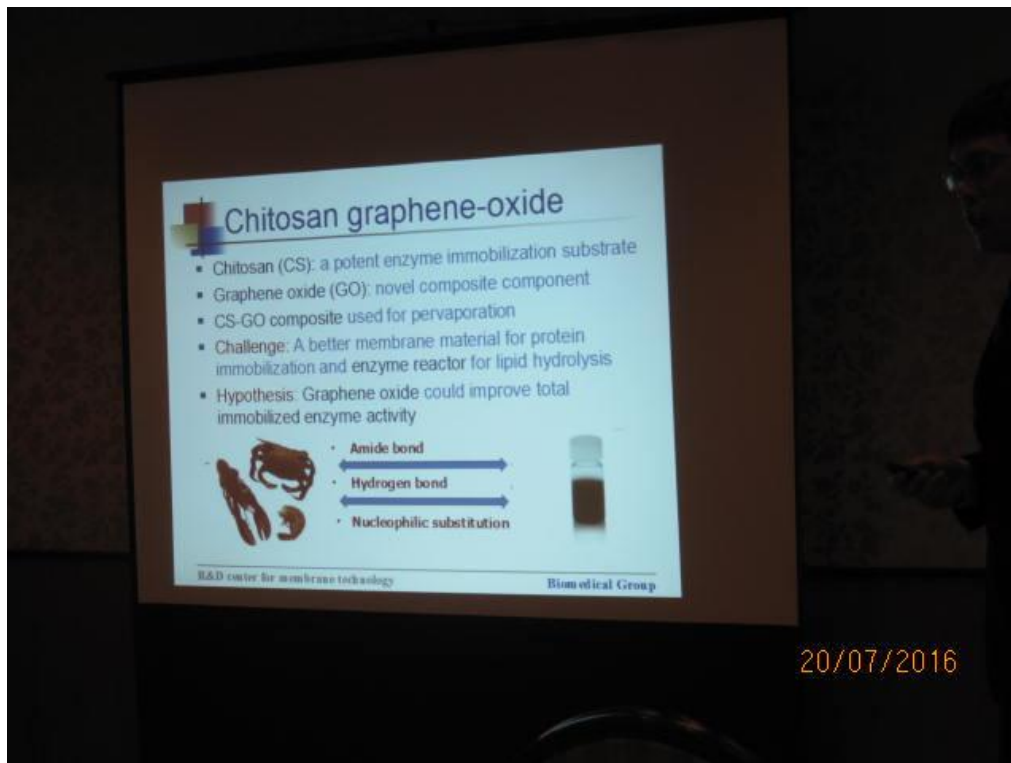
三 在蛋白質中嵌入含烯基氨基酸，以利其進行高度專一性的生物相容有機反應。可望應用在建構蛋白質-聚合物複合結構的組成上。

本次他的演講主題為 Lipase Immobilization on Chitosan/Graphene Composite Membrane for Application in Membrane Bioreactor。Lipase 中文為脂解酶，實際上是指一群胰臟製造的酵素，其功用是將三酸甘油脂分解成甘油和脂肪酸。周崇榮教授將 Lipase 修飾在由 Chitosan 與 Graphene 混成的複合薄膜材料上，並研究其作為生物反應器的效果。Chitosan 於前面的演講有提及，是一種自然界存在的聚合物，目前認為其具有良好的生物相容性、無生物毒性，當作生醫材料的骨架是非常好的選擇。而 graphene oxide (GO)也是相當熱門的材料，正式中文名稱為石墨氧化物或被稱為石墨酸，是一種由物質量之比不定的碳、氫、氧元素構成的化合物。氧化石墨可以通過用強氧化劑來處理石墨來製備。所得到的的產物中，氧化程度最高的產物是一種碳、氧數量之比介於 2.1 到 2.9 之間黃色固體，並仍然保留石墨的層狀結構，但結構變得更複雜。近

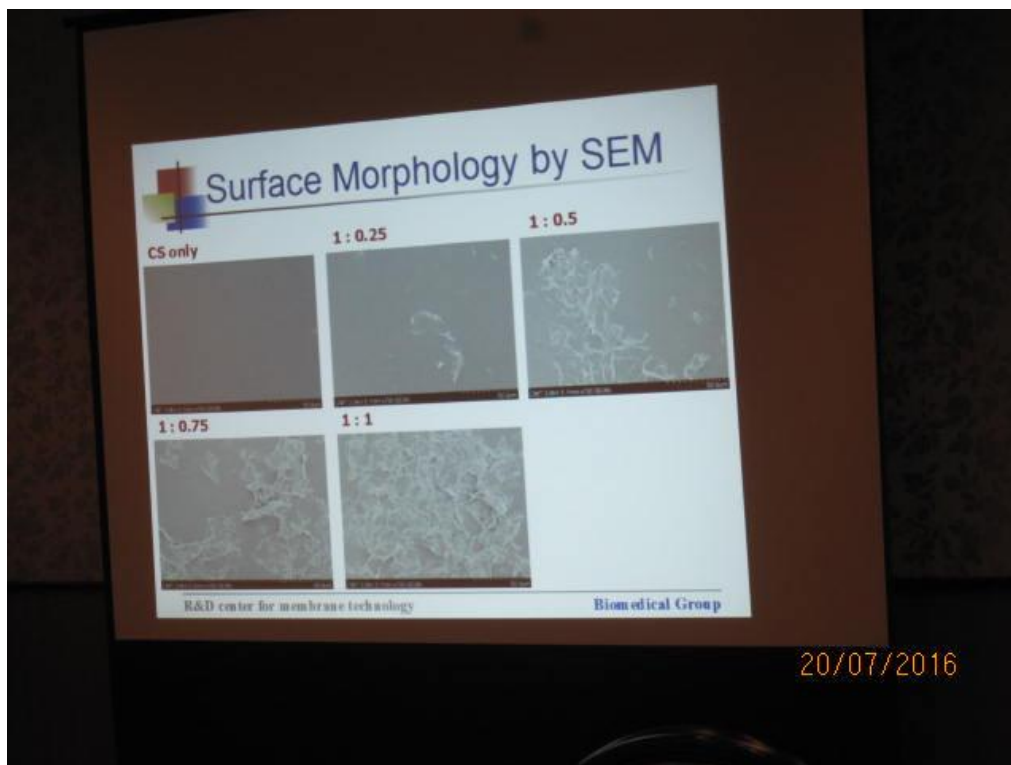
來氧化石墨吸引了大量的關注，包括本所的石化產品組以及技術服務組皆投入了心力在這方面的研究，由於我們可以藉由重油在精煉之後的殘餘物取出碳材，因而在原料取得上有一定的優勢，而如何將這些材料轉化成具有高附加價值的特用化學品，目前也是本所的重要課題。科學家試圖以氧化石墨為原料來大規模工業化生產石墨烯。雖然眾所周知，石墨烯具有很好的電學性質，但氧化石墨本身卻是絕緣體（或是半導體）。由於氧化石墨中存在大量親水基團（如羧基與羥基），氧化石墨很容易在水溶液分散，形成單個小片段，而且絕大部分都只有單個石墨層。之後再通過還原反應就可以還原得懸浮狀態的石墨烯片段

周教授在演講中提及，將 graphene oxide 與 Chitosan 形成複合薄膜材料後，將其作為 lipid 水解反應的反應器，發現 graphene oxide 的修飾有助於整體反應性的提高，其結構示意圖如下：



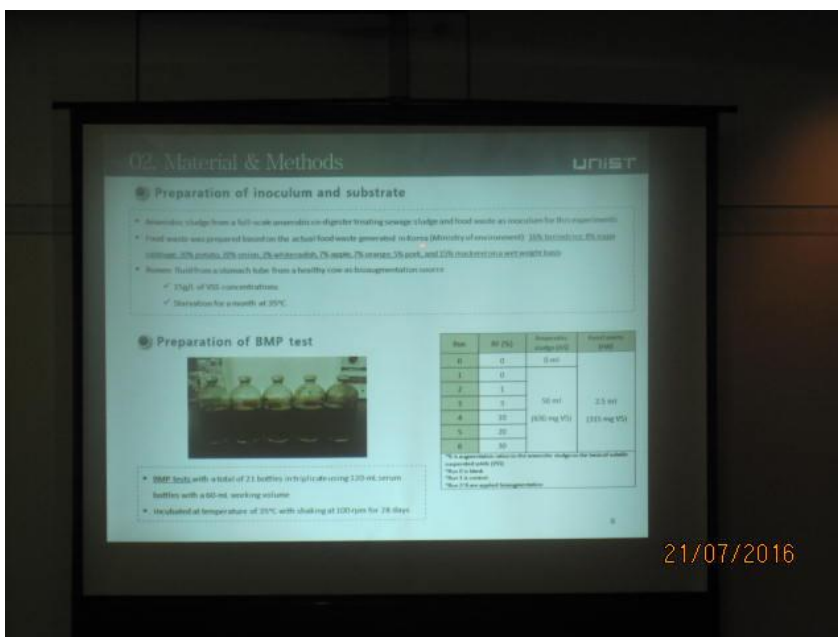
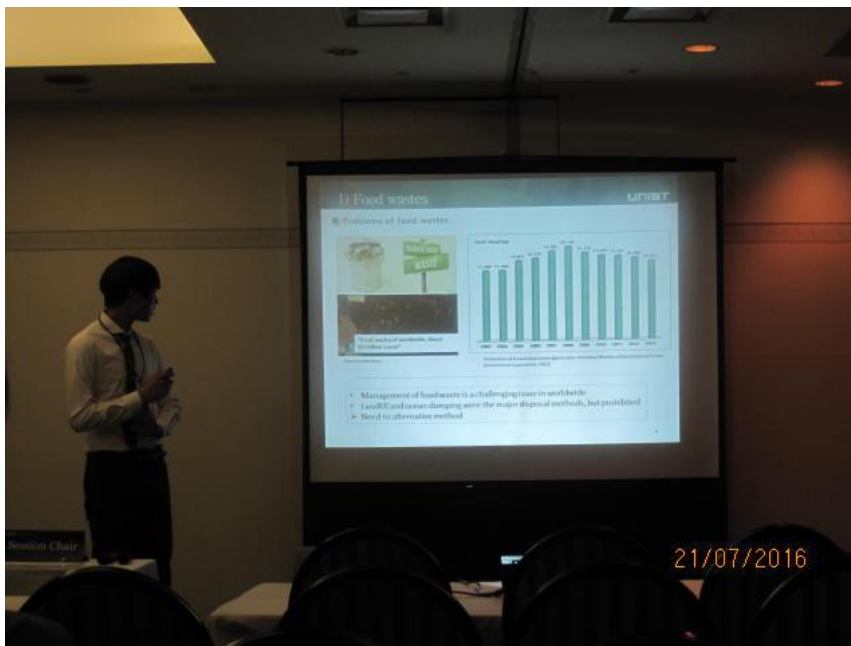


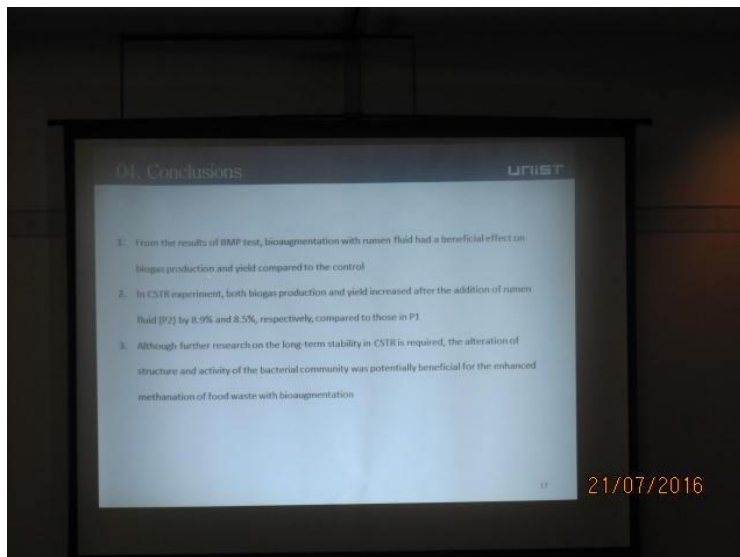
而不同的混摻比例對於薄膜的 morphology 也有很大的影響，如以下投影片，當 graphene oxide 比例越高時，薄膜的表面就越顯粗糙，至 1:1 時從 SEM 觀察下可以發現表面有相當多的粗糙面。





會議的最後一天，我參加了議題為 Environmental Sciences 的演講 session，其中一場演講，是由來自韓國的 Ulsan National Institute of Science and Technology 的 Yeadam Jo 所發表，題目為 Enhancement of Biogas Production from Food Waste by Bioaugmentation with Rumen Fluid，主要內容為運用 Rumen Fluid(瘤胃液)作為生物添加劑，提升從食物廚餘中提煉 biogas 的效率。





**Biogas**（生物氣體，亦稱生化氣體或生質氣體），泛指包括糞肥、污水、都市固體廢物及其他生物可降解的有機物質，在缺氧的環境下，經發酵或者無氧消化過程所產生的氣體，這些氣體主要包含甲烷及二氧化碳，視環境而定又被稱為沼氣、生物沼氣或掩埋沼氣。生物氣體只要經過淨化，其特性便能與天然氣無異，氣體供應商需去除生物氣體中的水份、硫化氫及微粒等雜質，為求使氣體更能完全燃燒，供應商會減少氣體中的二氧化碳含量。未經上述淨化程序處理的氣體有時會與天然氣混合燃燒。當生物氣體淨化至能作管道運輸的質素後，這些氣體便稱之為可再生天然氣。



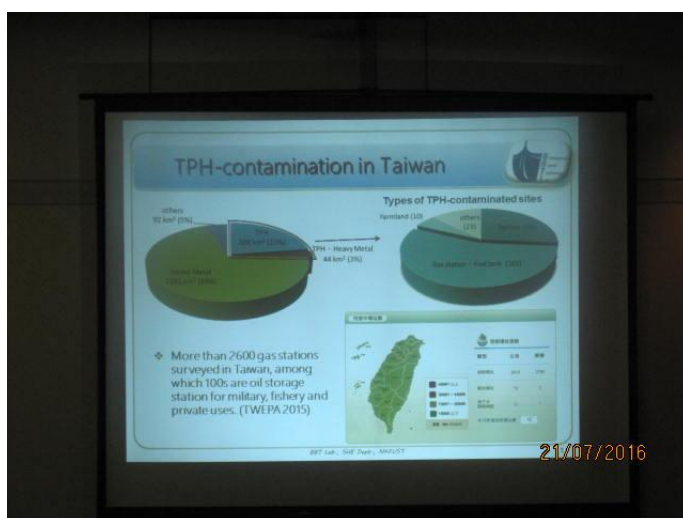
另一場是由來自台灣的國立高雄第一科技大學 Yun-Chang Zhu 所發表，題目為 **Bioremediation of Heavy Oil-Contaminated Soil Using SY Microbial Consortium (SYMC) - Study of Application Factors**。Bioremediation 意思即為生物復育，以生物性處理方法來補救某些已發生的問題，尤其指環境污染方面。生物復育通常是指受污染土壤的復育，土壤污染可分為有機污染和無機污染，對於有機污染的土壤復育，主要是利用微生物將污染物分解，其原理是藉由改善土壤的環境，如添加營養鹽及供應氧氣等方法，以促進微生物的生長，進而增進微生物分解污染物的效率，另亦可植種經馴養或篩選適當菌種（生物製劑），以加速污染物之分解速率；對於無機污染則是利用一些能吸收重金屬植物的栽種，而將重金屬從土壤中移除，達到土壤復育的目的。



此主題與本公司也有高度的相關，中油後勁五輕廠已於 104 年底熄燈，土地總面積近 300 多公頃，目前有 177 公頃地下水的污染控制場址，對於一般認為高耗能、高耗水、高污染的石化業關廠後，許多學者專家認為採自然復育的方式恢復土地的生

機，並可以此為基地規劃為綠能產業。針對受污染的土地，大仁科技大學高華聲副教授表示，若地下水污染控制場址仍未進行整治，土地仍無法利用，中油對此應提出時程的相關規劃；高應大副教授黃忠發指出，中油近 200 公頃的污染場址可作為高雄市發展綠能產業的地方，發展為太陽能城市。因此再就有土地做其他運用之前，勢必要經過相關的土壤復育工作。

演講中提到，受污染的土壤通常會測定當中 TPH 含量作為指標，TPH 即為總石油碳氫化合物(Total Petroleum Hydrocarbons)，用來描述原來自原油包含上百種化學複合物的大家族。每群中皆由許多個別化學物質所組成。



TPH 可能藉由工業排放、商業或個人使用時之副產物意外地進入到環境中，或因為灑出或滲漏而直接進入水中。某些 TPH 能在土壤中停留很長的一段時間。於加油站吸入空氣或使用特定殺蟲劑時、飲用被它污染的水、工作職務會接觸到石油產品或是接觸到被它污染的土壤，這些都是有可能的暴露途徑。某些 TPH 之複合物會影響到中樞神經系統。若高劑量存在於空氣中會導致頭痛及暈眩之症狀。另一些化合物會導致”周邊神經病變”之神經疾病，其症狀包括腿及腳的麻痺。其他 TPH 之化合物會對血液、免疫系統、肺、皮膚及眼睛造成影響。動物研究中顯示暴露於總石油碳氫化合物之化合物中會對動物的肺、中樞神經、肝及腎造成影響。某些 TPH 之化合物被觀察到會影響動物的生殖及胎兒的發育。IARC 將一總石油碳氫化合物複合物（苯）分類為對人類具致癌性的物質。並將其他總石油碳氫化合物複合物（苯芘及汽油）歸類成可能具人類致癌性之物質。而大部分其他的總石油碳氫化合物之複合物針對其對人類之致癌性則被視為不可分類。

**Toxicity of TPHs**

- ◆ Cancer ingredients
  - Benzene and diesel exhaust fumes has determined as a carcinogenic chemical to humans by the International Agency for Research on Cancer (IARC).
  - Benzo[a]pyrene and gasoline are probably and possibly carcinogenic to humans.
- ◆ Other health effects
  - Animal studies have shown effects on the lungs, central nervous system, liver, and kidney
  - Some affect reproduction and the developing fetus in animals.

c1ccc2c(c1)ccc3ccccc23  
Benzo[a]pyrene

BET Lab., SRF Dept., ANUOST

21/07/2016

量測 TPH 的方式也有許多種，包括物理性、化學性以及生物性，各有其特色以及優缺點。物理性方式有較小的副作用，受測物可以重複使用，但較容易有污染物殘留；化學法測定快速，且可以將污染物固化，但是花費較高；生物法相較於前兩種方式對環境較為友善，但需要較長的檢測時間。


**Means of soil TPH remediation**

Means	Characteristics	Advantages/ disadvantages
<b>Physical</b>	<ul style="list-style-type: none"> <li>Removed via phase transfer.</li> <li>Operations: vacuum, filtration, adsorption, containment, etc.</li> </ul>	Advantages- deterministic and less harmful side effects, pollutant reuse possible Disadvantages- pollutants remain so a final resolution needed.
<b>Chemical</b>	<ul style="list-style-type: none"> <li>Removed via bond breakage</li> <li>Oxidants: per-sulfate, permanganate - peroxide, etc.</li> </ul>	Advantages- rapid reactions, possible mineralization of pollutants Disadvantages- higher costs, harmful to soil texture, appearance of uncertain intermediates
<b>Biological</b>	<ul style="list-style-type: none"> <li>Removed via bio-activities</li> <li>Mechanisms: biotransformation, bio-concentration, or decomposition.</li> </ul>	Advantages- Environmental friendly, less energy intensive, naturally occurring. Disadvantages- Longer remedial time, uncertainty of treatment efficiency.

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**The SYMC**

- Manufacturing process: mixed grinded fruit peels and rice bran, seeded with patented microbial consortium, then fermented for certain time.
- Outlook: brown powder (diameter < 0.7 mm)
- Toxin inspection: no pesticides, heavy metals, or odor.
- Potential uses: nutritional source, feed additives, microbial substrates, microbial seeds, etc.
- Applications: soil and groundwater treatment, wastewater treatment, soil conditioning, plant cultivation
- Manufacturer: SY Biotech Corp. in Taiwan.



**Major concerns of the manufacture:**

- Types of water dependent when activated?
- What kind of dosage was sufficient?
- How to apply?
- Treatment efficiency?

