

出國報告（出國類別：出席國際研討會發表論文）

出席「2012年國際航空太空工程 研討會」會議報告

服務機關：國防大學理工學院

姓名職稱：洪健君 副教授

派赴國家：日本

出國期間：101年05月27日至06月01日

報告日期：101年06月14日

摘 要

本次會議為 2012 年國際航空太空工程研討會，本研討會係 World Academy of Science, Engineering and Technology (WASET)在日本東京主辦系列研討會之一。本次會議發表的論文超過 160 篇，參加的各國學者專家 200 人以上。會議合計分兩天進行，在 05 月 29 日至 30 日假日本東京之 Narita Tobu Hotel Airport 飯店舉辦；會議主題為航太科技相關研究領域，合計分為 12 場次分別進行相關領域探討。

本人此次為國科會航太學門研究計畫 NSC 100-2221-E-606-011 補助出席國際會議，所發表的研究內容及成果為設計以空氣作為介質層之耦合饋入式平面微帶天線以及圓柱型陣列微帶天線，採用減少高度之低剖面天線設計並將天線模組設計為近似全向性之輻射場型，再進行無人飛行載具實際飛行測試及驗證。會議期間除參與相關子題之會議研討外，亦與領域相關學者進行交流。

目 次

摘要.....	i
目次.....	ii
一、目的.....	1
二、過程.....	1
三、心得.....	6
四、建議事項.....	7
五、攜回資料名稱及內容.....	8
附錄.....	10

一、目的

本人此次出國為國科會航太學門研究計畫 NSC 100-2221-E-606-011 補助出席國際會議，所發表的論文「偵蒐型無人飛行載具之低剖面天線研製」(Development of Low-profile Antenna for Mini UAV with Reconnaissance Mission)為設計以空氣作為介質層之耦合饋入式平面微帶天線以及圓柱型陣列微帶天線，採用減少高度之低剖面天線設計並將天線模組設計為近似全向性之輻射場型，再進行無人飛行載具實際飛行測試及驗證。會議期間不僅參與相關子題之會議研討外，除進一步了解目前國際航太科技研究現況與未來發展方向，亦與相關領域學者進行交流。希望藉由實際交流，進而建立合作契機，藉以增進研究績效。

二、過程

本次會議為 2012 年國際航空太空工程研討會 (ICAAE 2012: International Conference on Aeronautical and Astronautical Engineering)，本研討會係 World Academy of Science, Engineering and Technology (WASET)在日本東京 (Tokyo, Japan)主辦系列研討會之一。本年度國際航空太空工程研討會 ICAAE2012 在 05 月 29 日至 30 日假日本東京之 Narita Tobu Hotel Airport 飯店舉辦。本次會議合計分兩天進行，研討主題為航太科技相關研究領域，會議發表的論文超過 160 篇，參加的各國學者專家 200 人以上，合計分為 12 場次分別進行相關領域探討。

本次赴日本參加研討會係發表研究論文「偵蒐型無人飛行載具之低剖面天線研製」(Development of Low-profile Antenna for Mini UAV with Reconnaissance Mission)，並帶領共同作者－博士生鄧堯仁及碩士生蔡侑聰與會。該篇論文之研究動機來自於微帶天線具有易平貼於平面或非平面上及容易以價廉之印刷電路技術製作等優點，本次發表論文發展三旁枝多節枝幹線路耦合器配合序列化陣列，將其轉化成寬頻圓形極化微帶天線應用於小型無人飛行載具偵蒐訊號傳輸，並且進行無人飛行載具實際飛行測試及驗證。

此外，藉由適當陣列進行天線單元之排列，可以得到較佳陣列因子，進而提高微帶天線之性能；在偵蒐訊號傳輸天線設計方面，本次發表論文之目標為設計符合航太通訊長程傳輸要求之高效能天線模組，故本次發表論文亦設計以空氣作為介質層之耦合饋入式平面微帶天線以及圓柱型陣列微帶天線。為減少無人飛行載具的氣流阻力，本次發表論文係採用減少高度之低剖面天線設計；為使載有訊號之電磁能量由無人飛行載具向四面八方作等強度及遠距離傳播，本次發表論文將天線模組設計為近似全向性之輻射場型，並進一步具有更高之輻射

效率及天線增益。由於前述預計發表之論文係由大會安排在第二天 (05 月 30 日)上午 11:15 之 Session – XI 議程才進行發表，所以在完成研討會報到程序後，本人即陸續針對與相關領域之論文發表進行聆聽，希望對個人在此一領域研究之精進能有所助益。

本次研討會共分為 12 場次發表論文，個人僅就相關或是有興趣的領域論文前往聆聽，希望對個人在相關領域研究之精進能有所助益。其中由韓國嶺南大學 (Yeungnam University, Korea) 的 Hien Cao Thi Thu 等人所發表之 “Industrial PI Controller Design of a Smith Predictor for Optimal Servo Control of a FOPDT Process with Output Constraint”係探討使用工業及 PI 控制器 (proportional-integral controller)進行 Smith Predictor (SP) 之最佳伺服器控制，在經由最佳化數值模擬找出最佳化控制點。雖然該篇論文探討標的這跟目前本行有點距離，但是最佳化設計是個人碩士論文重點，而且也有涉獵一些有關 PI 或 PID 控制器 (proportional-integral-differential controller)的研究，能夠從該篇論文獲得一些靈感，也可以作為日後進行 UAV 飛行控制研究之參考；再者，在講員的精闢解說之後，也藉由與會學者熱烈討論中得知進一步研究概念，從演講內容之中實在獲益良多。

其次，另一篇由加拿大卡爾加里大學 (University of Calgary, Canada) 的 O. Castellanos Díaz 等人所發表之 “Modeling the Vapor Pressure of Biodiesel Fuels”；卡爾加里大學位於加拿大艾伯塔省卡爾加里的西北部，是加拿大前排名前七的研究性大學之一，該研究則是在分享該大學對於生質柴油的相關研究，該篇論文主要探討生質柴油蒸氣壓的模式研究，蒸氣壓是指這種物質在氣相中的分壓；了解蒸氣壓的模式研究與引擎燃燒效率的研究相關，雖然不是個人研究主題，但是卻對進行 UAV 或 MAV 的推進系統選擇有所裨益，仍有很大的參考價值。其後在各篇論文發表一張張投影片放映之下看到了各單位對於相關研發之用心及投入，看看別人想想自己，或許我國相關經費不及歐美等先進國家，然而那一份熱情及參與感，卻是我們可以好好學習的。

大會最後一天 05 月 30 日上午安排本人論文在 Session – XI 議程進行發表，在發表論文之前亦在相關領域論文發表場地聆聽各場次論文發表情形。其中來自新加坡南洋理工大學 (Nanyang Technological University, Singapore)的 Q. M. P. Nguyen 等人共同發表 “Effects of Mold Surface Roughness on Compressible Flow of Micro Injection Molding”論文，其內容主要在敘述使用計算流體力學 CFD 作為分析工具，進行對於微小通道噴流對粗糙度的影響分析，並詳述其設計理念及參數驗證，相關研究內容與淡江大學共同進行之微飛行器 (Micro Aerial Vehicle) 研究相關，也可以作為日後進行研究之參考。

此外，由澳洲新堡大學 (University of Newcastle Australia, Australia) 的 Fatimah Almah Saaid 等人所發表之論文 “SDVAR Algorithm for Detecting Fraud in Telecommunications” 則是利用 Sequential Discounting VAR (SDVAR) 理論分析遠距通信訊號真確與否，雖然目前僅限於數學模式推導並且都是一些繁雜的數學公式，但卻使我不禁聯想到使用無人飛行載具進行反恐保安、搜索救難、交通監視、農漁業管理、空中攝影及電訊中繼等工作時，也有可能遇到必須辨別通信訊真偽時機；雖然是不同領域的研究，卻能在本人相關研究方向有所啟發，而在相關場次一張張投影片放映之下看到了來自各地研究人員對於各領域研發之用心及投入。個人在研討會結束後，即返回住宿飯店略事休息並整理行囊及相關資料，旋於 06 月 01 日前往東京成田機場 (Tokyo NRT, Japan) 搭乘 14:15 起飛之長榮航空 BR2197 班機於 16:50 返抵台灣桃園機場 (Taoyuan TPE, Taiwan)。



圖 1 前往報到並在大會場地 Narita Tobu Hotel Airport 飯店前與研究生留影



圖 2 研討會報到註冊情形 (一)



圖 3 研討會報到註冊情形 (二)



圖 4 論文發表前留影 (一)



圖 5 論文發表前留影 (二)

Coffee Break	
11:00 11:15	
11:15 13:00	Chair: Po Ting Lin, Salah Elshourbagy Session - XI (Oral Presentation) - HALL B May 30, 2012
Creation of a new software used for palletizing process	Dusan Kravec Faculty of Mechanical Engineering, Slovak University of Technology, Slovak Republic
Experiment and Simulation of Laser Effect on Thermal field of Porcine Liver	Yun-Liang Su, Kuen-Ting Lunghwa University of Science and Technology, Taiwan
Effects of Mold Surface Roughness on Compressible Flow of Micro Injection Molding	Quoc Mai Phuong Nguyen, Chen X., Lam Y. C., Yue C. Y. Nanyang Technological University, Singapore
Study of Forging Process in 7075 Aluminum Alloy Professional Bicycle Pedal Using Taguchi Method	Dyl-Cheng Chen, Wen-Hsuan Ku, Ming-Ren Chen Department of Industrial Education and Technology, National Changhwa University of Education, Taiwan
Investigation of behavior on the contact surface of the tire and groove by Urethane	Min-Peng Sung, Yean-Der Kuan, R. J. Shyu, S. M. Lee National Central University of Technology, Taiwan
Development of Low-profile Antenna for Mini UAV with Reconnaissance Mission	Chien-Chun Hung, Yao-Jen Teng, Yung-Sheng Tien, Yu-Tsung Tsai Department of Mechatronic, Energy and Aerospace Engineering, Chung Cheng Institute of Technology, National Defense University, Taiwan
Forest Growth Simulation: Tropical Rain Forest State-Table Projection	Moshin Tanja, Roslan Ismail, Salmeth Vahid, Khom Sarah University Kuala Lumpur, Malaysia
Comparison of Response Surface Designs in a Spherical Region	Boonorn Chomtee Kasetsart University, Thailand
Principal Component Analysis for the Characterization in the Application of Some Soil Properties	Kamolchanok Panishtan, Kanokporn Swangjamp, Naldhara Sanmanee, Daerong Singthong Sukkom University, Thailand
SDIAR Algorithm for Detecting Fraud in Telecommunications	Fahimah Almah Said University of Newcastle Australia, Australia
Effect of lubrication on the quantity of heat emission of two spur gears in meshing	Salah Elshourbagy Tanta University, Egypt
Efficient Design Optimization of Multi-State Flow Network for Multiple Commodities	Yu-Cheng Chou, Po Ting Lin Mechanical Engineering at Chung Yuan Christian University, Taiwan
13:00 14:00	Lunch Break

圖 6 投稿論文發表時段公告



圖 7 論文發表場地準備情形



圖 8 論文發表情形 (一)



圖 9 論文發表情形 (二)

三、心得

此次與會從事相關研究人士均將其最新研究成果公開，並且各有其獨到見解；故參與此次會議可獲得目前最新的知識，使個人深覺獲益良多。經由本次的論文發表，使個人對未來研究更具信心。參與本次會議與各國專家學者討論問題之解析方法及經驗，不僅使個人在參與當中增廣見聞，對於問題的分析亦更加嚴謹。日後研究仍將一秉積極態度，期望能對相關領域研究的提升有所助益。在經歷國際學術會議洗禮後，個人專業能力得以成長；相信日後除了在無人飛行載具領域方面可以精進外，希望也可以整合個人另一微帶天線設計專長，進而達成無人飛行載具系統整合目標。

此外，本次參與研討會為本人第一次到東京也是第一次到達日本，看來日本東京已經很

快地從去年 311 關東強震的破壞陰影中逐步站起；同時也親身體會到日本在科技方面的實力與進步，不論研究人才及研究經費都是令人稱羨。不過在這一波經濟不景氣的影響下，雖然日本是一個高度自給自足的國家，此次來到日本也是能夠體會這一波不景氣也有影響到日本的經濟實力。日本東京成田機場是著名的國際轉運機場，但是此次經由成田機場入出境日本卻感受不到想像之中的繁忙榮景；加上國際空港人潮亦不如預期，往返台灣所搭客機都僅有半滿，個人身為航空界一員亦不禁聊添一絲感傷。

四、建議事項

在參與此次會議後，深覺先進各國對於參與此類學術活動相當熱烈，在在顯示參與各種國際會議或是相關學術交流活動，可以提升科技相關研究及產業發展。因此，個人覺得國際交流是促進科技發展及學術成長的最佳途徑，國科會或相關機構應該提供足夠的經費推動國際學術活動，並且多鼓勵國內學者或研究人員踴躍參與國際會議。

五、攜回資料名稱及內容

1. ICAAE 2012: International Conference on Aeronautical and Astronautical Engineering

@WASET 2012 TOKYO, JAPAN International Conference Program 議事手冊 × 1

— Final Program (發表論文時段如虛線標示處)



Print ISSN 2010-376X
Electronic ISSN 2010-3778

INTERNATIONAL CONFERENCE OBJECTIVES
The conference is an interdisciplinary organization of papers in each session are drawn from a number of disciplines. The main objective of this conference is to create an effective medium for academic and industrial, present and share ideas, innovations and problem solving techniques, the results of their recent research activities in the field of applied science, engineering and technology, as well as social and human sciences.



