

## **Curriculum Vitae**

**Liu, Ting-Yu (劉定宇)** Birth: 1979.03.22

**Assistant Professor (助理教授)**

**Dept. Materials Engineering,**

**Ming Chi University of Technology (明志科大材料系)**

**Phone:** +886-2-29089899 ext. 4456

**Mobile:** +886-910-380-065

**Email:** [tyliu@ntu.edu.tw](mailto:tyliu@ntu.edu.tw)

**Website:** <http://homepage.ntu.edu.tw/~tyliu/>



## **Education**

**Visiting** in Materials Science and Engineering  
University of Pennsylvania (2007-2008)

**English Language Center**

Drexel University (2007.06-2007.08)

**Ph.D.** in Materials Science and Engineering  
National Chiao Tung University (2003-2008)

**M.S.** in Polymer Engineering  
National Taiwan University of Science and  
Technology (2001-2003)

**B.S.** in Chemical Engineering  
Yuan-Ze University (1997-2001)

**Teacher Education Program for Secondary  
High Schools (中等學校教師教育學程)** in  
National Taiwan University of Science and  
Technology (2001-2003)

## **Research Areas**

1. Opto-electric Sensing and Electromagnetic Effects (Surface-enhanced Raman Scattering, SERS)
2. Drug Controlled Release
3. Nanotechnology and Biotechnology
4. Magnetic and Ceramic Nanoparticles/Arrays
5. Polymer Composite and Biopolymer Synthesis
6. Surface Analysis

## **Current Research Interests**

1. Surface Enhanced Raman Scattering (SERS) Platform for Microbes Detection
2. Magnetic (Iron Oxide) Drug Carriers for Intelligent Drug Controlled Release in Cancer Therapy
3. Air-Plasma for Bio-interface Treatment and Polymerization
4. Biopolymer Synthesis for Medical and Cosmetic Application
5. Nanomaterials Self-Assembly

## **Projects**

1. 在小鼠大腸直腸癌遠端轉移的動物模式中發展毒殺腫瘤幹細胞的新策略-新穎藥物載體於抑制小鼠直腸癌遠端轉移之應用 (1/3)-(3/3), sponsored by National Science Council (NSC 100-2321-B-002-057, NSC 101-2321-B-002-026, NSC 102-2321-B-002-020) NT **4,200,000**, 100/08/01~103/07/31 (計畫主持人)
2. 奈米國家型產學合作計畫-「表面增強拉曼光譜」在微生物檢測應用平台技術之建構(2/3)-(3/3), sponsored by National Science Council (NSC 100-2120-M-001-003-CC1, NSC 101-2120-M-001-001-CC1) NT **24,050,000**, 100/08/01~102/07/31 (共同主持人)
3. 工研院材化所學研計畫-大氣噴鍍生醫材料之機制及生物醫學應用研究, sponsored by Industrial Technology Research Institute (ITRI) (工研院特聘研究)
4. 102年自然處卓越航航計畫-表面增強拉曼光譜之基礎研究與生醫應用(1/4), sponsored by National Science Council (NSC 102-2628-M-001-008) NT **14,000,000** (子計畫主持人)

## **Experience**

**Project Assistant Professor (專案助理教授)**  
Institute of Polymer Science and Engineering,  
National Taiwan University (台大高分子所)  
(2011.02-2013.07)