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發表者所使用的即為生物法，所使用的為一種稱為 SY Microbial Consortium(SYMC)的微生物菌，針對系統所需要的水質種類、稀釋的程度以及藉由 SYMC 所移除的 TPH 量進行研究。

**Objectives**

- ❖ To select the types of water to be used for SYMC activation
- ❖ To determine a suitable dilution factor of the SYMC to apply to the TPH-contaminated soil.
- ❖ To examine the overall TPH removal due to the addition of SYMC.

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**Experimental scheme**

- Preparation of TPH-contaminated soil**
  - SYMC Ready oil
  - Concentration: 10,000 mg/kg
- The types of water test**
  - TPH-contaminated soil: 2 groups
  - The types of water: (DW, Tap W, Surface W (SW))
  - Sampling at 0, 0.2, 1, 3, 5, 7, 10 day
- Determination of SYMC dosage**
  - TPH-contaminated soil: 2 groups
  - Group: 500, 100, 250, 500, 1,000 mg/kg soil
  - Enzyme solution: 0.8 mL
- Re-dosing SYMC at various times**
  - TPH-contaminated soil: 2 groups
  - 2<sup>nd</sup> addition group: 3, 5, 7 day
  - Enzyme solution: 0.8 mL
- Expected results**
  - Check the types of water to be used for dilution
  - Determine a suitable dilution factor to use
  - Examine the overall effectiveness due to the addition of SYMC.

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**Types of water used to suspend SYMC**

DDW or Tap W or SW

17.5-g SYMC in 800 mL DDW

17.5-g SYMC in 800 mL Tap W

17.5-g SYMC in 800 mL SW

1.75-g SYMC in 800 mL SW

Treatment combinations	TPH and (kg)	DDW (mL)	SYMC in DDW(mL)	SYMC in Tap W(mL)	SYMC in SW(mL)	SYMC in SW(mL)
Blank <sub>contaminated</sub>	3.5	800	-	-	-	-
DDW <sub>contaminated</sub>	3.5	-	800	-	-	-
Tap <sub>contaminated</sub>	3.5	-	-	800	-	-
SW <sub>contaminated</sub>	3.5	-	-	-	800	-
SW <sub>contaminated</sub>	3.5	-	-	-	-	800

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### Determining the amount of SYMC used

Stay 20min

23 mL

Stay 1 day and analyze

Conc (mg/kg soil)

100 167 250 500 1,000 5,000

Blank  
0.0 Water 0.8 mL  
2g Contaminated soil

Control Group  
100, 167, 250, 500, 1,000, 5,000 mg/kg soil solution 0.8 mL  
2g Contaminated soil

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### Procedure of soil TPH analysis

Sample

Extraction

Centrifuge

Analysis

Misonix sonicator 3000

Allegra X-22R centrifuge  
speed: 10,000 rpm  
Temp: 4 °C  
Time: 10 min

SHIMADZU GC14B-FID

Agilent Technologies  
18400 GC System  
5973 Mass Selective Detector  
Column BP-1

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### Conclusions

- TPH degradation by using various types of water showed little difference. Overall degradation after a 14-day treatment using SYMC resulted in ~55% TPH removal -
- The use of 250 mg-SYMC/kg soil resulted in the most TPH removal of 35%
- TPH degradation had significant TPH removal within the first 7 days (~40%). The re-dosing effect was not obvious in TPH removal.

21/07/2016

## 心得及建議

本次出國參加 2016 年 Global Conference on Engineering and Applied Science，聆聽了許多不同領域的學者的專業發表，藉此觸類旁通本所有興趣的相關議題，對於未來的研發方向有相當程度的幫助。

1. 演講者 Halina Misran 所發表之演講，研究內容主要是針對糖尿病患者血液中的血糖檢測，運用 Metal Organic Framework (MOF) 材料製作的基材，提供了另一種的檢測方式。MOF 具有高度孔洞性以及自組裝性，是極具未來潛力性的材料類型。

2. 演講者 Retno Ariadi Lusiana 之發表之演講，研究內容主要是利用由甲殼素經脫乙酰化作用製備的 Chitosan-幾丁聚醣作為薄膜的合成原料，幾丁聚醣為所內生技單位重點研發的材料之一，表示除了作為保健食材之外，Chitosan 也可以做為機能性材料的組成物，而且具有天然的特性，可以運用在生醫方面，值得未來作為高分子複合材料研發的可能材料。

3. 演講者 Siriwan Srisorrachatr，研究領域為環境生物化學以及水質檢測，與本組的水質檢測專業領域有高度相關，她所提及的污水中金屬離子吸附技術也可以運用在我目前積極研發的無電電鍍技術上，未來勢必會遭遇到電鍍後廢水的處理問題，如可以利用技術將水中之貴重金屬離子吸附甚至進一步還原成金屬態，在處理上會相當便利，且可以回收再利用。

4. 演講者 Sholeh Ma'mun 的研究內容主要是跟 CO<sub>2</sub> 的檢測與吸附有關，對於利用 2-((2-Aminoethyl)amino)ethanol 等胺類化合物作為 CO<sub>2</sub> 吸附劑的機理與運用有很深入

的了解。在全球環保趨勢之下，本公司對於煉製後的 CO<sub>2</sub> 吸附也具有高度的興趣，近年來也積極接觸各種技術來做為碳捕捉的發展。以國內的主流技術來說，應該還是以鈣循環捕獲技術為主，以台泥與工研院合作的技術為例，主要是以天然石灰石所含碳酸鈣 (CaCO<sub>3</sub>) 先經過高溫攝氏 850 度鍛燒產生石灰 (CaO)；石灰再與工業排氣 (例如電業、水泥業、鋼鐵業) 中的 CO<sub>2</sub> 反應生成碳酸鈣，再送入鍛燒爐鍛燒將捕獲之 CO<sub>2</sub> 釋放出來，而釋出之 CO<sub>2</sub> 經由收集及壓縮後提供進行封存與再利用。本所對於相關技術的發展腳步必須加快，且多與外界結盟。

5.台灣中原大學化工系的周崇榮助理教授，將 Lipase 修飾在由 Chitosan 與 Graphene 混成的複合薄膜材料上，並研究其作為生物反應器，發現修飾過後的薄膜具有不錯的效果。Graphene 類碳材也是目前所內相當有興趣的材料，主要的應用放在導熱材料以及電動車的電池負極材料中，或許也可以考慮往生醫方面拓展，會具有更高的附加價值。


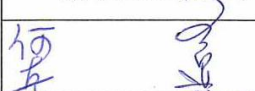
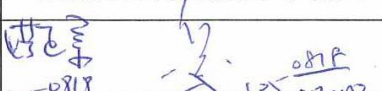
6.台灣的國立高雄第一科技大學 Yun-Chang Zhu 則發表利用生物性處理方法來復育受到污染的土壤，這方面的技術對於本公司來說是相當重要的一塊，特別是現在的氛圍之下，本公司所釋出的土地皆需要經過一定的處理，如何以最經濟、最環保的方式來還原這塊土地的機能，使其可以作為其他的用途，且關係到公司在居民心中的形象，必須要審慎處理。

7.研討會的議題包羅萬象，除跟自身研發相關的議題積極聆聽之外，也抽空參與了其他人文相關的討論，藉此提升自身的視野。



附件一

### 出國報告審核表

出國報告名稱：參加 2016 年 Global Conference on Engineering and Applied Science			
出國人姓名 (2 人以上, 以 1 人為代表)		職稱	服務單位
林政凱		工程師	煉製研究所
出國類別	<input type="checkbox"/> 考察 <input type="checkbox"/> 進修 <input type="checkbox"/> 研究 <input type="checkbox"/> 實習 <input checked="" type="checkbox"/> 其他 <u>參加國際會議</u> (例如國際會議、國際比賽、業務接洽等)		
出國期間：105 年 7 月 18 日至 105 年 7 月 22 日		報告繳交日期：105 年 8 月 11 日	
出國人員 自我檢核	計畫主辦 機關審核	<b>審 核 項 目</b>	
<input checked="" type="checkbox"/>	<input type="checkbox"/>	1. 依限繳交出國報告	
<input checked="" type="checkbox"/>	<input type="checkbox"/>	2. 格式完整 (本文必須具備「目的」、「過程」、「心得及建議事項」)	
<input checked="" type="checkbox"/>	<input type="checkbox"/>	3. 無抄襲相關資料	
<input checked="" type="checkbox"/>	<input type="checkbox"/>	4. 內容充實完備	
<input checked="" type="checkbox"/>	<input type="checkbox"/>	5. 建議具參考價值	
<input checked="" type="checkbox"/>	<input type="checkbox"/>	6. 送本機關參考或研辦	
<input checked="" type="checkbox"/>	<input type="checkbox"/>	7. 送上級機關參考	
<input type="checkbox"/>	<input type="checkbox"/>	8. 退回補正, 原因:	
<input type="checkbox"/>	<input type="checkbox"/>	(1) 不符原核定出國計畫	
<input type="checkbox"/>	<input type="checkbox"/>	(2) 以外文撰寫或僅以所蒐集外文資料為內容	
<input type="checkbox"/>	<input type="checkbox"/>	(3) 內容空洞簡略或未涵蓋規定要項	
<input type="checkbox"/>	<input type="checkbox"/>	(4) 抄襲相關資料之全部或部分內容	
<input type="checkbox"/>	<input type="checkbox"/>	(5) 引用相關資料未註明資料來源	
<input type="checkbox"/>	<input type="checkbox"/>	(6) 電子檔案未依格式辦理	
<input type="checkbox"/>	<input type="checkbox"/>	9. 本報告除上傳至出國報告資訊網外, 將採行之公開發表:	
<input type="checkbox"/>	<input type="checkbox"/>	(1) 辦理本機關出國報告座談會(說明會), 與同仁進行知識分享。	
<input type="checkbox"/>	<input type="checkbox"/>	(2) 於本機關業務會報提出報告	
<input type="checkbox"/>	<input type="checkbox"/>	(3) 其他 _____	
<input type="checkbox"/>	<input type="checkbox"/>	10. 其他處理意見及方式: _____	
出國人簽章 (2 人以上, 得以 1 人為代表)		計畫主辦 機關 審核人	一級單位主管簽章
 林政凱 105. 8. 11		何	 105. 8. 11
			 105. 8. 11

說明:

- 一、各機關可依需要自行增列審核項目內容, 出國報告審核完畢本表請自行保存。
- 二、審核作業應儘速完成, 以不影響出國人員上傳出國報告至「公務出國報告資訊網」為原則。

# Conference Program

July 19-21, 2016  
Hokkaido, Japan

## GCEAS

Global Conference on Engineering and Applied  
Science

## ACCMES

Asian Conference on Civil, Material and  
Environmental Sciences

## ISBENS

International Symposium on Biological Engineering  
and Natural Sciences

## CONFSS

International Conference on Social Science

## BREFM

International Business Research, Economics, Finance  
and MIS Conference

**GCEAS**

**Global Conference on Engineering and Applied Science**

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ISBN 978-986-5654-24-5

**ACCMES**

**Asian Conference on Civil, Material and Environmental Sciences**

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ISBN 978-986-89298-0-7

**ISBENS**

**International Symposium on Biological Engineering and Natural Sciences**

---

ISBN 978-986-89536-7-3

**CONFSS**

**International Conference on Social Science**

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ISBN 978-986-5654-29-0

**BREFM**

**International Business Research, Economics, Finance and MIS Conference**

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ISBN 978-986-90827-0-9

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..... **111**

## General Information for Participants

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### ■ Registration

The registration desk will be situated on the **B1 Floor** at the **Premier Hotel Tsubaki Sapporo** during the following time:

**08:00-17:30 Wednesday, July 20, 2016**

**08:30-17:00 Thursday, July 21, 2016**

### ■ Organizer



Higher Education Forum (HEF)  
Tel: + 886 2 2740 1498 | [www.prohef.org](http://www.prohef.org)



### ■ A Polite Request to All Participants

Participants are requested to arrive in a timely fashion for all addresses. Presenters are reminded that the time slots should be divided fairly and equally by the number of presentations, and that they should not overrun. The session chair is asked to assume this timekeeping role and to summarize key issues in each topic.



### Certificate

#### Certificate of Presentation or Certificate of Attendance

A certificate of attendance includes participant's name and affiliation, certifying the participation in the conference. A certificate of presentation indicates a presenter's name, affiliation and the paper title that is presented in the scheduled session.

#### Certificate Distribution

Oral presenters will receive a certificate of presentation from the session chair after their presentations or at the end of the session. Poster presenters will receive a certificate of presentation from the conference staff at the end of their poster session.

The certificate of presentation will not be issued, either at or after the conference, to authors whose papers are registered but not presented. Instead, the certificate of attendance will be provided after the conference.

## Preparation for Oral Presentations

All presentation rooms are equipped with a screen, an LCD projector, and a laptop computer installed with Microsoft PowerPoint. You will be able to insert your USB flash drive into the computer and double check your file in PowerPoint. We recommend you to bring two copies of the file in case that one fails. You may also connect your own laptop to the provided projector; however please ensure you have the requisite connector.

## Preparation for Poster Presentation

### Materials Provided by the Conference Organizer:

1. X-frame display & base fabric canvases (60cm×160cm)
2. Adhesive tapes or binder clips

### Materials Prepared by the Presenters:

1. Home-made Poster(s)
2. Material: not limited, can be posted on the canvases
3. Recommended poster size: 60cm\*160cm



<p>A 60cm*160cm poster illustrates the research findings.</p>	<ol style="list-style-type: none"> <li>1. Wider than 60cm (left)</li> <li>2. Copy of PowerPoint slides in A4 papers (right)</li> </ol>



## ***International Committees***

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### **International Committee of GCEAS**

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Tan Khay Boon SIM Global Education Singapore  
Micheal Kon Aletheia University Taiwan

## ***Conference Venue Information***

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### **Premier Hotel Tsubaki Sapporo**

Telephone: +81-11- 821-1111

Fax: +81-11- 842-6191

Address: 1 1 Toyohira R Jo 1 Chome, Toyohira-ku, Sapporo 062-0904 Japan

Premier Hotel Tsubaki Sapporo is located in the gateway city of Sapporo in the northern state of Hokkaido. This luxury hotel is overlooking the Toyohira River and is within a short walking distance to the central business district, the famous Susikono entertainment district and shopping areas.

The northern state of Hokkaido is Japan's winter skiing and sports playground while at other times of the year the therapeutic hot springs are the natural attractions. This is your perfect hotel for business travel or sightseeing, or for winter sports.

#### Transportation

From NEW CHITOSE AIRPORT

##### 1. By Bus

Take Airport shuttle bus (about 60 minutes) and get off at "Premier Hotel -TSUBAKI"

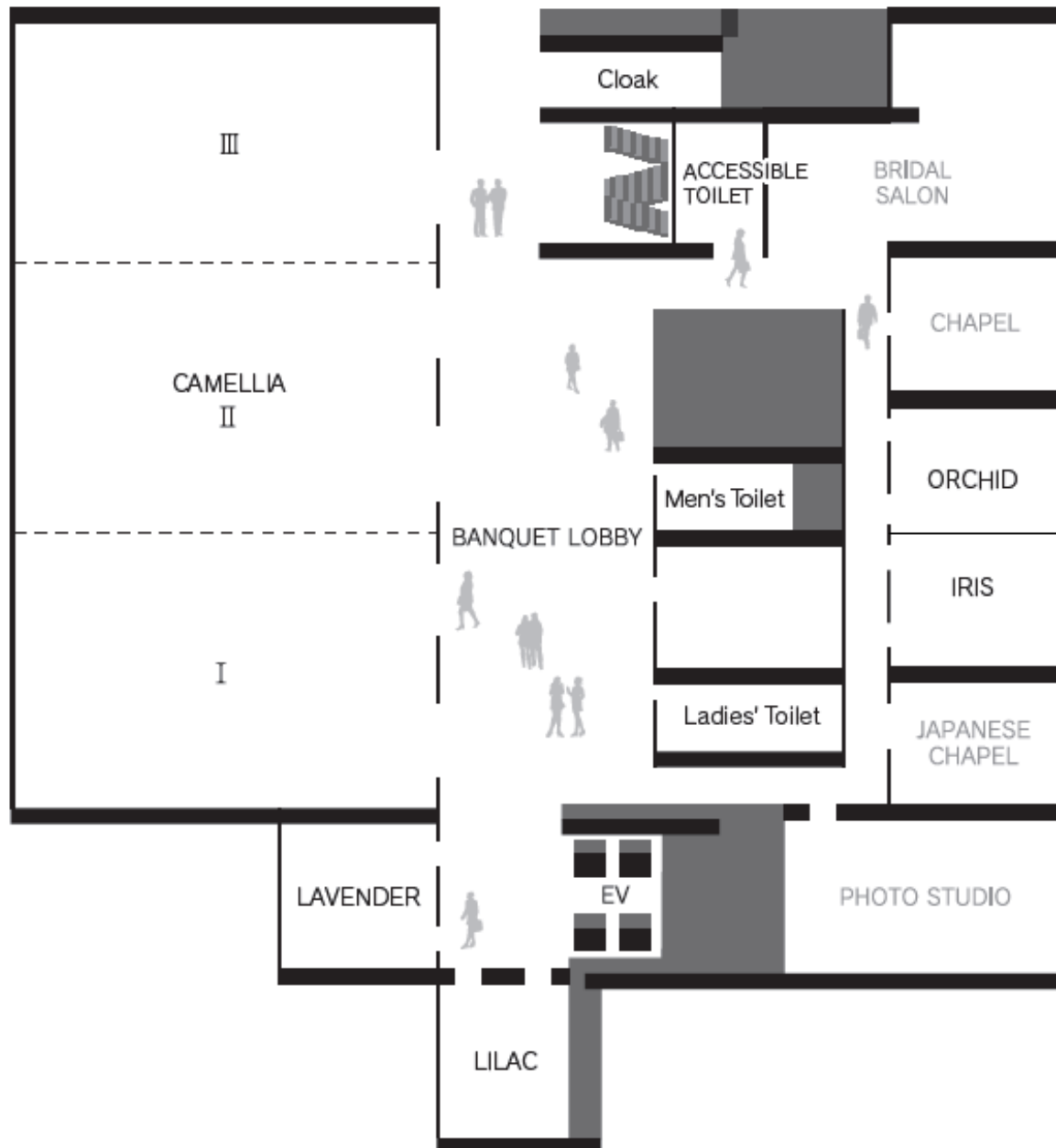
HOKUTO KOTSU Timetable

##### 2. By JR (Railway)

1) JR(about 40 minutes) "Sapporo station", a 10-minute taxi ride

2) JR(about 40 minutes) "Sapporo station", transfer to "Toho Line" and get off at "Hosui-Susukino" station, a 13 minutes walk from Exit 3

## Floor Map (B1 Floor)





## *Conference Schedule*

**Tuesday, July 19, 2016**

Executive Meeting(Executive Committee Only)

**Wednesday, July 20, 2016**

**Oral Session (B1 Floor)**

Time	Schedule	Venue
<b>08:00-17:30</b>	<b>Registration</b>	Foyer Area
<b>08:45-10:15</b>	<b><u>Social Science Keynote Speech</u></b> Dr. Malcolm Sim Topic: "English-medium education in Japan: Insights from an international liberal arts university"	Lavender
	Biological Engineering & Natural Science (1)	Lilac
	Environmental Sciences (1)	Orchid
	Computer and Information Sciences (1)	Iris
<b>10:15-10:30</b>	<b>Tea Break &amp; Networking</b>	Foyer Area
<b>10:30-12:00</b>	<b><u>Workshop</u></b> Assoc. Prof. Chee-Ming Chan & Assoc. Prof. Alina Shamsuddin Topic: "Engineering Education: Curriculum Design, Delivery And Assessment For Effective Learning"	Lavender
	Business & Economics (1)	Lilac
	Management & Law (1)	Orchid
	Finance & Accounting (1)	Iris
<b>12:00-13:00</b>	<b>Lunch</b>	Camellia