WASET 2012 TOKYO, JAPAN

INTERNATIONAL CONFERENCE PROGRAM

May 29-30, 2012 Narita Tobu Hotel Airport, 320-1 Tokko, Narita-shi, Chiba, Tokyo, Japan 286-0106
Tel:+81 476 32 1234 Fax:+81 476 32 0617

International University of Science, Engineering and Technology

INTERNATIONAL SCIENTIFIC COMMITTEE

A. U. Rahman, Sajek, PK	Kevin F.R. Jhu, TW
Alexander Yamin, US	Mari Indrawati, BA, AU
A. Kady Boloni, IL	Mario Masfran, AR
Byoung-Jai Zhang, KR	Mihir Saha, CA
Changsong He, USA	M. Khatib, Semarang, ID
Chen-Yuan Chen, TW	Neret H. Mung, TZ
Christos Grigor, UK	Peter Pivonka, AU
Edgardo Buccarelli, IT	Prabhu K. Mahapatra, A
Edwin Muroski, ZA	Quoc-Nam Tran, US
Eric J. Wang, HK	S. M. A. Burney, PK
Francis A. Nelson, US	Simon Drows, AU
Jack K. Kuo	S. Venkatesan, AU
Karin Armstrong, CA	Wang Zhong, US
Kusan Mawardi, AU	Zaria Zainuddin, MY
Kzahel Revett, UK	Zhanna Mingalska, RU

INTERNATIONAL SCIENTIFIC AND TECHNICAL SPONSORS

- International Journal of Chemical and Environmental Engineering
- International Journal of Civil and Geological Engineering
- International Journal of Computer and Communication Engineering
- International Journal of Electronics and Electrical Engineering
- International Journal of Engineering and Physical Sciences
- International Journal of Industrial and Manufacturing Engineering
- International Journal of Mathematical and Computational Sciences
- International Journal of Mechanical and Aerospace Engineering
- International Journal of Medical and Biological Sciences
- International Journal of Social and Human Sciences

WASET 2012 CONFERENCE CALENDAR

- Copenhagen, DK: June 11-12, 2012
- Paris, FR: June 27-28, 2012
- Zurich, CH: July 5-6, 2012
- Stockholm, SE: July 11-12, 2012
- Amsterdam, NL: July 25-26, 2012
- Daly, NO: August 13-14, 2012
- Paris, FR: August 22-23, 2012
- Kuala Lumpur, MY: August 28-29, 2012
- Singapore, SG: September 12-13, 2012
- Berlin, DE: September 19-20, 2012
- Rome, IT: September 26-27, 2012
- Dubai, AE: October 4-5, 2012
- Lucerne, CH: October 15-16, 2012
- Bali, ID: October 24-25, 2012
- Venice, IT: November 11-16, 2012
- Paris, FR: November 28-29, 2012
- Penang, MY: December 6-7, 2012

GUIDELINES FOR JOURNAL MANUSCRIPT SUBMISSION

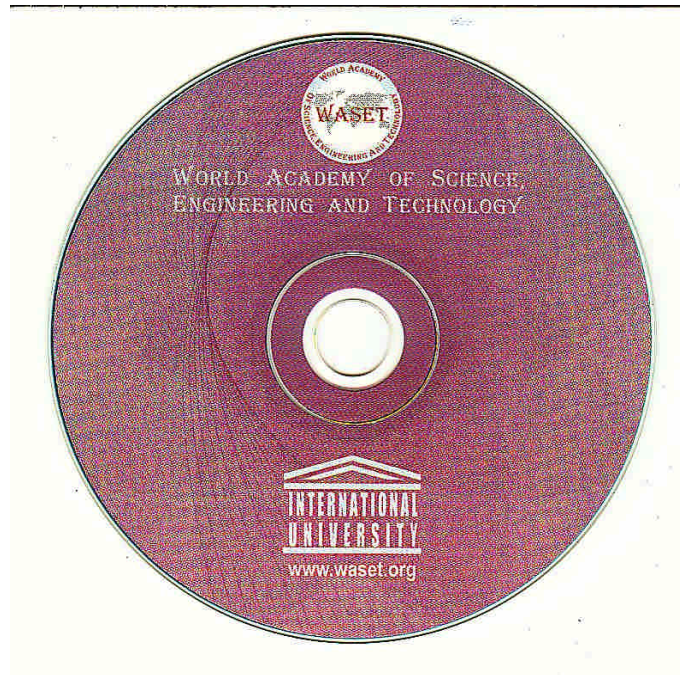
The Scientific Research Journals welcome the submission of original manuscripts from all academic disciplines at www.waset.org/submission.php. It is expected that submissions to the Journals will be structured according to the established scientific format, and that manuscripts will be organized/sectioned in a manner that maximizes both the substance and clarity of the document. The manuscripts are further per-reviewed and evaluated with respect to originality, academic and practical relevance, thoroughness, accuracy, consistency, credibility, and proper referencing.

INTERNATIONAL CONFERENCE SECRETARIAT
PO Box 3131, NM30, Las Cruces, NM 88003-3131, USA
Tel: +1 575 634 0018
URL: www.waset.org e-mail: info@waset.org

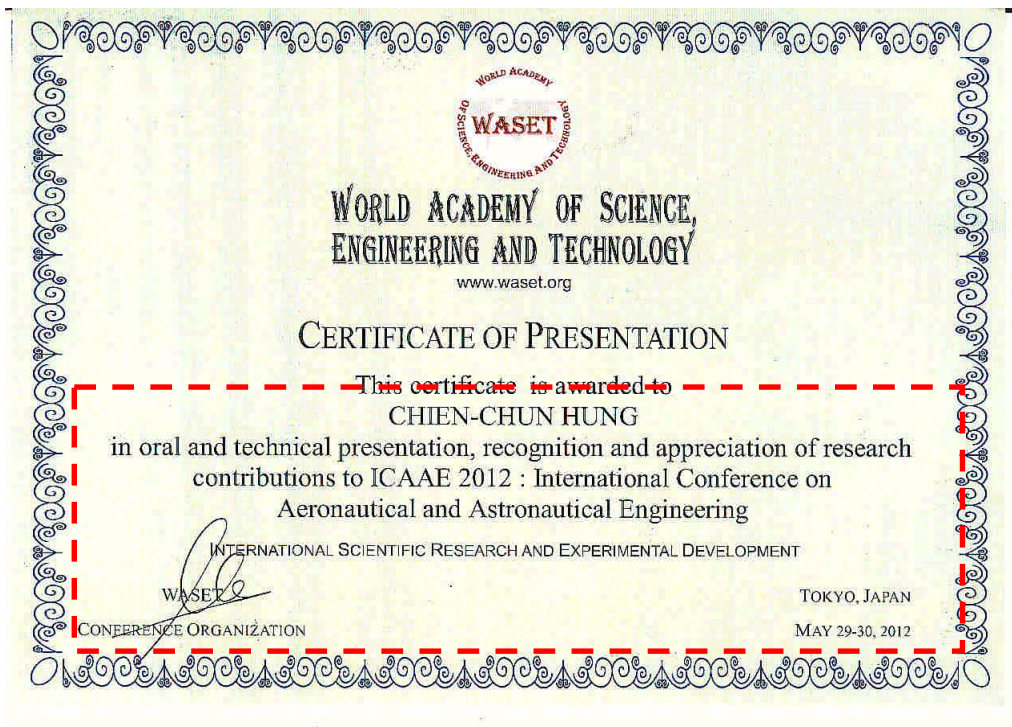
Environments		National Chiayi University, Chiayi, Taiwan
11:00 11:15 13:00	Coffee Break	
11:15 13:00	Chair : Eswara Annigannahally Thammahaeshty	Session – IX (Oral Presentation) – HALL A May 30, 2012
	Methodology for Distributed Assessment Tact Knowledge Extraction (DATRE)	Ibrahim S. Alwathan, Abdouze O. Alschian, Aboulh S. Al-Mudhinji King Saud University, Saudi Arabia
	Enabling Automated Deployment for Cluster Computing in Distributed PC Classrooms	Shuen-Tai Wang, Ying-Chuan Chen, He-Ye Chang National Center for High-Performance Computing, Taiwan
	Evaluating per-user fairness of goal-oriented parallel computer job scheduling policies	Sangseok Vasupongyave Prince of Songkla University, Thailand
	Mutually Independent Hamiltonian Cycles of $C_n \times C_2$	Kai-Siou Wu, Justice Su-Tzu Juan National Chi Nan University, Taiwan
	The Balanced Hamiltonian Cycle on the Toroidal Mesh Graphs	Wen-Chang Peng, Jui-De Su, Tzu-Juan Juan National Chi Nan University, Taiwan
	Research Trend Analysis – A sample in the Field of Information Systems	Hsi Chia Wang, Wei-Pin Chiu National Cheng Kung University, Taiwan
	Simulation of Activity Stream Inside Energy-Social Business Environment using Assemblage Theory and Simplified Complex Tool	Stallier Eddle, Chavez, Bugeaux, Rousseaux, Legend University of Technology of Troyes, France
	Dynamic voltage stability estimation using particle filter	Oesa Zebian Kyushu Institute of Technology, Japan
	Reduction of Chloride Dioxide in Paper Bleaching Using Peroxide Activation	Ayo Adediji, Rudani Sijoyadi, Miosokoma Kabo, Amibal Abdulkareem University of South Africa, South Africa
	An Assessment of Software Process Optimisation Compared to International Best Practice in Bangladesh	Mohammed Shahadat Hossain Chowdhury, Tania Taharina United International University, Bangladesh
	Towards Cloud Computing Anatomy	Maria Salama, Mohamed Kouta Arab Academy for Science, Technology & Maritime Transport, Egypt
	Behavioral signature generation using shadow honeypot	Miroslav Barabas, Michal Drozd, Petr Hanzacek Faculty of Information Technology, Brno University of Technology, Czech Republic
13:00 14:00	Lunch Break	
	Wednesday	May 30, 2012
09:00 11:00	Chair : Eswara Annigannahally Thammahaeshty	Session – X (Oral Presentation) – HALL B May 30, 2012
	Qualitative and Experimental Study on the Effect of Air-Cone Call Parameters on Magnetic Force Used in a Linear Optical Scanner	Loke Kean Kway, Horizon Glano-Briggs, Mani Haran Rahman Universiti Sains Malaysia, Malaysia
	Dynamics and Control of a Chaotic Electromagnetic System	Shun-Chang Chang De-Yeh University, Taiwan
	Optimization of Aluminum Foam Weight to Increase Absorption Energy in Melt Process	Ali Akbar Mollahadi, Mahdi Mokhtadi Research Organization for Science and Technology, Iran
	Model Reference Robust Backstepping Design for Pneumatic Driven Ball Screw Table System	Chia Hua Lu, Yuen-Ren Hwang National Central University, Taiwan
	Dynamic Responses of Two Beams Connected by Multiple Spring-mass Devices	Jae-Ping Lin De-Yeh University, Changhua, Taiwan
	The development of Chulalongkorn University's SAE student formula's space frame	Charlee Sittanun, Thanyarat Singhanant Chulalongkorn University, Thailand
	Fabricating protruded micro-features on AAO/Al substrates by hot embossing method	Wai-Kuo Tsai, Yee-Cheng Lian, Chee Yoon Yie, Ming Jan Tan Nanyang Technological University, Singapore
	MHD Falkner-Skan Boundary Layer Flow with Internal Heating, Axial Conduction, and Radiation	G. Aravind, Eswara Annigannahally Thammahaeshty P.E.S.College of Engineering, Ramanjo, India

