

出國報告（出國類別：學術交流）

美國德拉瓦大學學術交流報告

服務機關：國立中興大學

姓名職稱：林明德 教授 / 張書奇 助理教授

派赴國家：美國

出國期間：2010.07.27-2010.08.01

報告日期：2010.10.26

摘 要

本系(中興大學環境工程學系)自 2009 年與美國德拉瓦大學(University of Delaware, USA)土木與環境工程學系簽訂博士班雙聯學位合作協議以來，至今已屆滿一年，雙方均尚未派出博士班交換學生，為繼續維繫雙方友好合作關係，故於 2010 年 7 月 27 日由本系系主任林明德教授陪同本人前往美國德拉瓦大學進行學術交流。此行又適逢該系黃金寶教授於 2010 年 7 月 29 日至 2010 年 7 月 31 日負責舉辦第六屆之國際水環境學術研討會，特地來函邀請本系系主任林明德教授與筆者前往發表論文並願意補助機票費用並提供研討會當天住宿與註冊費用，故於學術交流之後，順道參加此學術研討會。此行成果豐碩，並實質達到交流之目的，預計可於三年協議期滿後持續合作關係。

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一. 目的

本系(中興大學環境工程學系)自 2009 年與美國德拉瓦大學(University of Delaware, USA)土木與環境工程學系簽訂博士班雙聯學位合作協議以來，至今已屆滿一年，雙方均尚未派出博士班交換學生，為繼續維繫雙方友好合作關係，故於 2010 年 7 月 27 日由本系系主任林明德教授陪同本人前往美國德拉瓦大學進行學術交流。此行又適逢該系黃金寶教授於 2010 年 7 月 29 日至 2010 年 7 月 31 日負責舉辦第六屆之國際水環境學術研討會，特地來函邀請本系系主任林明德教授與筆者前往發表論文(如附件之邀請函)並願意補助機票費用(美金 1,300 元整)並提供研討會當天住宿與註冊費用，故於學術交流之後，順道參加此學術研討會。因此，此型目的有二，一為親自拜訪美國美國德拉瓦大學(University of Delaware, USA)土木與環境工程學系相關教授、系主任與工學院院長，以繼續維繫合作關係；一為順道參與第六屆之國際水環境學術研討會表示支持黃金寶教授所籌辦之研討會並進行論文發表進行實質可能合作之研究議題探討。

二. 過程

本人搭乘華航班機於 7 月 27 日深夜抵達紐約 JFK 國際機場，立即與林明德教授於 JFK 機場會合後，即前往機場租車處租賃一部交車之後即驅車前往 UD，經過約三小時路程，於 28 日半夜 3 點抵達，當夜先行住宿在一郊區之旅館。經稍事休息之後，上午完成相關禮品與紀念品分裝，中午用完午餐之後，即驅車前往會見 Pei C. Chiu 教授(邱培君教授)，邱培君教授為我國台灣大學之校友，同時也是本人指導教授在史丹福大學擔任博士後研究員之好友（當時邱培君教授正在史丹福大學攻讀博士學位）。林明德教授與邱培君教授主要針對邱教授即將於 2010 年 9 月至本校擔任客座教授相關是一進行討論，筆者則是針對本人實驗室目前進行之研究計畫與研究題目與邱教授進行意見交換。會談約一小時後，邱教授及陪我們進行 UD 教授與學術主管之拜會，首先拜會黃金寶教授，由於黃金寶教授正忙於籌備第二天之國際學術研討會，故未能長談。隨後邱教授陪同我們拜會系主任 Harry Shenton III 教授(見圖一)，以及工學院院長 Michael J. Chajes 教授。林明德教授均致贈具有相當高文化意涵之工藝品，系主任 Harry Shenton III 教授，以及工學院院長 Michael J. Chajes 教授均非常歡迎我們的到訪，並強調樂見未來長遠之合作關係持續下去。原本也計畫拜會 UD 之校長 Patrick T. Harker 教授，但因他個人行程安排之下，臨時未能見面。

適逢 C.P. Huang 教授於 29 日至 31 日在 UD 舉辦「6th International Conference on Sustainable Water Environment」國際研討會，林明德教授與本人於 2010 年 7 月 29 日開始

即參與該研討會，期間全程參加開幕式(見圖二)。29日晚上，林明德教授與本人應邀出席「美國華人環境工程教授學會(Chinese-American Professors in Environmental Engineering and Science, CAPEES)」的餐會(見圖三)，與美國華人環工教授進行交流，也獲邀參與該學會的運作與活動。

30日上午，本人於完成個人之學術論文發表(見圖四)後，中午即與林明德教授驅車前往紐約JFK國際機場，完成出租車輛之退還後，搭乘午夜的華航班機飛回台灣，中途於Anchorage短暫停留接駁乘客後，並於8月1日清晨6時許抵達桃園國際機場。

此行除達成主要目的之維繫雙方之友好合作關係外，也了解到該系非常希望此合作關係之持續發展，一部份之原因是因為全美各大學目前均相當強調國際合作，另一方面則是UD黃金寶教授與本校林其璋教授均在不斷促成此事。鑒於此行任務均圓滿達成，應可繼續雙方之合作，目前最關鍵者即在於選派優秀之博士生前往UD進行雙聯學位之攻讀，以達到實質之效果。



圖一 7月28日下午拜會UD相關學術主管，陪同林明德教授贈送大型國畫扇給德拉瓦大學土木與環境工程學系，由系主任Harry Shenton III教授(中)代表接受，右為林明德教授，左為筆者。



圖二 7月29日上午參加”6th International Conference on Sustainable Water Environment”國際研討會開幕式，校長Patrick T. Harker教授致詞



圖三 7月29日晚上參加美國華人環境工程教授學會(CAPEES)餐會後留影



圖四 7月30日本人於”The 6th International Conference on Sustainable Water Environment” 國際研討會進行論文發表之情形