## Wednesday, July 20, 2016

### Oral Session (B1 Floor)

Time	Schedule	Venue
<b>13:00-14:30</b>	Education (1) & Philosophy	Lavender
	Literature and Linguistics	Lilac
	Environmental Sciences (2)	Orchid
	Civil Engineering (1)	Iris
<b>14:30-14:45</b>	<b>Tea Break &amp; Networking</b>	Foyer Area
<b>14:45-16:15</b>	Education (2) & Society (1)	Lavender
	Chemical Engineering (1)	Lilac
	Mechanical Engineering (1)	Orchid
	Civil Engineering (2)	Iris
<b>16:15-16:30</b>	<b>Tea Break &amp; Networking</b>	Foyer Area
<b>16:30-18:00</b>	Management (2) & Finance & Accounting (2)	Lavender
	Biological Engineering & Natural Science (2)	Lilac
	Fundamental and Applied Sciences (1) & Electrical and Electronic Engineering (1)	Orchid
	Material Science and Engineering (1)	Iris

## Wednesday, July 20, 2016

### Poster Session (Foyer Area, B1 floor)

Time	Schedule
<b>09:30-10:30</b>	Poster Session (1)
	Education/ Management/ Economics/ Finance & Accounting/ Marketing/ Biological Engineering & Natural Science (1)
<b>13:30-14:30</b>	Poster Session (2)
	Material Science and Engineering/ Computer and Information Sciences (1)
<b>15:00-16:00</b>	Poster Session (3)
	Biological Engineering & Natural Science (2)/ Geosciences and Petroleum Engineering
<b>16:30-17:30</b>	Poster Session (4)
	Environmental Sciences/ Mechanical Engineering

**Thursday, July 21, 2016**  
**Oral Session (B1 Floor)**

<b>Time</b>	<b>Schedule</b>	<b>Venue</b>
<b>08:30-17:00</b>	<b>Registration</b>	Foyer Area
<b>08:45-10:15</b>	Management (3) & Marketing	Lavender
	Education (3) & Culture	Lilac
	Environmental Sciences (3)	Orchid
	Computer and Information Sciences (2)	Iris
<b>10:15-10:30</b>	<b>Tea Break &amp; Networking</b>	Foyer Area
<b>10:30-12:00</b>	Management (4)	Lavender
	Mechanical Engineering (2)	Lilac
	Environmental Sciences (4)	Orchid
	Civil Engineering (3)	Iris
<b>12:00-13:00</b>	<b>Lunch</b>	Camellia
<b>13:00-14:30</b>	MIS-Management Information System & Computer and Information Sciences (3)	Lavender
	Chemical Engineering (2)	Lilac
	Environmental Sciences (5)	Orchid
	Civil Engineering (4)	Iris
<b>14:30-14:45</b>	<b>Tea Break &amp; Networking</b>	Foyer Area
<b>14:45-16:15</b>	Economics (2)	Lavender
	Biological Engineering & Natural Science (3)	Lilac
	Fundamental and Applied Sciences (2)	Orchid
	Material Science and Engineering (2)	Iris
<b>16:15-16:30</b>	<b>Tea Break &amp; Networking</b>	Foyer Area
<b>16:30-18:00</b>	Finance & Accounting (3)	Lavender
	Society (2), Psychology & Politics	Lilac
	Electrical and Electronic Engineering (2)	Orchid
	Civil Engineering (5), Material Science and Engineering (3) & Mechanical Engineering (3)	Iris

**Thursday, July 21, 2016**

**Poster Session ( Foyer Area, B1 floor )**

<b>Time</b>	<b>Schedule</b>
<b>09:30-10:30</b>	Poster Session (5)
	Civil Engineering /Electrical and Electronic Engineering / Fundamental and Applied Sciences (1)
<b>11:00-12:00</b>	Poster Session (6)
	Chemical Engineering/ Biological Engineering & Natural Science (3) / Fundamental and Applied Sciences (2)/ Computer and Information Sciences (2)

# Social Sciences Keynote Speech

Lavender

08:45-10:15    Wednesday    July 20 , 2016

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**Topic:**

*English-medium education in Japan: Insights from an international liberal arts university*

**Dr. Malcolm Sim**

Assistant Professor  
Faculty of International  
Liberal Arts  
Akita International University  
Japan



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## **Introduction of Dr. Malcolm Sim:**

It is my pleasure to be here, at this conference, meeting you all. We are very fortunate to be here, free of oppression, violence and/or any constrains, to share our expertise in various disciplines. We should treasure this freedom and spread the same spirit to our students, our peers and the people we encounter every day. The topic I would like to share with you today is intercultural awareness. My research has mainly focused on intercultural awareness and competence between students and teachers of different countries. Let me first introduce myself.

I am a member of the Faculty of Economics at Ritsumeikan University. Other than teaching Economics, Microeconomics in particular, my main responsibilities are planning and designing the English curriculum and integrating that curriculum with social, environmental and economic content. The content we write is derived from domestic and international issues. Our main purpose is to bring our students an awareness of global challenges with critical thinking training and the facts researched to support their logic. This kind of education which involves logical thinking in order to develop empathy towards the world is so vital in education in all disciplines today. Whether you are a professional in the field of science,

business, environment or education, the teaching of content involving authentic world issues can bring out the inner humanity in our students and bring them a step closer to intercultural awareness. We, the educators, future educators and researchers can prepare our students for an ever complex society and to be a real global citizens.

Again, today, we are so fortunate to be here meeting professionals from disciplines in the fields of natural sciences and engineering (ICNSE), chemical, biological and environmental sciences (ICCBES), social science and management (ICSSAM), Education, psychology and social sciences (ISEPSS) and engineering and information (ICEAI). This conference is a bona fide example of a pool of people of different religions, cultures and academic backgrounds getting together to discuss issues pertinent to us all. I believe the professionals here share my thoughts and this vision.

Encountering cross-cultural issues has become inevitable in our society throughout the world. Fitzpatrick and O'Dowd (2012) stated that in the 21st century workplace, cross-cultural communicative competence is a critically important ability. Raising cultural awareness and building multicultural sensitivity (Klinge & Rohmann, 2009) have been emphasized in the development of students' future careers. In fact, in recent years, cross-cultural communication has been integrated into curricula in many European countries (Walton, Priest, & Paradies, 2013). I would like to add that the purpose of building cross-cultural awareness should be foundational and not just for work purposes.

In many cases, the training of cross-cultural communication takes place in language classes.

However, often, teachers have no training in cross-cultural understanding. Also, the learning and training of cross-cultural communication needs to incorporate into real life issues, critical international issues and humanitarian issues.

Teachers' lack of the notion of becoming interculturally aware and the flexibility to respect cultural differences affects their students in the materials selected, instructions carried out, and in behavior (Sercu, 2005). This situation remains while the speed of globalization is proceeding, and the gap between the intercultural awareness among teachers and appropriate instruction becomes wider. This calls for a discussion of intercultural awareness and the teachers' new responsibilities in the current globalizing society (Sercu, 2005).

Earlier I talked about the lack of training in cross-cultural understanding and the teaching to bring such awareness into our classrooms. I would like to say that a



teacher's awareness and interests in fostering the skills among our students to be compassionate and responsible citizens is more important than technical training. It is the teacher's responsibility to take a step further to research how to link their discipline, their expertise and their research to real situations in their classrooms. It is the teachers' responsibility to integrate not only the knowledge in the textbook but to also to make this knowledge a living tool for their students.

My undergraduate degree was in economics, and my masters and doctorate in education. That probably explains why I am teaching in the school of Economics and planning curriculums to bridge social, environmental and economic issues into our classes at Ritsumeikan University. An example is the topic of poverty which we included as a chapter in our English communication and writing textbooks. This chapter included information regarding poverty in all countries both developing and developed. In this chapter we also included the utility of happiness, our social responsibilities, and corporate and government social responsibilities. We want to deliver the message that we all share the same problems in our societies and seek steps to help each other for a more ideal future. In addition to the topics of the contents we teach we also place emphasis on research and verifying information researched to ensure reliability. Since 2009 I have been conducting researches on cross-cultural communication to promote intercultural awareness. These researches are collaborative with professors from Taiwan and Korea. We have our students from Korea, Taiwan and Japan communicate using an internet platform. Our intention was to examine students' willingness to communicate before and after the implementation of the international communication projects we'd set up for them. In all results, the overall outcome is positive in students' perception of cross-cultural communication and future willingness to communicate with people of different cultures. In the classes at the School of Economics of Ritusmeikan, we are preparing students for cross-cultural communication through fostering awareness and interests of other cultures by learning international issues and problems that all countries are sharing. Then through this experiment we have brought students to real person to person communication. Just like this conference, as educators, we should foster students with higher critical thinking skills in today's complex globalizing society. Lastly, let's treasure our time here today and spread the same spirit to our students, our peers and the people we encounter every day.

# Workshop

## Lavender

**10:30-12:00    Wednesday    July 20 , 2016**

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**Topic:**

***Engineering Education: Curriculum Design, Delivery  
And Assessment For Effective Learning***

**Chee-Ming Chan (PhD, Sheffield UK)**

Associate Professor

Deputy Dean (Academic & Research)

Centre for Graduate Studies

Faculty of Engineering Technology (Geotech. Eng.)

Universiti Tun Hussein Onn Malaysia



**Alina Shamsuddin (PhD, Strathclyde UK)**

Associate Professor

Deputy Dean (Teaching, Learning & Academic Training)

Centre for Academic Development & Training / Faculty of Technology Management & Business

Universiti Tun Hussein Onn Malaysia



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This workshop aims at giving an overview of the transformation of engineering programmes teaching in innovative ways but adhering to predetermined learning outcomes in an organized, structured manner. The systematic development and execution of the curriculum would ensure effective learning on the part of the students, and effective teaching on the part of the lecturer. Following is the outline of the workshop.

Keywords: learning outcomes, curriculum structure, delivery methods, assessment

### **Curriculum Design**

1. Traditional vs. structured delivery approach
2. Four steps in curriculum design
3. Curriculum structure development
4. Needs analysis
5. Sustainability of programme

### **Curriculum Delivery**

6. Planning of delivery
7. Delivery techniques
8. Student assessment
9. Programme evaluation

### **Relationship Between Learning & Assessment**

10. Learning domains
11. Purpose of assessment
12. Aligning assessment with learning outcomes
13. Grading LEARNING STYLES & STUDENTS' PERFORMANCE
14. Definitions
15. Case study

**Biological Engineering & Natural Science (1)**

**Wednesday, July 20, 2016**

**08:45-10:15**

**Lilac**

Session Chair: *Prof. Yaw-Ling Lin*

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**ISBENS-25273**

**Metagenomic Sequencing Analysis in Human Oral Microbiome Related with Apical Periodontitis**

Wen-Pei Chen | *Providence University*

Suh-Jen Jane Tsai | *Providence University*

Jieh-Shan Yeh | *Providence University*

Che-Lun Hung | *Providence University*

Yaw-Ling Lin | *Providence University*

Ming-Li Liou | *Yuanpei University*

**ISBENS-24176**

**Xanthine Oxidase Inhibitors from the Pericarps of *Garcinia dulcis* (Roxb.) Kurz. and Their Molecular Docking Study**

Thongchai Khammee | *Phranakhon Rajabhat University*

Amornmart Jaratrungtawee | *Bruker Biospin AG*

Mayuso Kuno | *Srinakharinwirot University*

Sunit Suksamrarn | *Srinakharinwirot University*

**ISBENS-24186**

**Preferential Regulation of the Akt/PKB Survival Pathway by *Gundelia tournefortii* L. Confers Anti-Proliferative Effect on Cancer Cells and Cytoprotection Against Oxidative Stress in Normal Human Fibroblasts**

Glenn Gallego Oyong | *De La Salle University*

Maria Carmen Salandanan Tan | *De La Salle University*

Saeed Karami Ishghlo | *Payam e Noor University of Bukan*

Esperanza Chua Cabrera | *De La Salle University*

**ISBENS-24207**

**Metal Organic Framework MOF199/GOx Nanocomposite for Simulated Salivary Glucose Detection in Diabetic Patients**

Halina Misran | *National Energy University (UNITEN)*

N. F. S. Anuar | *National Energy University (UNITEN)*

N. F. Mahadi | *National Energy University (UNITEN)*

S. Z. Othman | *National Energy University (UNITEN)*

**ISBENS-24166**

**The Effect of Grafted Heparin on the Surface of Blend Membrane Citric Acid Cross-Linked Chitosan -PVA/PEG: Creatinine Transport**

Retno Ariadi Lusiana | *Diponegoro University*

Ginajar Argo Pambudi | *Diponegoro University*

## Environmental Sciences (1)

Wednesday, July 20, 2016

08:45-10:15

Orchid

Session Chair: *Prof. Jin Yong Park*

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### ACCMES-2318

#### **Effect of pH and Polypropylene Beads in Hybrid Water Treatment Process of Carbon Fiber UF and PP Beads with Water Back-Flushing**

Jin Yong Park | *Hallym University*

Sungwon Song | *Hallym University*

### ACCMES-2321

#### **Fermentative Production of Volatile Fatty acids from Food Waste Leachate and Potential as a Denitrification Carbon Source**

Hakchan Kim | *Ulsan National Institute of Science and Technology (UNIST)*

Jaai Kim | *Ulsan National Institute of Science and Technology (UNIST)*

Changsoo Lee | *Ulsan National Institute of Science and Technology (UNIST)*

### ACCMES-2325

#### **Associations of Dengue Fever Cases with Air Pollutants and Environmental Factors in Southern Taiwan during 2011-2015**

Wei-Jung Tseng | *National Pingtung University of Science and Technology*

Yi-Wen Liao | *Chia Nan University of Pharmacy & Science*

How-Ran Chao | *National Pingtung University of Science and Technology*

### ACCMES-2349

#### **Applications of Environmental Friendly Concrete in Thailand**

Thanudkij Chareerat | *Ubon Ratchathani University*

Prinya Chindapasirt | *Khon Kaen University*

Shigemitsu Hatanaka | *Mie University*

### ACCMES-2364

#### **Remediation of TPHs-Contaminated Soils Using a Chemical Oxidation Alternative**

Shyi-Tien Chen | *National Kaohsiung First University of Science and Technology*

Wei-Ping Huang | *National Kaohsiung First University of Science and Technology*

# Computer and Information Sciences (1)

Wednesday, July 20, 2016

08:45-10:15

Iris

Session Chair: *Prof. Ping Ji*

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## GCEAS-421

### **Recommending a Peer Reviewer Automatically**

Ping Ji | *The Hong Kong Polytechnic University*

Jian Jin | *Beijing Normal University*

## GCEAS-460

### **User-Innovated Product Planning: Leveraging User Innovation Communities in Quality Function Deployment**

Jieun Kim | *Seoul National University*

Yeongseon Park | *Seoul National University*

Yongtae Park | *Seoul National University*

## GCEAS-471

### **Prioritized Video Distribution on Content Delivery Networks Using Layer Coding**

Wei-Lune Tang | *National Taipei University of Technology*

Shih-Hsuan Yang | *National Taipei University of Technology*

## GCEAS-479

### **How to Utilize Lead User Communities as a Source of New Product Ideas: Case-Based Reasoning**

Mintak Han | *Seoul National University*

Minkyu Kim | *Seoul National University*

Yongtae Park | *Seoul National University*

## GCEAS-604

### **Similarity-Based Weighted Head-Shoulder Detection**

Chiao-Chien Huang | *National Chung Cheng University*

Chih-Yang Lin | *Asia University*

Wei-Yang Lin | *National Chung Cheng University*



**GCEAS-652**

**A Note Correcting “System Reliability Results” in a Review of the Literature**

Wheyming Tina Song | *National Tsing Hua University*

## **Business & Economics (1)**

**Wednesday, July 20, 2016**

**10:30-12:00**

**Lilac**

Session Chair: *Prof. Thang Nhut Nguyen*

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### **CONFSS-5162**

#### **An Application of the Analytic Hierarchy Process in Local Identity Selection for Local Product Development**

Kasem Kunasri | *Chiang Mai Rajabhat University*

Sombat Singkharat | *Chiang Mai Rajabhat University*

Chanita Panmanee | *Maejo University*

### **CONFSS-5163**

#### **Factors Influencing Consumer Purchasing Behavior towards Northern Thai Food Chiang Mai Province, Thailand**

Pacharaporn Arkornsakul | *Chiang Mai Rajabhat University*

Woraphon Yamaka | *Chaing Mai University*

### **CONFSS-5192**

#### **Alternative Logistics Systems of Rice in the Northern of Thailand**

Chanita Panmanee | *Maejo University*

Kasem Kunasri | *Chiang Mai Rajabhat University*

Roengchai Tansuchat | *Chaing Mai University*

### **CONFSS-5220**

#### **Chronic Disease and Employment**

Chun-Chih Chen | *National Taipei University*

### **BREFM-2012**

#### **Insights from Science into Business for Corporate Fiasco Prevention**

Thang Nhut Nguyen | *California State University Long Beach*

### **BREFM-3530**

#### **Deconstructing Global Research Barriers: Creating New Internal Applications for Graduate Global Business Research**

Bob Barrett | *American Public University*

## Management & Law (1)

Wednesday, July 20, 2016

10:30-12:00

Orchid

Session Chair: *Prof. Ernest Lim*

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### CONFSS-5216

#### **Shareholders' Duties to the Company**

Ernest Lim | *University of Hong Kong*

### CONFSS-5172

#### **Verification of Self-determination Motivation Mode of Employee's Suggestions**

Jui-Chih Ho | *National Taichung University of Science and Technology*

Chi-Tung Tsai | *National Changhua University of Education*

Jau-Chuan Ke | *National Taichung University of Science and Technology*

Ling-E Chang | *National Taichung University of Science and Technology*

### CONFSS-5188

#### **A Study of Kansei Oriented Innovation Reasoning Approach in Furniture Design**

Ching-Han Kao | *Ming Chi University of Technology*

I-Hsin Fan | *National United University*

Ching-Kai Chen | *Ming Chi University of Technology*

### CONFSS-5190

#### **Hospitality Services Source of Talent, Recruiting Channel and Incentives Mechanism – A Case Study of the Taiwanese Restaurant**

Ya-Jiun Yang | *National Changhua University of Education*

Tsang-Kai Hung | *National Changhua University of Education*

### CONFSS-5191

#### **Evaluate the Effectiveness of Employee's Education and Training Based on the Kirkpatrick Four-level Model - A Case Study of Taiwanese Electronic Company**

Ying-Ju Liao | *National Changhua University of Education*

Tsang-Kai Hung | *National Changhua University of Education*

**BREFM-30**

**The Antecedents of Online Browsing Behavior**

Hsiu-Hua Cheng | *Chaoyang University of Technology*

Chih-Hao Lien | *Chaoyang University of Technology*

## Finance & Accounting (1)

Wednesday, July 20, 2016

10:30-12:00

Iris

Session Chair: *Prof. So-De Shyu*

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### **BREFM-2011**

#### **Optimal Transfer Pricing under Expected Penalty Framework and the Empirical Evidence**

So-De Shyu | *Takming University of Sciences and Technology*

Jen-Jsung Huang | *Natioinal Sun Yat-Sen University*

Huo-Lien Tsai | *Natioinal Sun Yat-Sen University*

### **BREFM-3512**

#### **The Mediating Role of Auditors on Corporate Governance Mechanisms and Firm Performance**

Waewdao Promsen | *Rajamangala University of Technology Lanna*

Wachira Boonyanet | *Chalalongkorn Business School*

### **BREFM-3515**

#### **The Perception of Auditors on Key Audit Matters before Adopting the Revised ISA 700**

Chayanut Metkinakorn | *EY Office Limited*

Wachira Boonyanet | *Chalalongkorn Business School*

### **BREFM-13**

#### **Compound Option Pricing under a Double Exponential Jump-Diffusion Model**

Yuhong Liu | *National Cheng Kung University*

Wei-Tze Hsu | *National Cheng Kung University*

### **BREFM-2008**

#### **Board Incentives and CEO Compensation: Evidence from the 1999 Financial Services Modernization Act (Gramm-Leach-Bliley Act)**

