

## Wu, Jeffrey Chi-Sheng ( 吳紀聖 )

Professor

B.S. in Chemical Engineering  
National Taiwan University, 1980  
M.S. in Chemical Engineering  
West Virginia University, 1985  
Ph.D. in Chemical Engineering  
University of Pittsburgh, 1988

### Research and Professional Interests

Catalysis  
Reaction Engineering

### Projects

1. High-efficient Biodiesel Production - Catalytic Rotating Reactor to Continuously Synthesize Biodiesel (II)  
高效環保的生質柴油生產技術(II) - 總計畫暨子計畫四：連續式旋轉填充床反應器生產生質柴油(II)  
Sponsored by National Science Council, NSC 102-2623-E-002-011-ET, NT\$850,000, 1/1/2013-12/31/2013
2. CO<sub>2</sub> conversion to fuels or chemical materials through combinatorial technologies of microplasma, photocatalysis and microalgal genome engineering  
結合微電漿、光催化與微藻基因體工程技術應用於二氧化碳轉化為能源燃料與化工原料  
Sponsored by National Science Council, NSC 102-EPA-F-006-002, NT\$1,000,000, 8/2/2013-8/1/2014
3. A new concept of photo-reactor for application of photo-catalytic selective reduction of NO from real-condition flue gases  
新穎光反應器用於光催化選擇性還原實際煙道廢氣的一氧化氮  
Sponsored by National Science Council, NSC 103-2923-E-002-002-MY3, NT\$3,540,000, 1/1/2014-12/31/2016
4. Photocatalytic reduction of CO<sub>2</sub>  
光催化還原二氧化碳  
Sponsored by National Science Council, NSC 103-2923-E-002-009-MY3, NT\$3,549,000, 1/1/2014-12/31/2016
5. Technology of converting CO<sub>2</sub> into hydrocarbons  
CO<sub>2</sub> 生產碳氫化合物技術開發研究  
Sponsored by CPC Corporation, Taiwan, MEA0200003, NT\$960,000, 7/1/2013-6/30/2014
6. Photocatalysts for CO<sub>2</sub> reactions  
光觸媒 CO<sub>2</sub> 反應研究  
Sponsored by Chung-Shan Institute of Science and Technology, CSIST-808-V209, NT\$700,000, 1/15/2013-12/31/2013

### Journal Papers

1. Yi-Ching Chiou, Umesh Kumar, **Jeffrey C. S. Wu**, Photocatalytic splitting of water on NiO/InTaO<sub>4</sub> catalysts prepared by an innovative sol-gel method, *Applied Catalysis A: General*, 357(1), 73-78 (2009) (SCI, EI)
2. **Jeffrey C. S. Wu**, Hui-Chen Chou, Bimetallic Rh-Ni/BN catalyst for methane reforming with CO<sub>2</sub>, *Chemical Engineering Journal*, 148, 539-545 (2009) (SCI, EI)
3. **Jeffrey C. S. Wu**, Photocatalytic reduction of greenhouse gas CO<sub>2</sub> to fuel, *Catalysis Surveys from Asia*, 13(1), 30-40 (2009) (SCI)
4. I-Hsuan Su, **Jeffrey C.S. Wu**, Photo selective catalytic reduction of nitric oxide with propane at room temperature, *Catalysis Communications*, 10(11), 1534-1537 (2009) (SCI)
5. Hsien-Chang Yang, Hsin-Yu Lin, Yu-Shiang Chien, **Jeffrey C. S. Wu**, Hsin-Hsien Wu, Mesoporous TiO<sub>2</sub>/SBA-15, and Cu/TiO<sub>2</sub>/SBA-15 Composite Photocatalysts for Photoreduction of CO<sub>2</sub> to Methanol, *Catalysis Letters*, 131(3), 381-387 (2009) (SCI)
6. **Jeffrey C. S. Wu**, Chao-Wei Huang, In situ DRIFTS Study of Photocatalytic CO<sub>2</sub> Reduction under UV Irradiation, *Frontiers of Chemical Engineering in China*, 4(2), 120-126 (2010)
7. Chen-Chia Lo, Chao-Wei Huang, Chi-Hung Liao, **Jeffrey C. S. Wu**, Novel Twin Reactor for Separate Evolution of Hydrogen and Oxygen in Photocatalytic Water Splitting, *International Journal of Hydrogen Energy*, 35(4), 1523-1529 (2010) (SCI, EI)
8. Yi-Shen Lien, Li-Shan Hsieh, **Jeffrey C. S. Wu**, Biodiesel synthesis by simultaneous esterification and transesterification using oleophilic acid catalyst, *Industrial & Engineering Chemistry Research*, 49(5), 2118-2121 (2010) (SCI, EI)
9. Li-Shan Hsieh, Umesh Kumar, **Jeffery C. S. Wu**, Continuous production of biodiesel in a packed-bed reactor using shell-core structural Ca(C<sub>3</sub>H<sub>7</sub>O<sub>3</sub>)<sub>2</sub>/CaCO<sub>3</sub> catalyst, *Chemical Engineering Journal*, 158, 250-256 (2010) (SCI, EI)
10. Zhen-Yi Wang, Hung-Chi Chou, **Jeffrey C. S. Wu**, Din Ping Tsai, Guido Mul, CO<sub>2</sub> photoreduction using NiO/InTaO<sub>4</sub> in optical-fiber reactor for renewable energy, *Applied Catalysis A: General*, 380, 172-177 (2010) (SCI, EI)
11. Chieh-Chao Yang, Yi-Hui Yu, Bart van der Linden, **Jeffrey C. S. Wu**, Guido Mul, Artificial Photosynthesis over Crystalline TiO<sub>2</sub>-Based Catalysts: Fact or Fiction?, *Journal of the American Chemical Society*, 132(24), 8398-8406 (2010) (SCI, EI)
12. Chen-Hao Wang, Hsin-Cheng Hsu, Sun-Tang Chang, He-Yun Du, Chin-Pei Chen, **Jeffrey C. S. Wu**, Han-Chang Shih, Li-Chyong Chen and Kuei-Hsien Chen, Platinum nanoparticles embedded in pyrolyzed nitrogen-containing cobalt complexes for high methanol-tolerant oxygen reduction activity, *Journal of Materials Chemistry*, 20, 7551-7557 (2010) (SCI, EI)
13. Chao-Wei Huang, Chi-Hung Liao, **Jeffrey C. S. Wu**, Yu-Chang Liu, Chun-Ling Chang, Chih-Hung Wu, Masakazu Anpo, Masaya Matsuoka, Masato Takeuchi, Hydrogen Generation from Photocatalytic Water Splitting over TiO<sub>2</sub> Thin Film Prepared by Electron Beam-Induced Deposition, *International Journal of Hydrogen Energy*, 35, 12005-12010 (2010) (SCI, EI)