**Distinguished Researcher (工研院特聘研究)**  
in Industrial Technology Research Institute  
(ITRI) (2012-2013)

**Postdoctoral Fellow** in Institute of Atomic  
and Molecular Sciences, Academia Sinica (中  
研院原分所) (2009-2011)

**Research Manager** in Advanced Delivery  
Technology Co., Ltd (2008-2009)

**Research Assistant** in Industrial Technology  
Research Institute (ITRI) (2004.05-2005.12)

## Journal Papers

1. **Ting-Yu Liu**, Kun-Tong Tsai, Huai-Hsien Wang, Yu Chen, Yu-Hsuan Chen, Yuan-Chun Chao, Hsuan-Hao Chang, Chi-Hung Lin, Juen-Kai Wang, and Yuh-Lin Wang\*, 2011. Functionalized Arrays of Raman-Enhancing Nanoparticles for Capture and Culture-Free Analysis of Bacteria in Human Blood, *Nature Communications*, 2, 538, doi: 10.1038/ncomms1546. (SCI) News: A fast nanotechnology platform to detect/capture bacteria in clinical samples, *Nanowerk Spotlight News*, November 29th, 2011 (<http://www.nanowerk.com/spotlight/spotid=23548.php>) (IF: 10.015, Ranking: 3/56 (5%), Multidisciplinary Science) (代表作-1)
2. **Ting-Yu Liu**, Kun-Ho Liu, Dean-Mo Liu, San-Yuan Chen and I-Wei Chen\*, Temperature-sensitive Nanocapsules for Controlled Drug Release Caused by Magnetically Triggered Structural Disruption, 2009. *Adv. Funct. Mater.*, 19, 616-623 (SCI) (IF:9.765, Ranking: 11/239 (5%), Materials Science, Multidisciplinary) (代表作-2)
3. **Ting-Yu Liu**, Shang-Hsiu Hu, Dean-Mo Liu, San-Yuan Chen and I-Wei Chen\*, 2009. Biomedical Nanoparticle Carriers with Combined Thermal and Magnetic Responses, *Nano Today*, 4, 52-65. (SCI) (IF:17.689, Ranking: 4/239 (2%), Materials Science, Multidisciplinary) (代表作-3)
4. **Ting-Yu Liu\***, Li-Ying Huang and Ming-Chien Yang, Nanochannels Manipulation of Magnetic Nanohybrid Membrane for Tunable Drug Diffusion, *submission*
5. Jun-Ying Ho, **Ting-Yu Liu\***, Jiun-Chiou Wei, Juen-Kai Wang, Yuh-Lin Wang, Jiang-Jen Lin\*, Selective SERS Detecting for Hydrophobic Microorganisms by Tri-Component Nanohybrids of Silver-Silicate Platelet-Surfactant, *ACS Appl. Mater. Interfaces*, 6, 1541-1549 (SCI) (IF:5.008, Ranking: 26/241 (11%), Materials Science, Multidisciplinary)
6. **Ting-Yu Liu\***, Jun-Ying Ho, Jiun-Chiou Wei, Wei-Chih Cheng, I-Hui Chen, Jessie Shiue, Huai-Hsien Wang, Juen-Kai Wang, Yuh-Lin Wang and Jiang-Jen Lin. Label-Free and Culture-Free Microbes Detecting by Three Dimensional Hot-Junctions of Flexible Raman-Enhancing Nanohybrid Platelets, *J. Mater. Chem. B*, 2, 1136-1143 (SCI) [Back Cover Image of JMC B]
7. Li-Ying Huang, **Ting-Yu Liu\***, Andri Hardiansyah, Tse-Ying Liu, Hung-Chou Liao, Chin-Ching Lin, Ming-Chien Yang\*, 2013. Nanohybrids Structure Analysis and Biomolecules Release Behavior of Polysaccharide-CDHA Drug Carriers, *Nanoscale Research Letters*, 8, 417 (SCI) (IF:2.524, Ranking: 43/239 (18%), Materials Science, Multidisciplinary)
8. **Ting-Yu Liu\***, Li-Ying Huang, Kun-Ho Liu, Ming-Chien Yang, Hsiung-Fei Chien, Niann-Tzyy Dai, Tse-Ying Liu, San-Yuan Chen and Dean-Mo Liu, 2013. Amphipathic Polysaccharides for Biomedical and Drug Carriers Applications, *Chemistry (中國化學會)*, 71, 33-44 (invited paper)
9. **Ting-Yu Liu\***, Huai-Hsien Wang, Kun-Tong Tsai, Yu Chen, Yu-Hsuan Chen, Yuan-Chun Chao, Hsuan-Hao Chang, Yin-Yi Han, Wei-Nan Lian, Chi-Hung Lin, Juen-Kai Wang, Yuh-Lin Wang, 2012. A Nanotechnology Platform Based on Surface-enhanced Raman Spectroscopy for Rapid Detection of Microbes, *Formosan J. Med. (台灣醫學雜誌)*, 16, 271-283 (invited paper)
10. Li-Ying Huang, **Ting-Yu Liu\***, Kun-Ho Liu, Yen-Yu Liu, Chih-Shin Chao, Wei-Lin Tung, Ming-Chien Yang, 2012. Electrospinning of Amphipathic Chitosan Nanofibers for Surgical Implants Application, *J. Nanosci. Nanotechnol.*, 12, 5066-5070 (SCI) (IF: 1.149, Ranking: 132/239 (55%), Materials Science, Multidisciplinary)
11. **Ting-Yu Liu**, Yu Chen, Huai-Hsien Wang, Yen-Lin Huang, Yuan-Chun Chao, Kun-Tong Tsai, Wei-Chih Cheng, Chih-Yuan Chuang, Yi-Ho Tsai, Chung-Yueh Huang, Da-Wei Wang, Chi-Hung Lin, Juen-Kai Wang, and Yuh-Lin Wang\*, 2012. Differentiation of Bacteria Cell Wall using Raman Scattering Enhanced by Nanoparticle Array, *J. Nanosci. Nanotechnol.*, 12, 5004-5008 (SCI) (IF: 1.149, Ranking: 132/239 (55%), Materials Science, Multidisciplinary)
12. **Ting-Yu Liu**, Shang-Hsiu Hu, Kun-Ho Liu, Dean-Mo Liu and San-Yuan Chen\*, 2008. Instantaneous Drug Delivery of Magnetic/Thermal Sensitive Nanospheres by a High Frequency Magnetic Field, *Langmuir*, 24, 13306-13311. (SCI) (IF:4.187, Ranking: 30/239 (13%), Materials Science, Multidisciplinary)