I-Ju Chen | *Yuan Ze University*

Hsinyu Liang | *Feng Chia University*

Jia-Ying Lin | *Yuan Ze University*

**BREFM-3488**

**Currency Option Pricing under Stochastic Interest Rates and Extended Normal Distribution**

Yu-Chen Lin | *National Cheng Kung University*

Yu-Hong Liu | *National Cheng Kung University*

Ya-hsin Hung | *National Cheng Kung University*

## Education (1) & Philosophy

Wednesday, July 20, 2016

13:00-14:30

Lavender

Session Chair: *Prof. Yao Tang*

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### CONFSS-5164

#### **The Study of Older Adults' Service Learning and Empowerment: Perspectives of Social Capital**

Jing-Yi Lu | *National Chung Cheng University*

Ya-Hui Lee | *National Chung Cheng University*

### CONFSS-5168

#### **What Is the Appropriate Approach of Teaching Critical Thinking?**

Kwong Yiu Leung | *The University of Hong Kong*

### CONFSS-5174

#### **The Construction of Campus Cultural Heritage Indicators and the Case Study**

Yao Tang | *National Cheng Kung University*

Chih-Hsiang Weng | *National Cheng Kung University*

Chun-Hao Cheng | *Huafan University*

### CONFSS-5180

#### **A Study of Undergraduate Student Responses to Fraudulent Email**

Chi Kuen Wong | *Hong Kong Baptist University*

### CONFSS-5277

#### **Creating Meaningful Student Feedback with Social Media and Web Tools**

Bob Barrett | *American Public University*



## Literature and Linguistics

Wednesday, July 20, 2016

13:00-14:30

Lilac

Session Chair: *Prof. Lillian M. Huang*

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**CONFSS-5147**

**Teaching Contrastive Language Studies of English and Chinese to Students of Translation**

Wai-Man Ng | *The Hong Kong Polytechnic University*

**CONFSS-5167**

**Politeness in Translation: Representation of Japanese Honorific/Formal/Plain Forms in Cantonese Dubbing**

Pei Chun Shih | *The Hong Kong Polytechnic University*

**CONFSS-5211**

**When Love Leaks Out: A Course Design for Teaching Medea**

Yung-Chih Cheng | *National Dong-Hwa University*

**CONFSS-5230**

**Strategies for Teaching Indigenous Languages to Preschoolers in Taiwan: A Case of Language Immersion**

Hsuan-Chen Chou | *Kun Shan University*

**CONFSS-5237**

**A Study of Indigenous Language Materials in Taiwan**

Lillian M. Huang | *Shih Chien University*

## Environmental Sciences (2)

Wednesday, July 20, 2016

13:00-14:30

Orchid

Session Chair: Mr. *Sung-Kyun Shin*

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### GCEAS-482

#### **Vertical Distribution and Columnar Optical Properties of Springtime Aerosols over Gwangju, Korea**

Sung-Kyun Shin | *Gangneung-Wonju National University*

Kwon-Ho Lee | *Gangneung-Wonju National University*

### GCEAS-429

#### **Trends in Maximum Temperatures in Australia from 1990 to 2012**

Suree Chooprateep | *Chiang Mai University*

Kanoktip Nimitkiatklai | *Chiang Mai University*

### GCEAS-467

#### **Environmental Education Content Introduction in Taiwan Primary and Secondary Schools**

Chang Mao Lee | *Da-Yeh University*

Ching Hwa Lee | *Da-Yeh University*

### GCEAS-473

#### **Improved Bioelectricity Production in Microbial Fuel Cells Using Modified Chitosan proton Exchange Membranes**

Shima Latoya Holder | *Da-Yeh University*

Ching Hwa Lee | *Da-Yeh University*

Srinivasa Rao Popuri | *The University of the West Indies, Cave Hill Campus*

# Civil Engineering (1)

Wednesday, July 20, 2016

13:00-14:30

Iris

Session Chair: *Prof. Chin-Tung Cheng*

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## **GCEAS-555**

### **The Theoretical and Numerical Study on a Shoreline Change due to Double Headland Construction**

Muhammad Shoaib | *Sungkyunkwan University*

Dong Hee Kim | *Sungkyunkwan University*

Jung Lyul Lee | *Sungkyunkwan University*

## **GCEAS-635**

### **Road Development Strategy Based on Potential Agricultural Sector**

Adris Ade Putra | *Halu Oleo University*

Susanti Djalante | *Halu Oleo University*

Muh Arsyad | *Halu Oleo University*

## **ACCMES-2249**

### **Applicability of High Organic Content Sludge Ashes Used as Fine Aggregates of Controlled Low Strength Materials**

Cheng-Jung Wang | *National Taipei University of Technology*

Ming-Sheng Ko | *National Taipei University of Technology*

## **ACCMES-2266**

### **Leaching and Compressive Strength of Geopolymer from the Mixing of Lateritic soil and High Calcium Fly Ash**

Charoenchai Ridtirud | *Rajamangala University of Technology ISAN Khon Kaen Campus*

Prinya Chindaprasirt | *Khon Kaen University*

## **ACCMES-2297**

### **Seismic performance of Rocking Base-isolated Structures Subjected to Biaxial Earthquake Loads**

Chin-Tung Cheng | *National Kaohsiung First University of Science and Technology*

Wei-Zhe Kang | *National Kaohsiung First University of Science and Technology*

**ACCMES-2253**

**Simulation of Laminar Vortex Shedding Flow Past Cylinders Using an Immersed-Boundary Method**

D. C. Lo | *National Kaohsiung Marine University*

C-P Lee | *National Sun Yat-sen University*

I-F Lin | *National Sun Yat-sen University*

## Education (2) & Society (1)

Wednesday, July 20, 2016

14:45-16:15

Lavender

Session Chair: *Prof. Anita Y.K. Poon*

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### CONFSS-5176

#### **Experience of Practice Transnational Intergenerational Program: A Study of Singapore Volunteers Empowerment**

Ya-Hui Lee | *National Chung Cheng University*

Hsin-Yi Huang | *National Chung Cheng University*

### CONFSS-5182

#### **A Study on the Effectiveness of Intergenerational Learning Program on the Attitudes toward the Elderly for Elementary School Students**

Ya-Hui Lee | *National Chung Cheng University*

Chin-Yu Chou | *National Chung Cheng University*

### CONFSS-5183

#### **The Practical Experience of Cross-Country Education Program: The Motivation of Participating Singapore Volunteer Work**

Ya-Hui Lee | *National Chung Cheng University*

i-Kuan Lin | *National Chung Cheng University*

### CONFSS-5203

#### **From CLIL (Content and Language Integrated Learning) to LAC (Language across the Curriculum): A Case Study in Search of an Effective Form of Instruction for Content-Based Subjects Taught in a Second Language**

Anita Y.K. Poon | *Hong Kong Baptist University*

### CONFSS-5185

#### **"Questions" of Female Masturbation Experience behind Implied Gender, Knowledge and Power**

Yu Ying He | *National Kaohsiung Normal University*

## Chemical Engineering (1)

Wednesday, July 20, 2016

14:45-16:15

Lilac

Session Chair: *Prof. Siriwan Srisorrachatr*

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### GCEAS-433

#### **Adsorptive Removal of Metal Ions from Solution by Bamboo Charcoal**

Siriwan Srisorrachatr | *Srinakharinwirot University*

Chairode Satapimonphan | *Srinakharinwirot University*

Nattapachr Chotkhunnavat | *Srinakharinwirot University*

### GCEAS-490

#### **Measurement of Indirect Carbon Dioxide Emissions in the Islamic University of Indonesia—An Energy Management**

Sukirman | *Islamic University of Indonesia, Yogyakarta*

Sholeh Ma'mun | *Islamic University of Indonesia, Yogyakarta*

### GCEAS-494

#### **Linoleic Acid Recovery from Sunflower Seed Using Membrane-based Solvent Extraction**

Tippabust Eksangsri | *Thammasat University*

### GCEAS-514

#### **Implementation of SOFT Model for the Solubility of Carbon Dioxide in Aqueous 2-((2-Aminoethyl)amino)ethanol Solution**

Sholeh Ma'mun | *Islamic University of Indonesia, Yogyakarta*

Dalyono | *Islamic University of Indonesia, Yogyakarta*

Tuasikal M. Amin | *Islamic University of Indonesia, Yogyakarta*

### GCEAS-618

#### **Lipase Immobilization on Chitosan/Graphene Composite Membrane for Application in Membrane Bioreactor**

Chung-jung Chou | *Chung Yuan Christian University*

Wei-Song Hung | *Chung Yuan Christian University*

Yu-De Chen | *Chung Yuan Christian University*

# Mechanical Engineering (1)

Wednesday, July 20, 2016

14:45-16:15

Orchid

Session Chair: *Prof.*

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## **GCEAS-420**

### **Nonlinear Dynamics and Control in a Magnetic Levitation System**

Shun-Chang Chang | *Da-Yeh University*

Jui-Feng Hu | *Da-Yeh University*

## **GCEAS-428**

### **Experimental Test of a Gamma Type Stirling Engine**

Fung-Bao Liu | *I-Shou University*

Cheng-Feng Hu | *National Chaiyi University*

Fu-Ren Li | *I-Shou University*

## **GCEAS-438**

### **Free Vibrations of Bay-Type Frame Structures**

Hai-Ping Lin | *Da-Yeh University*

Kuo-Hsiang Chen | *Da-Yeh University*

## **GCEAS-463**

### **Thermal Behavior Investigation of Cascode GaN HEMTs in Parallel Operation**

Hsin-Ping Chou | *National Chiao Tung University*

Stone Cheng | *National Chiao Tung University*

## **GCEAS-465**

### **Imperfect Micro-Ring Gyro with Thermo-Elastic Damping**

Ji-Hwan Kim | *Seoul National University*

Seok-Joo Kang | *Seoul National University*

## **GCEAS-504**

### **Meshless Methods and Image Matching Technique Using SIFT for Full Field Strain Measurement: Simulation Approach**

Attaphon Chaimanatsakun | *Sriracha Kasetsart University*

Prapot Kunthong | *Kasetsart University*



## Civil Engineering (2)

Wednesday, July 20, 2016

14:45-16:15

Iris

Session Chair: *Prof. Hsien Hua Lee*

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**ACCMES-2237**

**Green Concrete for Sustainable Indonesia Structures - Lightweight Concrete Using Oil Palm Shell (OPS) AS Coarse Aggregate with SUPERPLASTICIZER and Fly Ash**

Feny Acelia Silaban | *Universitas Indonesia*

**ACCMES-2278**

**An Experimental Study on the Adsorption and Desorption Mechanism of Exchangeable Cations for Soils**

Kanpei Ono | *Tokai University*

Shigeo Honma | *Tokai University*

**ACCMES-2283**

**An Innovative Damping System for the Seismic Mitigation of Structures**

Hsien Hua Lee | *National Sun Yat-sen University*

C.-W. Cheng | *Taiwan International Ports Corporation*

**ACCMES-2294**

**Downstream Interference Effects between Two Identical Square Buildings under Turbulent Boundary Layer Flow**

Yuan-Lung Lo | *Tamkang University*

Yong Chul Kim | *Tokyo Polytechnic University*

**ACCMES-2299**

**An Ontology of Analyzing Information Requirements for Managing Construction Projects with BIM: A Case Study of the Electrical Work**

Chung-Wei Feng | *National Cheng Kung University*

Ya-Ting Ho | *National Cheng Kung University*

## Management (2), Finance & Accounting (2)

Wednesday, July 20, 2016

16:30-18:00

Lavender

Session Chair: *Prof. Chen-Sung Chang*

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### CONFSS-5201

**Monographic Research of Succession Planning in Expansion Overseas Enterprise -**

**A Case Study Method of the Taiwanese Hotel**

I-Chi Lin | *National Changhua University of Education*

Tsang-Kai Hung | *National Changhua University of Education*

### CONFSS-5142

**Leadership Development: To Do or Not to Do Is the Question**

Shreya Saran Chaudhary | *Netapp*

### BREFM-25

**Establishing the Support Platform of Co-Creating Unique Values for Local Industries of Taiwan**

Chen-Sung Chang | *Nan-Kai University of Technology*

### BREFM-3251

**The Relationship between Family-To-Work Facilitation and Job Satisfaction**

Ying-Wen Liang | *Jinwen University of Science & Technology*

### BREFM-6

**CEO Pay-For-Performance Relation: Asymmetric Or Symmetric?**

Chii-Shyan Kuo | *National Taiwan University of Science and Technology*

Shih-Ti Yu | *National Tsing Hua University*

### BREFM-7

**Multilevel High Performance Work Systems and Corporate Entrepreneurship: Moderation, Mediation and Evidence**

Yi-Ying Chang | *National Taiwan University of Science and Technology*

Che-Yuang Chang | *National Taiwan University of Science and Technology*

## Biological Engineering & Natural Science (2)

Wednesday, July 20, 2016

16:30-18:00

Lilac

Session Chair: *Prof.*

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### GCEAS-481

#### **Numerical and Experimental Study of Mixing Enhancement for a Micromixer with Applying AC-Electrokinetics**

Jeng-Shian Chang | *National Taiwan University*

Bo-Wen Lin | *National Taiwan University*

Kuang-Chong Wu | *National Taiwan University*

Shyh-Haur Chen | *National Kaohsiung University of Applied Sciences*

### GCEAS-578

#### **Big Data Analysis of Emergency Medical Service Applied to Effectiveness Factors Associated with Survival Rate**

Yu-Ting Yeh | *Yuan Ze University*

Wei-Zen Sun | *National Taiwan University*

Matthew Huei-Ming Ma | *National Taiwan University*

Chun-Yi Dai | *National Taiwan University*

Muammar Sadrawi | *Yuan Ze University*

Maysam F. Abbod | *Brunel University London*

Jiann-Shing Shieh | *Yuan Ze University*

### ISBENS-24181

#### **Synthesis of Novel Biocompatible and UV-Curable Polymers for Rapid Prototyping**

Min-Huei Chiou | *National Taiwan University of Science and Technology*

Ming-Hua Ho | *National Taiwan University of Science and Technology*

Yu-Chi Su | *National Taiwan University of Science and Technology*

### ISBENS-24195

#### **Fabrication of Metronidazole-Loaded PLA Assymmetric Membranes for the Guided Tissue Regeneration**

Indah Eka Septiani | *National Taiwan University of Science and Technology*

Ming-Hua Ho | *National Taiwan University of Science and Technology*

**ISBENS-25300**

**Open Structural Area of Cellulose in Popping Pretreated Rice Straw Accelerates Enzymatic Hydrolysis Rate**

Dae-Seok Lee | *Chonnam National University*

Yoon-Gyo Lee | *Chonnam National University*

Hyeun-Jong Bae | *Chonnam National University*

**ISBENS-25302**

**Novel Sugar Signaling Pathway That Regulates Sucrose Metabolism in Plants**

Quynh Anh Nguyen | *Chonnam National University*

Hyeun-Jong Bae | *Chonnam National University*

## **Fundamental and Applied Sciences (1) &**

## **Electrical and Electronic Engineering (1)**

**Wednesday, July 20, 2016**

**16:30-18:00**

**Orchid**

Session Chair: *Prof. Ki-Seog Chang*

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### **GCEAS-530**

#### **Pyroelectric Study of Mongolian Tourmaline in Electric Power Saving System by Infrared Spectroscopy**

Ki-Seog Chang | *Hongik University*

### **GCEAS-536**

#### **Trends in STEM Education Research Topics**

Yu-Shen Fang | *National Taiwan Normal University*

Lung-Sheng Lee | *Central Taiwan University of Science and Technology*

### **GCEAS-501**

#### **Vibration Signal Analysis for LPG-Modified Engine and Normal Oil-Usage Engine with Different Engine Speeds**

Theerathan Kingrattanaset | *Kasetsart University*

Suphattharachai Chomphan | *Kasetsart University*

### **GCEAS-649**

#### **Performance Analysis Stability of Speed Control of BLDC Motor Using PID-BAT Algorithm in Electric Vehicle**

Izza Anshory | *Institute Teknologi Sepuluh Nopember Surabaya Indonesia*

Imam Robandi | *Institute Teknologi Sepuluh Nopember Surabaya Indonesia*

Wirawan | *Institute Teknologi Sepuluh Nopember Surabaya Indonesia*

Irna Tri Yuniahasti | *Institute Teknologi Sepuluh Nopember Surabaya Indonesia*

**GCEAS-646**

**Improving LTE Femtocell Base Station Network Performance by Distributed Power Control**

Bo-Wei Wang | *National Yilan University*

Fang-Chang Kuo | *National Yilan University*

Chih-Cheng Tseng | *National Yilan University*

Hwang-Cheng Wang | *National Yilan University*

Kuo-Chang Ting | *Minghsin University of Science and Technology*

# Material Science and Engineering (1)

Wednesday, July 20, 2016

16:30-18:00

Iris

Session Chair: *Prof.*

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## GCEAS-434

### **Preparation of ZnO Thin Film by Development Low-Pressure High-Frequency Plasma Chemical Vapor Deposition System**

Thaweesak Tanaram | *Pibulsongkram Rajabhat University*

Nuttee Thungsuk | *Dhonburi Rajabhat University Samut-Prakan*

Harittapak Apirat | *Dhonburi Rajabhat University*

Narong Mungkung | *King Mongkuts University of Technology Thonburi*

Yoshimi Okamura | *University of Miyazaki*

Toshifumi Yuji | *University of Miyazaki*

## GCEAS-506

### **Thermal Stability and Mechanical Property of Flexible Polybenzoxazine-Modified with Epoxy**

Chanchira Jubsilp | *Srinakharinwirot University*

Sarawut Rimdusit | *Chulalongkorn University*

## GCEAS-511

### **Thermal Property Enhancement in Fluorine-Containing Polybenzoxazine-Dianhydride Alloys**

Chanchira Jubsilp | *Srinakharinwirot University*

Sarawut Rimdusit | *Chulalongkorn University*

Patcharat Pattharasiriwong | *Chulalongkorn University*

## GCEAS-525

### **High-Temperature Corrosion of T92 Steel in N<sub>2</sub>/H<sub>2</sub>O/H<sub>2</sub>S-Mixed Gas**

Dong Bok Lee | *Sungkyunkwan University*

Yuke Shi | *Sungkyunkwan University*

**GCEAS-576**

**Design of Multi-functional Working Electrodes Using TiO<sub>2</sub>/CZTSe Composite Particles for Dye-Sensitized Solar Cells**

Chuen-Shii Chou | *National Pingtung University of Science and Technology*

Ping Wu | *Singapore University of Technology and Design*

Wei-Hua Lu | *National Pingtung University of Science and Technology*

**ACCMES-2388**

**Comparison of Oxidation Behavior of Two Kinds of Graphite Relevant to HTGR**

Ximing Sun | *Tsinghua University*

Yujie Dong | *Tsinghua University*

Yangping Zhou | *Tsinghua University*

Zhengcao Li | *Tsinghua University*

Lei Shi | *Tsinghua University*

Zuoyi Zhang | *Tsinghua University*



## Management (3) & Marketing

Thursday, July 21, 2016

8:45-10:15

Lavender

Session Chair: *Prof. Hsiao-Yun Lu*

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### **BREFM-2035**

#### **Bridging Lead Users to User Entrepreneurs-Exploring the Entrepreneurial Motivations**

Chien-Chieh Huang | *National Chi Nan University*

Chia-Liang Hung | *National Chi Nan University*

Fang-Yi Chen | *National Chi Nan University*

Hong-Wei Lin | *National Chi Nan University*

### **BREFM-2039**

#### **Personality Traits and Medical Travel Intention: The Moderating Roles of Utilitarian and Hedonic Value**

Hsiao-Yun Lu | *Chien Hsin University of Science and Technology*

### **BREFM-3245**

#### **Do Acquiring Firms Strategically Manage Impressions prior to M&A Announcements?**

Ying-Jiuan Wong | *National Kaohsiung University of Applied Sciences*

### **BREFM-3500**

#### **How Relationship Quality Influences Customer Loyalty Over Time? The Moderating Role of Service Involvement**

Min-Hsin Huang | *National Sun Yat-sen University*

Zhao-Hong Cheng | *National Sun Yat-sen University*

Hsiang-Hua Su | *National Sun Yat-sen University*

## Education (3) & Culture

Thursday, July 21, 2016

08:45-10:15

Lilac

Session Chair: *Prof. Lung-Ming Tsai*

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### CONFSS-5242

#### **Factorial Analysis on the Creative Thinking Performance of Technic University Students in Taiwan**

Wei Zen Tan | *National Yunlin University of Science and Technology*

Ching Shin Twu | *National Yunlin University of Science and Technology*

### CONFSS-5243

#### **A Study on the Interdisciplinary Approaches Revitalizing Higher Education Institutions ~ Reflective Perspectives in Taiwan ~**