三. 心得及建議

此行對於未來之實際效益為有效促進雙方進一步合作之意願，預期未來除可繼續維持此一雙聯學位協議外，也將進一步促成雙方教學與研究方面之交流，Pei Chiu 教授於 2010 年 9 月至本校擔任客座教授即為一例，未來將進一步促成本系進一步與國際頂尖大學進行跨領域與跨國之合作研究計畫之開展。

建議事項如下

1. 校方應多鼓勵老師進行此方面之交流，以加強本校與國外名校合作之機會，由於目前教師評鑑與升等機制均側重期刊論文發表，所以教師針對進行國際性學術交流與期刊論文發表並無助益，普遍不表興趣，長此以往，可能形成本校未來發展之阻礙。
2. 本校有許多教師當年均為國外名校高材生，當時之指導教授或是同學目前可能均位居學術要津，建議應加強鼓勵措施，英對於本校國際話可有明顯之幫助。
3. 建議校方在招攬國際學生時應多考慮地理或歷史上與中國接觸之國家，這些國家之學生可能較有興趣到台灣深造。

附 錄

- 一. 行程表
- 二. 邀請函
- 三. 會議議程

美國德拉瓦大學學術交流行程說明

日期	時間	說 明
2010/7/27	1000	搭車赴桃園機場
2010/7/27	1600	搭機赴美
2010/7/27	2130	抵達 JFK 國際機場
2010/7/27	2230	租車開車，預計 3 小時後抵達德拉瓦大學
2010/7/28	0200	抵達德拉瓦大學
2010/7/28	1330	與德拉瓦大學 Prof. Chiu 商談合作事宜
2010/7/28	1500	研討會報到
2010/7/29	全天	參加研討會
2010/7/30	1135	研究成果演講 Oral Presentation
2010/7/30	1400	回程，由德拉瓦大學開車 3 小時抵達 JFK 國際機場
2010/7/30	1900	抵達 JFK 國際機場
2010/7/30	2330	搭機返國
2010/7/31	全天	搭機返國中，通過國際換日線
2010/8/1	0650	抵達桃園機場並通關
2010/8/1	0800	搭車返抵台中



May 19, 2010

Shu-Chi Chang National Chung Hsing University Department of Environmental Engineering/Civil & Environ Bldg 250,Kuo Kuang Road Taichung Taiwan 40227

Email: shuchichang@nchu.edu.tw

Dear Prof. Shu-Chi Chang,

We are pleased to invite you to the 6th International Conference on Sustainable Water Environment to be held on July 29-31, 2010 on the campus of the University of Delaware as a presenter. We are pleased to offer you support for your airfare in the amount of \$1300.00. As an invited guest, we will also waive your registration fee and pay for your hotel accommodations for up to 3 nights.

The theme of the 6th ICSWE is "Sustainable water environment in responses to climate change". The meeting will be a 2-2.5-day event with several parallel technical sessions, including 1) impacts of climate change on water environment and responses, 2) emerging chemicals (e.g., PPCPs and nanomaterials), 3) water reuse/conservation (advanced technology , e.g., membranes, AOPs, case studies), 4) integrated watershed management (BMP, KPI), and 5) energy and aging issues in water infrastructure. In addition to platform and poster presentations, there will be a discussion panel on research needs for sustainable water environment in the afternoon on July 30.

Your paper/presentation entitled "High arsenic adsorption capacity of sub-4 nanometer magnetite nanoparticles," authors "Shu-Chi Chang, Yu-Han Yu, Chin-Ching Wu, Hao-Yun Lei, Yao-Tung Lin" has been accepted and your talk is prescheduled in the preliminary program attached. Please indicate in the space provided below if you will be attending the conference.

I will be attending the conference _____ I will not be attending the conference _____ My flight will arrive (time)_____at (airport)_____ My flight will depart (time)_____at (airport)_____

We look forward to seeing you at the conference in July. Thank you for your contribution. If you intend to make your travel plans soon, please send your itinerary as soon as possible. We may be able to coordinate transportation as others may have made similar travel plans.

Best regards,

C. P. Huang Donald C. Phillips Professor Civil and Environmental Engineering

Enc.

cc:Dana Marie Crumety, Conference Secretariat

***THE SIXTH INTERNATIONAL
CONFERENCE ON SUSTAINABLE
WATER ENVIRONMENT***

July 29-31, 2010

**UD Clayton Hall Conference Center
Newark, Delaware 19716**

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Delaware Environmental Institute
College of Engineering
Center for International Studies**

Preliminary Program

THE SIXTH INTERNATIONAL CONFERENCE ON SUSTAINABLE WATER ENVIRONMENT

Thursday, July 29, 2010 9:00 -9:30 AM:

Opening Session:

C. P. Huang, Conference Chair

Harry W. Shenton, III. Chair, Department of Civil and Environmental Engineering

Patrick Harker, President, University of Delaware

Michael J. Chajes, Dean, College of Engineering

Thursday, July 29, 2010, 9:30 -10:30 AM:

Keynote address:

Water Sustainability: The Need for Enabling Research; Paul L. Bishop; National Science Foundation

Safe and Sustainable Water; Charles I. Noss and Audrey Levine; US Environmental Protection Agency