14. Yi-Hui Yu, I-Hsuan Su, **Jeffrey C.S. Wu**, Photocatalytic reduction of NO pollutant using an optical-fiber photoreactor at room temperature, *Environmental Technology*, 31(13), 1449–1458 (2010) (SCI)
15. Jiun-Jen Chen, **Jeffrey C.S. Wu**, Pin Chieh Wu, Din Ping Tsai, Plasmonic Photocatalyst for H<sub>2</sub> Evolution in Photocatalytic Water Splitting, *Journal of Physical Chemistry: C*, 115(1), 210-216 (2011) (SCI, EI)
16. Chen-Hao Wang, Sun-Tang Chang, Hsin-Cheng Hsu, He-Yun Du, **Jeffrey Chi-Sheng Wu**, Li-Chyong Chen, Kuei-Hsien Chen, Oxygen reducing activity of methanol-tolerant catalysts by high-temperature pyrolysis, *Diamond & Related Materials*, 20, 322-329 (2011) (SCI, EI)
17. Pei-Yin Liou, Shang-Chien Chen, **Jeffrey C. S. Wu**, Dong Liu, Sarah Mackintosh, Mercedes Maroto-Valer, Robert Linforth, Photocatalytic CO<sub>2</sub> reduction using an internally illuminated monolith photoreactor, *Energy & Environmental Science*, 4(4), 1487-1494 (2011) (SCI)
18. Kian Fei Yee, **Jeffrey C. S. Wu**, Keat Teong Lee, A Green Catalyst for Biodiesel Production from Jatropha Oil: Optimization Study, *Biomass & Bioenergy*, 35(5), 1739-1746 (2011) (SCI)
19. Cha-Jung Chen, Chi-Hung Liao, Kai-Chien Hsu, Yi-Ting Wu, **Jeffrey C. S. Wu**, P-N junction mechanism on improved NiO/TiO<sub>2</sub> photocatalyst, *Catalysis Communications*, 12(14), 1307-1310 (2011) (SCI, EI)
20. Yi-Hui Yu, Yung-Tin Pan, Yi-Ting Wu, Janusz Lasek, **Jeffrey C. S. Wu**, Photocatalytic NO reduction with C<sub>3</sub>H<sub>8</sub> using a monolith photoreactor, *Catalysis Today*, 174, 141-147 (2011) (SCI, EI)
21. **Jeffrey C. S. Wu**, Miguel A. Bãnares, Challenges for Changing Catalysis in Asia, *Catalysis Today*, 174, 1 (2011) (SCI, EI)
22. Szu-Chun Yu, Chao-Wei Huang, Chi-Hung Liao, **Jeffrey C. S. Wu**, Sun-Tang Chang, Kuei-Hsien Chen, A novel membrane reactor for separating hydrogen and oxygen in photocatalytic water splitting, *Journal of Membrane Science*, 382(1-2), 291-299 (2011) (SCI, EI)
23. Sun-Tang Chang, Chen-Hao Wang, He-Yun Du, Hsin-Cheng Hsu, Chih-Ming Kang, Chia-Chun Chen, **Jeffrey C. S. Wu**, Shi-Chern Yen, Wen-Fei Huang, Li-Chyong Chen, M. C. Lin, Kuei-Hsien Chen, Vitalizing fuel cells with vitamins: pyrolyzed vitamin B12 as a non-precious catalyst for enhanced oxygen reduction reaction of polymer electrolyte fuel cells, *Energy & Environmental Science*, 5(1), 5305-5314 (2012) (SCI)
24. Van-Huy Nguyen, Hsiang-Yu Chan, **Jeffrey C. S. Wu**, Hsunling Bai, Direct Gas-phase Photocatalytic Epoxidation of Propylene with Molecular Oxygen by Photocatalysts, *Chemical Engineering Journal*, 179, 285-294 (2012) (SCI, EI)
25. Chi-Hung Liao, Chao-Wei Huang, **Jeffrey C. S. Wu**, Hydrogen production from semiconductor-based photocatalysis via water splitting, *Catalysts*, 2, 490-516 (2012)
26. Chao-Wei Huang, Chi-Hung Liao, Chih-Hung Wu, **Jeffrey C. S. Wu**, Photocatalytic water splitting to produce hydrogen using multi-junction solar cell with different deposited thin films, *Solar Energy Materials and Solar Cells*, 107, 322-328 (2012) (SCI, EI)