Mingchang Wu | *National Yunlin University of Science and Technology*

### CONFSS-5251

#### **An Analysis Study on the Developmental Processes of Creation and the Course of the Talents' Mind**

Ching Shin Twu | *National Yunlin University of Science and Technology*

### CONFSS-4116

#### **A Study on the Beauty of Zen Garden – Cases of Ginkaku Temple, Ryōan Temple and Sankei Garden**

Lung-Ming Tsai | *Chinese Culture University*

### CONFSS-5178

#### **The Research for Constructing the Core Competence Indicators of Contribution Aging**

Meng-Ching Hu | *National Chung Cheng University*

Yi-Fen Wang | *National Chung Cheng University*

## Environmental Sciences (3)

Thursday, July 21, 2016

08:45-10:15

Orchid

Session Chair: *Prof. Ya-Fen Wang*

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### ACCMES-2264

#### **Low Impact Development and Green Infrastructure**

Zeynep Cansu Ö ztürk | *Selcuk University*

Şükrü Dursun | *Selcuk University*

### ACCMES-2306

#### **PM2.5 Concentration from Burning Incenses**

I-Wei Luo | *National Hsin Chu Senior High School*

I-Fei Luo | *Kornell Academy*

Ya-Fen Wang | *Chung Yuan Christian University*

Hsiao-Hsuan Mi | *Chia-Nan University of Pharmacy & Science*

### ACCMES-2310

#### **Enhancement of Biogas Production from Food Waste by Bioaugmentation with Rumen Fluid**

Yeadam Jo | *Ulsan National Institute of Science and Technology*

Jaai Kim | *Ulsan National Institute of Science and Technology*

Kwanghyun Hwang | *Global Engineering Division, GS E&C*

Changsoo Lee | *Ulsan National Institute of Science and Technology*

### ACCMES-2368

#### **Bioremediation of Heavy Oil-Contaminated Soil Using SY Microbial Consortium (SYMC)- Study of Application Factors**

Shyi-Tien Chen | *National Kaohsiung First University of Science and Technology*

Michael Wang | *SY Biotech Inc.*

Yun-Chang Zhu | *National Kaohsiung First University of Science and Technology*

Jenn-Shyen Si | *SY Biotech Inc.*

### ACCMES-2373

#### **In-Situ Bioremediation of TPH-Contaminated Soil Using Fermented Blood**

Shyi-Tien Chen | *National Kaohsiung First University of Science and Technology*

Shiou-Ya Jhou | *National Kaohsiung First University of Science and Technology*

**GCEAS-599**

**Numerical Analysis of Industrial Cyclones for High Mass Load Processing**

Sang-Cheol Park | *Chungnam National University*

Hyun-Seol Park | *Korea Institute of Energy Research*

Weon Gyu Shin | *Chungnam National University*

## Computer and Information Sciences (2)

Thursday, July 21, 2016

08:45-10:15

Iris

Session Chair: *Prof. Miin-Shen Yang*

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### GCEAS-396

#### **A Learning-Based EM Algorithm for T-Distribution Mixtures**

Miin-Shen Yang | *Chung Yuan Christian University*

Rong-Jin Wong | *Chung Yuan Christian University*

### GCEAS-462

#### **A Comparative Study of Pattern Recognition Techniques for Classification of Oral and Nasal Snoring Sounds**

Tsuyoshi Mikami | *NIT Tomakomai College*

Yohichiro Kojima | *Hokkaido University of Science*

Kazuya Yonezawa | *NHO Hakodate Hospital*

### GCEAS-480

#### **Integrating the Foresights of Emerging Technologies from Online Communities**

Youngjun Kim | *Seoul National University*

Mintak Han | *Seoul National University*

Yongtae Park | *Seoul National University*

### GCEAS-500

#### **An Enhanced Secure and Efficient Anonymous Authentication with Smart Cards for Roaming Service in Global Mobility Networks**

Wun Long Jhuang | *National Chung Hsing University*

Chou Chen Yang | *National Chung Hsing University*

### GCEAS-637

#### **Real-Time Pedestrian Detection on Moving Automobile Using Limited Power Computing Unit**

Teera Siriteerakul | *King Mongkuts Institute of Technology Ladkrabang*

Sirikul Siriteerakul | *King Mongkuts Institute of Technology Ladkrabang*

## Management (4)

Thursday, July 21, 2016

10:30-12:00

Lavender

Session Chair: *Prof. Jongkun Jun*

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### **BREFM-29**

**The Informatization model of Production and Sale for the Leisure Industry- An Example of small-scale Hotels and Black Tea factories in Nantou County of Taiwan**

Chung-Pin Hung | *Nan Kai University of Technology*

Hao-Feng Lin | *Nan Kai University of Technology*

Yi-Lin Hung | *Nan Kai University of Technology*

### **CONFSS-5197**

**Firm Innovativeness and Firm Performance: The Moderating Effect of Strategic Choices in SMEs**

Jongkun Jun | *Hankuk University of Foreign Studies*

Thaemin Lee | *Chungbuk National University*

Cheol Park | *Korea University*

### **CONFSS-5155**

**Investigating a Sleep Management Program: A Case Study of Hotel ICON**

Pui Yan, Clare Fung | *The Hong Kong Polytechnic University*

Hiu Ying, Alice Hon | *The Hong Kong Polytechnic University*

## Mechanical Engineering (2)

Thursday, July 21, 2016

10:30-12:00

Lilac

Session Chair: *Prof. Lih-Wu Hourng*

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### **GCEAS-523**

#### **The Effects of Magnetic field on the Hydrogen Production by Multi-Electrode Water Electrolysis**

Lih-Wu Hourng | *National Central University*

Ja-Shen Hsu | *National Central University*

Ming-Yuan Lin | *Army Academic College*

### **GCEAS-548**

#### **Relationship between Car Backrest Vibration and Car interior Floor Sound with Condition of Speed Varying**

Boothum Wongchai | *Kasetsart University*

### **GCEAS-558**

#### **Adaptive Control Chart for Monitoring the Short-Term Burr XII Process Capability**

Mou-Yuan Liao | *Providence University*

### **GCEAS-581**

#### **A Study of Energy Performance of Accommodation Building in Kanto Region - Japan**

Haitham Alkhalaf | *Keio University*

Wanglin Yan | *Keio University*

### **GCEAS-607**

#### **Numerical Simulation of High Reynolds Number Turbulent Steam Jet**

Taejoon Kim | *Korea Hydro and Nuclear Power Co., Ltd*

Jungsoo Suh | *Korea Hydro and Nuclear Power Co., Ltd*

## Environmental Sciences (4)

Thursday, July 21, 2016

10:30-12:00

Orchid

Session Chair: *Prof. Jwo Huei Jou*

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### ACCMES-2374

#### **Removal of COD in Dyeing Wastewater Using Rice Husk Carbon (RHC)**

Shyi-Tien Chen | *National Kaohsiung First University of Science and Technology*

Chih-Wei Lee | *National Kaohsiung First University of Science and Technology*

### ACCMES-2381

#### **Candlelight OLED Based Human- and Environmentally-Friendly Lighting**

Jwo Huei Jou | *National Tsing Hua University*

### ACCMES-2608

#### **Identification by Using Molecular Methods Based of 16S rRNA Gene of Consortium Microbes of Phyllosphere and Rhizosphere which Effective on Rice**

Aris Aksarah Pas | *Bogor Agricultural University*

Didy Sopandie | *Bogor Agricultural University*

Trikoesoemaningtyas | *Bogor Agricultural University*

Dwi Andreas Santosa | *Bogor Agricultural University*

### ACCMES-2631

#### **Reforming of Simulated Syngas Derived from Biomass Gasification for Hydrogen promotion Using Ni Catalysts Supported on MAI<sub>2</sub>O<sub>4</sub>**

Bing-Nan Chen | *National Chung Hsing University*

Kui-Hao Chuang | *Central Taiwan University of Science and Technology*

Ming-Yen Wey | *National Chung Hsing University*

### GCEAS-611

#### **Adsorption Efficiency of Lead (II) Ion from Aqueous Solution Using Modified Leonardite**

Atit Wannawek | *Maejo University*

Pusit Pookmanee | *Maejo University*

Sakchai Satienerakul | *Maejo University*

Ratchadapon Putharod | *Maejo University*

Nattapol Laorodphan | *Maejo University*

Sukon Phanichphant | *Chiang Mai University*



**ACCMES-2327**

**Magnetite Adsorption of Gold from Electronic Wastes Leached with Thiosulfate Solution**

Karlo Leandro Dionisio Baladad | *University of the Philippines Diliman*

Jamie Jane Apolonio | *University of the Philippines Diliman*

Geliah Anne Brilata | *University of the Philippines Diliman*

Myrrh Jade Divinagracia | *University of the Philippines Diliman*

## Civil Engineering (3)

Thursday, July 21, 2016

10:30-12:00

Iris

Session Chair: *Prof. Toshitaka Yamao*

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### ACCMES-2302

#### **Block Shear Fracture Strength of Base Metal in Welded Connection with Cold-formed Austenitic Stainless Steel**

TaeSoo Kim | *Hanbat National University*

BoKyung Hwang | *Hanbat National University*

HooChang Lee | *Hanbat National University*

YongTaeg Lee | *Hanbat National University*

### ACCMES-2324

#### **Evaluation on Strength of Concrete-Filled Double Skin Steel Tube in Bending**

Hohoon Park | *Sejong University*

Seung-Eock Kim | *Sejong University*

### ACCMES-2341

#### **Experimental Study on Repair Methods of Broken Members Stone Structures**

Akira Horita | *Kumamoto University*

Toshitaka Yamao | *Kumamoto University*

Kazuaki Kaneko | *Kumamoto University*

### ACCMES-2355

#### **Adaptive Control of the Structures with Faulty Sensors**

Touraj Taghikhany | *Amirkabir University of Technology*

Amin Hosseini | *Amirkabir University of Technology*

### ACCMES-2357

#### **Dynamic Displacement Estimation System Using LDV-LiDAR Integration**

Junhee Kim | *Dankook University*

**ACCMES-2656**

**Economic Feasibility Study of Self-Centering Concentrically Braced Frame Systems**

Qindan Huan | *The University of Akron*

Mojtaba Dyanati | *The University of Akron*

Dave Roke | *The University of Akron*

# MIS-Management Information System &

## Computer and Information Sciences (3)

Thursday, July 21, 2016

13:00-14:30

Lavender

Session Chair: *Prof. Yaochen Kuo*

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### **BREFM-3499**

#### **Investigations of Feature Selection Approaches for SVM-Based Evaluation System for Scooter Sales**

Yaochen Kuo | *Kainan University*

Yu-Shang Huang | *Kainan University*

### **BREFM-3503**

#### **An Integrated Model of Strategic IT Alignment and IS Capabilities for Contribution Organization Performance**

Rachadaporn Pinrattananont | *Rajamangala University of Technology*

Youthachai Lertworapachaya | *Rajamangala University of Technology*

Chalerm Sak Lertwongsatien | *Ministry of Finance*

### **BREFM-3511**

#### **Using Deep Learning to Identify Cyberbullying Behavioral and Linguistic Patterns**

August F.Y. Chao | *Chung Yuan Christian University*

Cheng-Yu Lai | *Chung Yuan Christian University*

### **BREFM-3516**

#### **The Investigation of the Intention of Open Source Software Adoption by Small and Medium-Sized Enterprises**

Chorng-Guang Wu | *Yuan Ze University*

### **GCEAS-487**

#### **Deformation Driven Fast and Approximate Shortest Path Algorithm for Selecting a Pseudo-Optimal Welding Sequence**

Jesus Romero Hernandez | *Centro de Ingeniería y Desarrollo Industrial*

Baidya Nath Saha | *Centro de Investigación en Matemáticas*

Gengis Toledo | *Centro de Ingeniería y Desarrollo Industrial*

## Chemical Engineering (2)

Thursday, July 21, 2016

13:00-14:30

Lilac

Session Chair: *Mrs. Nov Irmawati Inda*

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### GCEAS-625

#### **Analysis of the Extraction Complex between LIX84-I and Copper(II) in the Polymeric Particles with Interconnected Spherical Pores**

Nov Irmawati Inda | *University of Miyazaki*

Masaya Fukumaru | *University of Miyazaki*

Takashi Sana | *University of Miyazaki*

Shiro Kiyoyama | *Miyakonojo National College of Technology*

Takayuki Takei | *Kagoshima University*

M. Yoshida | *Kagoshima University*

A. Nakajima | *University of Miyazaki*

K. Shiomori | *University of Miyazaki*

### GCEAS-629

#### **Removal of Hydrogen Sulfide from an Anaerobic Biogas Using Soybean Ink Waste**

Natthakan Thanakunpaisit | *Thaksin University*

Niramom Jantharachat | *Thaksin University*

Usa Onthong | *Thaksin University*

### GCEAS-630

#### **Treatment of Kanom-Jeen Production Wastewater Using an Anaerobic Digestion Process**

Usa Onthong | *Thaksin University*

Sirilak Chuaypanung | *Thaksin University*

Yakoh Kharemdabeh | *Fatoni university*

### GCEAS-634

#### **Separation of Azeotropic Mixture (Ethanol + Water) Using Zeolite as an Adsorbent**

Niramol Juntarachat | *Thaksin University*

Usa Onthong | *Thaksin University*

## Environmental Sciences (5)

Thursday, July 21, 2016

13:00-14:30

Orchid

Session Chair: *Prof. Nannapasorn Inyim*

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### ACCMES-2632

#### **Hydrogen Production from Real Wastewater by Platinum/N-Doped TiO<sub>2</sub>/SrTiO<sub>3</sub> Photocatalyst under Simulated Sunlight Irradiation**

Ju-Ting Lee | *National Chung Hsing University*

En-Chin Su | *National Chung Hsing University*

Ming-Yen Wey | *National Chung Hsing University*

### ACCMES-2637

#### **Oil Removal from Wastewater Using Colocasia Esculenta's Stem**

Nannapasorn Inyim | *Ramkhamhaeng University*

Kallayarat Sanguanchit | *Ramkhamhaeng University*

Nutsara Pinitmontree | *Ramkhamhaeng University*

Anchalee Paris | *Ramkhamhaeng University*

### ACCMES-2645

#### **Microbial Community Structures Associated with Major Organic Components Degradation in Full-Scale Anaerobic Sludge Digesters**

Joonyeob Lee | *Pohang University of Science and Technology*

Gyuseong Han | *Pohang University of Science and Technology*

Seokhwan Hwang | *Pohang University of Science and Technology*

Seung Gu Shin | *Pohang University of Science and Technology*

Taewoan Koo | *Pohang University of Science and Technology*

### ACCMES-2660

#### **Evaluation of the Cumulative Release of Lead (Pb) from a Quicklime and Fly Ash Stabilized/Solidified Soil under Semi-Dynamic Leaching Conditions**

Deok hyun Moon | *Chosun University*

Dimitris Dermatas | *National Technical University of Athens*

Inseong Hwang | *Pusan National University*

Agamemnon Koutsospyros | *University of New Haven*

Jeong-Hun Park | *Chonnam National University*

**ACCMES-2274**

**Laboratory Measurement of Relative Permeability of Immiscible Fluids in Sand**

Khwaja Naweed Seddiqi | *Tokai University*

Zabihullah Mahdi | *Tokai University*

Shigeo Honma | *Tokai University*

**ACCMES-2313**

**Synthesis Of Biodegradable Cellulose-Chitin Polymer Film Using Recycled**

**N,N-Dimethylacetamide**

Myra Ruth Sales Poblete | *University of the Philippines*

Marxlen C Endico | *University of the Philippines*

## Civil Engineering (4)

Thursday, July 21, 2016

13:00-14:30

Iris

Session Chair: *Prof. Shu-Shun Liu*

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### ACCMES-2624

#### **Mapping Landslide Susceptibility Using Discriminant Analysis**

Shu-Rong Yang | *National Pingtung University of Science and Technology*

### ACCMES-2635

#### **Pedestrian Behaviour towards Pedestrian Facilities at Commercial Centres**

Noor Shazreen A. Rahman | *Universiti Teknologi MARA, Pasir Gudang*

Nurul Farehan Ibrahim | *Universiti of Teknologi MARA, Penang*

Farah Hayati Mustafa | *Universiti of Teknologi MARA, Penang*

Li Sian Tey | *Universiti of Teknologi MARA, Penang*

### ACCMES-2662

#### **Linear Scheduling Model for A Road Maintenance Project Using a Non-Sequential Approach**

Shu-Shun Liu | *National Yunlin University of Science and Technology*

Agung Budiwirawan | *National Yunlin University of Science and Technology*

### ACCMES-2672

#### **Analysis of Oil Displacement by Water by Numerical Simulation in Two-Dimension and Application in Petroleum Reservoir**

Ahmad Fahim Nasiry | *Tokai University*

Abdul Jamil Nazari | *Tokai University*

### ACCMES-2339

#### **Investigation of a Miniature Stone Arch Bridge Composed of Stone Blocks and Backfill Sands**

Toshitaka Yamao | *Kumamoto University*

Kazuaki Kaneko | *Kumamoto University*

Akira Horita | *Kumamoto University*



**ACCMES-2396**

**Modeling of Setting Time and Microstructure of Ethyl Cellulose-Cement Pastes**

Ibtisam Mustafa Kamal Saifi | *Soran University*

Aryan far Haji Sherwani | *Soran University*

Ammar Ali Abed | *British Petroleum, RPSG-Irak*

Sarah Falih Kamil | *British Petroleum, RPSG-Irak*

Shorish Mustafa Goron | *Soran University*

Mohammad Amin Molod | *Soran University*

## Economics (2)

Thursday, July 21, 2016

14:45-16:15

Lavender

Session Chair: *Prof. Ho-Chyuan Chen*

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### **BREFM-5**

**FDI Policy, Multinationals Entry Mode and Quality-Technology Transfer**

Ho-Chyuan Chen | *National Chung-Cheng University*

### **BREFM-2014**

**Research on the Mechanism of Enterprise Upgrading Based on Evolutionary Economics**

Ye Yuan | *Beijing University of Technology*

### **BREFM-2023**

**Inequality in Food Consumption**

Ming-Feng Hsieh | *Tunghai University*

### **BREFM-2031**

**Influent Factors of the Farmer Decision for Cultivating Thai Local Breeding Rice**

Chaowana Phetcharat | *Chiang Mai University*

Nuttamon Teelakul | *Chiang Mai University*

Tuangporn Janthok | *Chiang Mai University*

### **BREFM-3492**

**Weather Conditions and Electoral Outcomes in Taiwan**

Li-Ju Chen | *University of Taipei*

### **BREFM-3528**

**Workers' Ability Index and Optimal Level of Schooling in Malaysian Service Sector**

Rahmah Ismail | *Universiti Kebangsaan Malaysia*

Wye Chung Khain | *Universiti Tunku Abdul Rahman*

Nur Shakira Lukman | *Universiti Kebangsaan Malaysia*

## Biological Engineering & Natural Science (3)

Thursday, July 21, 2016

14:45-16:15

Lilac

Session Chair: *Prof. Chung-Jen Ou*

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### ISBENS-24173

#### **Isomerization Reaction of $\alpha$ -Pinene using Catalyst Zr<sup>4+</sup>/NZ (Zirkonia/Natural Zeolite)**

Nanik Wijayati | *Semarang State University*

Handayani T. | *Semarang State University*

Supartono | *Semarang State University*

### ISBENS-24210

#### **Minimum Helios Orbital Modeling with Arduino® Nano Chips for Driving Solar Energy System**

Chung-Jen Ou | *Hsiuping University of Science and Technology*

### ISBENS-25268

#### **Preparation of Three-Dimensional Macroporous Cellulosic Hydrogels for Bone Tissue Engineering**

Zhi-Yao Dai | *National Taiwan University of Science and Technology*

Ming-Hua Ho | *National Taiwan University of Science and Technology*

### ISBENS-25269

#### **Preparation of Cement-Chitosan Electrospun Nanofibrous Scaffolds for Bone Tissue Engineering**

Wei-Li Chuang | *National Taiwan University of Science and Technology*

Ming-Hua Ho | *National Taiwan University of Science and Technology*

## Fundamental and Applied Sciences (2)

Thursday, July 21, 2016

14:45-16:15

Orchid

Session Chair: *Prof. Man Lai Tang*

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### GCEAS-580

#### **Optimisation of Crosslinking Reactions of Edible Starch Microparticles Using Response Surface Methodology (RSM)**

Anida Yusoff | *Universiti Teknologi MARA*

Saidatul Shamimi Saifuddin | *Universiti Teknologi MARA*

Khalilah Abd Khalil | *Universiti Teknologi MARA*

### GCEAS-593

#### **Effects of Hydrocolloids on Coating Performance, Oil Absorption and Microstructure of Banana (*Musa Acuminata*) Fritters**