Environments		National Chiayi University, Chiayi, Taiwan
11:00 11:15 13:00	Coffee Break	
11:15 13:00	Chair : Po Ting Lin, Saiah Dishourbagy	Session – XI (Oral Presentation) – HALL B May 30, 2012
	Creation of a new software used for palletizing process	Busan Kravec Faculty of Mechanical Engineering, Slovak University of Technology, Bratislava, Slovakia
	Registration and Simulation of Laser Effect on Thermal Field of Porcine Liver	Yan-Liang Su, Kuen Ting Lungwa University of Science and Technology, Taiwan
	Effects of Mold Surface Roughness on Compressible Flow of Micro Injection Molding	Guo-Mai Phuong Nguyen, Chen X., Lam Y. C., Yue C. Y. Nanyang Technological University, Singapore
	Study of Forging Process in 2025 Aluminum Alloy Professional Bicycle Pedal Using Taguchi Method	Dai-Cheng Chen, Wen-Hsuan Ku, Ming-Ren Chen Department of Industrial Education and Technology, National Changhua University of Education, Taiwan
	Investigation of behavior on the contact surface of the tire and ground by CFD simulation	Ming-Feng Sung, Yuen-Der Kuan, R. J. Shyu, S. M. Lee National Chi-Nan University of Technology, Taiwan
	Development of Low-profile Antenna for Mini UAV with Reconnaissance Mission	Chien-Chun Hung, Yao-Jen Tseng, Ying-Sheng Tien, Yu-Isung Tsai Department of Mechatronic, Energy and Aerospace Engineering, Chung Cheng Institute of Technology, National Defense University, Taiwan
	Force-Gravimetric Simulation of a Robot in a Spherical Tube Projection	Yuan-Yuan Wu, Roslan bin Ramli, Vamsi Krishna Sankar University Kuala Lumpur, Malaysia
	Comparison of Response Surface Designs in a Spherical Region	Bonnom Chomtee Kasetsart University, Thailand
	Principal Component Analysis for the Characterization in the Application of Some Soil Properties	Kannadachok Panichan, Kanokpoom Suvonglang, Natthara Samranee, Deerong Sungthong Sriphakorn University, Thailand
	SDWAR Algorithm for Detecting Fraud in Telecommunications	Fahmah Almah, Saaid University of Newcastle Australia, Australia
	Effect of Lubrication on the quantity of heat emission of two spur gears in meshing	Sahar Elshourbary Tanta University, Egypt
	Efficient Design Optimization of Multi-State Flow Network for Multiple Commodities	Yu-Cheng Chou, Po Ting Lin Mechanical Engineering at Chung Yuan Christian University, Taiwan
13:00 14:00 13:00	Lunch Break	
	Wednesday	May 30, 2012 (HALL A – HALL B)
	Identification of antihypertensive peptides from rabbit hydrolysate and blood pressure-lowering effect in SHR	Jann-Shou Tsai, Hs-Yu Liu, Chia-Lin Chuang, Bonnie Sun Pan Department of Food Science, National Taiwan Ocean University, Taiwan
	Energy Evaluation and Utilization of Cassava Peel for Lactating Dairy Cows	Pipak Lounglawan, Yuthachon Sorwongkiew, Wassana Lounglawan, Wisitpon Susombat Suraburi University of Technology, Thailand
	Enhance Helicopter Main In-Rotorblade Damage Analysis with Chiroacoustic P-Scan System from Pseudomonas mullis	Shou-Chen Lu, Chia-Ching Lin, Chieh-Chen Huang National Chung Hsing University, Taiwan, Republic of China
	Spine Evaluation Device with Visual Feedback	Fumitsu Hiras, Genshiro Hiseko Yokoyama, Lutz Helene Norrath Duisburg Paulista State University, Brazil
	Evolutionary origin of the ac heik in integritis	Konstantin Demostouk, Mark S. Johnson Turku Centre for Biotechnology, University of Turku and Åbo Akademi University, Turku, Finland
	Uniform Heating during Focused Ultrasound Thermal Therapy	To-Yuan Chen, Tzu-Ching Shih, Hao-Hsi Lin, Kuen-Cheng Ju Department of Biomedical Engineering, I-Shou University, Taiwan
	Capacitive ECG Measurement by Conductive Fabric Tape	Yue-Der Lin, Ye-Hsiueh Chen, Yen-Ting Lin, Shih-Fan Wang and Feng Chia University, Taiwan
	Retrospective Synthetic Focusing with Correlation Weighing for Very High Frame Rate Ultrasound	Chang-Lin Hu, Yao-Yu Cheng, Meng-Lin Li, Chang-Lin Hu, Shan-Yi Chou, I-Cheng Cheng, Show-Ham Lee, Yu-Sheng Chen, Yu-Kon Hsu Institute of Technology, Research Institute, Taiwan

2. ICAAE 2012: International Conference on Aeronautical and Astronautical Engineering
@WASET 2012 TOKYO, JAPAN International Conference 會議論文集光碟 × 1



3. ICAAE 2012: International Conference on Aeronautical and Astronautical Engineering
@WASET 2012 TOKYO, JAPAN International Conference 論文發表證明 × 1



附錄：「偵蒐型無人飛行載具之低剖面天線研製」論文內容及研討會議程表（如後附）

— Development of Low-profile Antenna for Mini UAV with Reconnaissance Mission

Development of Low-profile Antenna for Mini UAV with Reconnaissance Mission

Chien-Chun Hung, Yao-Jen Teng, Yung-Sheng Tien, and Yu-Tsung Tsai

Abstract—Microstrip antennas are conformable to planar and nonplanar surfaces, simple and inexpensive to fabricate using modern printed-circuit technology. Circular polarization of low-profile microstrip patch with high bandwidth is achieved in this research through the use of a three-cross-arms branch-line coupler with sequential rotated arrays, another low-profile antenna of hollow cylinder is also proposed and the function of reconnaissance with microstrip antenna on Mini UAV (unmanned aerial vehicle) are evaluated in practical flight test.

Keywords—low-profile antenna, Mini UAV, reconnaissance.

I. INTRODUCTION

CONVENTIONAL onboard dipole/monopole antennas mounted on aircraft fuselage often lead to disturbances in aerodynamic field. In high-performance aircraft, spacecraft, and missile applications, where size, weight, performance, installation, and aerodynamics are of major constraints, low profile antennas such as microstrip antennas may be required. In order to meet the demands of long distance for aerospace communication, it is necessary to form an assembly of antenna elements in an electrical and geometrical array. And a high array factor will be obtained to enhance the performance of microstrip antenna if the right arrangement of phase array and choice of array elements have been accomplished, both planar antenna and cylindrical antenna arrays with coupled feeds on air substrates are also considered in this research. In order to reduce the aerodynamic drag, the antenna mounted on UAV fuselage should be low-profile. Moreover, to isotropically propagate an electromagnetic energy of equal amplitude in all directions to a far distance, this research also proposes a UAV antenna design with an omni-directional radiation patterns and higher radiation efficiency and antenna gain.

Chien-Chun Hung is with the Department of Mechatronic, Energy and Aerospace Engineering, Chung Cheng Institute of Technology, National Defense University, Taiwan, ROC (corresponding author to provide phone: +886-3-3800960 ext. 37; fax: +886-3-3895924; e-mail: hung@ndu.edu.tw).

Yao-Jen Teng is with the Doctoral Program, School of Defense Science, Chung Cheng Institute of Technology, National Defense University, Taiwan, ROC (e-mail: yaoyao174@yahoo.com.tw).

Yung-Sheng Tien is with the Master Program of Aerospace Engineering, Department of Mechatronic, Energy and Aerospace Engineering, Chung Cheng Institute of Technology, National Defense University, Taiwan, ROC (e-mail: c38523601@gmail.com).

Yu-Tsung Tsai is with the Master Program of Aerospace Engineering, Department of Mechatronic, Energy and Aerospace Engineering, Chung Cheng Institute of Technology, National Defense University, Taiwan, ROC (e-mail: clerk0621@gmail.com).

II. LITERATURE REVIEWS

The concept of microstrip antenna can be traced back to 1953 [1] and a patent in 1955 [2]. However, microstrip antennas have not received considerable attention until the 1970s due to the development of printed-circuit technology, the improved photolithographic techniques, the availability of good substrates with low loss tangent (a quantity related to substrate loss due to dielectric damping) and attractive thermal and mechanical properties. Microstrip antennas have matured considerably during the past 30 years, and many of the limitations have been overcome. Recently, numerical simulations using moment methods and finite difference techniques have available, and the interesting development of microstrip antennas has been the use of active device integrated directly in the antenna structure [3]. Munson presented the microstrip antennas to form the feed network, radiators, and phase arrays [4]. Howell proposed the design procedures for both linearly and circularly polarized antennas [5]. Lo *et al.* developed a cavity model to analyze rectangular microstrip antennas and a formula for calculating the resonant frequency [6]. Derneryd *et al.* further developed the resonant cavity model to calculations losses, input conductance, and bandwidth of a rectangular microstrip antenna [7].

The above early works were based on simple transmission line or capacitance calculations, and the results were limited to simplified geometry. Hewman and Tulyathan proposed the method of moment based upon an integral equation formulation to analyze the current, impedance, and resonant frequency of a microstrip antenna [8]. Pozar introduced a new antenna configuration for improving performance of microstrip antennas and arrays [9]. Ke and Wong presented a full-wave analysis of the mutual coupling between two probe-fed rectangular microstrip antennas on a cylindrical body [10]. Antenna analysis was limited to geometries amenable to the solution of Maxwell's equation. Recently, numerical simulations using moment methods and finite difference techniques are available.

III. DESIGN OF ANTENNAS

A. Design of Microstrip Patch

The basic configuration of the microstrip antenna consists of a very thin metallic patch in a small fraction of one wavelength above the ground plane as shown in Fig. 1. There are numerous isotropic substrates that can be used for microstrip antennas and their dielectric constants (ϵ_r) are usually in the range of $2.2 < \epsilon_r < 12$. Thick substrates whose dielectric constant is in the

lower end of the range are desirable because they provide better efficiency, higher bandwidth, loosely bound fields for radiation into space, but at the expense of larger element size [11]. The microstrip feed line is also a conducting strip, usually of much smaller width compared to the patch. The microstrip feed line is easy to fabricate, simple to match by controlling the insert position. However, such feeds are thus limited in bandwidth to about 2-5% for practical purposes [12].

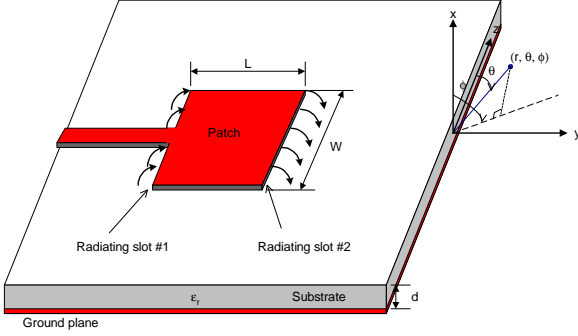


Fig. 1 Rectangular microstrip antenna.

For the rectangular patch and coordinate system shown in Fig. 1, the lowest resonant frequency $(f_r)_{010}$ for the dominant TM_{010} mode is given by [13]

$$(f_r)_{010} = \frac{V_c}{2L_{eff}\sqrt{\epsilon_{eff}}} = \frac{1}{2(L+2\Delta L)\sqrt{\epsilon_{eff}}\sqrt{\mu_0\epsilon_0}} \quad (1)$$

$$= q \frac{V_c}{2L\sqrt{\epsilon_r}},$$

where

$$\Delta L = 0.412d \frac{(\epsilon_{eff} + 0.3)\left(\frac{W}{d} + 0.264\right)}{(\epsilon_{eff} - 0.258)\left(\frac{W}{d} + 0.8\right)}, \quad (2)$$

$$\epsilon_{eff} = \frac{\epsilon_r + 1}{2} + \frac{\epsilon_r - 1}{2} \frac{1}{\sqrt{1 + 12d/W}} \quad \text{for } W/d > 1. \quad (3)$$

V_c is the speed of light in free space, $\mu_0 = 4\pi \times 10^{-7} H/m$ is the permeability of free-space, $\epsilon_0 = \frac{1}{36\pi} \times 10^{-9} F/m$ is the permittivity of free-space, L is the physical length of the patch, W is the width of the patch, d is the thickness of the substrate, L_{eff} is the effective length of the patch, ΔL is the extended incremental length due to fringing effects, q is the fringe factor or length reduction factor, ϵ_r and ϵ_{eff} are the relative and effective dielectric constants, respectively.

Consider the microstrip patch on the air substrate, the geometry could be simplified and given by

$$L = \frac{V_c}{2f_r\sqrt{\epsilon_{eff}}} \quad (4)$$

$$\epsilon_{eff} = 1 + \epsilon_r \left(\frac{h_1 - h_2}{h_2} \right) \quad (5)$$

where f_r is the resonant frequency, L is the physical length of the patch, h_1 is the total height of antenna, h_2 is the thickness of air substrate, ϵ_r and ϵ_{eff} are the relative and effective dielectric constants, respectively. Two pieces of FR4 substrate ($\epsilon_r = 4.4$, loss tangent $\tan \delta = 0.019$) with thickness of 0.4 mm are separate from 5.0 mm to stack as the antenna structure in Fig. 2.

Polarization of a radiated wave is defined as the property of an electromagnetic wave describing the time varying direction and relative magnitude of the electric-field vector. The polarization of an antenna in a given direction is defined as the polarization of the wave transmitted by the antenna. The sense of rotation for circular polarization (CP) is determined by observing the field rotation as the wave is viewed as it travels away from the observer. If the rotation is clockwise, the wave is right-hand circularly polarized (RHCP); if the rotation is counterclockwise, the wave is left-hand circularly polarized (LHCP). Circular polarization with only one feed can be achieved by a square patch with two truncated opposite corners, in order to achieve circular polarization, two opposite corners of this patch will be trimmed the right triangular truncation with base c .

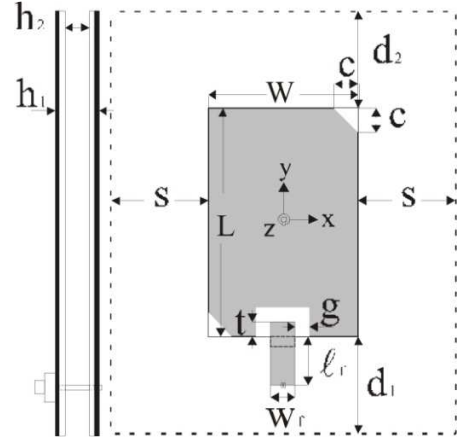


Fig. 2 Microstrip CP-patch with coupled feed.