27. Oluwafunmilola Ola, Mercedes Maroto-Valer, Sarah Mackintosh, Chien-Wei Lee, **Jeffrey C. S. Wu**, Performance comparison of CO<sub>2</sub> conversion in slurry and monolith photoreactors using Pd and Rh-TiO<sub>2</sub> catalyst under ultraviolet irradiation, *Applied Catalysis B: Environmental* 126, 172-179 (2012) (SCI, EI)
28. Dong Liu, Yolanda Fernández Oluwafunmilola Ola, Sarah Mackintosh, Mercedes Maroto-Valer\*, Christopher M.A. Parlett, Adam F. Lee, **Jeffrey C. S. Wu**, On the impact of Cu dispersion on CO<sub>2</sub> photoreduction over Cu/TiO<sub>2</sub>, *Catalysis Communications*, 25, 78-82 (2012) (SCI, EI)
29. Chi-Hung Liao, Chao-Wei Huang, **Jeffrey C. S. Wu**, Novel Dual-Layer Photoelectrode Prepared by RF Magnetron Sputtering for Photocatalytic Water Splitting, *International Journal of Hydrogen Energy*, 37(16), 11632-11639 (2012) (SCI, EI)
30. Hsin-Chieh Chen, Chao-Wei Huang, **Jeffrey C. S. Wu**, Shiang-Tai Lin, Theoretical Investigation of the Metal-doped SrTiO<sub>3</sub> Photocatalysts for Water Splitting, *Journal of Physical Chemistry C*, 116(4), 7897-7903 (2012) (SCI, EI) (合著)
31. Yu-Te Liao, Chao-Wei Huang, Chi-Hung Liao, **Jeffrey C. S. Wu**, Kevin Chia-Wen Wu, Synthesis of Mesoporous Titania Thin Films (MTTFs) with Two Different Structures as Photocatalysts for Generating Hydrogen from Water Splitting, *Applied Energy*, 100, 75-80 (2012) (SCI, EI) (合著)
32. Jiun-Jen Chen, **Jeffrey C. S. Wu**, Pin Chieh Wu, Din Ping Tsai, Improved photocatalytic activity of shell-isolated plasmonic photocatalyst Au@SiO<sub>2</sub>/TiO<sub>2</sub> by promoted LSPR, *Journal of Physical Chemistry C*, 116(50), 26535-26542 (2012) (SCI, EI)
33. Wei-Hsuan Lee, Chi-Hung Liao, Min-Fei Tsai, Chao-Wei Huang, **Jeffrey C. S. Wu**, A Novel Twin Reactor for CO<sub>2</sub> Photoreduction to Mimic Artificial Photosynthesis, *Applied Catalysis B: Environmental* 132-133, 445-451(2013) (SCI, EI)
34. Janusz Lasek, Yi-Hui Yu, **Jeffrey C. S. Wu**, Removal of NO<sub>x</sub> by Photocatalytic Processes, *Journal of Photochemistry and Photobiology C: Photochemistry Reviews*, 14, 29-52 (2013) (SCI, EI)
35. Chi-Hung Liao, Chao-Wei Huang, **Jeffrey C. S. Wu**, Visible-Light-Active Photocatalytic Thin Film by RF Sputtering for Hydrogen Generation, *Asia-Pacific Journal of Chemical Engineering*, 8, 283-291 (2013) (SCI, EI)
36. Chao-Wei Huang, Chi-Hung Liao, **Jeffrey C. S. Wu**, Photocatalytic separate evolution of hydrogen and oxygen over highly ordered nanorods and bulk TiO<sub>2</sub> thin films, *Journal of Clean Energy Technologies*, 1(1), 1-5 (2013)
37. Van-Huy Nguyen, **Jeffrey C.S. Wu**, Hsunling Bai, Temperature effect on the photo-epoxidation of propylene over V-Ti/MCM-41 photocatalyst, *Catalysis Communications*, 33, 57-60 (2013) (SCI, EI)
38. Paolo Fornasiero, Guido Mul, **Jeffrey C. S. Wu**, Fundamental Understanding of Photocatalytic Conversions on Semiconductor Surfaces, special issue, *Catalysis Today*, 206, 1 (2013) (SCI, EI)
39. K. F. Yee, K. T. Lee, A. Z. Abdullah, **Jeffrey C. S. Wu**, An Alternative Route for the Preparation of Sulfated Zirconia Loaded on Alumina (SZA) for Biodiesel Production: An Optimization Study, *Energy Sources, Part A: Recovery, Utilization, and Environmental Effects*, 35, 1296-1305 (2013) (SCI, EI)

40. Van-Huy Nguyen, Hsiang-Yu Chan and **Jeffrey C.S. Wu**, Synthesis, characterization and photo-epoxidation performance of Au loaded photocatalysts, *Journal of Chemical Science*, 125(4), 859–867 (2013) (SCI, EI)
41. Zih-Hua Li, Pei-Hsuan Lin, **Jeffrey C. S. Wu**, Yu-Tzu Huang, Kuen-Song Lin, Kevin Chia-Wen Wu, A stirring packed-bed reactor to enhance the esterification-transesterification in biodiesel production by lowering mass-transfer resistance, *Chemical Engineering Journal*, 234, 9-15 (2013) (SCI, EI)
42. Yi-Ting Wu, Yi-Hui Yu, Van-Huy Nguyen, Kung-Te Lu, **Jeffrey C. S. Wu**, Luh-Maan Chang, Chi-Wen Kuo, Enhanced xylene removal by photocatalytic oxidation using fiber-illuminated honeycomb reactor at ppb level, *Journal of Hazardous Materials*, 262, 717–725 (2013) (SCI, EI)
43. Chien-Wei Lee, Rea Antoniou Kourouniotti, **Jeffrey C. S. Wu**, Erik Murchie, Mercedes Maroto-Valer, Oliver E. Jensen, Chao-Wei Huang, Alexander Ruban, Photocatalytic conversion of CO<sub>2</sub> to hydrocarbons by light-harvesting complex assisted Rh-doped TiO<sub>2</sub> photocatalyst, *Journal of CO<sub>2</sub> Utilization*, 5, 33-40 (2014)