Norizzah Abd Rashid | *Universiti Teknologi MARA*

Maryam Afifah Abd Latif | *Universiti Teknologi MARA*

Zaibunnisa Abdul Haiyee | *Universiti Teknologi MARA*

### GCEAS-594

#### **Characterization of Malaysian banana Starch and Flour from Tanduk and Awak Varieties**

Noorlaila Ahmad | *Universiti Teknologi MARA*

Norhidayah Mohamad | *Universiti Teknologi MARA*

Norziah Mohd Hani | *Universiti Sains Malaysia*

Nor Hasanah Hassan | *Universiti Teknologi MARA*

Asmeda Rejab | *Universiti Teknologi MARA*

### GCEAS-390

#### **Profile Likelihood Method for Analyzing Longitudinal Data**

Man Lai Tang | *Hang Seng Management College*

Ziqi Chen | *Central South University*

### GCEAS-416

#### **A Statistical Method for Analyzing Multivariate Current Status Data with Covariate Error**

Chi-Chung Wen | *Tamkang University*

## Material Science and Engineering (2)

Thursday, July 21, 2016

14:45-16:15

Iris

Session Chair: *Prof. Yujie Dong*

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### ACCMES-2261

#### **Synthesis of TiO<sub>2</sub> Nanotube at Different Anodizing Time and Annealing Temperature: Application for Corrosion Prevention of Stainless Steel 304**

Misriyani | *Alkhairaat University*

Jarnuzi Gunlazuardi | *Indonesia University*

### ACCMES-2333

#### **Adsorbability of Highly Porous Aluminum Oxide Ceramics**

Katalin Sinkó | *Eötvös University*

### ACCMES-2367

#### **Experiment Study on H<sub>2</sub>O Oxidation of Graphite for HTGR with Gas Chromatography**

Yangping Zhou | *Tsinghua University*

Yujie Dong | *Tsinghua University*

Ximing Sun | *Tsinghua University*

Zhengcao Li | *Tsinghua University*

Lei Shi | *Tsinghua University*

Zuoyi Zhang | *Tsinghua University*

### ACCMES-2627

#### **Experiment Study for Measuring Equivalent Boron Contents of Nuclear Graphite Relevant to HTGR with ICP-MS**

Ximing Sun | *Tsinghua University*

Yangping Zhou | *Tsinghua University*

Yujie Dong | *Tsinghua University*

Zhengcao Li | *Tsinghua University*

Lei Shi | *Tsinghua University*

Zuoyi Zhang | *Tsinghua University*

### ACCMES-2346

#### **Facile Synthesis of Urchin-Like Csxwo<sub>3</sub> Particles Using Bacterial Cellulose as Template by Hydrothermal Method**

Jing-Xiao Liu | *Dalian Polytechnic University*

Fei Shi | *Dalian Polytechnic University*

Chuan-Yan Fan | *Dalian Polytechnic University*

## Finance & Accounting (3)

Thursday, July 21, 2016

16:30-18:00

Lavender

Session Chair: *Prof. Weifeng Hung*

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### **BREFM-31**

**An Exploratory Look at the Management of Risk-Taking in Action and Its Effect on Profitability in Futures Market: Retail versus Institutional Traders**

Chao Hsien Lin | *National Kaohsiung First University of Science and Technology*

### **BREFM-2024**

**Distinct Reactions of Stock Market for Different Compensation Forms during the Chinese Split Share Reform**

Feng-Tse Tsai | *Asia University*

Ping-Chao Wu | *Asia University*

### **BREFM-2032**

**Analysis of Return and Medical Groups for Securities Risk that Register in the Stock Market Exchange of Thailand Using CAPM Theory**

Punchita Waithayawongsakul | *Kasem Bundit University*

Chamni Jaipradidtham | *Kasem Bundit University*

### **BREFM-2041**

**Labor Power and Dividend Policies: International Evidence**

In-Mu Haw | *Texas Christian University*

Bingbing Hu | *Hong Kong Baptist University*

Donghui Wu | *The Chinese University of Hong Kong*

Xu Zhang | *University of Macau*

### **BREFM-3507**

**Price Limit-Hits and Cross-sectional Stock Returns**

Weifeng Hung | *Feng Chia University*

Chaoshin Chiao | *National Dong Hwa University*

## **Society (2), Psychology & Politics**

**Thursday, July 21, 2016**

**16:30-18:00**

**Lilac**

Session Chair: *Prof. Tsuey-Ping Lee*

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### **CONFSS-4886**

#### **Natural Hazards and Residential Instability: A Longitudinal Analysis of Pervasive, Cumulative Effects on Socially Vulnerable Populations**

James R. Elliott | *Rice University*

Junia Howell | *Rice University*

### **CONFSS-5149**

#### **Environmental Attitude, Social Capital, and Participatory Willingness in Community with Visually Insignificant Contaminated Sites**

Tsuey-Ping Lee | *National Chung Cheng University*

Wan-Ying Tsai | *Sinotech Engineering Consultants, Inc*

### **CONFSS-5250**

#### **Research and Development of Thai e-Government utilization through Community Telecenters**

Rewat Sangsuriyong | *Burapha University*

### **CONFSS-5206**

#### **Factors Associating with Psychological Well-Being of Middle Aged Unmarried Single Men in South Korea**

Miai Sung | *Korea National Open University*



## Electrical and Electronic Engineering (2)

Thursday, July 21, 2016

16:30-18:00

Orchid

Session Chair: *Prof. Jamaaluddin Uddin*

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### GCEAS-505

#### **The Outage Cost Analysis for 22 KV Distribution System of Provincial Electricity Authority in Pattaya**

Chawalit Sahanonchaikun | *Kasetsart University*

Suphattharachai Chomphan | *Kasetsart University*

### GCEAS-544

#### **Comparison between Parameter Optimal and PID Type ILC for One-Link Robot Manipulator**

Mutita Songjun | *Naresuan University*

### GCEAS-605

#### **Effects of Assembly Parameters on a Proton Exchange Membrane Fuel Cell with Thin Metallic Bipolar Plates**

Sheng-Chun Su | *Chinese Culture University*

Chen-Yu Chen | *Chinese Culture University*

### GCEAS-633

#### **The CO Tolerance of a High Temperature Proton Exchange Membrane Fuel Cell Stack**

Shih-Ming Huang | *Chinese Culture University*

Chen-Yu Chen | *Chinese Culture University*

### GCEAS-645

#### **Short Term Load Forecasting New Year Celebration Using IntervalType-2 Fuzzy Inference System (Case Study: Java – Bali Electrical System)**

Jamaaluddin Uddin | *Institute of Technology, Sepuluh Nopember (ITS)*

Imam Robandi Robandi | *Institute of Technology, Sepuluh Nopember (ITS)*

**Civil Engineering (5), Material Science and Engineering (3) &  
Mechanical Engineering (3)**

**Thursday, July 21, 2016**

**16:30-18:00**

**Iris**

Session Chair: *Prof. Sirikul Siriteerakul*

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**GCEAS-667**

**Predicting the Construction Duration and Enhancing the Speed of Construction for High-Rise Private Building Projects in Hong Kong**

Daniel W.M. Chan | *The Hong Kong Polytechnic University*

Patrick T.I. Lam | *The Hong Kong Polytechnic University*

Albert P.C. Chan | *The Hong Kong Polytechnic University*

Elvis W.K. Lau | *The Technological and Higher Education Institute of Hong Kong*

Joe Y. Zhou | *The Hong Kong Polytechnic University*

**GCEAS-638**

**The Study of How Materials and Surface Shape of Kitchenware Affect Heat Conduction**

Nongrat Saensamaka | *King Mongkuts Institute of Technology Ladkrabang*

Nongram Saensamaka | *King Mongkuts Institute of Technology Ladkrabang*

Sirikul Siriteerakul | *King Mongkuts Institute of Technology Ladkrabang*

**ACCMES-2356**

**Experimental Study on the Mechanical Properties and Length Change of Concrete Produced with Varying Silt Contents of Fine Aggregate**

Shih Wei Cho | *China University of Science and Technology*

Chung-Chia Yang | *National Taiwan Ocean University*

**ACCMES-2647**

**Dip-Coating of Ti-6Al-4V Substrates with Carbonate Apatite Synthesized using a Planetary Ball Mill**

Astrid Ayla E. Liberato | *University of the Philippines*

Alberto V. Amorsolo, Jr | *University of the Philippines*

**GCEAS-591**

**Experimental Study on Velocity and Temperature of Turbulent Steam Jet**

Jinho Cha | *Chungnam National University*

Seungho Lim | *Chungnam National University*

Taejoon Kim | *Korea Hydro & Nuclear Power Co. Ltd*

Jaiho Lee | *Korea Hydro & Nuclear Power Co. Ltd*

Weon Gyu Shin | *Chungnam National University*

**GCEAS-600**

**Synthesis of ZnO Nanowires on Ni Coated Substrate**

Jeong Kyu Won | *Chungnam National University*

## ***Poster Session (1)***

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**Education/ Management/ Economics/ Finance & Accounting/  
Marketing/ Biological Engineering & Natural Science (1)**

**Wednesday, July 20, 2016**

**9:30-10:30**

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**CONFSS-4887**

**Teaching and Learning Paradigm Shift in Elementary Schools in Taiwan: Take Mathematics as an Example**

Huan-Sheng Peng | *National Hsinchu University of Education*

**CONFSS-5148**

**Comparative Study on the Development of Lifelong Learning for 21st Century among International Organizations and Professional Adult Education Organizations in Europe and America**

Ming Lieh Wu | *National Chi Nan University*

**CONFSS-5153**

**The Reliability of Imaginative Products Rubrics for College Students**

Chun-Wen Teng | *Feng Chia University*

Ya-Ling Tu | *Feng Chia University*

Bing-Jean Lee | *Feng Chia University*

Kuo-Cheng Tai | *Feng Chia University*

Ching-Yi Lee | *Feng Chia University*

Bo-Ting Wang | *Feng Chia University*

Chia-Cheng Chen | *National Taiwan University of Arts*

**CONFSS-5158**

**Developing CDIO-Based Creative Problem-Solving Rubrics: A Study of Engineering Education**

Bor-Tyng Wang | *Feng Chia University*

Ching-Yi Lee | *Feng Chia University*

Chuang-Chien Chiu | *Feng Chia University*

Chun-Wen Teng | *Feng Chia University*

**CONFSS-5195**

**Investigation of the Self-Determination Skills and Learning Adjustment of Taiwanese College Students with Disabilities**

Pen-Chiang Chao | *Chung Yuan Christian University*

**CONFSS-5245**

**A Profile of the Leisure Activities of College Students in Hong Kong**

Jofy Pang | *Hong Kong Baptist University*

**CONFSS-5252**

**A Content-Based Geography Course: Language Learning, Student Autonomy and IT**

Kurt Ackermann | *Hokusei Gakuen University Junior College*

**CONFSS-4127**

**A Study on Souvenir Purchase Behavior of Sports Tourists**

Chia-Ming Chang | *National Chiayi University*

Hsiu-Chin Huang | *National Chiayi University*

Tsung-Liang Lin | *Tatung Institute of Technology*

**CONFSS-5145**

**A Study on Participation Motivation, Leisure Benefit and Well-Being of Road Runners**

Chih Chiang Chung | *National Yunlin University of Science and Technology*

Chuang-Wen Liu | *National Yunlin University of Science and Technology*

Shen-Yu Chung | *National Yunlin University of Science and Technology*

**CONFSS-5199**

**How to Make Employees Willing to Participate in Training? A Case Study of Taiwanese High-Tech Companies**

Pei-Chen Chiang | *National Changhua University of Education*

Huo-Tsan Chang | *National Changhua University of Education*

**BREFM-10**

**The Correlation and Impact of Personality Traits, Job Characteristics, Emotional Intelligence toward Emotional Labor – A Study with Physicians as the Subjects**

Sheng Yu Yang | *Tainan Municipal Hospital./Org.*

**BREFM-18**

**Dynamic Capabilities and Firm Growth – The Largest Backlight Module Firm Case**

Ing Shane Yung | *National Chiayi University*

David Y. Chang | *National Chiayi University*

Hung Wen Lee | *National Chiayi University*

**BREFM-19**

**Study on the Acid Neutralizing Capacity of Common Antacids and Alkaline Foods toward Gastric Acid**

Hsiang Ting Wang | *Tainan Municipal Hospital./Org.*

**BREFM-34**

**The Mediating Role of Ambidextrous Innovation in Strategic Orientation and Firm Performance**

Yong-Hui Li | *National Pingtung University*

Jing-Wen Huang | *National Pingtung University*

**BREFM-3497**

**The Consequences of Not Being a Good Follower: A Two-Stage Mediation Model from Employee Prototype to Job Performance**

Chia-Wu Lin | *National Dong Hwa University*

**BREFM-8**

**A Scheduling Model with Solution Algorithm for Moving Companies**

Shangyao Yan | *National Central University*

James C. Chu | *National Taiwan University*

Wei-Che Hung | *National Central University*

**BREFM-3**

**Credit Research of P2P Network Based on User Behavior**

Xiao Ni Wen | *Xidian University*

Zhenqi Zhang | *Xidian University*

Xiaojuan Wu | *Xidian University*

**BREFM-3509**

**Corporate Social Responsibility, Managerial Ability, and Ownership Structure**

Shu-Hui Sue | *National Taichung University of Science and Technology*

Chien-Ju Lu | *Yuan Ze University*

**BREFM-3490**

**Reimagining Educational Marketing under the Context of Creativity in University**

Ching-Jung Hsieh | *WuFeng University*

**BREFM-3489**

**The Impact of Natural Disasters on Stock Markets: a Case Study in Taiwan**

Chueh-Yung Tsao | *Chang Gung University*

**ISBENS-24158**

**Expression of Human Growth Factors Using Heterologous Expression Platform**

Yong-Suk Jang | *Chonbuk National University*

Sun-Hee Jang | *Chonbuk National University*

Jisang Park | *Chonbuk National University*

Kwang Yeop Jahng | *Chonbuk National University*

Tae-Ho Kwon | *Chonbuk National University*

**ISBENS-24159**

**Germination Characteristics of Funiculus-Removed Glasswort (*Salicornia Herbacea*)  
Seeds under Various Salt Concentration**

Huo-Jin Jeon | *Chonbuk National University*

Seung-Jae Lee | *Chonbuk National University*

Jae-Hyeok Jeong | *National Institute of Crop Science*

Nam-Jin Chung | *Chonbuk National University*

**ISBENS-25272**

**Suppressive Effects of *Camellia japonica* Extract on Breast Cancer Stem Cell Survival  
and Proliferation**

Jisun Oh | *Kyungpook National University*

Yong Seob Jeong | *Chonbuk National University*

**ISBENS-25299**

**Mycofloral Diversity and Abundance in Korean Traditional Fermentation Starter Nuruk  
is Influenced by the Initial Moisture Content**

Jyotiranjana Bal | *Chonbuk National University*

Suk-Hyun Yun | *Chonbuk National University Wonkwang University*

Soo-Hwan Yeo | *NAAS, RDA*

Jung-Mi Kim | *Wonkwang University*

Beom-Tae Kim | *Chonbuk National University*

Seung-Moon Park | *Chonbuk National University*



Kwang-Yeop Jahng | *Chonbuk National University*

Dae-Hyuk Kim | *Chonbuk National University*

**ISBENS-25325**

**Metabolomics Analysis of Nuruk Starters for Korean Traditional Wine, Makgeolli, with Different Raw Materials and Water Content during Fermentation**

Jun Young Kim | *Chonbuk National University*

Sang Hwa Lee | *Chonbuk National University*

Jung Sup Song | *Chonbuk National University*

Beom-Tae Kim | *Chonbuk National University*

**ISBENS-25285**

**Functional Ingredients of *Saururus Chinensis* Grown in the Soils Applied with Different Levels of Phosphorus and Potassium Fertilizers**

Dong-Jin Kim | *Chonbuk National University*

Byung-Koo Ahn | *Jeollabuk-Do Agricultural Research and Extension Service*

Min-Jung Kim | *Chonbuk National University*

Sung-Eun Kim | *Chonbuk National University*

Jin-Ho Lee | *Chonbuk National University*

**ISBENS-25311**

**Fabrication and Evaluation of Polyurethane Foam for Application to Wound Dressing Material**

Oh Hyeong Kwon | *Kumoh National Institute of Technology*

Won Il Kim | *Wonbiogen Co., Ltd.*

**ISBENS-25284**

**Efficient Electrochemical Biosensor Based on Mesoporous Ceria-Carbon Composite**

Moon Il Kim | *Gachon University*

Eunae Kang | *POSTECH*

Jinwoo Lee | *POSTECH*

Hyun Gyu Park | *KAIST*

**Material Science and Engineering /**

**Computer and Information Sciences (1)**

**Wednesday, July 20, 2016**

**13:30-14:30**

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**GCEAS-654**

**Fiber Optic pH Sensor Based on Indium Gallium Zinc Oxide Coatings and Lossy Mode Resonance**

Chuen-Lin Tien | *Feng Chia University*

Hao-Sheng Mao | *Feng Chia University*

Bo-Wei Lee | *Feng Chia University*

**GCEAS-449**

**Supercapacitor Based on Self-Doped Polyaniline Assembled onto Carbon Nanoparticles**

Chien-Hsin Yang | *National University of Kaohsiung*

Po-Hsin Wang | *National University of Kaohsiung*

**GCEAS-450**

**Photopolymerization Preparation of Electroactive Film Applied to Full Polymer Electrochromic Device**

Chien-Hsin Yang | *National University of Kaohsiung*

Pei-Yu Chang | *National University of Kaohsiung*

**GCEAS-451**

**Synthesis and Size Control of Fe<sub>3</sub>O<sub>4</sub> Nanoparticles by Reduction of Fe(acac)<sub>3</sub> Using Ascorbic Acid**

Ajinkya Girish Nene | *Chubu University*

Makoto Takahashi | *Chubu University*

Koichi Wakita | *Chubu University*

Prakash Somani | *Chubu University*

Masayoshi Umeno | *Chubu University*

### **GCEAS-512**

#### **Hexa-peri-Hexabenzocoronene Derivatives by Intermolecular [2+2+2] Cyclotrimerization of Unsymmetric Diarylalkynes**

Hsu-Heng Hung | *National Kaohsiung Normal University*

Che-Wei Chang | *National Kaohsiung Normal University*

### **GCEAS-520**

#### **Preparation of ZnO and MgO Thin Films Deposited by Sol-Gel Spin Coating and Applied to Distributed Bragg Reflector**

Wen Cheng Tzou | *Southern Taiwan University of Science and Technology*

Hon Kuan | *Southern Taiwan University of Science and Technology*

Chi-Mang Tang | *Southern Taiwan University of Science and Technology*

### **GCEAS-579**

#### **Nano-Porous IrO<sub>2</sub> Electrode for Hydrogen-Rich Fuel Water Generation in Solar Cell-Assisted Water Electrolysis Cell**

Yi-Hao Pai | *National Dong Hwa University*

Zheng-Yu Li | *National Dong Hwa University*

Cheng-Kang Tsai | *National Dong Hwa University*

Chih-Cheng Kao | *Southern Taiwan University of Science and Technology*

### **GCEAS-587**

#### **Electrical Time Delay Using Optical Stimulated Brillouin Effect**

Wen-Piao Lin | *Chang Gung University*

Yu-Fang Hsu | *Chienkuo Technology University*

### **GCEAS-602**

#### **Dielectric Properties of Percolative BaTiO<sub>3</sub>/Al Composite Film Fabricated by Aerosol Deposition Process**

Jin Hyeon Kim | *Kwangwoon University*

Hyeong Jong Choi | *Kwangwoon University*

Hong-Ki Kim | *Kwangwoon University*

Young-Hie Lee | *Kwangwoon University*

### **GCEAS-603**

#### **Dielectric Performance of BaTiO<sub>3</sub>/Zn Composite Films Fabricated by Aerosol Deposition**

Hyeong Jong Choi | *Kwangwoon University*

Jin Hyeon Kim | *Kwangwoon University*

Hong-Ki Kim | *Kwangwoon University*

Young-Hie Lee | *Kwangwoon University*

### **ACCMES-2250**

#### **Desulfurization Slags of Steelmaking By-Product Used for Producing Green Alkali-Activated Binder Materials**

Chun Hung Chung | *National Taipei University of Technology*

Ming Sheng Ko | *National Taipei University of Technology*

### **ACCMES-2259**

#### **One-Step and Single Source Synthesis of Cu-Doped ZnO Nanowires on Flexible Brass Foil for High Performance Photocatalytic Applications**