According to (4) and (5), the length of corner-truncated CP patch is $L = 47 mm$, and the width of corner-truncated CP patch is $W = L = 47 mm$ as operating at $f_r = 2.40 GHz$. After tuning the feeding network and geometry of ground plane, the return loss (RL) and axial ratio (AR) of this microstrip patch are shown in Fig. 3. According to Fig. 4, the measurement of radiation pattern shows the proposed antenna is right-hand circular polarization (RHCP), and the gain of this corner-truncated CP patch is about 9.0-9.2 dBic as shown in Fig. 5. The high gain will provide high quality for transmitting video signal and information as mounting on mini UAV with reconnaissance mission.

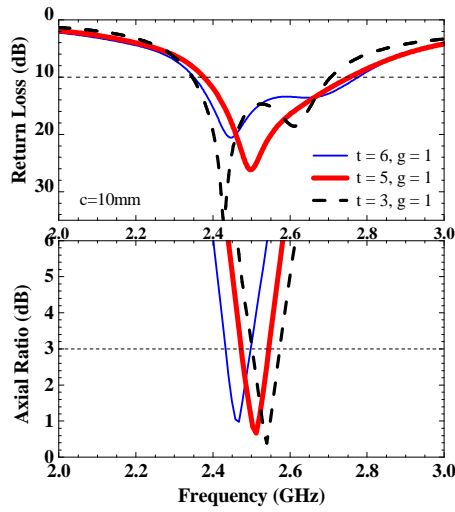


Fig. 3 Measured return loss and axial ratio of microstrip patch.

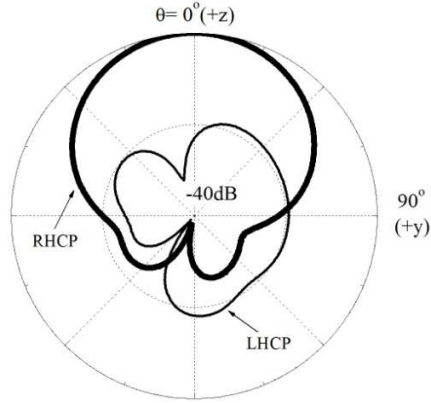


Fig. 4 Measured radiation pattern of microstrip patch.

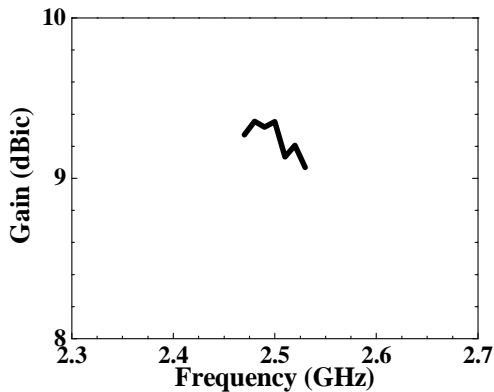


Fig. 5 Measured gain of microstrip patch.

B. Design of Antenna Array

The idea of sequential rotated arrays dates back to the 1980s [14], which is designed by arranging antenna elements with different orientation angle. The sequential rotated arrays will improve bandwidth and gain of antennas [15-16]. As shown in Fig. 6, this research integrates the concept of three-cross-arms

branch-line coupler [17] with sequential rotated arrays and CP patches of coupled feed. The measurement of return loss and axial ratio in Fig. 7 shows that the RL- and AR- bandwidth increases 57% and 40% compared with Fig. 3, respectively, i.e., the proposed antenna possesses the better properties for transmitting signal.

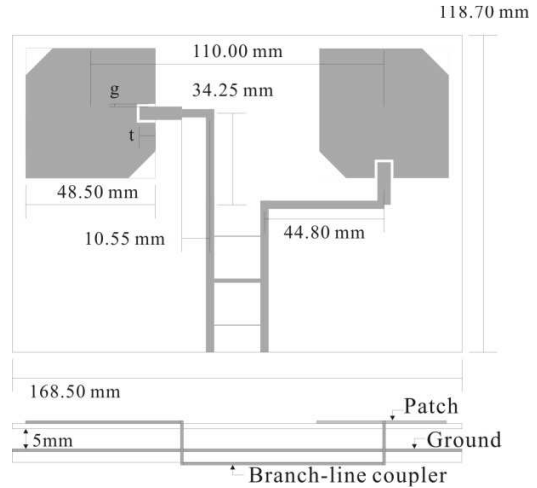


Fig. 6 Three-cross-arms branch-line coupler with both sequential rotated arrays and microstrip patch.

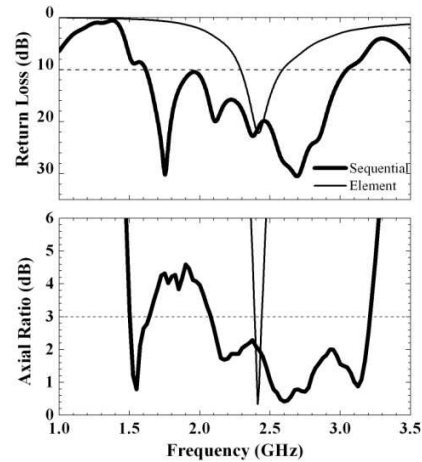


Fig. 7 Measured return loss and axial ratio of proposed antenna array with coupler.

C. Low Profile Omni-directional Antenna

To meet the demands of long distance for aerospace communication, the antenna mounted on UAV fuselage should be low-profile. Moreover, to isotropically propagate an electromagnetic energy of equal amplitude in all directions to a far distance, this research will also propose a Mini UAV antenna design with an omni-directional radiation patterns and higher radiation efficiency and antenna gain. The preliminary design of low-profile omni-directional antenna on UAV is shown in Fig. 8. Antenna elements are connected with feed network and printed on the soft substrate, and revolved about the vertical axis circle to generate a cylinder.

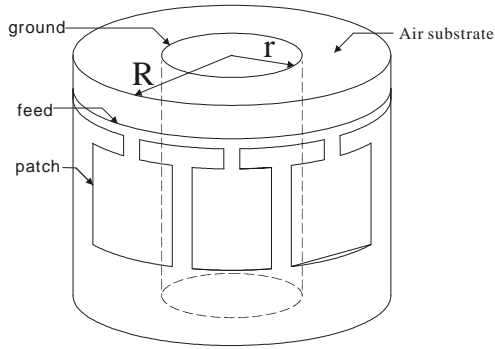


Fig. 8 Design of low-profile omni-directional antenna on UAV.

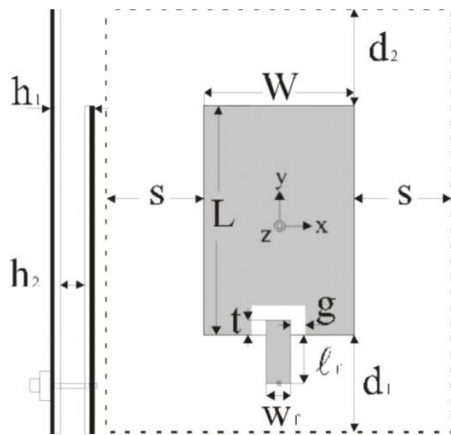


Fig. 9 Microstrip LP-patch with coupled feed.

The linear polarized (LP) microstrip patch with coupled feed as shown in Fig. 9 is the element of $1 \times N$ array to form the low-profile omni-directional antenna. Air substrate is used for low-profile omni-directional antenna in this research; however, high resistance and reactance due to air substrate should be considered. Hence, the antenna element should be designed to offset above drawbacks and for simple structure and small size. Fig. 9 shows that the proposed element of microstrip LP-patch is similar to Fig. 2, but two opposite corners not to be trimmed. Furthermore, there will be a compromise design between the numbers of antenna elements, beam width of antenna element and radius of cylinder, and so on [18-25].

The feed array of proposed low-profile antenna of 1×4 array, as shown in Fig. 10, is designed on a circular substrate with radius of 40 mm. According to Fig. 12, the feed point A is the center of circular substrate and fed with a probe of 50 ohms. Points A and B will be linked with stretched microstrip lines with width of 0.3 mm and an angle of 125 deg., and there is a quarter-wave transformer of 55.3 mm \times 0.3 mm from points B to C. Point C is also the junction of transformer and feed.

Similarly, the 1×6 feed network of low-profile antenna is shown as Fig. 11 and designed to compromise the influence of arrangement and purpose of omni-directional radiation pattern. The measurement of return loss for $1 \times N$ feed network is shown as Fig. 12, which indicates well impedance match on 1×4 and 1×6 feed networks. The difference on return loss,

radiation pattern and gain of different arrays are shown as Figs. 13-15, respectively. The legend "planar element" means planar antenna with coupled feed, "single element" means low-profile antenna with one antenna element only, "four elements" means low-profile antenna with 1×4 array, and "six elements" means low-profile antenna with 1×6 array, respectively.

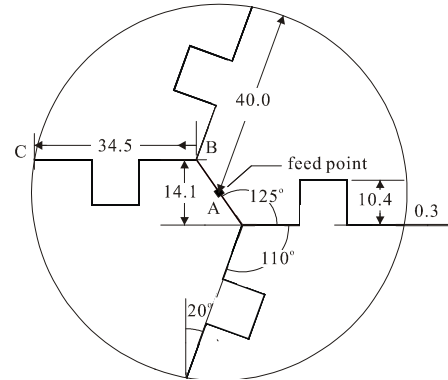


Fig. 10 Design of feed network of 1×4 array.

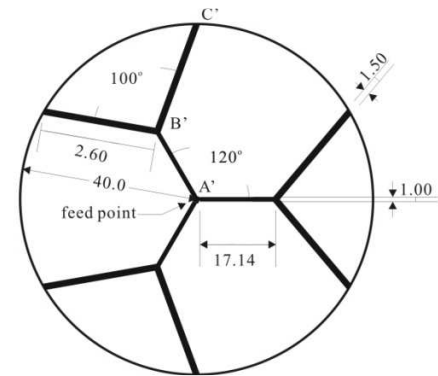


Fig. 11 Design of feed network of 1×6 array.

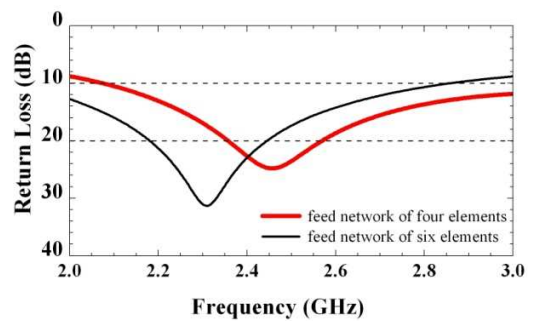


Fig. 12 Measured return loss for $1 \times N$ feed network.

According to Fig. 14, the results show the radiation pattern is nearly omni-directional in low-profile antenna with 1×6 array than low-profile antenna with 1×4 array. The gain of $1 \times N$ array in Fig. 15 is less than single planar element; that is, the power of low-profile antenna with $1 \times N$ array has been divided into N antenna elements.

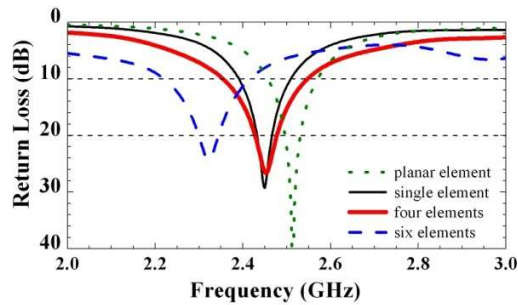


Fig. 13 Measured return loss for low-profile antenna of $1 \times N$ array.

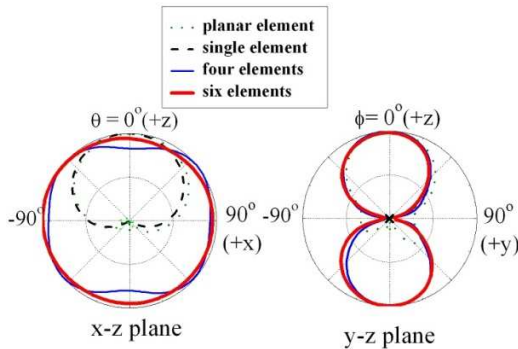


Fig. 14 Radiation pattern for low-profile antenna of $1 \times N$ array.

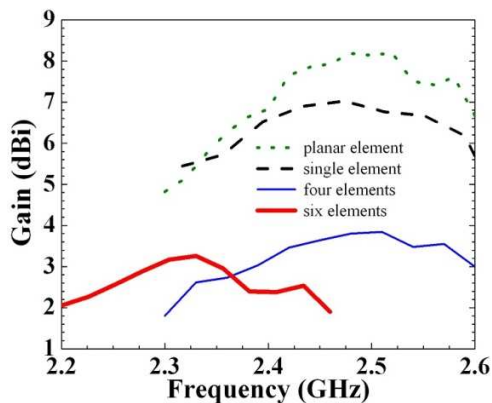


Fig. 15 Gain for low-profile antenna of $1 \times N$ array.