### Conference Papers

1. **Jeffrey C. S. Wu**, The-Vinh Nguyen, Tai Chi Chu, Hung Ji Huang, Ding Ping Tsai, "An alternative way of photosynthesis : photocatalytic reduction of CO<sub>2</sub> for renewable energy", 10th International Conference on Carbon Dioxide Utilization, Tianjin, China, IL2, May 17-21, 2009, Invited speaker.
2. Yi-Ching Chiou, Umesh Kumar, **Jeffrey C. S. Wu**, "Photocatalytic water splitting using Sol-gel prepared InTaO<sub>4</sub> for hydrogen production", 2nd International Congress on Green Process Engineering, Venice, Italy, paper ID 95, June 14-17, 2009.
3. I-Hsuan Su, Yi-Hui Yu, **Jeffrey C. S. Wu**, "Photo selective catalytic reduction of NO pollutant at room temperature", First International Workshop on Application of Redox Technologies in the Environment (Arte'2009), Istanbul, Turkey, Parallel session oral 2A, September 14-15, 2009.
4. **Jeffrey C. S. Wu**, "Renewable hydrogen energy from photocatalytic water splitting", 第八屆海峽兩岸催化學術研討會，中國蘭州, August 9-14, 2009.
5. **Jeffrey C. S. Wu**, Chen-Chia Lo, Chao-Wei Huang, Chi-Hung Liao, "Separate Evolution of Hydrogen and Oxygen in Photocatalytic Water Splitting", 2nd Korea-Taiwan Bilateral Symposium on Materials Chemistry and Solar Energy Utilization, Yangpyeong, Korea, Session 6, October 23-27, 2009.
6. 林語騰, 吳怡亭, **吳紀聖**, 張陸滿, "潔淨室空載污染物偵測機制建立之研究", 第 23 屆環境分析年會, 桃園, 海報, 民國 98 年 5 月 7-8 日。
7. 羅鎮嘉、邱怡菁、**吳紀聖**, "光催化水分解即時分離氫和氧的技術", 第 27 屆台灣區觸媒與反應工程研討會, 高雄大學, IL-04, 民國 98 年 6 月 25-26 日, Invited Speaker.
8. 羅鎮嘉、**吳紀聖**, "Z-Scheme 光催化進行水分解產氫", 第 27 屆台灣區觸媒與反應工程研討會, 高雄大學, PF-05, 民國 98 年 6 月 25-26 日。

9. 謝立珊、**吳紀聖**, "固體鹼觸媒應用於填充床反應器生產生質柴油", 第 27 屆台灣區觸媒與反應工程研討會, 高雄大學, PE-18, 民國 98 年 6 月 25-26 日。
10. **吳紀聖**, "光觸媒在環保技術和能源應用簡介", 桃園縣大學校院產業環保技術服務團講習會, 元智大學, 民國 98 年 9 月 3 日, Invited speaker.
11. **吳紀聖**, "觸媒在永續能源的應用簡介", 桃園縣大學校院產業環保技術服務團講習會, 元智大學, 民國 98 年 9 月 29 日, **Invited speaker**.
12. **吳紀聖**, "光觸媒空污處理之應用", 2009 光觸媒環境應用與標準化研討會暨育成成果發表會, 台灣科技大學, 民國 98 年 11 月 16 日, **Invited speaker**.
13. 羅鎮嘉、游思淳、**吳紀聖**, "Z-Scheme 光催化進行水分解產氫", 台灣化學工程學會第 56 屆年會暨國科會化工學門成果發表會, 中興大學, 壁報, 民國 98 年 11 月 27-28 日。
14. 謝立珊、林欣玫、**吳紀聖**, "固體鹼觸媒應用於填充床反應器連續生產生質柴油", 綠色化學程序技術研討會, 中興大學, 民國 98 年 11 月 28 日。
15. 廖啓宏、黃朝偉、李昭德、劉柏亨、蔡定平、**吳紀聖**, "Hydrogen generation from photocatalytic water splitting using TiO<sub>2</sub> thin film prepared by rf-sputtering deposition", 第四屆全國氫能與燃料電池學術研討會, 台灣科技大學, B1-1, 民國 98 年 12 月 18-19 日
16. 羅鎮嘉、游思淳、**吳紀聖**, "Z-Scheme 系統進行分離式異相光催化水分解產氫", 第四屆全國氫能與燃料電池學術研討會, 台灣科技大學, B1-3, 民國 98 年 12 月 18-19 日。
17. Chao-Wei Huang, Chi-Hung Liao, **Jeffrey Chi-Sheng Wu**, Masakazu Anpo, "Study of Photocatalytic TiO<sub>2</sub> Thin Film Prepared by Electron Beam-Induced Deposition Method," The 11th International Symposium on Eco-materials Processing and Design, ISEPD 2010, Sakai, Osaka, Japan, Paper F-P4, January 9-12, 2010, Best Poster.
18. Juin-Jen Chen, **Jeffrey C. S. Wu**, Din Ping Tsai, "Plasmonic Photocatalyst for H<sub>2</sub> Evolution in Water Splitting," ACS 239th National Meeting, Division of Fuel Chemistry, San Francisco, USA, March 21-25, 2010.
19. Zhen-Yi Wang, Hung-Chi Chou, **Jeffrey C. S. Wu**, Din Ping Tsai, "CO<sub>2</sub> photoreduction using NiO/InTaO<sub>4</sub> in optical-fiber reactor for renewable energy," The European Energy Conference, Barcelona, Spain, Poster A3-59, April 20-23, 2010.
20. Chen-Chia Lo, Chao-Wei Huang, Chi-Hung Liao, **Jeffrey C. S. Wu**, "Separate evolution of hydrogen and oxygen in photocatalytic water splitting by a novel twin reactor," 5th Annual International Symposium on Environment, Athens, Greece, Abstract book p.98, May 20-23, 2010.