Yu-Cheng Chang | *Feng Chia University*

Pei-Shih Lin | *National University of Kaohsiung*

Fu-Ken Liu | *National University of Kaohsiung*

### **ACCMES-2304**

#### **Fabrication of High Purity Nano-Sized Silica Powder by Sol-Gel Process Using Purification of Water Glass**

Tae-Geoung Kim | *Kumoh National Institute of Technology*

Hyun-Kwun Lee | *Kumoh National Institute of Technology*

### **ACCMES-2308**

#### **Functional Electromagnetic Shielding Elastic Composite Knits: Manufacturing Techniques and Physical Property Evaluations**

Chin-Mei Lin | *Asia University*

Chao-Tsang Lu | *Central Taiwan University of Science and Technology*

Pei-Chen Hsiao | *Asia University*

Jia-Horng Lin | *Feng Chia University*

Ching-Wen Lou | *Central Taiwan University of Science and Technology*

### **ACCMES-2309**

#### **Dissolution Behavior of Gypsum under High Pressure and High Temperature**

Pei-Lun Lee | *National Chiayi University*

**ACCMES-2343**

**Anionic-Nonionic Gemini Surfactant in the Properties of Dyeing Application**

Chiu-Chun Lai | *Chinese Culture University*

Shih-You Chen | *Chinese Culture University*

Min-Yan Dong | *Plastic Industry Development Center*

**ACCMES-2350**

**Development of PAHs-Free Process Oil from Biomass for EU REACH**

Yongwoo Kim | *Pusan National University*

Changmin Kang | *Korea Testing & Research Institute*

Changhwan Kim | *Nexen Tire Corp.*

Hansol Je | *Nexen Tire Corp.*

Okkyun Jeong | *UNS CHEM*

Hoon Jung | *UNS CHEM*

**ACCMES-2366**

**Effect of Microstructural Change on Mechanical Properties of CNT/Al Composites Fabricated with Differential Speed Rolling Process**

Haguk Jeong | *Korea Institute of Industrial Technology*

Jongbeom Lee | *Korea Institute of Industrial Technology*

Sangyong Park | *Korea Institute of Industrial Technology*

**ACCMES-2628**

**Novel Metal Wire Mesh/BiOBr Photocatalyst with Enhanced Photocatalytic Performance**

Chi-Jung Chang | *Feng Chia University*

Pei-Yao Chao | *Feng Chia University*

**ACCMES-2630**

**Cu<sub>2</sub>O Based Thin Film Solar Cells Fabricated by Sputtering Method**

Jae Yu Cho | *Chonnam National University*

Jaeyeong Heo | *Chonnam National University*

**ACCMES-2634**

**Characterization of SnS Thin Film according to Growth Temperature by E-Beam Evaporation**

Gwang Yeom Song | *Chonnam National University*

Jaeyeong Heo | *Chonnam National University*

**ACCMES-2683**

**Ultrathin Film Deposition for Si Anti-Reflection by Atomic Layer Deposition**

Kyeeun Kim | *Chonnam National University*

Gwang Yeom Song | *Chonnam National University*

Jin Hyeok Kim | *Chonnam National University*

Jong Ha Moon | *Chonnam National University*

Jaeyeong Heo | *Chonnam National University*

**ACCMES-2301**

**Energy Performance on Rooftop and Thermal Insulation Analysis for Porous Sintering Brick Integrated with Industrial Wastes**

Han-Hsi Liang | *National United University*

Hsueh-Hung Shih | *National United University*

Kevin Fong-Rey Liu | *Ming Chi University of Technology*

**ACCMES-2359**

**Core-Shell Structure WC/Co Composite Particles Synthesis by Electroless Plating**

Cheng-Chuan Wang | *Industrial Technology Research Institute (ITRI)*

Chia-Ying Yen | *Industrial Technology Research Institute (ITRI)*

An-Pang Chen | *Material and Chemical Research Laboratories (MCL)*

Hsin-Hwa Chen | *Material and Chemical Research Laboratories (MCL)*

**GCEAS-557**

**Comparison of CIGS Films Grown by RF and DC Sputtering**

Chih-Cheng Kao | *Southern Taiwan University of Science and Technology*

Yi-Hao Chen | *Southern Taiwan University of Science and Technology*

Hsiang-Jung Wu | *Southern Taiwan University of Science and Technology*

**GCEAS-683**

**The Effects of Thickness of a Low-Temperature Buffer Layer on the Characteristics of Nitrogen-polar GaN**

Shih-Wei Feng | *National University of Kaohsiung*

Yu-Yu Chen | *National University of Kaohsiung*

Fann-Wei Yang | *Southern Taiwan University of Science and Technology*

Qian Sun | *Yale University*

Jung Han | *Yale University*

**GCEAS-650**

**A Distance Technique for Term Assessment Applied to Reuters News Classification and Clustering**

Chien-Hsing Chen | *Ling Tung University*



**Biological Engineering & Natural Science (2)/**

**Geosciences and Petroleum Engineering**

**Wednesday, July 20, 2016**

**15:00-16:00**

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**GCEAS-403**

**Two-Stage Calibration Method to Adjust Risk of Hip Fracture in COPD Patient**

Hui-Wen Lin | *Soochow University*

Shih-Wei Huang | *Taipei Medical University*

**ISBENS-25266**

**Toxic Effects of Lysophosphatidylcholine on Human Endothelial Cells**

Jiang-Huei Jeng | *National Taiwan University Hospital*

Mei-Chi Chang | *Chang Gung University of Science and Technology*

Ru-Hsiu Cheng | *Taipei Medical University*

Chiu-Po Chan | *Chang Gung Memorial Hospital*

**ISBENS-25267**

**Toxic Effects of 7-Ketocholesterol on Human Endothelial Cells**

Jiang-Huei Jeng | *National Taiwan University Hospital*

Mei-Chi Chang | *Chang Gung University of Science and Technology*

Ru-Hsiu Cheng | *Taipei Medical University*

Chiu-Po Chan | *Chang Gung Memorial Hospital*

**ISBENS-24177**

**Enhancement of Microbial 2,4,6-Trinitrotoluene Degradation with Increased Toxicity by Exogenous Nutrient Amendment**

Chien-Cheng Chen | *National Kaohsiung Normal University*

**GCEAS-464**

**Functional Connectivity of the Central Autonomic Network in the Resting Brain**

Jia-Hong Sie | *National Yang-Ming University*

Shang-Yueh Tsai | *National Chengchi University*

Woei-Chyn Chu | *National Yang-Ming University*

Yuo-Hsien Shiau | *National Chengchi University*

**GCEAS-468**

**The Effects of Various Curvature of a Computer Mouse on Loading of the Carpal Tunnel in Computer Tasks**

Yi-Chuan Tsai | *Chung Shan Medical University*

Yu-Chi Chen | *China Medical University*

Peng-Cheng Sung | *Chaoyang University of Technology*

Shu-Zon Lou | *Chung Shan Medical University*

**GCEAS-546**

**Function of Chromokinesin KIF4A in Interphase**

Zi Jia Khong | *Nanyang Technological University*

Hoi Yeung Li | *Nanyang Technological University*

**GCEAS-562**

**Comparison of Muscle Activity and Spinal Curvature in the Sitting Position According to Seat Tilt**

JongEun Yim | *Sahmyook University*

KwangSun Do | *Sahmyook University*

**ISBENS-25265**

**Toxicity of Monosodium Glutamate on Zebra Fish Embryo (Danio Rerio)**

Aranya Ponpornpisit | *Chulalongkorn University*

Naowarat Suthamnatpong | *Chulalongkorn University*

## **GCEAS-585**

### **The Development of Motion Gaming System for Detecting the Loss of Cognitive Ability in Elderly**

Yen-Ting Chen | *Southern Taiwan University of Science and Technology*

Chun-Ju Hou | *Southern Taiwan University of Science and Technology*

Min-Wei Huang | *Chiayi Branch, Taichung Veterans General Hospital*

Siang Wang | *Southern Taiwan University of Science and Technology*

Jia-Ying Zhou | *Chiayi Branch, Taichung Veterans General Hospital*

## **ISBENS-24171**

### **Interlukin-8 Promotes Proliferation of Squamous Cell Carcinoma Cell Lines**

Chia-Hua Liang | *Chia Nan University of Pharmacy and Science*

Leong-Perng Chan | *Kaohsiung Medical University Hospital*

Ya-Ping Tseng | *National Cheng Kung University*

Pin-Ju Chen | *Chia Nan University of Pharmacy and Science*

Wan-Ting Chen | *Chia Nan University of Pharmacy and Science*

## **ISBENS-24180**

### **Development of Artificial Tears Solution with Anti-Inflammation Component for Dry Eye Syndrome Treatment**

Zhi Yu Chen | *Taipei Medical University*

Ya-Jung Hung | *National Taipei University of Technology*

Ching-Li Tseng | *Taipei Medical University*

Hsu-Wei Fang | *National Taipei University of Technology*

Feng-Huei Lin | *National Taiwan University*

## **ISBENS-24189**

### **Quality and Antioxidant Properties of Tofu Coagulated with Tsugaru Apple (*Malus domestica* Borkh) Juice**

Keum Il Jang | *Chungbuk National University*

Seung-Hyeon Cha | *Chungbuk National University*

Ji-Eun Ryu | *Chungbuk National University*

Jeong-Youn Yi | *Chungbuk National University*

Dong-Ho Kim | *Chungbuk National University*

**ISBENS-24196**

**Determination of Total Dietary Fiber Content in the Korean Take-out Foods Mucim, Bokkeum, Guk, and Tang**

Keum Il Jang | *Chungbuk National University*

Seung-Hyeon Cha | *Chungbuk National University*

Ji-Eun Ryu | *Chungbuk National University*

Jeong-Youn Yi | *Chungbuk National University*

Dong-Ho Kim | *Chungbuk National University*

**ISBENS-24197**

**Quality and Storage Properties of Hamburger with Reduced Sodium Content**

Keum Il Jang | *Chungbuk National University*

Seung-Hyeon Cha | *Chungbuk National University*

Ji-Eun Ryu | *Chungbuk National University*

Jeong-Youn Yi | *Chungbuk National University*

Dong-Ho Kim | *Chungbuk National University*

**ISBENS-24199**

**Quality and Storage Properties of Salted Egg with Reduced Sodium Content**

Keum Il Jang | *Chungbuk National University*

Seung-Hyeon Cha | *Chungbuk National University*

Ji-Eun Ryu | *Chungbuk National University*

Jeong-Youn Yi | *Chungbuk National University*

Dong-Ho Kim | *Chungbuk National University*

**ISBENS-25315**

**Investigate the Effect of Different DHS Plate Lengths on Femur**

Kuo-Chih Su | *Taichung Veterans General Hospital*

Kui-Chou Huang | *Taichung Veterans General Hospital*

**ISBENS-25297**

**Separation of Concanavalin A and Bio-Sugar Production from *Canavalia Ensiformis* Seeds Using Magnetic Glyconanoparticles**

Eun Jin Cho | *Chonnam National University*

Hyeun-Jong Bae | *Chonnam National University*

**ISBENS-24170**

**Bioactive Molecules-Loaded Asymmetrically Porous Membrane for Effective Tracheal Tissue Regeneration**

So Ri Lee | *Hannam University*

Tae Ho Kim | *Hannam University*

Seong Keun Kwon | *Seoul National University Hospital*

Jin Ho Lee | *Hannam University*

**ISBENS-24160**

**Measurement of Piezoelectric Response of ZnO Thin Film Using a Periodic Force Generator**

Da-Long Cheng | *Shu-Te University*

Kuo-Sheng Kao | *Shu-Te University*

Jia-Cing Xu | *Shu-Te University*

Wei-Tsai Chang | *Metal Industries Research and Development Center*

Yung-Mao Cheng | *Metal Industries Research and Development Center*

Chia-Hua Liang | *Chia Nan University of Pharmacy and Science*

**ISBENS-24172**

**Diversity and Structure of Soil Bacterial Communities under Long-Term Application of Different Quality of Organic Residues in Tropical Sandy Soil**

Phrueksa Lawongsa | *Khon Kaen University, Faculty of Agriculture*

Patma Vityakon | *Khon Kaen University, Faculty of Agriculture*

**ISBENS-24192**

**Variation in Grain Iron and Zinc Concentration among a Promising Low-Grain Cadmium Rice (*Oryza sativa L.*) Cultivars**

Anongnat Sriprachote | *Khon Kaen University*

Kanolpornth Manantapong | *Kasetsart University*

Pornthiwa Kanyawongha | *King Mongkut's Institute of Technology Ladkrabang*

Kumiko Ochiai | *Kyoto University*

Toru Matoh | *Kyoto University*

**ISBENS-24198**

**The Effect of Different Ages of Rubber Tree Plantation on Carbon Stock**

Porntip Puttaso | *Khon Kaen University, Faculty of Agriculture*

Naruemol Kaewjampa | *Faculty of Forestry, Kasetsart University*

Phruksa Lawongsa | *Khon Kaen University, Faculty of Agriculture*

**ISBENS-24169**

**Antioxidant Properties of *Salviae Miltiorrhiza* by Using Different Concentrations of Ethanolic**

Shu-Hua Chiang | *Fo Guang University*

Chuan-Hsiao Han | *Fo Guang University*

Shih-Wen Wu | *Fo Guang University*

**GCEAS-549**

**Selection of Decline Curve Method Using the Cumulative Production Incline Rate for Transient Production Data Obtained from a Multi-Stage Hydraulic Fractured Horizontal Well in Unconventional Gas Field**

Dongkwon Han | *Dong-A University*

Hyeongjun Seo | *Dong-A University*

Sunil Kwon | *Dong-A University*

**ACCMES-2655**

**The Potential of Amino Chelating on Synthetic Fibers for Heavy Metal Removal**

Patcharin Racho | *Suranaree University of Technology*

Pinitta Phalathip | *Suranaree University of Technology*

Warutai Dejtanon | *Nakhon Ratchasima Rajabhat University*

**ISBENS-25290**

**The Association of Oxytocin-Related Signaling with Preeclamptic Human Placenta**

Jae-Eon Lee | *Pusan National University*

Beum-Soo An | *Pusan National University*

**ISBENS-25292**

**Therapeutic Effect of *Schisandra Chinensis* on the Hyperprolactinemia by the Regulation of Prolactin Production in the GH3 Rat Pituitary Tumor Cells**

So-Hye Hong | *Pusan National University*

### Environmental Sciences/ Mechanical Engineering

Wednesday, July 20, 2016

16:30-17:30

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**ACCMES-2272**

**Comparison of UV-C and UV-C LED Germicidal Efficiency for Potable Water Use**

Sook Hyun Nam | *Korea Institute of Civil Engineering and Building Technology*

Eun Ju Kim | *Korea Institute of Civil Engineering and Building Technology*

Tae Mun Hwang | *Korea Institute of Civil Engineering and Building Technology*

**ACCMES-2287**

**Application of a Unique Antimicrobial Agent on Surgical Face Masks before Use for Pre-Decontamination of Nosocomial Infection-Related Bioaerosols**

Chun Chieh Tseng | *Tzu Chi University*

**ACCMES-2288**

**Biodiesel Production via Transesterification in Carbon Dioxide–Methanol Mixtures: the Role of Heterogeneous Catalysts**

Chun-Chi Chen | *Industrial Technology Research Institute*

Lindsay Soh | *Yale University*

Thomas Kwan | *Yale University*

Julie B. Zimmerman | *Yale University*

**ACCMES-2292**

**Photoreaction of Functionalized Carbon Nanotubes in Water**

Chia-Ying Chen | *National Chung Hsing University*

Yu Huang | *National Chung Hsing University*

Yen-Chun Chen | *National Chung Hsing University*

Richard G. Zepp | *United States Environmental Protection Agency*

**ACCMES-2298**

**Phosphorus Removal Efficiency of Crystallization-Filtration Process by Seed Materials and pH**

HyangYoun Chang | *University of Science and Technology*

HyunMan Lim | *Korea Institute of Civil Engineering and Building Technology*

KwangHo Ahn | *Korea Institute of Civil Engineering and Building Technology*

SeogKu Kim | *University of Science and Technology*

WeonJae Kim | *University of Science and Technology*

**ACCMES-2314**

**Synthesis of Fe-Sodalite and Co-Sodalite and Its Application for Phosphate Removal at Different pH Conditions**

Minji Kim | *University of Science and Technology*

Sungyoun Kim | *Korea Institute of Civil Engineering and Building Technology*

Kwangsoo Kim | *Korea Institute of Civil Engineering and Building Technology*

Hyunchul Park | *University of Science and Technology*

Abdul Aziz | *University of Science and Technology*

**ACCMES-2322**

**Characteristic and Treatment of High Concentration Wastewater Generated by Biomass Gasification**

Kwangho Ahn | *Korea Institute of Civil Engineering and Building Technology*

I-Tae Kim | *Korea Institute of Civil Engineering and Building Technology*

Wonjae Kim | *Korea Institute of Civil Engineering and Building Technology*

Jinhong Jung | *Korea Institute of Civil Engineering and Building Technology*

Hyunman Lim | *Korea Institute of Civil Engineering and Building Technology*

**ACCMES-2328**

**Evaluation of Pollutants from Vehicle Emission in Electronic Toll Collection System on Highway**

Pao Kuei Hsiao | *National Taiwan University*

Shih-Chun Candice Lung | *Academia Sinica*

Ching-Huang Lai | *National Defense Medical Center*



#### **ACCMES-2330**

##### **Diurnal Variability of Water Temperature, pH and DO in the Underground Type Fish Shelter**

Chang Hyuk Ahn | *Korea Institute of Civil Engineering and Building Technology*

Saeromi Lee | *Korea Institute of Civil Engineering and Building Technology*

Ho Myeon Song | *Korea Institute of Civil Engineering and Building Technology*

Jin Chul Joo | *Hanbat National University*

Jae Roh Park | *Korea Institute of Civil Engineering and Building Technology*

#### **ACCMES-2340**

##### **Characterization of Micro-Bubble Generation Properties in DAF Systems to Remove Algae and Suspended Solids**

Hyun Man Lim | *Korea Institute of Civil Engineering and Building Technology*

Weon-Jae Kim | *Korea Institute of Civil Engineering and Building Technology*

Young-H. Yoon | *Korea Institute of Civil Engineering and Building Technology*

Jin-Hong Jung | *Korea Institute of Civil Engineering and Building Technology*

Jae-Roh Park | *Korea Institute of Civil Engineering and Building Technology*

#### **ACCMES-2342**

##### **Evaluation of Photo-Oxidation Effect Using TiO<sub>2</sub> Coated EPS (Expanded Polystyrene) in the Stagnant Stream Channel**

Saeromi Lee | *Korea Institute of Civil Engineering and Building Technology*

Chang Hyuk Ahn | *Korea Institute of Civil Engineering and Building Technology*

Jin Chul Joo | *Hanbat National University*

Jae Roh Park | *Korea Institute of Civil Engineering and Building Technology*

#### **ACCMES-2348**

##### **The Impact of School-Age Children on Brominated Persistent Organic Pollutants in the Indoor Dust from the Elementary Schools**