IV. DESIGN OF “MONK VULTURE” MINI UAV

The proposed microstrip patch is mounted on “Monk Vulture” Mini UAV designed and fabricated by our own team [26]. The term “Mini UAV” means all the unmanned aerial vehicles with take-off weight of 5 to 50 pounds as categorized in Weibel’s paper [27]. “Monk Vulture” is designed to search for the maximum amount of payloads that it, can carry using the piston engine with 2.8 hp at 15,000 rpm assigned by the organizer. The proposed solution is that by moving the wing afterward on the fuselage of “TYLL-L” designed in 2009 [26] to have larger fuselage space to carry more dead weights. In order to acquaint enough lift at take-off, a canard is probably needed.

Another purpose of “Monk Vulture” is to use the fuselage of TYLL-L and modify its vertical tail to give sufficient directional stability. “Monk Vulture” still keeps its engine at

the head and a possible three-surface configuration will be applied. The power effect on the longitudinal stability in “Monk Vulture” could be negligible but the slipstream effect of propeller on the canard should not be forgotten.

To improve directional stability of TYLL-L and to carry more payloads, Monk Vulture has a similar shape, but with a canard, compared with TYLL-L. “Monk Vulture” is a traction-type engine propeller-driven air vehicle, and the proposed configuration is shown as Fig. 16.

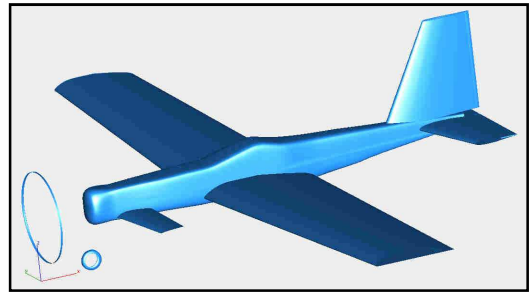


Fig. 16 The proposed 3-D configuration of “Monk Vulture” Mini UAV.

V. CONCLUSION

This research applies 2.40 GHz wireless module to transmit video signal by using the proposed microstrip patch and antenna array with coupled feeds. The function of reconnaissance with low-profile antenna is proposed in this research, and the CCD (charge coupled device) camera is mounted to the UAV as photographic device. To integrate the CCD camera, wireless communication device and microstrip antenna into an innovative module is also the purpose of this research.

This research combines three-cross-arms branch-line coupler and corner-truncated CP patches, and shows that it could substantially increase RL- and AR- bandwidth of single microstrip patch to 57% and 40%, respectively. And another low-profile antenna with $1 \times N$ array is also proposed to meet the demands of aerospace communication with reconnaissance mission.



Fig. 17 “Monk Vulture” Mini UAV Flying on Hsisheng Airport along the Tahan Creek near Taipei.

Fig. 17 shows a photo as “Monk Vulture” Mini UAV flying in the sky. Fig. 18 indicates one captured picture from video signal during UAV-flight on Hsisheng Airport along the Tahan Creek near Taipei; that is, this research also successfully tests and verifies transmission reconnaissance signal with proposed microstrip patch and low-profile antenna mounted on Mini UAV in practical flight test.



Fig. 18 One captured picture during UAV-flight on Hsisheng Airport.

ACKNOWLEDGMENT

This work was supported in part by the National Science Council, Taiwan, ROC under NSC 100-2221-E-606-011.

REFERENCES

- [1] G. A. Deschamps, “Microstrip Microwave Antennas,” *presented at the USAF Symposium on Antennas*, 1953.
- [2] H. Gutton and G. Baissinot, “Flat Aerial for Ultra High Frequency,” *French Patent No. 703 113*, 1955.
- [3] S.-Y. Lin and H.-R. Chuang, “Design of 2.4 GHz LNA/PA/Circularly-Polarized Active Microstrip Antennas,” *Microwave Journal*, vol. 42, no. 1, pp. 22-37, Jan. 1999.
- [4] R. E. Munson, “Conformal Microstrip Antennas and Microstrip Phased Arrays,” *IEEE Trans. Antennas and Propagation*, vol. AP-27, pp. 74-78, Jan. 1974.
- [5] J. Q. Howell, “Microstrip Antennas,” *IEEE Trans. Antennas Propagat.*, vol. AP-23, pp. 90-93, Jan. 1975.
- [6] Y. T. Lo, D. Solomon, and W. F. Richards, “Theory and Experiment on Microstrip Antennas,” *IEEE Trans. Antennas Propagat.*, vol. AP-27, no. 2, pp. 137-145, Mar 1979.
- [7] A. G. Derneryd and A. G., “Extended Analysis of Rectangular Microstrip Resonator Antennas,” *IEEE Trans. Antennas Propagat.*, vol. AP-27, no. 6, pp. 846-849, Nov. 1979.
- [8] E. H. Hewman and P. Tulyathan, “Analysis of Microstrip Antennas Using Moment Method,” *IEEE Trans. Antennas Propagat.*, vol. AP-29, no. 1, pp. 47-53, Jan. 1981.
- [9] D. M. Pozar, “Microstrip Antennas,” *Proc. IEEE*, vol. 80, no. 1, pp. 79-91, Jan. 1992.
- [10] K. Y. Ke and K. L. Wong, “Mutual Coupling between Cylindrical-Rectangular Microstrip Antennas,” *IEEE Trans. Antennas and Propagation Society International Symposium, AP-S. Digest*, vol. 1, pp. 194-197, Jan. 1994.
- [11] I. J. Bahl, P. Bhartia, and S. S. Stuchly, “Design of Microstrip Antennas Covered with a Dielectric Layer,” *IEEE Trans. Antennas Propagat.*, vol. AP-30, no. 2, pp. 314-318, Mar 1982.
- [12] D. M. Pozar, “Radiation and Scattering from a Microstrip Patch on a Uniaxial Substrate,” *IEEE Trans. Antennas Propagat.*, vol. AP-35, no. 6, pp. 613-621, Jun 1987.
- [13] D. M. Pozar, “Microstrip Antennas,” *Proc. IEEE*, vol. 80, no. 1, pp. 79-81, Jan. 1992.
- [14] T. Teshirogi, M. Tananka, and W. Chujo, “Wideband Circularly Polarized Array Antenna with Sequential Rotations and Phase Shift of Elements,” *Proceedings of International Symposium on Antennas and Propagation*, pp. 117-120, Japan 1985.
- [15] J. Huang, “A Technique for an Array to Generate Circular Polarization with Linearly Polarized Elements,” *IEEE Trans. Antennas Propagat.*, vol. 34, pp. 1113-1124, 1986.
- [16] P. S. Hall, J. S. Dahele, and J. R. James, “Design Principles of Sequentially Fed, Wide Bandwidth, Circularly Polarized Microstrip Antennas,” *IEE Proc. H.*, vol. 136, pp. 381-389, 1989.
- [17] C.-M. Chang, K.-Y. Chiang, Y.-C. Lu, Y.-J. Teng, H.-C. Ping, K.-C. Liu, C.-H. Lin, and C.-C. Hung, “Design and Fabrication of High-payload UAV with Reconnaissance Mission,” *presented at the AASRC/CCAS Joint Conference*, Taipei, Taiwan, Dec. 2009.
- [18] K. L. Wong, W. H. Hsu, and C. K. Wu, “Single-feed Circularly Polarized Microstrip Antenna with a Slit,” *Microwave Opt. Technol. Lett.*, vol. 18, pp. 306-308, Jul. 1998.
- [19] H. M. Chen and K. L. Wong, “On Circular Polarization Design of Annular-ring Microstrip Antennas,” *IEEE Trans. Antennas Propagat.*, vol. 47, pp. 1289-1292, Aug. 1999.
- [20] K. L. Wong and J. Y. Wu, “Single-feed Small Circularly Polarized Square Microstrip Antenna,” *Electron Lett.*, vol. 33, pp. 1833-1834, Oct. 1997.
- [21] K. L. Wong and M. H. Chen, “Single-feed Small Circular Microstrip Antenna with Circular Polarization,” *Microwave Opt. Technol. Lett.*, vol. 18, pp. 394-397, Aug. 1998.
- [22] K. L. Wong and Y. F. Lin, “Circularly Polarized Microstrip Antenna with a Tuning Stub,” *Electron Lett.*, vol. 34, pp. 831-832, Apr. 1998.
- [23] W. S. Chen, C. K. Wu, and K. L. Wong, “Square-ring Microstrip Antenna with a Cross Strip for Compact Circular Polarization Operation,” *IEEE Trans. Antennas Propagat.*, vol. 47, pp. 1566-1568, Oct. 1999.
- [24] W. S. Chen, C. K. Wu, and K. L. Wong, “Novel Compact Circularly Polarized Square Microstrip Antenna,” *IEEE Trans. Antennas Propagat.*, vol. 49, pp. 340-342, Mar. 2001.
- [25] W. S. Chen, C. K. Wu, and K. L. Wong, “Compact Circularly Polarized Circular Microstrip Antenna with Cross Slot and Peripheral Cuts,” *Electron Lett.*, vol. 34, pp. 1040-1041, May 1998.
- [26] C.-C. Hung, C.-H. Lin, Y.-J. Teng, C.-M. Chang, and Y.-K. Wu, “Study on Mini UAV Designs to Payload Requirements by Airplane Sizing Methodology,” *presented at the AIAA Infotech@Aerospace - 2010 Conference and Exhibit*, AIAA Paper 2010-3507, Atlanta, Georgia, USA, Apr. 2010.
- [27] R. E. Weibel, and R. J. Hansman, Jr., “Safety Considerations for Operation of Different Classes of UAVs in the NAS,” *presented at the AIAA 3rd “Unmanned Unlimited” Technical Conference, Workshop and Exhibit*, Chicago, Illinois, USA, Sep. 2004.

Chien-Chun Hung was born in Tainan, Taiwan in 1969. He received the B.S. degree in aeronautical engineering from Chung Cheng Institute of Technology, Taoyuan, Taiwan, in 1992, the M.S. degree in mechanical engineering from Tamkang University, Taipei, Taiwan, in 1996, and the Ph.D. degree in aeronautics and astronautics from National Cheng Kung University, Tainan, Taiwan, in 2004. From 1992 to 1994, he was a Teaching Assistant with the Department of Aeronautical Engineering, Chung Cheng Institute of Technology, Taoyuan, Taiwan. Since 1996, he has been a Lecturer with the Department of Aeronautical Engineering, Chung Cheng Institute of Technology. From 1999 to 2006, he was also a Patent Referee with Intellectual Property Office of Taiwan. He became an Associate Professor with the same department in 2004, and he also served as Chairman of the Aeronautical Engineering Department from 2005 to 2006.

From Nov. 2006 to now, he is an Associate Professor with the Department of Mechatronic, Energy and Aerospace Engineering, Chung Cheng Institute of Technology, National Defense University, Taoyuan, Taiwan. His current research interests are in the area of aeroelasticity, structural dynamics, optimum design, microstrip antenna, composite materials, and UAV design.



Print ISSN 2010-376X
Electronic ISSN 2010-3778

INTERNATIONAL CONFERENCE OBJECTIVES

The conference is an interdisciplinary organization; the papers in each session are drawn from a number of disciplines. The main objective of this conference is to create an effective medium for academia and industries to present and share ideas, innovations and problem solving techniques, the results of their recent research activities in the field of applied science, engineering and technology, as well as social and human sciences.

WASET 2012 TOKYO, JAPAN INTERNATIONAL CONFERENCE PROGRAM

May 29-30, 2012 Narita Tobu Hotel Airport, 320-1 Tokko, Narita-shi, Chiba, Tokyo, Japan 286-0106
Tel:+81 476 32 1234 Fax:+81 476 32 0617

International University of Science, Engineering and Technology

INTERNATIONAL SCIENTIFIC COMMITTEE

- | | |
|-------------------------|------------------------|
| A-Ur-Rahman Saljoki, PK | Kevin F.R. Liu, TW |
| Alexander Vaninsky, US | Majid Tolouei-Rad, AU |
| Arkady Bolotin, IL | Mario Mastriani, AR |
| Byoung-Tak Zhang, KR | Miloš Šeda, CZ |
| Chanseng He, USA | Mikhail E. Semenov, RU |
| Chen-Yuan Chen, TW | Nerey H. Mvungi, TZ |
| Christos Grecos, UK | Peter Pivonka, AU |
| Edgardo Bucciarelli, IT | Prabhat K. Mahanti, CA |
| Edison Muzenda, ZA | Quoc-Nam Tran, US |
| Eric T T Wong, HK | S. M. A. Burney, PK |
| James. A. Nelson, US | Simon Brown, AU |
| Jesuk Ko, KR | S. Venkatraman, AU |
| Karen Armstrong, CA | Wang Zhigang, US |
| Kenan Matawie, AU | Zarita Zainuddin, MY |
| Kenneth Revett, UK | Zhanna Mingaleva, RU |

INTERNATIONAL SPECIAL JOURNAL ISSUES

A number of selected high-impact full text papers will also be considered for the special journal issues. The paper selection will be carried out during the review process as well as at the conference presentation stage. The final decision for paper selection will be made based on peer review reports by the Guest Editors and the Editor-in-Chief jointly.