Technical Session 1: Climate Change

Technical Session 2: Emerging Contaminants

Technical Session 3: Integrated Watershed Management

Technical Session 4: Water Conservation/Reuse

Technical Session 5: Water Infrastructures

POSTER SESSION

Technical Session 1: Climate Change

Thursday, July 29, 2010, 10:30 – 12:00 PM

- 1.1 Climate and human impacts on the vulnerability of coastal groundwater resources to seawater. H.A. Michael, L.S. Feinson, L. Byron, and C.I. Voss; Pennsylvania State University
- 1.2 Long-term Precursor Changes in an Upland Reservoir. David A. Reckhow and Amanda P. Keyes; University of Massachusetts
- 1.3 The Impacts of Climate Changes on Water Qualities of Dy-yu Creek Watershed, Taiwan. Jen-Yang Lin, Tsung-Hung Hsu, Shaw L. Yu
- 1.4 Physico-chemical properties of shallow domestic wells on a sandbar abutting coastal hypersaline tropical lagoon in Ghana. A. K. Armah, Samuel Addo, S. D. Ababio and E. Lamptey; University of Ghana

Thursday, July 29, 2010, 1:00 – 3:05 PM

- 1.5 Case study of a BioMF mobile water treatment system in Taiwan after "Typhoon Morakot of 2009. Chow, Shanshan, Ren-Yang Horng, Jason Hsia, Chien-Hung Chen; Industrial Technology Research Institute.
- 1.6 Modeling Climate change Impacts on Nutrients Loading in a Watershed in Taiwan; Chiueh, Pei-Te, Ning-Hsin Chung, Zong-Min Yang, Shang-Lien Lo
- 1.7 Impact of Typhoon Morakot on Water Environments of Gaoping River Drainage Basin in Southern Taiwan. Lien, Hsing-Lung, Guo-Ping chang-Chien, Cheng-Di Dong, Ching Yuan, Shu-Kuang Ning; National University of Kaohsiung
- 1.8 Reinforcing Flood Protection Structures in the Lowlands of Bangladesh: A Case Study in Climate Change Adaptation. Rasheed, K.B. Sajjadur; Independent University Bangladesh Dhaka
- 1.9 Status and Development Proposal for Municipal Wastewater Reuse in China. Jun Li, Chein-Chi Chang, Yannian Zhou, Su Wei; Zhejiang University of Technology

Thursday, July 29, 2010, 3:20 – 5:00 PM

- 1.10 Participatory management and water users. Sumiani, Y., Farideh O. Ali G. Mohammed M. Mahdi N.; University of Malaya
- 1.11 Geoenvironmental and Hydrological Impact on Bao-Lai Hot Spring Recreation Area in Southern Taiwan by Typhoon Morakot: Environmental Impact Assessment Revisited. Yuan Ching, Shu-Kuang Ning, Hsing-Luen Lien, Ming-Hao Wu, National University of Kaohsiung
- 1.12 Reservoir Capacity Planning with respect to Hydrological Features and Environmental Quality.

- Chen, Ho-Wen, Ni-Bin Chang, Shu-Fen Cheng, Chu-Kuang Ning; Chaoyang University of Technology
- 1.13 Wastewater system Assets Management in a Chaiging Climate; Opila, Mary Cate and Nii Attoh-Okine

Technical Session 2: Emerging Contaminants

Thursday, July 29, 2010, 10:30 – 12:00 PM

- 2.1 Broader issues
 1. The Simultaneous Removal of Nitrogen and Emerging Contaminants. Nancy G. Love, Wendell Khunjar, Diana S. Aga; University of Michigan
 2. How to comprehensively assess the toxicity of complex sediment contaminations or emerging materials and chemicals? Christian E.W. Steinberg, Ralph Menzel, Steffen Herrmann, Stephen Stürzenbaum; Humboldt Universität zu Berlin
 3. Monitoring of Estrogenic Chemicals Using Biological and Chemical Approaches in South Korean Surface and Waste Waters. Ra, Jin Sung, Sun Hong Lee, Jiho Lee, Junho Jeon, Hyun Y. Kim, Sang D. Kim, Hoon K. Choi, Sang Don Kim; Gwangju Institute of Science and Technology
 4. An integrated approach to evaluate emerging contaminants in drinking water. Jardim, Wilson; Universidade Estadual de Campinas

Thursday, July 29, 2010, 1:00-3:00 PM

- 2.2 PPCPs
 1. Reactions of Chlorine Dioxide and Free Chlorine with Fluoroquinolone and Tetracycline Antibiotics under Water Treatment Conditions. Huang, Ching-Hua, Pei Wang, Yi-Liang He; Georgia Institute of Technology
 2. Degradation of Endocrine Disrupting Chemicals during Activated Sludge Reduction by Ozone. Qiang, Zhimin, Yafeng Nie; Chinese Academy of Sciences
 3. Investigation of Endocrine Activity in Water by SPMD. Chen, Chien Min, Da Ji Huang, Jui-Chun Liao, Jiau-Zhe Yan, Chia-Hung Chou; Chia Nan University of Pharmacy and Science
 4. Microbubble Ozonation of Ibuprofen in Aqueous Solution. Sung, Menghau, In-chang Tsai; Tunghai University
 5. Degradation of tetracycline by ozonation in combination with ultrasonic irradiation in a rectangular air-lift reactor. Wang, Yan, Daobin Zhang, Hui Zhang; Wuhan University

Thursday, July 29, 2010, 3:20 – 5:00 PM

6. Polybrominated Diphenyl Ethers (PBDEs) in Fish from the Delaware River Basin; Richard Greene, Department of Environmental and Natural Resource, DE
7. Composition and Source Apportionment of PAHs in Surface Sediments of River Mouth and channel from Kaohsiung Harbor, Taiwan. Chen, Chih-Feng, Chih-Ming Kao, Cheng-Di Dong, Chiu-Wen Chen; National Kaohsiung Marine University
8. Fate of Nonylphenol Ethoxylates in Two Municipal Wastewater Treatment Plants, Northern China. Gao, Dawen, Junxue Guan, Yifan Li, Nanqi Ren; Harbin Institute of Technology
9. Ultrasound Enhanced Heterogeneous Activation of Persulfate by Magnetite for the Degradation of Tetracycline in Water. Hou, Liwei, Daobin Zhang, Hui Zhang; Wuhan University