21. Yi Ting Wu, **Jeffrey Chi-Sheng Wu**, and Guido Mul, "Using In-situ ATR-FTIR system on CO<sub>2</sub> photoreaction," 18th International Conference on Photochemical Conversion and Storage of Solar Energy, Korea University, Korea, P1-65, July 25-30, 2010.
22. Pei-Yin Liou, Shang-Chien Chen, **Jeffrey C. S. Wu**, Dong Liu, Sarah Mackintosh, Mercedes Maroto-Valer and Robert Linforth, "Renewable fuel from CO<sub>2</sub> photoreduction using illuminated monolith reactor," ACS 240th National Meeting, Division of Fuel Chemistry, Boston, USA, Paper ID: 13022, , August 22-26, 2010, Invited Speaker
23. Li-Shan Hsieh, Hsin-Mei Lin, **Jeffrey C.-S. Wu**, "Production of biodiesel using solid-base catalyst", Engineering 2010 - World Engineering Congress and Exhibition, Buenos Aires, Argentina, Paper ID: 379, October 17-20, 2010.
24. Yi-Hui Yu, Yi-Ting Wu, **Jeffrey C.S. Wu**, "Temperature effect on photocatalytic NO reduction with C<sub>3</sub>H<sub>8</sub> on monolithic PdPt/TiO<sub>2</sub> reactor ", 13th Asia Pacific Confederation of Chemical Engineering Congress (APPChE 2010), Taipei, Taiwan, paper no. 105551, October 5-8, 2010
25. Yi Ting Wu, **Jeffrey Chi-Sheng Wu**, "Photocatalytic reaction of NO and CH<sub>4</sub> under low temperature ", 13th Asia Pacific Confederation of Chemical Engineering Congress (APPChE 2010), Taipei, Taiwan, paper no. 10548, October 5-8, 2010
26. 游思淳、吳紀聖, "光催化水分解雙反應器之離子媒介傳輸現象", 第 28 屆台灣區觸媒與反應工程研討會, 台灣大學, K04P, 民國 99 年 6 月 24-25 日
27. 劉珮吟、吳紀聖, "內照明蜂巢式反應器進行二氧化碳光催化還原", 第 28 屆台灣區觸媒與反應工程研討會, 台灣大學, F03, 民國 99 年 6 月 24-25 日
28. 黃朝偉、廖啟宏、吳志宏、林祥泰、吳紀聖, "計算化學於摻雜金屬改質二氧化鈦光觸媒進行水分解之應用", 第 28 屆台灣區觸媒與反應工程研討會, 台灣大學, K04O, 民國 99 年 6 月 24-25 日
29. Van-Huy Nguyen, **吳紀聖**, "Photocatalytic Epoxidation of Propylene with Molecular Oxygen by Photocatalysts", 第 28 屆台灣區觸媒與反應工程研討會, 台灣大學, K02O, 民國 99 年 6 月 24-25 日
30. 張孫堂、吳紀聖、王丞浩、許新城、杜鶴雲、林麗瓊、陳貴賢, "Exploratory Work on MeOH-Tolerant Cathode Catalysts for DMFC", 第 28 屆台灣區觸媒與反應工程研討會, 台灣大學, G20P, 民國 99 年 6 月 24-25 日
31. Zhen-Yi Wang, Hung-Chi Chou, **Jeffrey C. S. Wu**, Din Ping Tsai, Guido Mul, "CO<sub>2</sub> photoreduction using NiO/InTaO<sub>4</sub> in a novel photoreactor for renewable energy", Netherlands' Catalysis and Chemistry Conference XII, Noordwijkerhout, Netherlands, oral G7, February 28 - March 2, 2011
32. **Jeffrey C. S. Wu**, "A twin photoreactor for separating hydrogen and oxygen in photocatalytic water splitting", 18th Annual Meeting of for Korean Society of Photoscience, Seoul, Korea, June 8-10, 2011, Invited speaker

33. Yu-Teng Li, Yi-Ting Wu, Haon-Yao Chen, Ming-Hao Hsu, **Jeffrey C. S. Wu**, Luh-Maan Chang, James Huan, "The efficiency of UV/H<sub>2</sub>O on photocatalytic oxidation for removing volatile organic compound of clean room in semiconductor fab", 6th Biennial International Conference on Materials for Advanced Technologies, Singapore, Paper JJ-PO3-2, June 26-July 1, 2011.
34. **Jeffrey C.S. Wu**, Jiun-Jen Chen, Din Ping Tsai, "Surface plasmon resonance on the photocatalytic water splitting", 242nd ACS National Meeting, Denver, Colorado, USA, Paper ID: 19928 Oral, August 28-September 1, 2011
35. **Jeffrey C. S. Wu**, "Solar hydrogen from photocatalytic water splitting using a novel twin reactor", 14th Asian Chemical Congress, Bangkok, Thailand, September 5-8, 2011 Invited speaker.
36. Van-Huy Nguyen, Hsiang-Yu Chan and **Jeffrey C.S. Wu**, "Direct Photocatalytic Epoxidation of Propylene to Propylene Oxide via Molecular Oxygen over Titanium Silicalite-1 Supported", 18th Regional Symposium on Chemical Engineering, Ho Chi Minh City, Vietnam, oral TAI-01-001, October 27-28, 2011
37. **Jeffrey C. S. Wu**, "A membrane photoreactor for photocatalytic water splitting and CO<sub>2</sub> reduction", 2011 TW-JP joint symposium of Nanomaterials for Renewable Energy and Chemicals, Matsushima, Sendai, Japan, Lecturer 2, November 20-24, 2011
38. Szu-Chun Yu, Chao-Wei Huang, Chi-Hung Liao, **Jeffrey C. S. Wu**, "A novel photoreactor for separating hydrogen and oxygen in photocatalytic water splitting", HYPOTHESIS IX, San José, Costa Rica, poster, December 12-15, 2011
39. 蔡旻霏, 張展璋, **吳紀聖**, "Photoconversion of CO<sub>2</sub> to fuel by a novel photoreactor", The 4th Symposium on Chemical and Products Engineering among Elite Chinese Scholars Across Taiwan Strait, Hong Kong, Lecturer 6, December 21-23, 2011
40. **吳紀聖**, "新型膜反應器可在光催化水分解同時分離產氫", 氫能技術研討會, 工研院綠能與環境所, 民國 100 年 3 月 28 日
41. 吳怡亭、林語騰、**吳紀聖**、張陸滿、李慧梅、陳虹瑤、許明皓, "使用光纖反應器去除二甲苯之研究", 第 25 屆環境分析化學研討會, 中壢環檢所, 民國 100 年 5 月 13-14 日
42. **吳紀聖**, "Novel twin photoreactor for separating hydrogen and oxygen in photocatalytic water splitting", 先進奈米光觸媒技術與應用國際研討會暨成果發表會, 虎尾科技大學民國 100 年 6 月 21 日, 邀請演講
43. 蔡旻霏、**吳紀聖**, "光催化水分解雙反應器之離子媒介傳輸現象", 第 29 屆台灣區觸媒與反應工程研討會, 東海大學, 口頭 O-11, 民國 100 年 6 月 23-24 日
44. 張展璋、**吳紀聖**, "溶凝膠法製得 Pt/SrTiO<sub>3</sub>:Rh 在鈉離子傳遞媒介下雙胞膜反應器進行光催化水分解", 第 29 屆台灣區觸媒與反應工程研討會, 東海大學, 壁報 P-17, 民國 100 年 6 月 23-24 日