INTERNATIONAL CONFERENCE SECRETARIAT
PO Box 3151 NMSU, Las Cruces, NM 88003-3151, USA
Tel:++15756350018

URL: www.waset.org :::: e-mail: info@waset.org

INTERNATIONAL SCIENTIFIC AND TECHNICAL SPONSORS

- International Journal of Chemical and Environmental Engineering
- International Journal of Civil and Geological Engineering
- International Journal of Computer and Communication Engineering
- International Journal of Electronics and Electrical Engineering
- International Journal of Engineering and Physical Sciences
- International Journal of Industrial and Manufacturing Engineering
- International Journal of Mathematical and Computational Sciences
- International Journal of Mechanical and Aerospace Engineering
- International Journal of Medical and Biological Sciences
- International Journal of Social and Human Sciences

GUIDELINES FOR JOURNAL MANUSCRIPT SUBMISSION

The Scientific Research Journals welcome the submission of original manuscripts from all academic disciplines at www.waset.org/submission.php. It is expected that submissions to the Journals will be structured according to the established scientific format, and that manuscripts will be organized/sectioned in a manner that maximizes both the substance and clarity of the document. The manuscripts are further per-reviewed and evaluated with respect to originality, academic and practical relevance, thoroughness, accuracy, consistency, credibility, and proper referencing.

**WASET 2012
CONFERENCE CALENDAR**

- Copenhagen, DK: June 11-12, 2012
- Paris, FR: June 27-28, 2012
- Zurich, CH: July 5-6, 2012
- Stockholm, SE: July 11-12, 2012
- Amsterdam, NL: July 25-26, 2012
- Oslo, NO: August 13-14, 2012
- Paris, FR: August 22-23, 2012
- Kuala Lumpur, MY: August 28-29, 2012
- Singapore, SG: September 12-13, 2012
- Berlin, DE: September 19-20, 2012
- Rome, IT: September 26-27, 2012
- Dubai, AE: October 8-9, 2012
- Lucerne, CH: October 15-16, 2012
- Bali, ID: October 24-25, 2012
- Venice, IT: November 14-16, 2012
- Paris, FR: November 28-29, 2012
- Penang, MY: December 6-7, 2012

TENTATIVE TOKYO 2012 CONFERENCE PROGRAM

**The Complete Conference Registration is Required for Publication in the Conference Proceedings at
<http://www.waset.org/author.php>**

Tuesday		May 29, 2012
Welcome & Registration at 08:30-09:00		
Time	Paper Title	Authors
09:00 11:00	Chair : Naoto Suzuki, Kayoko Yamamoto	Session – I (Oral Presentation) – HALL A May 29, 2012
	A Design of Array Transcranial Magnetic Stimulation Coil System	Sheng Ge, Jian-Peng Wang, Hai-Ying Tang, Xi Xiao, Wen Wu School of Electronic Engineering and Optoelectronic Technology, Nanjing University of Science and Technology, China
	Use of NMMO Pretreatment for Biogas Production from Oil Palm Empty Fruit Bunch	Ria Millati, Fiametta A. Purwandari, Adhitya P. Sanjaya, Muhammad N. Cahyanto, Ilona S. Horváth, Mohammad J. Taherzadeh, Claes Niklasson Department of Food and Agricultural Product Technology, Gadjah Mada University, Indonesia
	A Study on the Removal of Trace Organic Matter in Water Treatment Procedures using Powder-activated Carbon Biofilm	Rou-Han Lee, Jie-Chung Lou, Huang-Ming Fang Institute of Environmental Engineering, National Sun Yat-Sen University, Taiwan
	Adsorption of Inorganic Salt by Granular Activated Carbon and Related Prediction Models	Kai-Lin Hsu, Jie-Chung Lou, Jia-Yun Han Institute of Environmental Engineering, National Sun Yat-Sen University, Taiwan
	Health Risk Assessment in Lead Battery Smelter Factory: A Bayesian Belief Network Method	Kevin Fong-Rey Liu, Ken Yeh, Cheng-Wu Chen, Han-Hsi Liang Ming Chi University of Technology, Taiwan
	Combing LCIA and Fuzzy Risk Assessment for Environmental Impact Assessment	Kevin Fong-Rey Liu, Ken Yeh, Cheng-Wu Chen, Han-Hsi Liang Ming Chi University of Technology, Taiwan
	Fuzzy Risk-Based Life Cycle Assessment for Estimating Environmental Aspects in EMS	Kevin Fong-Rey Liu, Ken Yeh, Cheng-Wu Chen, Han-Hsi Liang Ming Chi University of Technology, Taiwan
	Energy Based Temperature Profile for Heat Transfer Analysis of Concrete Section Exposed to Fire on One Side	Pattamad Panedpojaman Prince of Songkla University, Thailand
	Environmental Stress of man Due to Non Uniform Non Continuous Velocity	Ali Akbar Mottahedi Iranian Organization for Science and Technology, Iran
	An Evaluation of Carbon Dioxide Emissions Trading among Enterprises – The Tokyo Cap and Trade Program –	Hiroko Satou, Kayoko Yamamoto National University of Electro-Communications, Tokyo, Japan
	Basic research for distinguishing small retinal hemorrhages from dust artifact by using hue, lightness, and saturation color space	Naoto Suzuki Hiroshima International University, Japan
11:00 11:15	Coffee Break	
11:15 13:00	Chair : Pavol Molnar, Cheng-Di Dong	Session – II (Oral Presentation) – HALL A May 29, 2012
	Reducing Humic Acid and Disinfection By-products in Raw Water Using a Bio-activated Carbon Filter	Wei-Pin Tseng, Jie-Chung Lou, Ming-Ching Wu, Huang-Ming Fang Institute of Environmental Engineering, National Sun Yat-Sen University, Taiwan
	[Ca(2,2'-bipyridine)3]2+ -Montmorillonite : A Potentiometric Sensor for Sulfide ion	Sunan Payungsak, Atchana Wongchaisuwat, Ladda Meesuk Kasetsart University, Thailand
	SIMGraph: Simplifying contig graph to improve de novo genome assembly using next-generation sequencing data	Darby Tien-Hao Chang National Chen Kung University, Taiwan
	Current Situation and Possible Solutions of Acid Rain in South Korea	Dhongkyu Yoon Daewon Foreign Language High School, South Korea
	Enhancement of Methane Productivity of Anaerobic Reactors of Wastewater Treatment Plants	Aare Kuusik, Enn Loigu, Olev Sokk, Argo Kuusik Tallinn University of Technology, Department Of Environmental Engineering, Estonia
	Copper Contamination in the Sediments of northern Kaohsiung Harbor, Taiwan	Chiu-Wen Chen, Chih-Feng Chen, Cheng-Di Dong National Kaohsiung Marine University, Taiwan
	Environmental Performance Assessment Model as a Sustainability Decision Tool for Small and Middle Sized Enterprises	Pavol Molnar Pan European University, Slovakia

TENTATIVE TOKYO 2012 CONFERENCE PROGRAM

**The Complete Conference Registration is Required for Publication in the Conference Proceedings at
<http://www.waset.org/author.php>**

13:00 14:00	Lunch Break	
14:00 15:30	Chair : Yan Su	Session – III (Oral Presentation) – HALL A May 29, 2012
	Typical Day Prediction Model for Output Power and Energy Efficiency of a Grid-Connected Solar Photovoltaic System	Yan Su, Lai-Cheong Chan University of Macau, China
	Solar Roof Heater as Used in Organic Rankine Cycle	S. Kong Wang I - Shou University, Kaohsiung, Taiwan, Taiwan
	Pathway to reduce industrial energy intensity for energy conservation at Chinese provincial level	Shengnan Zhao, Yang Yu, Shenghui Cui Institute of Urban Environment, Chinese Academy of Sciences, China
	Influence of hydraulic retention time on biogas production from frozen seafood wastewater using decanter cake as anaerobic co-digestion material	Thaniya Kaosol, Narumol Sohgrathok Prince of Songkla University, Thailand
	2-D Ablated Plasma Production Process for Pulsed Ion Beam-Solid Target Interaction	Thanat Rungsirathana, Vorathit Rungsetthaphat, Shogo Azuma, Nobuhiro Harada University of the Thai Chamber of Commerce, Thailand
	Effect of Metal doping (M=Co, Mg, Ba) and Morphology (Nano rods, Quantum dots, Nano particles) on Structural, Optical and Photocatalytic Properties of ZnO	Selvam, S. Narayanan, L. John Kennedy, J. Judith Vijaya Dept Of Chemistry, Loyola College, Chennai, India
	Development of a Novel Pneumatic Hybrid Engine	Yu-Ta Shen, Yean-Ren Hwang National Central University, Taiwan
	New Concept for the Overall Use of Renewable Energy	Chang-Hsien Tai, Uzu-Kuei Hsu, Jr-Ming Miao, Yong-Jhou Lin Air Force Institute of Technology, Taiwan
15:30 17:00	Chair : Orlando Castellanos Diaz	Session – IV (Oral Presentation) – HALL A May 29, 2012
	Laboratory Scale Extraction of Sugar Cane Using High Electric Field Pulses	Mohammad Naghi Eshtiaghi, Nuttawan Yoswathana Mahidol University, Department of Chemical Engineering, Thailand
	Industrial PI Controller Design of a Smith Predictor for Optimal Servo Control of a FOPDT Process with Output Constraint	Hien Cao Thi Thu, Truong Nguyen Luan Vu, Moon Yong Lee Chemical Engineering Department, Yeungnam University, Korea
	Enhancement of Essential Oil from Agarwood by Subcritical Water Extraction and Pretreatments on Hydrodistillation	Nuttawan Yoswathana Mahidol University, Thailand
	Dye-Sensitized Solar Cell by Plasma Spray	C.C. Chen, C.C. Wei, S.H. Chen, S.J. Hsieh, W.G. Diau National United University, Taiwan
	The Surface Adsorption of Nano-pore Template	Mann-Juin Kao, S.F. Chang, C.C. Chen, C.G. Kuo National Taiwan Normal University, Taiwan
	Modification and Characterization of Bacterial Cellulose Biopolymer as Proton Conducting Membrane	Chi-Wen Lin, S.W. Chen National Yunlin University of Science and Technology, Taiwan
	Experimental Investigation of a Novel Reaction in Reduction of Sulfates by Natural Gas as a Reducing Agent	Ali Ghiaseddin, Akram Nemati Nopashimi CO., Iran
	Hydrogen Integration in Petrochemical Complexes, Using Modified Automated Targeting Method	M. Shariati, N. Tahouni, A. Khoshgard, M.H. Panjeshahi University of Tehran, Iran
	Optimum Design of an Absorption Heat Pump Integrated with a Kraft Industry Using Genetic Algorithm	B. Jabbari, N. Tahouni, M. H. Panjeshahi University of Tehran, Iran
	Mixing Behaviors of Wet Granular Materials in Gas Fluidized Beds	Eldin Wee Chuan Lim National University of Singapore, Singapore
	Modeling the Vapor Pressure of Biodiesel Fuels	Orlando Castellanos Diaz, F. Schoeggel, H. Yarranton, M. Satyro, T. Lovestead, T. J. Bruno University of Calgary, Canada
May 29, 2012		Tuesday
09:00 11:00	Chair : Carlos Cuadra	Session – V (Oral Presentation) – HALL B May 29, 2012

TENTATIVE TOKYO 2012 CONFERENCE PROGRAM

**The Complete Conference Registration is Required for Publication in the Conference Proceedings at
<http://www.waset.org/author.php>**

	Thermal and Visual Performance Of Solar Control Film	Norzita Jaafar, Nor Zaini Zakaria, Azni Zain Ahmed, Razidah Ismail Universiti Teknologi Mara, Malaysia
	GA-BP Neural Network Based Inferential Sensor In Adaptive Set-Point Heat Exchanger In District Heating System	Liang Huang, Zaiyi Liao Ryerson University, Canada
	Effects of Energy Consumption on Indoor Air Quality	Mika Raatikainen University of Eastern Finland, Finland
	Wireless Building Monitoring and Control System	J.-P. Skön, M. Johansson, O. Kauhanen, M. Raatikainen, K. Leiviskä, M. Kolehmainen University of Eastern Finland, Finland
	Planning the building evacuation routes by a spatial network	Hsin-Yun Lee Department of Civil Engineering, National Ilan University, Taiwan
	Comparison of FAHP and TOPSIS for Evacuation Capability Assessment of High-rise Buildings	Peng Mei University of Science and Technology of China, China
	Application of Smart Temperature Information Material for the evaluation of heat storage capacity and insulation capacity of exterior walls	Chih-Yuan Chang, Jin-Chiuan Chang, San-Shan Hung, Cheng-Jui Hsu Department of Civil Engineering, Feng Chia University, Taiwan
	Experimental analysis on electrical and photometric performances of commercially available integrated compact fluorescent lamp	Hu-Hsiao Hsu , Po-Ren Chung, Ming-Chin Ho, Chieh-Feng Tsai, Che-Ming Chiang, Shin-Ku Lee National Cheng Kung University, Taiwan
	Engineering geological characteristics of soil materials, East Nile Delta, Egypt	Ismail Ali Ismail Mohamed, N. Ryden National Research Centre, Egypt
	The Conceptual Model And Interpretation Of Coaxial And Non-coaxial Strain in Textural Maturity Of Sediments In Lowlands	Rajaraman Jambunathan Amet University, Chennai, India
	Behavior of RC Buildings to Tsunami Action	Carlos Cuadra Akita Prefectural University, Japan
11:00 11:15	Coffee Break	
11:15 13:00	Chair : Petr Těplý	Session – VI (Oral Presentation) – HALL B May 29, 2012
	Audio User Interface for Visually Impaired Computer Users	S. R. B. Rajapakse, D. M. P. Dias, K. K. G. Weerasekara, G. D. S. P. Wimalaratne, A. T. Dharmaratne University of Colombo School of Computing, Sri Lanka
	Analysis of Aiming Performance for Games Using Mapping Method of Corneal Reflections Based on Two Different Light Sources	Yoshikazu Onuki Tokyo Institute of Technology, Japan
	Human Interactive E-learning Systems Using Head Posture Images	Yucel Ugurlu Aoyama Gakuin University, Japan
	The Mutated Distance between Two Mixture Trees	Wan Chian Li, Justie Su-Tzu Juan, Yi-Chun Wang, Shu-Chuan Chen National Chi Nan University, Taiwan
	Metal streak analysis with different acquisition settings in postoperative spine imaging: A phantom study	Noor Diyana Osman, Md Saion Salikin, M Iqbal Saripan MARA University of Technology Malaysia, Malaysia
	Detecting and Tracking Vehicles in Airborne Videos	Hsu-Yung Cheng, Chih-Chang Yu National Central University, Taiwan
	Multi-VSS Scheme by Shifting Random Grids	Jo-Yi Chang, Justie Su-Tzu Juan National Chi Nan University, Taiwan
	Eye Gesture Analysis for Driver Hazard Awareness	Siti Nor Hafizah Mohd Zaid Staffordshire University, United Kingdom
	Active Intra-ONU Scheduling with Cooperative Prediction Mechanism in EPONs	Chuan-Ching Sue, Shi-Zhou Chen, Ting-Yu Huang National Cheng Kung University, Taiwan
	New triangle-ring UWB bandpass filter with sharp roll-off and dual-notched bands	Hung-Wei Wu, Yung-Wei Chen, Yu-Fu Chen, Cheng-Yuan Hung Department of Computer and Communication, Kun Shan University, Taiwan
	Optimal Prices under Revenue Sharing Contract in a Supply Chain with Direct Channel	Aussadavut Dumrongsiri Sirindhorn International Institute of Technology, Thammasat University, Thailand