Technical Session 3: Integrated Watershed Management

Thursday, July 29, 2010, 10:30 – 12:00 PM

- 3.1 BMPs
 1. A Physically-Based Model for Bioretention Cell Hydrology and Water Quality. Shaw L. Yu, T. Andrew Earles, Yanyun Zhai, Xiaoyue Zhen and Jen-Yang Lin; University of Virginia
 2. Stormwater BMP Reliability for Water Quality Treatment and Flow Management. Fassman, Elizabeth; Auckland University
 3. Planning of LID-BMPs for Urban Runoff Control: The Case of Beijing Olympic Village. Haifeng Jia, Yuwen Lu, Jenny X. Zhen, Shaw L. Yu; University of Virginia
 4. Bioretention for Stormwater Quality Improvement in Texas: Removal Effectiveness of Escherichia coli. Kim, Myung Hee, Chan Yong Sung, Ming-Han Li, Kung-Hui Chu; Texas A&M University

Thursday, July 29, 2010, 1:00 – 3:05PM

5. An Environmental Observing Facility at Clear Creek, Iowa, J. V. Loperfido, M. Putney, C. L. Just, J. L. Schnoor, University of Iowa
6. Advanced Drainage Concepts Demonstration Project: The Kansas City Experience. Michael A. Ports; American Water Resource Institute

7. **An overview of research on non-point sources pollution modeling in China.** Shen Zhenyao, Hong Qian, Gong Yongwei; Beijing Normal University
8. **Combined Sewerage System Optimization ;** Richard Field, Anthony N. Tafuri, Thomas O'Connor; US EPA
9. **Optimal Control of Flood Waters with Sediment Transport in Alluvial Channel.** Yan Ding and Sam S. Y. Wang; University of Mississippi
10. **Water Environmental Capacity changes and Ecological Environment Impacts on Xiangfan Reach of the Hanjiang River, China, Following Hydraulic Projects Construction.** Chen, Sun, Wu Hongjuan; Huazhong University of Science and Technology

Thursday, July 29, 2010, 3:20 – 5:00 PM

3.2 Nutrients Management

1. **The dynamics of the phytoplankton speciation and distribution in subtropical reservoirs in Taiwan.** Shian-chee Wu, Yu-ching Chien and Yi-jing Chen; National Taiwan University
2. **Long-Term Phosphorus Dynamics at Wastewater Reuse Sites.** Elliott, H. A. and D. Jaiswal; Penn State University
3. **Integrating Overland Fate and Transport of Biosolids-Associated Pathogens with Infection Risks during Surface Water Recreational Activities.** Arun Kumar, Mira S. Olson, and Patrick L. Gurian; Michigan State University
4. **Nitrogen removal from reject water by simultaneous endogenic carbon source exploiting from primary sludge.** Jun Zhou, Shu Jun Zhang , Liang Zhang; Beijing Drainage Group Co., LTD

Technical Session 4: Water Conservation/Reuse

Thursday, July 29, 2010, 10:30 – 12:00 PM

4.1 Reuse

1. **Overview of the Executive Order 13423 and 13514 Requirements on Federal Facilities Water Conservation and Reuse.** Chang, Ker-Chi; U.S. Department of Energy
2. **Water Reuse Regulations In Maryland, USA.** Tien, C. T.; Maryland Department of the Environment
3. **Treatment and Reuse of Tunnel Construction Wastewater.** Tsai, Yi-Wen, Lu, Chia-Ping, and Liu, J.C. National Taiwan University of Science and Technology

4. **Assessment of human health risk and water safety: chemical and microbial risks.** Satoshi Okabe; Hokkaido University

Thursday, July 29, 2010, 1:00 – 3:00 PM

5. **A Study on Reuse of Salt Wastewater by Nano Membrane Processes.** Park, Won, Jae Eun Heo, Ji Hye Kim, Byung Joo Park, Yong Il Shin; Keimyung University
6. **A Study on the Assessment of the Public Perception on the Sustainable Water Resource use for the Taiwan Metropolitan Area.** Lu, Shih-Chung, Szu-Hsien Peng, Hwong-Wen Ma; Chienkuo Technology University
7. **Water Usage and Sustainable Water Supply for Ethanol Production.** Zhou, Jianpeng, Mark Grinter, Brian Wrenn; South Illinois University
8. **Wastewater Treatment and Reuse Options for Groundwater Protection and Water Supply Extension, Cedar City, Utah.** Du Pont R. Ryan; Utah State University
9. **Water conservation and reuse strategy for sustained agro environment in the Indus Basin- a case study of irrigated agriculture in Pakistan.** Hussain, Zahid, Mohammad Irfan, H; Ministry of Food & Agriculture, Government of Pakistan

Thursday, July 29, 2010, 3:20 -5:00 PM

4.2 Chemical Oxidation

1. **Fenton oxidation of petroleum hydrocarbons adsorbed to soil particles in the effluent of a bioslurping process.** Jong Un Gwak, Jaewoo Lee, Kwan Hyung Lee, Young Kim, Suing-II Choi; Korea University
2. **Electrochemical Oxidation of Industrial Wastewater with the Tube Type Electrolysis Module System.** Jeong, Jongsik, Jaobok Lee; Kyungsung University
3. **Virus Inactivation by Photocatalytic Nanoparticles.** Liga, Michael, Qilin Li; Rice University
4. **Supercritical Water Oxidation Processes for Treatment of Organic Wastes. Development of a Mobile SCWO Plant.** Vladimir Anikeev; Boreskov Institute of Catalysis