13. Shang-Hsiu Hu, **Ting-Yu Liu**, Hsin-Yang Huang, Dean-Mo Liu, and San-Yuan Chen\*, 2009. Stimuli-Responsive Controlled Drug Release from Magnetic-Sensitive Silica Nanospheres, *J. Nanosci. Nanotechnol.*, 9, 899-870 (SCI) (**IF: 1.149, Ranking: 132/239 (55%)**, Materials Science, Multidisciplinary)
14. Kun-Ho Liu, **Ting-Yu Liu**, Dean-Mo Liu, and San-Yuan Chen\*, 2009. Electrical-Sensitive Nanoparticle Composed of Chitosan and Tetraethyl Orthosilicate for Controlled Drug Release, *J. Nanosci. Nanotechnol.*, 9, 1198-1203. (SCI) (**IF: 1.149, Ranking: 132/239 (55%)**, Materials Science, Multidisciplinary)
15. Kun-Ho Liu, **Ting-Yu Liu**, San-Yuan Chen\* and Dean-Mo Liu, 2008. Drug Release Behavior of Chitosan–Montmorillonite Nanocomposite Hydrogels Following Electrostimulation, *Acta Biomaterialia*, 4, 1038-1045. (SCI) (**IF: 5.093, Ranking: 4/79 (5%)**, Engineering, Biomedical)
16. **Ting-Yu Liu**, Shang- Hsiu Hu, Kun-Ho Liu, Dean-Mo Liu and San-Yuan Chen\*, 2008. Study on Controlled Drug Permeation of Magnetic-Sensitive Ferrogels: Effect of Fe<sub>3</sub>O<sub>4</sub> and PVA, *J. Control. Release*, 126, 228-236. (SCI) (**IF: 7.633, Ranking: 10/260 (4%)**, Pharmacology & Pharmacy)
17. Shang-Hsiu Hu, **Ting-Yu Liu**, Hsin-Yang Huang, Dean-Mo Liu and San-Yuan Chen\*, 2008. Magnetic-Sensitive Silica Nanospheres for Controlled Drug Release, *Langmuir*, 24, 239-244. (SCI) (**IF:4.187, Ranking: 30/239 (13%)**, Materials Science, Multidisciplinary)
18. Kun-Ho Liu, **Ting-Yu Liu**, San-Yuan Chen\* and Dean-Mo Liu, 2007. Effect of Clay Content on Electrostimulus Deformation and Volume Recovery Behavior of a Clay–Chitosan Hybrid Composite, *Acta Biomaterialia*, 3, 919-926. (SCI) (**IF: 5.093, Ranking: 4/79 (5%)**, Engineering, Biomedical)
19. **Ting-Yu Liu**, Li-Ying Huang, Shang- Hsiu Hu, Ming-Chien Yang and San-Yuan Chen\*, 2007. Core-Shell Magnetic Nanoparticles of Heparin Conjugate as Recycling Anticoagulants, *J. Biomed. Nanotechnol.*, 3, 353-359. (SCI) (**IF: 5.256, Ranking: 16/121 (13%)**, Medicine, Research & Experimental)
20. Shang-Hsiu Hu, **Ting-Yu Liu**, Dean-Mo Liu and San-Yuan Chen\*, 2007, Controlled Pulsatile Drug Release from a Ferrogel by a High-Frequency Magnetic Field, *Macromolecules*, 40, 6786-6788 (SCI) (**IF: 5.521, Ranking: 3/83 (4%)**, Polymer Science)
21. Shang-Hsiu Hu, **Ting-Yu Liu**, Dean-Mo Liu and San-Yuan Chen\*, 2007. Nano- Ferrosponges for Controlled Drug Release, *J. Control. Release*, 121, 181-189. (SCI) (**IF: 7.633, Ranking: 10/260 (4%)**, Pharmacology & Pharmacy)
22. Shang-Hsiu Hu, **Ting-Yu Liu**, Chia-Hui Tsai and San-Yuan Chen\*, 2007. Preparation and Characterization of Magnetic Ferroscaffolds for Tissue Engineering, *J. Magn. Magn. Mater.*, 310, 2871-2873. (SCI) (**IF: 1.826, Ranking: 76/239 (32%)**, Materials Science, Multidisciplinary)
23. **Ting-Yu Liu**, Shang-Hsiu Hu, Sheng-Hsiang Hu, Szu-Ping Tsai and San-Yuan Chen\*, 2007. Preparation and Characterization of Thermal-Sensitive Ferrofluids for Drug Delivery Application, *J. Magn. Magn. Mater.*, 310, 2850-2852. (SCI) (**IF: 1.826, Ranking: 76/239 (32%)**, Materials Science, Multidisciplinary)
24. Tse-Ying Liu, **Ting-Yu Liu**, San-Yuan Chen, Shian-Chuan Chen\* and Dean-Mo Liu, 2006. Effect of Hydroxyapatite Nanoparticles on Ibuprofen Release from Carboxymethyl-Hexanoyl Chitosan/O-hexanoyl Chitosan Hydrogel, *J. Nanosci. Nanotechnol.*, 6, 2929-2935. (SCI) (**IF: 1.149, Ranking: 132/239 (55%)**, Materials Science, Multidisciplinary)
25. **Ting-Yu Liu**, Shang- Hsiu Hu, Tse-Ying Liu, Dean-Mo Liu and San-Yuan Chen\*, 2006. Magnetic-Sensitive Behavior of Intelligent Ferrogels for Controlled Release of Drug, *Langmuir*, 22, 5974-5987. (SCI) (**IF:4.187, Ranking: 30/239 (13%)**, Materials Science, Multidisciplinary)
26. **Ting-Yu Liu**, Shang-Hsiu Hu, Kun-Ho Liu, Dean-Mo Liu and San-Yuan Chen\*, 2006. Preparation and Characterization of Smart Magnetic Hydrogels and Its Use for Drug Release, *J. Magn. Magn. Mater.*, 304, e397-e399. (SCI) News: Smart magnetic hydrogels for drug release, Nanowerk Spotlight News, May 18th, 2006 (<http://nanowerk.com/spotlight/spotid=507.php>) (**IF: 1.826, Ranking: 76/239 (32%)**, Materials Science, Multidisciplinary)