45. 林欣玫、**吳紀聖**，"利用固體酸觸媒同時催化酯化/轉酯化反應生產生質柴油"，第 29 屆台灣區觸媒與反應工程研討會，東海大學，壁報 P-29，民國 100 年 6 月 23-24 日
46. 游議輝，潘詠庭，吳怡亭，Janusz Lasek，**吳紀聖**，"Photocatalytic NO reduction using an internal-illuminated monolith photoreactor"，第九屆海峽兩岸催化學術會，台灣科技大學，民國 100 年 7 月 18-19 日
47. Jiun-Jen Chen, **Jeffrey C. S. Wu**, Din Ping Tsai , "Surface plasmon resonance on the photocatalytic water splitting for hydrogen production"，第六屆全國氫能與燃料電池研討會，宜蘭大學，口頭 AH106，民國 100 年 10 月 28-29 日
48. Yu-Te Liao, Chao-Wei Huang, Chi-Hung Liao, **Jeffrey Chi-Sheng Wu**, Kevin Chia-Wen Wu, "Synthesis of Mesoporous Titania Thin Films (MTTFs) with Two Different Structures as Photocatalysts for Generating Hydrogen from Water Splitting", 11th International Conference on Clean Energy (ICCE-2011), Taichung, Taiwan, poster, November 2-5, 2011
49. 張展璋，李章萱，**吳紀聖**，李健璋，"溶凝膠法製得 Pt/SrTiO<sub>3</sub>:Rh 在鈾離子傳遞媒介下雙胞膜反應器進行光催化水分解"，台灣化學工程學會 58 週年年會，國立成功大學，壁報，民國 100 年 11 月 25-26 日
50. Jiun-Jen Chen, **Jeffrey C. S. Wu**, Pin Chieh Wu, and Din Ping Tsai, "Surface plasmon resonance on the photocatalytic water splitting to produce hydrogen", The International Symposium on NanoPhotonics 2012, Beijing, China, February 12-14, 2012, Invited Speaker
51. Chi-Hung Liao, Chao-Wei Huang, and **Jeffrey Chi-Sheng Wu**, "Preparation of Visible-Light-Active Photocatalytic Thin Film by RF Sputtering for Hydrogen Generation", 14<sup>th</sup> Asia Pacific Confederation of Chemical Engineering Congress (APCChE 2012), February 21-24, Singapore, Oral 216
52. Van-Huy Nguyen, Hsiang-Yu Chan, Hsunling Bai and **Jeffrey Chi-Sheng Wu**, "Photo-epoxidation of Propylene to Propylene Oxide over V-Ti/MCM-41: A Wavelength Effect on Photocatalytic Activities", 14<sup>th</sup> Asia Pacific Confederation of Chemical Engineering Congress (APCChE 2012), February 21-24, Singapore, Poster 485, Best Poster Award
53. Chao-Wei Huang, Chi-Hung Liao, Chih-Hung Wu and **Jeffrey Chi-Sheng Wu**, "Multi-junction solar cells with different deposited thin films for photoelectrochemical water splitting reactions ", 14<sup>th</sup> Asia Pacific Confederation of Chemical Engineering Congress (APCChE 2012), February 21-24, Singapore, Oral 300
54. Hung-Yu Wu, Hsunling Bai and **Jeffrey C.S. Wu**, "Metal-doped Photocatalysts to Reduce Carbon Dioxide in Ethanolamine Solution for Methane Production ", TechConnect World 2012-Nanotech, Microtech, Biotech, Cleantech Joint 2012 Conferences, Santa Clara, California, U.S.A, June 18-21 2012, Abstract no. 937
55. Wei-Hsuan Lee, Min-Fei Tsai, **Jeffrey C. S. Wu**, "A novel photoreactor for artificial photosynthesis to harvest sunlight', The International Symposium on Photocatalysis, the Catalysis Society of Japan, Kyoto University, July 19-20, 2012, Invited Speaker