Technical Session 5: Water Infrastructures

Thursday, July 29, 2010, 10:30 – 12:00 PM

- 5.1 **Sustainability and the American Water Works Association: Defining a Path for the Future.** Lane, Cynthia; American Water Works Association
- 5.2 **Evaluation of Duckweed as a Cost-Effective Technology for Management of Phosphorus in**

- 5.3 **Municipal Wastewater Systems; Dupont, R. Ryan, Jonathan Farrell, Maureen Kessano, Jong-Su Eun**
- 5.4 **Towards sustainable water use in the paper industry.** Daphne Hermosilla, Carlos Negro, Ignacio San Pío and Ángeles Blanco
- 5.4 **Water and Energy Efficient Systems for Water Reclamation.** L.Y. Lee, S.L. Ong, H.Y. Ng and J.Y. Hu; National University of Singapore

Thursday, July 29, 2010, 1:00 – 3:03 PM

- 5.5 **Measuring Sustainability and Resilience of Urban Infrastructure.** Adrienne T. Cooper, Kwasi Densu; Florida A&M University
- 5.6 **The Economic Value of Water: Sustainable Watershed Funding around the Pacific Rim.** Gerald J. Kauffman; University of Delaware
- 5.7 **Prediction of Organic Solvents Permeation Through PVC Pipes Using a Nondestructive Evaluation Technique.** Cheng Chu-Lin, Thomas C. Chiou, Say Kee Ong, Feng Mao, Iowa State University
- 5.8 **Stormwater Phosphorus Removal Using Adsorptive Filtration Media.** Ma, Jia, James Lenhart, John Pedrick, Karel Tracy; Contech Construction Products, Inc.
- 5.9 **Utility Assets Management-Municipal Eleva Mahdi Keramati Kerman ted Water Storage Tanks.** Whorley, Erica N. and Joseph W. Zorica; Heery International, Inc

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- 5.10 **Assessing the Greenhouse Gas Impacts of Water Infrastructure,** Parikhit Sinha; O'Brien & Gere
- 5.11 **Disposing Treated Wastewater in Rapid Infiltration Basins: Simulations to Optimize Soil-Aquifer-Treatment;** Akhavan, Maryam, Paul T. Imhoff, Scott Andres; University of Delaware
- 5.12 **Well Field Resource Optimization, Six Years of Successful Aquifer Storage and Recovery (ASR) Cycles from the Delaware Coastal Plain.** Demicco, Peter M. Robert Penman III; Artesian Water Company, Inc.
- 5.13 **Implementing a Water and Wastewater Operator Training Program via International Partnerships.** Williams, Jerry, Steve Rohm

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Technical Session 2: Emerging Contaminants

Friday, July 30, 2010, 8:30 – 10:00 AM

2.3 Nanomaterials

1. **Nanotechnology: Extending Towards Societal Aspects.** Nora Savage; US EPA
2. Photochemical Transformation of Aqueous nC₆₀ under Environmental Relevant Conditions. Li, Qilin, Yu Sik Hwang; Rice University
3. Aggregation Kinetics of TiO₂ Nanoparticles in Water. Hu, Ji, D. M. Wang, Jianmin Wang; Missouri University of Science and Technology
4. The Role of Surface Accumulation of Toxins on Nanotoxicology. Wang, D. M. Ji Hu, Jianmin Wang; Missouri University of Science and Technology

Friday, July 30, 2010, 10:15 – 11:55 AM

5. High arsenic adsorption capacity of sub-4 nanometer magnetite nanoparticles. Shu-Chi Chang, Yu-Han Yu, Chin-Ching Wu, Hao-Yun Lei, Yao-Tung Lin; National Chung Hsing University
6. The Effect of Selected Nanoparticles on Activated Sludge. Liu, Guoqiang, Demin Wang, Jianmin Wang; Missouri University of Science and Technology
7. Assessing the Roles of Iron-Doping and Water Chemistry on the Stability and Antibacterial Activity of ZnO Nanoparticles in Fresh Water, M. H. Li,

Technical Session 3: Integrated Watershed Management

Friday, July 30, 2010, 8:30 – 10:00 AM

3.3 Water quality indicators

1. **User-driven data exploration in a managed lake system: steps toward integrated watershed modeling and management tools in support of decision making and community education.** Jean D. MacRae, Shaleen Jain, Andrew Reeve, Jong-Sum Kim; University of Maine
2. Simultaneous detection of nine cyanotoxins in drinking water using dual solid-phase extraction and liquid chromatography- mass spectrometry. Hung-

Kai Yen and Tsair-Fuh Lin; National Cheng Kung University

3. Are Water Quality Goals And Agriculture Sustainable In the Chesapeake Bay Watershed? William F. Ritter; University of Delaware
4. Two Rivers Run Through It: The Stone Brook Millstone Watershed Association. Farewell, Michael; Farewell Mills Gatsch Architects, LLC.

Friday, July 30, 2010, 10:15 – 12:00 AM

5. The Study on the Integrated Environmental Indicators for the Development of Watershed Rural Community. Wang, Kai-Min, Shih-Chung Lu, Yii-Der You; National Taiwan University
6. Evaluation of Sediment Toxicity in Kaohsiung Harbor, Taiwan. Chen, Chih-Feng, Chih-Ming Kao, Cheng-Di Dong, Chiu-Wen Chen; National Kaohsiung Marine University
7. Comparative analysis numerical and matrix methods in porous medium by using spreadsheet models. Mahdi Keramati Kerman, Abbas Mansoori; Islamic Azad University – South Tehran Branch