How-Ran Chao | *National Pingtung University of Science and Technology*

Cheng-Chih Kao | *National Pingtung University of Science and Technology*

Danielle E Que | *Mapúa Institute of Technology*

#### **ACCMES-2354**

##### **To Establish an Integrative Information System for Debris-Flow Disaster**

Yuan-Fan Tsai | *National Taipei University of Education*

Chun-Hsiang Chan | *National Taiwan University*

Yuan-Ning Chan | *National Taipei University of Education*

### **GCEAS-681**

#### **A Study on the Performance Test of Evaporated Fuel Treatment Device in the Automobile**

Mi-Jin Jeon | *Korea Testing Laboratory*

Myung-Seop Shin | *Korea Testing Laboratory*

Yong-Woo Jeon | *Korea Testing Laboratory*

### **ACCMES-2378**

#### **Emissions of Persistent Organic Pollutants from a Diesel Engine Using an Aged Diesel Particulate Filters**

Lin-Chi Wang | *Cheng Shiu University*

Wen-Jhy Lee | *National Cheng Kung University*

Shun-I Shih | *Kun Shan University*

John Kennedy Mwangi | *National Cheng Kung University*

### **ACCMES-2386**

#### **Investigating the Influence of Consumers' Green Awareness and Lifestyle on Green Consumption Behavior**

Yi-Wen Liao | *Chia Nan University of Pharmacy & Science*

Zhi-Yuan Su | *Chia Nan University of Pharmacy & Science*

### **ACCMES-2401**

#### **Atomic-Scale Storage Mechanism Studies of the Advanced Anode Materials for Energy Storage**

Xi Wang | *National Institute for Materials Science (NIMS)*

Yoshio Bando | *National Institute for Materials Science (NIMS)*

### **ACCMES-2618**

#### **Nano-Structured Hydroxyapatite with High Surface Area**

Jinsu Kim | *Pusan National University*

Nonni Soraya Sambudi | *Pusan National University*

Husnul Aulia Alamudy | *Pusan National University*

Loc Thien Tran Duong | *Pusan National University*

Cho Kuk | *Pusan National University*

**ACCMES-2629**

**Preparation of Bi<sub>2</sub>O<sub>3</sub>/TiO<sub>2</sub> Fixed Photocatalysts and Degradation of Aqueous Bisphenol A under Simulated Sunlight**

Chao-Yin Kuo | *National Yunlin University of Science and Technology*

Tzu-Hsuan Li | *National Yunlin University of Science and Technology*

Siang-En Syu | *National Yunlin University of Science and Technology*

**GCEAS-439**

**The Efficiency of Lead Leachate from Hazardous Fly Ash Using Microwave Treatment**

Chih Mei Chou | *JinWen University of Science Technology*

**GCEAS-483**

**Analysis on Trend of Wildfire and Their Impact on Atmospheric Environment over East Asia**

Kwon-Ho Lee | *Gangneung-Wonju National University*

Mi-Kyung Choi | *Gangneung-Wonju National University*

Sung-Kyun Shin | *Gangneung-Wonju National University*

**GCEAS-488**

**Construction of Microbial Fuel Cells That Produce Beneficial Compounds**

Shohei Ebe | *Kindai University*

Tatsuya Ohike | *Kindai University*

Masahiro Okanami | *Kindai University*

Takashi Ano | *Kindai University*

**GCEAS-489**

**Integrated Remote Sensing Techniques for the Investigation of Aerosol Properties during the High PM<sub>10</sub> Events at Gwangju, Korea**

Kwon-Ho Lee | *Gangneung-Wonju National University*

Sung-Kyun Shin | *Gangneung-Wonju National University*

### **GCEAS-563**

#### **Potential of an Actinobacterium for Biological Control**

Minori Maeda | *Kindai University*

Yoshihiro Uetsuki | *Kindai University*

Masahiro Okanami | *Kindai University*

Tatsuya Ohike | *Kindai University*

Tetsuya Matsukawa | *Kindai University*

Takashi Ano | *Kindai University*

Shin'ichiro Kajiyama | *Kindai University*

### **GCEAS-457**

#### **Noise Immune Capacity Study of Temporal and Spatial Isochromatic Unwrapping of Digital Photoelasticity**

Min-Jui Huang | *National Chung Hsing University*

Jing-Tai Wu | *National Chung Hsing University*

### **GCEAS-459**

#### **Identification of an Electromagnetic Energy Harvester with New Fitness Functions**

Tsung-Liang Wu | *National Kaohsiung First University of Science and Technology*

Yu-Hong Lai | *National Kaohsiung First University of Science and Technology*

Rong-Fong Fung | *National Kaohsiung First University of Science and Technology*

### **GCEAS-552**

#### **Heat Transfer Characteristics by Using Nano Fluid in Micro Heat Exchanger**

Hyomin Jeong | *Gyeongsang National University*

Hanshik Chung | *Gyeongsang National University*

Sunchul Huh | *Gyeongsang National University*

Junhyo Kim | *Mokpo National Maritime University*

### **GCEAS-609**

#### **Effect of Dropwise Condensation Heat Transfer and Durability on SAMs Surface**

Tsung-Sheng Sheu | *ROC Military Academy*

Yun-Cheng Pan | *National Kaohsiung University of Applied Sciences*

Jin-Cherng Shyu | *National Kaohsiung University of Applied Sciences*

**GCEAS-454**

**A Comparative Study for Thermal Characteristics Using Oxidized Carbon Nanotube  
Nanofluids**

Young-Hun Kim | *Jeju National University*

Da-Min Shim | *Jeju National University*

Nam-Jin Kim | *Jeju National University*

## Poster Session (5)

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**Civil Engineering/ Electrical and Electronic Engineering /**

**Fundamental and Applied Sciences (1)**

**Thursday, July 21, 2016**

**9:30-10:30**

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**ACCMES-2247**

**Application of a Water-Saturated MEPCM-PV for Reducing Winter Chilling Damage on Aqua Farms**

C.J. Ho | *National Cheng Kung University*

Rong-Horng Chen | *National Chiayi University*

Wei-Len Chou | *National Cheng Kung University*

Chi-Ming Lai | *National Cheng Kung University*

**ACCMES-2256**

**How Inquiry Project-Based Instruction Affect the Vocational High School Students' Learning Performance**

Shiang-Yao Liu | *National Taiwan Normal University*

Chien-Cheng Tsai | *National Tainan Vocational High School*

Chi-Ming Lai | *National Cheng-Kung University*

**ACCMES-2358**

**Static Approach for Damage Detecting by Stiffness Change of Element**

Hee-Chang Eun | *Kangwon National University*

Dong-Ho Cho | *Kangwon National University*

Young-Ji Choi | *Kangwon National University*

Eun-Taik Lee | *Chung-Ang University*

**ACCMES-2621**

**Boundary Effect on the Vibration of Layered Stone Pagoda**

Byeong Hwa Kim | *Kyungnam University*

Do Hyung Lee | *Paichai University*

**ACCMES-2389**

**Physical Performances Evaluation of Tiles Manufactured from Clay, Sewage Sludge Ash, and Waste Glass**

Deng-Fong Lin | *I-Shou University*

Huan-Lin Luo | *I-Shou University*

Jiin-Po Yeh | *I-Shou University*

Che Kun Liu | *I-Shou University*

**ACCMES-2633**

**KLAPS Rainfall Forecasting Model Evaluation Applied the Lag-Time**

Myoungsun Han | *Korea Institute of Civil engineering and Building Technology*

Jeongho Choi | *Chosun College of Science & Technology*

Dongryul Lee | *Korea Institute of Civil engineering and Building Technology*

**ACCMES-2300**

**Tide-Induced Groundwater Head Fluctuation in a Double Porosity Unconfined Aquifer**

Mo Hsiung Chuang | *Ming-Chuan University*

Hund-Der Yeh | *National Chiao Tung University*

**ACCMES-2625**

**Impact Model Test of a Debris Flow Mitigation System**

K.S. Lee | *Dasan Engineering Co.,LTD.*

S.H. Cho | *Dasan Engineering Co.,LTD.*

J.H. Kim | *Dasan Engineering Co.,LTD.*

B.S. Yoo | *Dasan Engineering Co.,LTD.*

**GCEAS-596**

**An Experimental Study on Geotechnical Measurement Technique Using Metallic Time Domain Reflectometry**

Dae Sung Kim | *Kyungil University*

Ji Hyeung Yoo | *Kyungil University*

Seung Won Lee | *Kyungbok University*

### **GCEAS-682**

#### **Prediction of Settling Velocity of Weathered Soil using Digital Image Processing**

Donggeun Kim | *Seoul National University*

Younghwan Son | *Seoul National University*

Ho-Sup Jung | *Seoul National University*

Jaesung Park | *Seoul National University*

Taekang Yun | *Seoul National University*

Sanghyub Lee | *Seoul National University*

### **GCEAS-641**

#### **Inductive Coupling Wireless Power Transfer with a LLC Resonant Operation for over Coupled Tx-Rx Inductors**

Kang Hyun Yi | *Daegu University*

### **GCEAS-407**

#### **Effects of V-Doping on the Structural and Electrical Properties of $\text{MBi}_4\text{Ti}_4\text{O}_{15}$ (M=Ca and Sr) Thin Films Prepared by a Chemical Solution Deposition**

Sang Su Kim | *Changwon National University*

Ji Ya Choi | *Changwon National University*

Chinnambedu Murugesan Raghavan | *Changwon National University*

### **GCEAS-422**

#### **Experimental Investigation of Fiber-Bragg-Grating Fiber Lasers and Hybrid PDMOCMA on Wireless Optical Communications**

Po-Yen Huang | *National Formosa University*

Bo-Rong Huang | *National Formosa University*

Sin-Ting Guo | *National Formosa University*

Hsu-Chih Cheng | *National Formosa University*

### **GCEAS-423**

#### **Common-Path FD-OCT Based on Orthogonally Polarized Light and Phase-Shifting Algorithm**

Jian-Sian Jiang | *National Formosa University*

Yu-An Chen | *National Formosa University*

Hsu-Chih Cheng | *National Formosa University*



#### **GCEAS-476**

##### **Intelligent Cognitive Radio Engine Design Using Biogeography Based Optimization**

Jung-Chieh Chen | *National Kaohsiung Normal University*

Kai-Hsiang Chen | *National Kaohsiung Normal University*

#### **GCEAS-478**

##### **Preparation and Characterization of Graphene-Based Flexible Electrodes for Supercapacitors**

Tzu-Yu Cheng | *National Tsing Hua University*

Chen-Chi M. Ma | *National Tsing Hua University*

Sheng-Chi Lin | *National Tsing Hua University*

Jeng-An Wang | *National Tsing Hua University*

Chin-Wen Lin | *National Tsing Hua University*

#### **GCEAS-485**

##### **Failure Detection Method of Mecanum-Wheeled Automated Guided Vehicle Using Decision Tree Learning**

Jong Shik Kim | *Pusan National University*

Seongbae Park | *Pusan National University*

Sang-Hyo Jeong | *Pusan National University*

#### **GCEAS-515**

##### **Design of Adaptive Wavelet Neural Network Control for Active Suspension System**

Chiu-Hsiung Chen | *National Chung-Shan Institute of Science and Technology*

Chiung-Chou Liao | *Chien Hsin University of Science and Technology*

Yen-Bin Chen | *National Chung-Shan Institute of Science and Technology*

#### **GCEAS-545**

##### **Electrochemical Activities of Various Chemically Reduced Graphene Electrodes for Use in Vanadium Redox Flow Batteries**

Chih-Wen Lin | *National Tsing Hua University*

Tzu-Yu Cheng | *National Tsing Hua University*

Sheng-Chi Lin | *National Tsing Hua University*

Jeng-An Wang | *National Tsing Hua University*

Chen-Chi M. Ma | *National Tsing Hua University*

#### **GCEAS-569**

##### **LDPC Coded and Decoded Application Systems Using FPGA Design**

Hendrick | *National Kaohsiung University of Applied Sciences*

Cheng-Song Song | *National Kaohsiung University of Applied Sciences*

Su-Yuan Huang | *National Kaohsiung University of Applied Sciences*

Feng-Teng Chang | *National Kaohsiung University of Applied Sciences*

Jia-Wei Liou | *National Kaohsiung University of Applied Sciences*

Gwo-Jia Jong | *National Kaohsiung University of Applied Sciences*

#### **GCEAS-574**

##### **An Analysis Method Using Recurrence Plot for Walking Signal Generated by Electrostatic Induction**

Koichi Kurita | *Kindai University*

Naoya Takehisa | *Kindai University*

#### **GCEAS-588**

##### **LEGO System Using Sensors for Education**

Kaoru Kouzu | *Kokushikan University*

Zhang Jiaming | *Kokushikan University*

#### **GCEAS-597**

##### **State of Charge Estimation for LFP Battery Using Fuzzy Neural Network**

Wen-Yeau Chang | *St. John's University*

#### **GCEAS-610**

##### **A 40 GHz Low Power and Low Phase Noise Voltage-Controlled Oscillator**

Ro-Min Weng | *National Dong Hwa University*

Ren-Yuan Huang | *National Dong Hwa University*

Yu-Chuan Chiu | *National Dong Hwa University*

#### **ACCMES-2319**

##### **Demonstration Study of Multi-Functioned Floating Treatment Wetlands for Improving Water Quality in Stagnant Artificial River**

Younghan Yoon | *Korea Institute of civil Engineering and Building Technology*

Hyun Man Lim | *Korea Institute of civil Engineering and Building Technology*

Won Jae Kim | *Korea Institute of civil Engineering and Building Technology*

Jae Ro Park | *Korea Institute of civil Engineering and Building Technology*

**GCEAS-441**

**Comparison of Physiological Load among Different Sizes of Computer Mouse**

Yao-Wen Hsu | *Ta-Hwa University of Science and Technology*

Lieh Chen | *Ta-Hwa University of Science and Technology*

**Chemical Engineering/**

**Biological Engineering & Natural Science (3) /**

**Fundamental and Applied Sciences (2)/**

**Computer and Information Sciences (2)**

**Thursday, July 21, 2016**

**11:00-12:00**

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**GCEAS-414**

**Effect of Composition on the Photocatalytic Activity of the M<sub>x</sub>-Cd<sub>1-x</sub>S (M= Cu, Fe, Zn, Co, Ni, Mn and In) Arrays**

Yu-Ching Weng | *Feng Chia University*

Hao Chang | *Feng Chia University*

**GCEAS-466**

**One Pot Synthesis, Characterization, Biodegradation and Effect of the Crosslinking Agent of Semi-Interpenetrating Polymer Network Hydrogel Based on PVA/ Corn Starch and Acrylic Acid**

Nittha Koohatammakun | *Ubon Ratchathani University*

Sayant Saengsuwan | *Ubon Ratchathani University*

**GCEAS-550**

**Synthesis of Phosphorus and Calcium with Hydrothermal Treatment on Biodegradable Mg**

Yu-Kyoung Kim | *Chonbuk National University*

Min-Ho Lee | *Chonbuk National University*

**GCEAS-626**

**Properties of Oxidized Cellulose from Bacterial Cellulose**

Supitcha Rungrodmitchai | *Thammasat University*

Suphatra Hiranphinyophat | *Thammasat University*

### **GCEAS-659**

#### **Techno-Economic Analysis of Enhanced Absorber-Regenerator Configurations in Acid Gas Removal Processes**

Riezqa Andika | *Yeungnam University*

Le Cao Nhien | *Yeungnam University*

Moonyong Lee | *Yeungnam University*

### **GCEAS-540**

#### **Development of Paired Electrolysis in Ionic Liquid Medium towards Electro-Generation of Homogeneous Catalysts for Environmental Applications**

Muthuraman Govindan | *Sunchon National University*

Kannan Karunakaran | *Sunchon National University*

Il Shik Moon | *Sunchon National University*

### **ISBENS-24200**

#### **Soil Properties and Nutrient Concentrations of Oil Palm Leaf Collected from Small Orchards on the Southern Central Plain of Thailand**

Pornthiwa Kanyawongha | *King Mongkut's Institute of Technology Ladkrabang*

Anongnat Sriprachote | *Khon Kaen University*

Nucharee Boonplang | *King Mongkut's Institute of Technology Ladkrabang*

### **ISBENS-25275**

#### **Characteristics of Macroinvertebrate Community Structure and Organic Enrichment during Autumn in the Mouth of Muan Bay, Korea**

Kyoung Seon Lee | *Mokpo Maritime University*

### **ISBENS-25277**

#### **Evaluation of Horticultural Traits and Genetic Relationship in Melon Germplasm**

Jaemin Jung | *Pusan National University*

Sunghwan Choi | *Pusan National University*

Juyeol Oh | *Gyeongnam Agricultural Research & Extension Services*

Younghoon Park | *Pusan National University*

### **ISBENS-25280**

#### **Transgenic Zebrafish as a Biosensor for Environmental Toxicants**

Huai-Jen Tsai | *Mackay Medical College*

Hung-Chieh Lee | *Mackay Medical College*

Cheng-Yung Lin | *Mackay Medical College*

**ISBENS-25296**

**A Novel Screen for Adjunct Medications in Dementia**

Eun-Mee Kim | *Ulster University*

Jeong-Sup Hong | *Yonam College*

Eugene OHare | *Queens University*

**ISBENS-25312**

**Using Biomarker to Assess Sub Chronic Effects of Cadmium on Tropical Chironomid under the Effect of Temperature**

Chuleemas Boonthai Iwai | *Khon Kaen University*

Atcharaporn Somparn | *Integrated Water Resource Management Research and Development Center in Northeast Thailand*

**GCEAS-595**

**Fabrication and Durability in Water of Bilayer Capsules as an Active Compound Delivery Vehicle for Shrimp**

Peerapong Srichai | *King Mongkut's University of Technology Thonburi*

Tipaporn Yoovidhya | *King Mongkut's University of Technology Thonburi*

Wanilada Rungrasamee | *National Center for Genetic Engineering and Biotechnology*

Saowakon Wongsasulak | *King Mongkut's University of Technology Thonburi*

**GCEAS-674**

**Functional Differences of AquaporinZ in Different Lipid Membranes**

Xinshan Lim | *National University of Singapore*

Qingsong Lin | *National University of Singapore*

#### **GCEAS-406**

##### **The Hierarchical Tour-Sites Recommendation Mechanism for Tourism Navigation Systems**

Gwo-Jiun Horng | *Southern Taiwan University of Science and Technology*

Chih-Lun Chou | *Ming Chuan University*

#### **GCEAS-424**

##### **Robust Patch-Based Food Recognition**

Duan-Yu Chen | *Yuan Ze University*

Hao-Syuan Wang | *Yuan Ze University*

#### **GCEAS-425**

##### **A Member's Reference Degree Analysis Approach for Virtual Community**

Shih-Ting Yang | *Nanhua University*

Yu-You Chen | *Nanhua University*

#### **GCEAS-461**

##### **Automatic Computer-Aided Diagnosis of Breast Cancer in Digital Mammograms via Deep Belief Network**

Mohammed A. Al-masni | *Kyung Hee University*

Sung-Un Park | *Kyung Hee University*

JunHyeok Park | *Kyung Hee University*

Yasser M. Kadah | *King Abdulaziz University*

Seung-Moo Han | *Kyung Hee University*

Tae-Seong Kim | *Kyung Hee University*

Mugahed A. Al-antari | *Kyung Hee University*

#### **GCEAS-507**

##### **An Optimization Approach for Threshold Secret Image Sharing Based on the XOR Operation**

Kai-Hui Lee | *Ming Chuan University*

Pei-Ling Chiu | *Ming Chuan University*

#### **GCEAS-534**

##### **Runtime Image Management Policy of the Cache Image Loading Method**

Hyo-Joong Suh | *The Catholic University of Korea*

**GCEAS-537**

**Adaptive NPC Navigation via Automatic Waypoint Modification**

Kyeonah Yu | *Duksung Women's University*

**GCEAS-612**

**The Development of a Mobile Image Retrieval Application Based on BRIEF Features**

Ding-Horng Chen | *Southern Taiwan University of Science and Technology*

Tsai-Rong Chang | *Southern Taiwan University of Science and Technology*

Chun-Sheng Tu | *Southern Taiwan University of Science and Technology*

**GCEAS-624**

**Standard Based Healthcare Service Integration Model for Mobile Health Applications**

Surin Kim | *Gachon University*

Heejoung Hwang | *Gachon University*

**GCEAS-628**

**Effects of Non-Overlapped Implantation (NOI) Synaptic MOSFET Models on the Analog Artificial Neural Network Circuit**

Shang Wei Chou | *Chun-Yuan Christian University*

Hong Xiu Chen | *Chun-Yuan Christian University*

Yueh Lin Chiang | *Chun-Yuan Christian University*

Jhong Jyun Cai | *Chun-Yuan Christian University*

Erik S. Jeng | *Chun-Yuan Christian University*

**GCEAS-643**

**Blurry Video Frame Classification for Computer-Assisted Diagnosis in Endoscopy**

Chia-Hsiang Wu | *I-Shou University*

Mei-Yun Su | *I-Shou University*

Chien-Chen Chang | *National Cheng Kung University Hospital & Medical College*





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