56. Wei-Hsuan Lee, Min-Fei Tsai, **Jeffrey C. S. Wu**, "A novel twin-reactor for CO<sub>2</sub> photoreduction", 19th International Conference on Photochemical Conversion and Storage of Solar Energy (IPS-19), CalTech, Los Angeles, USA, July 29-August 3, 2012, S17-3
57. Jiun-Jen Chen, **Jeffrey C.S. Wu**, Pin Chieh Wu, Din Ping Tsai, " Enhanced photocatalytic activity of Au@SiO<sub>2</sub>/TiO<sub>2</sub> by promoted LSPR", Nanophotonics in Asia 2012, Kanazawa, Japan, September 17-19, 2012, Invited Speaker
58. Zih-Hua Li, **Jeffrey C. S. Wu**, "Using shell-core structural Ca(C<sub>3</sub>H<sub>7</sub>O<sub>3</sub>)<sub>2</sub>/CaO catalyst in Stirred-Packed Bed Reactor to Synthesize Biodiesel", 19<sup>th</sup> Regional Symposium on Chemical Engineering (RSCE2012), kuta denpasar, Bali, Indonesia, November 7-8, 2012, No. 179
59. Yi-Ting Wu, Yi-Hui Yu, **Jeffrey Chi-Sheng Wu**, Angela Yu-Chen Lin, Luh-Maan Chang, and Ming-Hao Hsu, "Effect of Paraffins on Benzene Photocatalytic Oxidation of Clean Room in Semiconductor Fab", 19<sup>th</sup> Regional Symposium on Chemical Engineering (RSCE2012), Kuta Denpasar, Bali, Indonesia, November 7-8, 2012, No. 254
60. Yi-Ting Wu, Yi-Hui Yu, **Jeffrey Chi-Sheng Wu**, Luh-Maan Chang, and Quin-Cy Horng, "Enhanced low concentration VOCs Removal Photocatalytic Oxidation Using Fiber-illuminated Honeycomb Reactor", The 6th Pacific Basin conference on Adsorption Science and Technology (PBAST-6), Taipei, Taiwan, May 20-23, PE-306
61. 吳紘宇, 白曠綾, **吳紀聖**, "金屬及非金屬複合光觸媒於太陽光光源下對液相二氧化碳進行光催化還原之研究", 第九屆環境保護與奈米科技學術研討會, 國立高雄大學, 民國 101 年 5 月 18 日
62. 李姿樺, **吳紀聖**, "用顆粒狀鹼觸媒於旋轉填充床反應器中生產生質柴油", 第 30 屆台灣區觸媒與反應工程研討會, 東華大學, 壁報 PB-06, 民國 101 年 6 月 28-29 日
63. 李韋萱, **吳紀聖**, "Photocatalytic water splitting combine with CO<sub>2</sub> reduction in twin reactor", 第 30 屆台灣區觸媒與反應工程研討會, 東華大學, 壁報 PA-02, 民國 101 年 6 月 28-29 日
64. Chien-Wei Lee, **Jeffrey C. S. Wu**, Rea Antoniou Kourounioti, Mercedes Maroto-Valer, Erik Murchie, Sasha Ruba, "Light-harvesting complex promoted TiO<sub>2</sub>:Rh-LHCII photocatalyst to reduce CO<sub>2</sub> into hydrocarbons", 第 30 屆台灣區觸媒與反應工程研討會, 東華大學, 壁報 PA-03, 民國 101 年 6 月 28-29 日
65. Hsiang-Yu Chan, Van-Huy Nguyen, **Jeffrey C.S. Wu**, Vanesa Calvino-Casilda, Miguel A. Bañares, and Hsunling Bai, "Photo-epoxidation of cyclohexene on V-Ti-MCM41", 第 30 屆台灣區觸媒與反應工程研討會, 東華大學, 壁報 PA-01, 民國 101 年 6 月 28-29 日
66. **吳紀聖**, "以程序強化促進化工產業高效化", 2012 台灣化學科技產業高峰論壇, 台北國際會議中心, 民國 101 年 9 月 12 日, 邀請演講

67. 吳怡亭, 游議輝, 吳紀聖, 張陸滿, "Enhanced Extra Low Concentration VOCs Removal by Photocatalytic Oxidation Using Fiber-illuminated Honeycomb Reactor", 台灣化學工程學會 59 週年會, 逢甲大學, 民國 101 年 11 月 23-24 日
68. **Jeffrey C. S. Wu**, "Photocatalytic Separate Evolution of H<sub>2</sub> and O<sub>2</sub> via Water Splitting", 2013 2nd International Conference on Clean and Green Energy, Dubai, UAE, January 19-20, 2013, Invited Speaker
69. **Jeffrey C. S. Wu**, "Photocatalytic Separate Evolution of H<sub>2</sub> and O<sub>2</sub> via Water Splitting by Membrane Twin Photoreactor, 2013 Joint Symposium on Advanced Materials and their Applications (ECUST-OPU-KIST), Shanghai, China, August 2-3, 2013, Invited Speaker
70. Wei-Hsuan Lee, Chi-Hung Liao, Min-Fei Tsai, **Jeffrey C.-S. Wu**, "Novel Twin Reactor for CO<sub>2</sub> Photo Reduction into Fuels", The 15th Asian Chemical Congress, Singapore, August 19-23, 2013, Invited Speaker
71. **Jeffrey C. S. Wu**, "Photocatalytic Separate Evolution of H<sub>2</sub> and O<sub>2</sub> via Water Splitting by Novel Twin Photoreactor, The Asian Pacific Conference on Chemistry of Materials 2013 ((APCCOM2013), City University of Hong Kong, December 2-6, 2013, Invited Speaker
72. Yi-Ting Wu, Yi-Hui Yu, Van-Huy Nguyen, Kung-Te Lu, **Jeffrey Chi-Sheng Wu**, Luh-Maan Chang, Chi-Wen Kuo, "Enhanced VOCs Removal by Photocatalytic Oxidation Using Fiber-illuminated Honeycomb Reactor at ppb Level, 第 31 屆台灣觸媒與反應工程研討會, 國立成功大學, 民國 102 年 6 月 27-28 日(壁報論文競賽第二名)
73. Tien-Lun Cheng, **Jeffrey C.S. Wu**, "Remediation of phenol in wastewater by internally illuminated monolith reactor(IIMR), 第 31 屆台灣觸媒與反應工程研討會, 國立成功大學, 民國 102 年 6 月 27-28 日
74. Pei-Hsuan Lin, Zih-Hua Li, **Jeffrey C. S. Wu**, "Optimization of shell-core structural Ca(C<sub>3</sub>H<sub>7</sub>O<sub>3</sub>)<sub>2</sub>/CaO catalyst by using Response Surface Method in rotating packed bed reactor", The 6<sup>th</sup> Asia-Pacific Congress on Catalysis (APCAT-6), Taipei, Taiwan, October 13-17, 2013
75. Kung-Te Lu, Yi-Hui Yu, Yi-Ting Wu, and **Jeffrey Chi-Sheng Wu**, Luh-Maan Chang, "Removal of Indoor VOCs by Photocatalytic Degradation", The 6<sup>th</sup> Asia-Pacific Congress on Catalysis (APCAT-6), Taipei, Taiwan, October 13-17, 2013
76. Cheng-Wei Chiu<sup>1</sup>, **Jeffrey C.S. Wu**, "Photocatalytic water splitting in a novel twin reactor using Pt/SrTiO<sub>3</sub> combined with Pt/WO<sub>3</sub> in the presence of I<sup>-</sup>/IO<sub>3</sub><sup>-</sup> shuttle redox mediator", The 6<sup>th</sup> Asia-Pacific Congress on Catalysis (APCAT-6), Taipei, Taiwan, October 13-17, 2013
77. Van-Huy Nguyen, Shawn D. Lin, **Jeffrey C.S. Wu**, Hsunling Bai, "The effects of water presence on photo-epoxidation of propylene over V-Ti/MCM-41 photocatalyst", The 6<sup>th</sup> Asia-Pacific Congress on Catalysis (APCAT-6), Taipei, Taiwan, October 13-17, 2013
78. 李姿樺、許毓婷、吳紀聖, "於旋轉填充床反應器填充固體顆粒鹼觸媒進行生質柴