Technical Session 4: Water Conservation/Reuse

Friday, July 30, 2010, 8:30 – 10:00 AM

4.2 Chemical Oxidation

5. Photocatalytic degradation of methyl orange by novel Bi-based catalyst Bi₄TaO₈I under visible-light irradiation. Jing Fan, Zhi-Guang Xie, Ke-Lei Zhang, Xing-Yun Hu, Jian-Ji Wang, Gui-fen Zhu;
6. Highly effective buoyant photocatalyst prepared with a novel layered-TiO₂ configuration on polypropylene fabric and the degradation performance for methyl orange dye under UV/Vis lights. Hui Han, Renbi Bai; National University of Singapore
7. Evaluation at Laboratory Level of the Photocatalytic Destruction of Cyanides in Galvanic Effluents from Industries in Colombia. Rosalina Gonzales Forero, Adier Barrios Cicery, Juan Gil Donato; University of Delaware
8. Photocatalytic Degradation of Diethyl Phthalate using TiO₂ and artificial visible light in a quartz slurry type reactor. Kulkarni, D.; Dhananjay S. Bhattachande; Bharati Vidyapeeth University

Friday, July 30, 2010, 10:15 – 12:00 PM

9. Efficiency and Mechanisms of Bisphenol A Removal by Ferrate. Zhang, Panyue, Guangming Zhang, Jinhua Dong; Beijing Forestry University
10. Dyebath Water Renovated Using a Heterogeneous Fenton System based on Fe(III)-modified PAN Fiber

Complex for the Coloration of Wool Woven Fabric with Acid Dyes. Dong, Yongchun, Chunyan Lie, Baohua Zhang, Taisen Zhao

11. Degradation of Azo Dye in Water by Heterogeneous Fenton Reaction using Cu-Fe Bimetallic Amidoximated PAN Fiber complexes under Visible Light Irradiation. Dong, Yongchun, Zhenbang Han, Suting Sun, Chunyan Liu; Tianjin Polytechnic University
12. Catalytic oxidation of aniline with titanium dioxide activated by visible light. Jevprasesphant, A. J. Anotai, Y. M. Lin and M. C. Lu; Chia-Nan University of Pharmacy and Science

Friday, July 30, 2010, 8:30-10:00 AM

4.3 Separation/Adsorption

1. **Desalination by Pervaporation for Irrigation.** Templeton, M.R. and M. Tonkin; Imperial College London
2. **Forward Osmosis for Water Reuse and Desalination.** Chien Hsiang Tan, Junyou Zhang, Wei Duan, Lai Yoke Lee, Say Leong Ong and How Yong Ng; National University of Singapore
3. The Pros and Cons of Using Nanofiltration in lieu of Reverse Osmosis in Indirect Potable Reuse Applications; C. Bellona, D. Heil, C Yu & Jörg E. Drewes
4. Effect of Polymer Flocculant on Microfiltration of Surface Water. Li, Qilin, Sen Wang; Rice University

Friday, July 30, 2010, 10:15 -12:00 PM

5. Detailed Hydrogeochemistry of Rapid Infiltration Basins (RIBs) under Normal and Stressed Recharge Conditions in Middletown, Delaware Demicco, Peter M., Brian Carbaugh; Artesian Water Company, Inc
6. Study on the Treatment of Polluted River Water by Constructed Rapid Infiltration System. Li Chao, Wu Weizhong, Hou Chenglin; Peking University
7. Copper Removal by Adsorption onto Base Treated Black Tea Waste: Kinetic and Equilibrium Study. Wen, Chih-Huang, Deng-Yen Hong; I-Shou University
8. Adsorption of Se (IV) on FeOOH. Sharrad, Mustafa, Maohong Fan, Huijuan Liu; University of Wyoming

Friday, July 30, 2010, 10:15 – 12:00 PM

4.4 Biological technologies

1. **Activated Sludge Clarification using Downflow Sludge Blanket formed by Micro-bubbles.** Ki-Yong Lee, Kyung-jin Kim, Jin Heo, Pugazhendi Arulazhagan, Ick-Tae Yeom; Sungkyunkwan University
2. Construction of Multi-Function Wetland for Ecosystem Restoration. Fu, Y.T., C. Y. Wu, C.

M. Kao, C. E. Lin, B. M. Yang; National Sun Yat-Sen University

3. Domestic Wastewater Treatment Using Anoxic/Oxic Membrane Bioreactor: Effect of Hydraulic Retention Time. Gao, Dawen, Yu Tao, Rui An, Yuan Fu, Nanqi Ren; Harbin Institute of Technology
4. Double Approaches to Extend a Limitation of Aerobic Wastewater Treatment by Controlling Oxygen Transfer Rate and Submerged Membrane Bioreactor. Lee, Sang-Min, Mi-Hyung Kim; Kongju National University

Technical Session 5: Water Infrastructures

Friday, July 30, 2010, 8:30 – 10:05 AM

- 5.14 Strategies for Sustainable Development of the municipal sewage treatment in Guangdong, China. WANG Yong-hong; LU Huan-liang, YE Xiang-dong, HUANG Zhi-hua; Guangdong Academy of Environmental Science
- 5.15 Cost and Functionality of Community Managed Piped Water Supply Schemes in Ghana. Nyarko, K.B., S. Oduro-Kwarteng, Asante J and P. Moriarty; C Kwame Nkrumah University of Science and Technology

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Technical Session 2: Emerging Contaminants

Saturday, July 31, 2010, 8:30 – 10:00 AM

2.4 Other contaminants

1. **DBP Removal: A New Approach for DBP Compliance.** Xie, Yuefeng; The Pennsylvania State University
2. DBP formation potential reduction by biofiltration. Tung, Hsin-hsin, Gen-Shuh Wang, Bor-Jyh Chen, and Chia-Chen Wu; National Taiwan University
3. Degradation of 2,4-Dinitrotoluene by Persulfate Activated with Iron Sulfides. Oh, Seok-Young, Seung-Gu Kang, Jong-Gil Son, Pei C. Chiu; University of Ulsan
4. Bonding Pattern Variation of Anionic/Cationic Chromium in Soil and Influence of pH on Soil Washing Efficiency. Cheng, Shu-Fen, Yao-Ting Tu, Chin-Yuan Huang, Jimmy Kao, Jian-Ming Chen; Chaoyang University of Technology