TENTATIVE TOKYO 2012 CONFERENCE PROGRAM

**The Complete Conference Registration is Required for Publication in the Conference Proceedings at
<http://www.waset.org/author.php>**

	The application of regulatory impact assessment (RIA) on the Czech financial market	Petr Těplý, Jana Chváilková, Petr Janský Charles University in Prague, Czech Republic
13:00 14:00	Lunch Break	
14:00 16:00	Chair : Gilwon Yoon	Session – VII (Oral Presentation) – HALL B May 29, 2012
	An LMI Approach of Robust H_{∞} Fuzzy State-Feedback Controller Design for HIV/AIDS Infection System with Dual Drug Dosages	Wudhichai Assawinchaichote King Mongkut's University of Technology Thonburi, Thailand
	Generator Damage Recognition Based on Artificial Neural Network	Chang-Hung Hsu, Chun-Yao Lee, Guan-Lin Liao, Yung-Tsan Jou, Jin-Maun Ho, Yu-Hua Hsieh, Yi-Xing Shen Chung Yuan Christian University, Taiwan
	Applying fuzzy analytic hierarchy process for evaluating service quality of online auction	Chien-Hua Wang, Meng-Ying Chou, Chin-Tzong Pang Yuan Ze University, Taiwan
	The research of fuzzy classification rules applied on CRM	Chien-Hua Wang, Meng-Ying Chou, Chin-Tzong Pang Yuan Ze University, Taiwan
	An Semantic Space Based Algorithm for Document Categorization	Xu Zhao Shanda Innovations, China
	Method of Intelligent Fault Diagnosis of Preload Loss for Single Nut Ball Screws through the Sensed Vibration Signals	Yi-Cheng Huang National Changhua University of Education, Taiwan
	Modeling of the Internet Film Piracy - Preliminary Report	Pavel Janak University of Economics, Faculty of Management, Jindřichuv Hradec, Czech Republic
	The Frame Analysis and Testing for Student Formula	Tanawat Limwathanagura, Thanyarat Singhanart Chulalongkorn University, Thailand
	Promoting mental and spiritual health among postpartum mothers to extent breastfeeding period	Srikiat Anansawat, Pitsamai Ubonsri Suranaree University of Technology, Thailand
	Implementation of Security Algorithms for u-Health Monitoring System	Jiho Park, Yong-Gyu Lee, Gilwon Yoon Seoul National University of Science and Technology, South Korea
	Improvement of Blood Detection Accuracy using Image Processing Techniques suitable for Capsule Endoscopy	Yong-Gyu Lee, Gilwon Yoon Seoul National University of Science and Technology, South Korea
Wednesday May 30, 2012		
09:00 11:00	Chair : Olaf Hallan Graven	Session – VIII (Oral Presentation) – HALL A May 30, 2012
	The use of a bespoke computer game for teaching analogue electronics	Olaf Hallan Graven, Dag Samuelsen Buskerud University College, Norway
	Teaching students the Black Magic of Electromagnetic Compatibility	Dag Andreas Hals Samuelsen Buskerud University College, Norway
	A Fast Block-based Evolutionary Algorithm for Combinatorial Problems	Lien Chung Wang Department of Information Management, Yuan Ze University, Taiwan
	Combine a population-based incremental learning with artificial immune system for Intrusion Detection System	Pei-Chann Chang, Jheng-Long Wu, Hsuan-Ming Chen Department of Information Management, Yuan Ze University, Taiwan
	Noise Factors of RFID-Aided Positioning	Weng Ian Ho University of Macau, Macau
	Development of Decision Support System for House Evaluation and Purchasing	Chia-Yu Hsu, Julaimin Goh, Pei-Chann Chang Yuan-Ze University, Taiwan
	Building a Trend Based Segmentation Method with SVR Model for Stock Turning Detection	Jheng-Long Wu Department of Information Management, Yuan Ze University, Taiwan
	Vertical Micromirror Fabrication by X-ray Lithography for Single Mode Optical Fiber Switching Applications	Runglada Chimchang, Rangsang Tongta, Rungrueang Phatthanakun Suranaree University of Technology, Thailand
	A New Proportional - Pursuit is Coupled Guidance Law with Actuator Delay Compensation	Chien-Chun Kung, Feng-Lung Chiang, Kuei-Yi Chen, Hsien-Wen Wei, Ming-Yi Huang, Cai-Ming Huang, Sheng-Kai Wang Department of Mechatronic, Energy and Aerospace Engineering, Chung Cheng Institute of Technology, National Defense University, Taiwan

TENTATIVE TOKYO 2012 CONFERENCE PROGRAM

**The Complete Conference Registration is Required for Publication in the Conference Proceedings at
<http://www.waset.org/author.php>**

	Envelope Echo Signal of Metal Sphere in The Fresh Water	Azrul Bin Mahfudz Polytechnic Sultan Hj Ahmad Shah, Malaysia
	A short reflection on the strengths and weaknesses of simulation optimization	Pavel Vazan, Pavol Tanuska Slovak University of Technology, Faculty of Material Science and Technology in Trnava, Slovakia
	File System-Based Data Protection Approach	Jaechun No Sejong University, South Korea
	Development of Non-Functional Requirements for Decision Support Systems	Kassem Saleh Kuwait University, Kuwait
	Adopting Procedural Animation Technology to Generate Locomotion of Quadruped Characters in Dynamic Environments	Zongyou He, Bashu Tsai, Chinhung Ko, Tainchi Lu Department of Computer Science and Information Engineering, National Chiayi University, Chiayi, Taiwan
11:00 11:15	Coffee Break	
11:15 13:00	Chair : Eswara Anniganahally Thammaiahsetty	Session – IX (Oral Presentation) – HALL A May 30, 2012
	Methodology for Distributed Assessment Tacit Knowledge Extraction (DATKE)	Ibrahim S. Alwatban, Abdulaziz O. Alsadhan, Abdullah S. Al-Mudimigh King Saud University, Saudi Arabia
	Enabling Automated Deployment for Cluster Computing in Distributed PC Classrooms	Shuen-Tai Wang, Ying-Chuan Chen, Hsi-Ya Chang National Center for High-performance Computing, Taiwan
	Evaluating per-user fairness of goal-oriented parallel computer job scheduling policies	Sangsuree Vasupongayya Prince of Songkla University, Thailand
	Mutually Independent Hamiltonian Cycles of $C_n \times C_n$	Kai-Siou Wu, Justie Su-Tzu Juan National Chi Nan University, Taiwan
	The Balanced Hamiltonian Cycle on the Toroidal Mesh Graphs	Wen-Fang Peng, Justie Su-Tzu Juan National Chi Nan University, Taiwan
	Research Trend Analysis – A sample in the Field of Information Systems	Hei Chia Wang, Wei-Pin Chiu National Cheng Kung University, Taiwan
	Simulation of Activity Stream inside Energy Social Business Environment using Assemblage Theory and Simplicial Complex Tool	Soulier Eddie, Calvez, Bugeaux, Rousseaux, Legrand University of Technology of Troyes, France
	Dynamic voltage stability estimation using particle filter	Osea Zebua Kyushu Institute of Technology, Japan
	Reduction of Chloride Dioxide in Paper Bleaching Using Peroxide Activation	Ayo Afolabi, Rudzani Sigwadi, Nkosikhona Xaba, Ambali Abdulkareem University of South Africa, South Africa
	An Assessment of Software Process Optimization Compared to International Best Practice in Bangladesh	Mohammad Shahadat Hossain Chowdhury, Tania Taharima Chowdhary, Hasan Sarwar United International University, Bangladesh
	Towards Cloud Computing Anatomy	Maria Salama, Mohamed Kouta Arab Academy for Science, Technology & Maritime Transport, Egypt
	Behavioral signature generation using shadow honeypot	Maros Barabas, Michal Drozd, Petr Hanacek Faculty of Information Technology, Brno University of Technology, Czech Republic
13:00 14:00	Lunch Break	
Wednesday		May 30, 2012
09:00 11:00	Chair : Eswara Anniganahally Thammaiahsetty	Session – X (Oral Presentation) – HALL B May 30, 2012
	Analytical and Experimental Study on the Effect of Air-Core Coil Parameters on Magnetic Force Used in a Linear Optical Scanner	Loke Kean Koay, Horizon Gitano-Briggs, Mani Maran Ratnam Universiti Sains Malaysia, Malaysia
	Dynamics and Control of a Chaotic Electromagnetic System	Shun-Chang Chang Da-Yeh University, Taiwan

TENTATIVE TOKYO 2012 CONFERENCE PROGRAM

**The Complete Conference Registration is Required for Publication in the Conference Proceedings at
<http://www.waset.org/author.php>**

	Optimization of Aluminum Foam Weight to Increase Absorption Energy in Melt Process	Ali Akbar Mottahedi, Mahdi Mottahedi Research Organization for Science and Technology, Iran
	Model Reference Robust Backstepping Design for Pneumatic Driven Ball Screw Table System	Chia Hua Lu, Yean-Ren Hwang National Central University, Taiwan
	Dynamic Responses of Two Beams Connected by Multiple Spring-mass Devices	Hai-Ping Lin Da-Yeh University, Changhua, Taiwan
	The development of Chulalongkorn University's SAE student formula's space frame	Chartree Sithananun, Thanyarat Singhanart Chulalongkorn University, Thailand
	Fabricating protruded micro-features on AA6061 substrates by hot embossing method	Nhat Khoa Tran, Yee Cheong Lam, Chee Yoon Yue, Ming Jen Tan Nanyang Technological University, Singapore
	MHD Falkner-Skan Boundary Layer Flow with Internal Heat Generation Or Absorption	G.Ashwini, Eswara Anniganahally Thammaiahseetty P.E.S.College of Engineering, Mandya, India
11:00 11:15	Coffee Break	
11:15 13:00	Chair : Po Ting Lin, Salah Elshourbagy	Session – XI (Oral Presentation) – HALL B May 30, 2012
	Creation of a new software used for palletizing process	Dusan Kravec Faculty of Mechanical Engineering, Slovak University of Technology, Slovak Republic
	Experiment and Simulation of Laser Effect on Thermal field of Porcine Liver	Yun-Liang Su, Kuen Ting Lunghwa University of Science and Technology, Taiwan
	Effects of Mold Surface Roughness on Compressible Flow of Micro Injection Molding	Quoc Mai Phuong Nguyen, Chen X., Lam Y. C., Yue C. Y. Nanyang Technological University, Singapore
	Study of Forging Process in 7075 Aluminum Alloy Professional Bicycle Pedal Using Taguchi Method	Dyi-Cheng Chen, Wen-Hsuan Ku, Ming-Ren Chen Department of Industrial Education and Technology, National Changhua University of Education, Taiwan
	Investigation of behavior on the contact surface of the tire and ground by CFD simulation	Min-Feng Sung, Yean-Der Kuan, R. J. Shyu, S. M. Lee National Chin-Yi University of Technology, Taiwan
	Development of Low-profile Antenna for Mini UAV with Reconnaissance Mission	Chien-Chun Hung, Yao-Jen Teng, Yung-Sheng Tien, Yu-Tsung Tsai Department of Mechatronic, Energy and Aerospace Engineering, Chung Cheng Institute of Technology, National Defense University, Taiwan
	Forest Growth Simulation: Tropical Rain Forest Stand Table Projection	Yasmin Yahya, Roslan Ismail, Samreth Vanna, Khorn Saret University Kuala Lumpur, Malaysia
	Comparison of Response Surface Designs in a Spherical Region	Boonorm Chomtee Kasetsart University, Thailand
	Principal Component Analysis for the Characterization in the Application of Some Soil Properties	Kamolchanok Panishkan, Kanokporn Swangjang, Natdhera Sanmanee, Daoroong Sungthong Silpakorn University, Thailand
	SDVAR Algorithm for Detecting Fraud in Telecommunications	Fatimah Almah Saaid University of Newcastle Australia, Australia
	Effect of lubrication on the quantity of heat emission of two spur gears in meshing	Salah Elshourbagy Tanta University, Egypt
	Efficient Design Optimization of Multi-State Flow Network for Multiple Commodities	Yu-Cheng Chou, Po Ting Lin Mechanical Engineering at Chung Yuan Christian University, Taiwan
13:00 14:00	Lunch Break	
10:00 13:00	e-Session, May 29, 30 2012 (HALL A – HALL B)	
	Identification of antihypertensive peptides from oyster hydrolysate and blood pressure-lowering effect in SHR	Jenn-Shou Tsai, Pi-Yu Liu, Chia-Lin Chiang, Bonnie Sun Pan Department of Food Science, National Taiwan Ocean University, Taiwan
	Energy Evaluation and Utilization of Cassava Peel for Lactating Dairy Cows	Pipat Lounglawan, Yutthapong Sornwongkaew, Wassana Lounglawan, Wisitiporn Suksombat Suranaree University of Technology, Thailand
	Enhance Halorespiration in Rhodospseudomonas palustris with Cytochrome P450cam System from Pseudomonas	Shou-Chen Lo, Chia-Ching Lin, Chieh-Chen Huang National Chung Hsing University, Taiwan, Republic of China