油之生產, 台灣化學工程學會 60 週年年會, 台灣科技大學, 民國 102 年 11 月 22-23 日

### Books or Chapters

1. 吳紀聖、謝榮忠, 化學工業概論, 東大圖書, 民國 96 年 8 月 (ISBN 978-957-19-2856-2)

### Patents

1. M. H. Rei, **C. S. Wu**, Z. A. Lin, J. W. Pan, “Boron Nitride Supported Noble Catalyst,” US Patent 6,699,815, 2004, and “氮化硼支撐式貴金屬觸媒,” 中華民國發明專利 TW561065 (2003/11/11 - 2020/06/20)
2. 吳紀聖, 宋學昌, 林旭榮, “鹼性化合物的去除方法”, 中華民國發明專利 TW514547 (2002/12/21 - 2018/05/06)
3. Lien-Hua Chiu, Wen-Tung Chen, Jan-An Guu, **Jeffrey C.-S. Wu**, I-Hsiang Tseng, Chih-Hsien Chen, “Component and Manufacture of a Photo-Catalyst,” US Patent 6,805,739, 2004, and “光觸媒組成物與其製造方法”, 中華民國發明專利 TW592824 (2004/06/21 - 2022/02/20)

### Honors and Others

1. 第四屆全國氫能與燃料電池學術研討會籌備委員 (2009/11)
2. 中華民國 98 年台灣化工學會 賴再得教授獎 (2009)
3. Editor, *Journal of Photocatalysis Science*, June 2011-present
4. Editorial board, *Chemical Engineering Journal*, March 2007-present
5. Editorial board, *Applied Catalysis A: General*, April 2009-present
6. Editorial board, *Journal of CO<sub>2</sub> Utilization*, November 2012-present
7. Editorial board, *Research on Chemical Intermediates*, December 2012-present
8. Guest Editor, *Catalysis Today*, Special issue: Challenges for Changing Catalysis in Asia 2010
9. Guest Editor, *Catalysis Today*, Special issue: Fundamental understanding of photocatalytic conversions on semiconductor surfaces 2011
10. Guest Editor, *Energy Conversion and Management*, Special issue: Biofuels 2014
11. 副理事長, 台灣光觸媒產業發展協會, 2010-present
12. 指導張展璋同學於台灣區第 29 屆觸媒暨反應工程研討會/壁報競賽優等獎, 2011

13. 指導林欣玫同學於台灣區第 29 屆觸媒暨反應工程研討會/壁報佳作，2011
14. 指導吳怡亭,詹翔宇,李姿樺,王宥翔,夏豪廷同學 / 東元科技創意競賽亞軍、創意獎、人氣獎，2011
15. 指導陳鈞振研究生/第六屆全國氫能與燃料電池研討會口頭論文競賽優等獎，2012
16. 指導 Van-Huy Nguyen 研究生於 14th Asia-Pacific Confederation of Chemical Engineering Congress (新加坡) 最佳海報獎，2012
17. 指導研究生團隊，游勝閔，吳怡亭，邱政緯，盧孔德四位同學大陸第三屆高校杯環保競賽金獎，2012
18. 指導李姿樺與詹翔宇研究生第三十屆台灣觸媒與反應工程研討會學生壁報論文競賽獎，2012
19. 第二屆國家創新獎-「跨界合作創新傑出獎」，2012
20. 指導林貝瑄、許毓婷、陳柏任「節能減碳-搶救環境創意大競賽」首獎，2012
21. 指導研究生團隊，吳怡亭，李姿樺，游勝閔，林貝瑄，經濟部技術處 2012 搶鮮大賽 - 創意發想類季軍，2013
22. 指導吳怡亭同學獲 2013 第三十一屆台灣觸媒與反應工程研討會壁報論文競賽第二名
23. 指導盧孔德同學獲 2013 第六屆亞太催化會議(the 6th Asia-Pacific Congress on Catalysis)壁報競賽 Best Poster Excellence Award

### **International Cooperation Project**

1. 利用原位 operando 光譜技術探討奈米材料物化特性及催化與光催化反應  
(台灣-西班牙雙邊國際合作計畫)  
Sponsored by National Science Council, NSC101-2923-M-002-007-MY3  
NT\$1,974,000 1/1/2012-12/31/2014
2. Solar fuels via engineering innovation, Heriot-Watt University, UK  
Sponsored by Research Council UK, EPSRC EP/K021796/1  
£ 1,179,790, 1/3/2013-2/28/2018
3. H<sub>2</sub>O 和 CO<sub>2</sub> 还原光催化材料的设计制备和结构调控研究  
Sponsored by 促进海峡两岸科技合作联合基金, U1305242  
RM 2,800,000, 1/1/2014-12/31/2017

### 主辦國際會議或活動

1. 2011 TW-JP Joint Symposium of Nanomaterials for Renewable Energy and Chemicals, 22 delegates from both sides, Matsushima, Sendai, Japan, 2011/11/20-2011/11/24, NSC100-2911-I-002-045.
2. 第 10 屆兩岸催化研討會，台灣大學，台北，2013/10/11-2013/10/13