Saturday, July 31, 2010, 10:15 – 12:00 PM

5. Treatment of Dissolved and Particle-bound Arsenic from Groundwater in Chia-Yi, Taiwan. Yi-Fong Pan and Tsair-Fuh Lin; National Cheng Kung University
6. Perchlorate adsorption and electro-desorption on activated charcoal. Shih-Kai Chen, Shi-Chern Yen; National Taiwan University
7. Study on Suitability of Sodium Acetate Method in Determining CEC of Cd-contaminated Soil. Cheng, Shu-Fen, Yao-Ting Tu, Chin-Yuan Huang, Jimmy Kao, Jian-Ming Chen; Chaoyang University of Technology
8. Spatial distribution of heavy metals in contaminated agricultural soils exemplified by Cr, Cu, and Zn; Yao-Tung Lin

Technical Session 4: Water Conservation/Reuse

Saturday, July 31, 2010, 8:30 -10:00 AM

4.3 Separation/Adsorption

9. Feasibility Analysis of Removing Nitrate by Electrocoagulation Technique. Cheng, Shu-Fen, Chin-Yuan Huang, Yao-Ting Tu, Jimmy Kao; Chaoyang University of Technology

10. Extraction of azo dyes from water using ionic liquids. Wang, Jianji, Jing Fan, Yunchang Fan, Sheli Zhang; Henan Normal University
11. Remediation of Copper (Cu²⁺) Ions from Aqueous Solution using Chitosan Immobilized on Bentonite; Meng-Wei Wan, Chi-Chuan Kan, Ana Francia V. Mariano, Maria Lourdes P. Dalida, and Chih-Hsiang Liao
12. Adsorptive Removal of Arsenic with A Functionalized Novel Chitosan Hollow Fiber Membrane. Li, Nan, Chunxiu Liu, Renbi Bai; National University of Singapore

Saturday, July 31, 2010, 8:30 – 10:05 AM

4.4 Biological technologies

1. Domestic Wastewater Treatment in a Denitrifying Bio-Cathode based Microbial Fuel Cell System. Al-Mamun, A. and How Yong Ng; Republic Polytechnic
2. Biological Nutrient Removal Processes and Modeling in Municipal Wastewater Treatment Plants: a mini review. Hu, Zhirong; Dwight Houweling; Maohong Fan; Peter Dold; EnviroSim Associates Ltd
3. Recycle Wasted Activated Sludge as Immobilized Pellets to Upgrade Water Quality. Huang, Han-Hsien, Cheng-Nan Chang, Ying-Chih Chiu; Tunghai University
4. Combination of Shredded Tire Biofilters and Membrane Bioreactors for Reclamation of Graywater. Hu, Meng, Tian C. Zhang; Univ. of Nebraska-Lincoln

Saturday, July 31, 2010, 10:15 -12:00 PM

5. Cometabolic Degradation of Pyrene by Indigenous White-Rot Fungi *Pseudotrametes gibbosa* from the northeast China. Gao, Dawen, Jiwei Wen, Northeast Forestry University
6. An Innovative Integrated Reactor System for Simultaneous Removal of Carbon, Sulfur and Nitrogen Based on Biological Niches. Wang, Aijie, Chuan Chen, Chunshuang Liu, Nanqi Ren, Duu-Jong Lee; Harbin Institute of Technology
7. Commercial Zero-Valent Iron (ZVI) and Nano-Scale ZVI for Drinking Water Applications; Chunjian Shi, Dan Pomeroy, Pei C. Chiu
8. The Study of Effect Time Series of Ecological Restoration in Shallow Eutrophic Lakes: Zi Yang Lake. Wu, Hongjuan, Tiquang Zhang; Ziyang Yang

POSTER SESSION

1. Climate Change

- 1.1 Water Environmental Capacity changes and Ecological Environment Impacts oin Xiangfan Reach of the Hanjiang River, China, Following Hydraulic Projects Construction; Chen, Sun, Wu Hongjuan; Huazhong University of Science and Technology
- 1.2 Physico-chemical properties of shallow domestic wells on a sandbar abutting coastal hypersaline tropical lagoon in Ghana. A. K. Armah, Samuel Addo, S. D. Ababio and E. Lamptey; University of Ghana
- 1.3 Reservoir Capacity Planning with respect to Hydrological Featurs and Environmental Quality. Chen, Ho-Wen, Ni-Bin Chang, Shu-Fen Cheng, Chu-Kuang Ning; Chao Yang University
- 1.4 Survey of Simple Water Treatment Plants in Taiwan. Ng, Kok-Kwang, Angela Yu-Chen Lin, Cheng-Fang Lin; National Taiwan University
- 1.5 Frequency Analysis of Heavy Rainfall Events and its Relationship with Water Resources Management and Disaster Prevention Strategy. Peng, Szu-Hsien Shih-Chung Lu, Su-Chin Chen, Rulin Lin; Chienkuo Technology University