27. **Ting-Yu Liu**, Hung-Chou Liao, Chin-Ching Lin, Shang-Hsiu Hu and San-Yuan Chen\*, 2006. Bio-Functional ZnO Nanorods Arrays Grown on Flexible Substrates, *Langmuir*, 22, 5804-5809. (SCI) (IF:4.187, Ranking: 30/239 (13%), Materials Science, Multidisciplinary)
28. **Ting-Yu Liu**, Wen-Ching Lin, Ming-Chien Yang\* and San-Yuan Chen, 2005. Miscibility, Thermal Characterization and Crystallization of Poly(L-lactide) and Poly(tetramethylene adipate-co-terephthalate) Blend Membranes, *Polymer*, 46, 12586-12594. (SCI) (IF:3.379, Ranking: 15/83 (18%), Polymer Science)
29. **Ting-Yu Liu**, Wen-Ching Lin, Li-Ying Huang, San-Yuan Chen and Ming-Chien Yang\*, 2005. Hemocompatibility and Anaphylatoxin Formation of Protein-Immobilizing Polyacrylonitrile Hemodialysis Membrane, *Biomaterials*, 26, 1437-1444. (SCI) (IF:7.604, Ranking: 1/27 (4%), Materials Science, Biomaterials)
30. **Ting-Yu Liu**, Wen-Ching Lin, Li-Ying Huang, San-Yuan Chen and Ming-Chien Yang\*, 2005. Surface Characteristics and Hemocompatibility of PAN/PVDF Blend Membranes, *Polym. Advan. Technol.*, 16, 413-419. (SCI) (IF:1.635, Ranking: 35/83 (42%), Polymer Science)
31. Wen-Ching Lin, **Ting-Yu Liu** and Ming-Chien Yang\*, 2004. Hemocompatibility of Polyacrylonitrile Dialysis Membrane Immobilized with Chitosan and Heparin Conjugate, *Biomaterials*, 25, 1947-1957. (SCI) (IF:7.604, Ranking: 1/27 (4%), Materials Science, Biomaterials)
32. Ming-Chien Yang\* and **Ting-Yu Liu**, 2003. The Permeation Performance of Polyacrylonitrile/Polyvinylidene Fluoride Blend Membranes, *J. Membrane Sci.*, 226, 119-130. (SCI) (IF:4.093, Ranking: 7/133 (5%), Engineering, Chemical)