TENTATIVE TOKYO 2012 CONFERENCE PROGRAM

**The Complete Conference Registration is Required for Publication in the Conference Proceedings at
<http://www.waset.org/author.php>**

	putida	
	Spine Evaluation Device with Visual Feedback	Tamotsu Hirata, Grasiela Hideko Yokoyama, Luiz Heleno Moreira Duque Paulista State University, Brazil
	Evolutionary origin of the α C helix in integrins	Konstantin Denessiouk, Mark S. Johnson Turku Centre for Biotechnology, University of Turku and Åbo Akademi University, Turku, Finland
	Uniform Heating during Focused Ultrasound Thermal Therapy	To-Yuan Chen, Tzu-Ching Shih, Hao-Li Liu, Kuen-Cheng Ju Department of Biomedical Engineering, I-Shou University, Taiwan
	Capacitive ECG Measurement by Conductive Fabric Tape	Yue-Der Lin, Ya-Hsueh Chien, Yen-Ting Lin, Shih-Fan Wang and Ching-Che Tsai Feng Chia University, Taiwan
	Retrospective Synthetic Focusing with Correlation Weighting for Very High Frame Rate Ultrasound	Chang-Lin Hu, Yao-You Cheng, Meng-Lin Li, Chang-Lin Hu, Shan-Yi Yang, I-Cheng Cheng, Shioh-Harn Lee, Yu-Sheng Chen, Yu-Kon Chou Industrial Technology Research Institute, Taiwan
	Investigation of the fibrous protection material using shear thickening liquid	Po-Yun Chen, Jui-Liang Yen, Chang-Ping Chang, Wen-Hua Hu, Yu-Liang Chen, Yih-Ming Liu, Chin-Yi Chou, Ming-Der Ger National Defense University Chung Cheng Institute of Technology, Taiwan
	Fabrication Transparent Conductive Films by Modified Graphene Sheets	You Yu Peng, N. W. Pu, Y.M. Liu, M. D. Ger School of Defense Science, Chung Cheng Institute of Technology, National Defense University, Taiwan
	The study of fabricating the field emission lamps with carbon nano-materials	Kun-Ju Chung, C.C.Chiang, Y.M. Liu, N. W. Pu, M. D. Ger School of Defense Science, Chung Cheng Institute of Technology, National Defense University, Taiwan
	Ultrasound assisted method to increase the aluminum dissolve rate from acidified water purification sludge	Wen Po Cheng, Chi Hua Fu, Ping Hung Chen, Ruey Fang Yu Department of Safety, Health and Environmental Engineering, National United University, Taiwan
	Stereoselective Reduction of Amino Ketone with Sodium Borohydride in the presence of Metal Chloride. A Simple Pathway to S-Propranolol	Rachaneebhorn Inkum, Aphiwat Teerawutgulrag, Pakawan Puangsombat, Nuansri Rakariyatham Chiang Mai University, Thailand
	Energy Consumption in Forward Osmosis Desalination Compared to Other Desalination Techniques	Ali Shoeb Moon, Moonyong Lee Yeungnam University, South Korea
	Preparation of Polylactic Acid Graft Polyvinyl Acetate Compatibilizers for 50/50 Starch/PLLA Blending	Suthawan Buchatip National Metal and Materials Technology Center (MTEC), Thailand
	Synthesis and Characterizations of Functionalized Polylactic Acid Copolymers	Wilairat Supmak National Metal and Materials Technology Center, Thailand
	Biokinetics and coping mechanism of freshwater tilapia following chronically exposure to waterborne and dietary copper	Jeng-Wei Tsai Institute of Ecology and Evolutionary Biology, China Medical University, Taiwan
	The Design of Self-evolving Artificial Immune System II for Permutation Flowshop Problem	Meng-huei Chen Department of Information Management, Yuan Ze University, Taiwan
	Analysis and Performance Evaluation of Noise-Reduction Transformer	Toshiaki Yanada, Kazumi Ishikawa Tohoku Bunka Gakuen University, Japan
	M-Pest: A Design Framework for Event Recommendation from User-Generated Content in Novice and Low-Literacy Communities	Yimeng Deng, Klarissa T.T. Chang National University of Singapore, Singapore
	High capacity data hiding based on predictor and histogram modification	Hui-Yu Huang, Shih-Hsu Chang National Formosa University, Taiwan
	Face localization and recognition in varied expressions and illumination	Hui-Yu Huang, Shih-Hang Hsu National Formosa University, Taiwan
	A Low Noise Microwave Filter with Minimum Distortion	Cheng-Yuan Hung, Wei-Yu Chen Department of Electrical Engineering and Computer Sciences, Tung-Fang Design University, Taiwan
	Evaluation of Evolution Strategy, Genetic Algorithm and Their Hybrid on Evolving Autonomous Game AI Agents	Hidehiko Okada, Jumpei Tokida Kyoto Sangyo University, Japan
	Comparison of Evolutionary Algorithms and their Hybrids Applied to MarioAI	Hidehiko Okada, Yuki Fujii Kyoto Sangyo University, Japan

TENTATIVE TOKYO 2012 CONFERENCE PROGRAM

**The Complete Conference Registration is Required for Publication in the Conference Proceedings at
<http://www.waset.org/author.php>**

Research on Strategy for Automated Scaleless-Map Compilation	Yin Jie, Yin Yong Chinese Academy of Surveying and Mapping, R. P. China
Analysis of Cost Estimation and Payment Systems for Consultant Contracts in the US, Japan, China And the UK	Shyh-Hsu Wang, Yuan-Yuan Cheng, Ming-Tsung Lee, Wei-Chih Wang Department of Civil Engineering, ROC Military Academy, Taiwan
Calculation of Voided Slabs Rigidities	Gee-Cheol Kim, Joo-Won Kang Seoil University, Korea
Study of Aero-thermal effects with Heat Radiation in Optical Side Window	Chun-Chi Li, Da-Wei Huang, Yin-Chia Su, Liang-Chih Tasi Department of Mechatronic, Energy and Aerospace Engineering, Chung Cheng Institute of Technology, National Defense University, Taiwan
Application of sequence diagram within transport device sensorial system design	Nina Danišová, Roman Ružarovský, Karol Velišek Faculty of Materials Science and Technology, Slovak Republic
Design methodology for sensory and actuating equipment in intelligent assembly cell	Nina Danišová, Roman Ružarovský, Karol Velišek Slovak university of technology in Bratislava, Slovak republic
Kinematic Analysis of Roll Motion for a Strut/SLA Suspension System	Yung Chang Chen, Po Yi Tsai, I An Lai Automotive Engineering Department, National Pingtung University of Science and Technology, Taiwan
Retaining Structural System Active Vibration Control	Ming-Hui Lee, Shou-Jen Hsu Republic of Chinese Military Academy, Taiwan, R.O.C.
Experimental Study of Thermal Environment in a Room with Mixing Ventilation	Dong-Mei Pan, Liang Xia, Ming-Yin Chan The Hong Kong Polytechnic University, China
Auto-Parking System via Intelligent Computation Intelligence	Y. J. Huang, C. H. Chang Yuan Ze University, Taiwan
Numerical modeling of Steel-composite hybrid tubes subject to static and dynamic loading	Tai YuhShiou Department of Civil Engineering, ROC Military Academy, Taiwan, ROC
SIMGraph: Simplifying contig graph to improve de novo genome assembly using next-generation sequencing data	Tien-Hao Chang, Yu Chun-Hui National Cheng Kung University, Taiwan
A Generalized Coordination Setting Method for Distribution Systems with Closed-loop	Kang-le Guan, Seung-Jae Lee, Myeon-Song Choi Department of Electrical Engineering, Myong-ji University, Korea
Estimation of Non-Stationary Transition of Dynamic Wireless Transmission Channels	Ali Mansour Sensor Networks & Cellular Systems Research Center, University of Tabuk, KSA
Development Prospects of Education System in modernization	Akbar Seraly, Kazbek Primbetov, Gulmira Abdiraimova, Gulnapis Abdikerova Al-Farabi Kazakh National University, Kazakhstan
Islam in Kazakhstan: Modern Trends and Stages of Development	G. Nassimova, A. Balapanova, B. Moldakhmet, Sh. Zhandossova, A. Asan; Al-Farabi Kazakh National University, Kazakhstan
«Political Islam»: Conceptual Problems in the Relationship of Politics and Islam	Zarema Shaukenova, Bakhytzhon Satershinov, Sholpan Zhandossova Institute of Philosophy and Political science of Science committee MES RK, Kazakhstan
The U.S. and Western Europe role in resolving the religious conflicts in Central Asia	Zhanar Aldubasheva, Mukhtar Senggirbay, Elnura Assyltayeva Al-Farabi Kazakh National University, Kazakhstan
Formation and Development of a New System of Government of the Republic of Kazakhstan in the Globalization	Kadyrzhan Smagulov, Beken Makhmutov, Abai Kurmankulov Kazakh National University named after al-Farabi, Kazakhstan
The Role Of State In Combating Religious Extremism And Terrorism	Kadyrzhan Smagulov, Mukhtar Senggirbay, Sholpan Zhandossova, Lyaila Ivatova, Gulnar Nassimova the al-Farabi Kazakh National University, Kazakhstan
Effect of some psychoactive agents on memory in rats with regard to aluminum-induced dementia	Abdel- Azim Abdel-Moez Assi, Raafat Abdel-Badeaa Abdel-Aal, Botros Beniamin Kostandy College of Medicine, Assiut University, Egypt
The New Drawing less Manufacturing Laboratory	Peter Kostal, Karol Velisek Slovak University of Technology, Slovakia
Efficient Hardware Implementation of an Elliptic Curve Cryptographic Processor Over GF(2163)	Massoud Masoumi, Hosseyn Mahdizadeh Islamshahr Islamic Azad University, Islamshahr Branch, Iran
Evaluation of Zinc status in the Sediments of the Kaohsiung Ocean Disposal Site, Taiwan	Chiu-Wen Chen, Chih-Feng Chen, Cheng-Di Dong National Kaohsiung Marine University, Taiwan

TENTATIVE TOKYO 2012 CONFERENCE PROGRAM

**The Complete Conference Registration is Required for Publication in the Conference Proceedings at
<http://www.waset.org/author.php>**

	Distribution and Source of PAHs in Surface Sediments of Canon River Mouth, Taiwan	Chiu-Wen Chen, Chih-Feng Chen, Cheng-Di Dong National Kaohsiung Marine University, Taiwan
	Evaluation of Chromium Contamination in the Sediments of Jen-Gen River Mouth, Taiwan	Chiu-Wen Chen, Chih-Feng Chen, Cheng-Di Dong National Kaohsiung Marine University, Taiwan
	The role of private equity during global crises	Petr Teplý, Libena Cernohorska, Veronika Linhartova, Michal Sinka Charles University in Prague, Czech Republic
	An analysis of economic capital allocation of global banks	Petr Teplý, Ondrej Vejdovec Charles University in Prague, Czech Republic
	Methods of estimating the equilibrium real effective exchange rate (REER)	Pavla Ruzickova, Petr Teplý Charles University in Prague, Czech Republic
	Technical Equipment 1- Laptop Computer 2- LCD Data Projector 3- USB Flash Drive - Memory 4- CD/DVD-ROM Drive	5- PowerPoint Presentation Remote with Laser Pointer 6- PowerPoint Presentation/ Acrobat Reader Software 7- Each Technical Presentation is 20 Minutes including Discussions