2. Emerging Contaminants

- 2.1 Investigation of Endocrine Activity in Water by SPMD, Chen, Chien Min, Da Ji Huang, Jui-Chun Liao, Jiau-Zhe Yan, Chia-Hung Chou, Chia Nan University of Pharmacy and Science
- 2.2 Bonding Pattern Variation of Anionic/Cationic Chromium in Soil and Influence of pH on Soil Washing Efficiency, Cheng, Shu-Fen, Yao-Ting Tu, Chin-Yuan Huang, Jimmy Kao, Jian-Ming Chen, Chaoyang University of Technology
- 2.3 Study on Suitability of Sodium Acetate Method in Determining CEC of Cd-contaminated Soil, Cheng, Shu-Fen, Yao-Ting Tu, Chin-Yuan Huang, Jimmy Kao, Jian-Ming Chen, Chaoyang University of Technology
- 2.4 Cometabolic Degradation of Pyrene by Indigenous White-Rot Fungi *Pseudotrametes gibbosa* from the northeast China, Gao, Dawen, Jiwei Wen, Northeast Forestry University
- 2.5 Fate of Nonylphenol Ethoxylates in Two Municipal Wastewater Treatment Plants, Northern China, Gao, Dawen, Junxue Guan, Yifan Li, Nanqi Ren, Harbin Institute of Technology
- 2.6 Effects of DifferentSuspended Particulate Matter Concentrations on the Growth and Photosynthetic

Physiological Responses of *Chlorella Pyrenodiosa*, Li, Shanshan, Peiyong Guo, Tianmei Li, Huaqiao University

- 2.7 Spatial distribution of heavy metals in contaminated agricultural soils exemplified by Cr, Cu, and Zn, Yao-Tung Lin, National Chung Hsing University

3. Integrated Watershed Management

- 3.1 Bioretention for Stormwater Quality Improvement in Texas: Removal Effectiveness of *Escherichia coli*, Kim, Myung Hee, Chan Yong Sung, Ming-Han Li, Kung-Hui Chu, USA, Texas A&M University
- 3.2 The Study on the Integrated Environmental Indicators for the Development of Watershed Rural Community, Wang, Kai-Min, Shih-Chung Lu, Yii-Der You, *National Taiwan University*

4. Water Conservation/Reuse

- 4.1 Feasibility Analysis of Removing Nitrate by Electrocoagulation Technique, Cheng, Shu-Fen, Chin-Yuan Huang, Yao-Ting Tu, Jimmy Kao, Chaoyang University of Technology
- 4.2 Environmental application of nano-scale emulsion, Ching-Lin Lin, Yu-Hao Lin, Shu-Chi Chang, Min-Der Lin, National Chung Hsing University
- 4.3 Degradation of Azo Dye in Water by Heterogeneous Fenton Reaction using Cu-Fe Bimetallic Amidoximated PAN Fiber complexes under Visible Light Irradiation , Dong, Yongchun , Zhenbang Han, Suting Sun, Chunyan Liu, Tianjin Polytechnic University
- 4.4 Dyebath Water Renovated Using a Heterogeneous Fenton System based on Fe(III)-modified PAN Fiber Complex for the Coloration of Wool Woven Fabric with Acid Dyes, Dong, Yongchun, Chunyan Lie, Baohua Zhang, Taisen Zhao, Tianjin Polytechnic University
- 4.5 Investigation on Flocculation Process of Composite Poly-Si-Fe Coagulant , Fu Ying, University of Jinan
- 4.6 Variation of the changes of $H_2O_2/OH \cdot$ concentrations in NTFC system, Hsieh, Wen-Pin, Chihpin Huang, Jill Ruhsing Pan, National Chiao Tung University
- 4.7 Recycle Wasted Activated Sludge as Immobilized Pellets to Upgrade Water Quality, Huang, Han-Hsien, Cheng-Nan Chang, Ying-Chih Chiu, Tunghai University
- 4.8 Degradation of chlorophenol by Electrochemical Process, Huang, Jui-Yuan, Wing-Ping Liao, Siou-Mei Lai, National Chung Hsing University
- 4.9 Activated Sludge Clarification using Downflow Sludge Blanket formed by Micro-bubbles, Ki-Yong

Lee, Kyung-jin Kim, Jin Heo, Pugazhendi Arulazhagan, Ick-Tae Yeom , Korea, Sungkyunkwan University

- 4.10 Study on the Treatment of Polluted River Water by Constructed Rapid Infiltration System, Li Chao, Wu Weizhong, Hou Chenglin, Peking University
- 4.11 The Study of Effect Time Series of Ecological Restoration in Shallow Eutrophic Lakes: Zi Yang Lake, Wu, Hongjuan, Tiqiang Zhang; Ziyang Yang, The Effects of Ultrasound Assisted Pre-Coagulation Process applied on PTFE-MF Membrane Cleaning, Chi-Chuan Kan, Meng-Wei Wan, Hui-Ling Yang, Chia-Nan University of Pharmacy and Science,
- 4.12 Remediation of Copper (Cu^{2+}) Ions from Aqueous Solution using Chitosan Immobilized on Bentonite, Meng-Wei Wan, Chi-Chuan Kan, Ana Francia V. Mariano, Maria Lourdes P. Dalida, and Chih-Hsiang Liao, Chia Nan University of Pharmacy and Science
- 4.14 The Adsorption Study of Copper and Nickel using Chitosan Immobilized on Bentonite, Shun-Lone Li, Meng-Wei Wan, Cybelle M. Futralan, Kuang-Chung Yu, Maria Lourdes P. Dalida, Taiwan, Chia Nan University of Pharmacy and Science

5. Water Infrastructure

- 5.1 Disposing Treated Wastewater in Rapid Infiltration Basins: Simulations to Optimize Soil-Aquifer-Treatment, Akhavan, Maryam, Paul T. Imhoff, Scott Andres, University of Delaware
- 5.2 Aeration Effect on the Performance of a Double-chamber Sediment Microbial Fuel Cell, Chih-An Huang, Cheng-Nan Chang, Ying-Chih Chiu, National ILan University
- 5.3 One-Dimensional Simulation of Sandy River after Marmot Dam Removal, Elgohry, Moustafa , Yan Ding, Sam S. Y. Wang, elgohry@ncche.olemiss.edu, USA, The University of Mississippi
- 5.4 Implementing a Water and Wastewater Operator Training Program via International Partnerships, Williams, Jerry, Steve Rohm, USA, Delaware Technology Community College