### **Conference Papers**

1. **Ting-Yu Liu et al.**, A Nanotechnology Platform based on Surface-Enhanced Raman Spectroscopy for Rapid Detection of Microbes, Collaborative Conference on Materials Research (CCMR) (2013), Jeju Island, South Korea. (Invited Speaker)
2. Li-Ying Huang *et al.*, A Nanohybrids Structure Analysis and Biomolecules Release Behavior of Polysaccharide-CDHA Drug Carriers (CCMR) (2013), Jeju Island, South Korea. (Poster)
3. **Ting-Yu Liu et al.**, A Nanotechnology Platform based on Surface-Enhanced Raman Spectroscopy for Rapid Detection of Microbes, Electromagnetics Research Symposium (PIERS) (2013) Taipei, Taiwan (Invited Speaker)
4. Chih-Yu Kuo *et al.*, Magnetic-Sensitive Nanocapsules for Drug Controlled Release, 2013 International Congress on Chemical, Biological and Environmental Sciences (ICCBES) (2013) Taipei, Taiwan (Poster)
5. Jin-Yuan Liu *et al.*, Fabrication of Gold Nanoparticles with Inositol Hexaphosphate in Citrate Reduction for SERS Application, 2013 International Congress on Chemical, Biological and Environmental Sciences (ICCBES) (2013) Taipei, Taiwan (Poster)
6. **Ting-Yu Liu et al.**, A Nanotechnology Platform based on Surface-Enhanced Raman Spectroscopy for Rapid Detection of Microbes, 2012 Annual Meeting of Taiwan Society of Critical Care Medicine (2012) Taipei, Taiwan (Invited Speaker)
7. **Ting-Yu Liu et al.**, Surface-enhanced Raman Spectroscopy-based multifunctional biochips for rapid detection of microbes, New Clinical Diagnostic Technique in Taiwan (2012) Taipei, Taiwan (Invited Speaker)
8. **Ting-Yu Liu et al.**, Detection of Bacteria Cell Wall using Raman Scattering Enhanced by Nanoparticle Array, The 7<sup>th</sup> joint meeting of Chinese physicists worldwide International Conference on Physics Education and Frontier Physics (2011) Kaohsiung, Taiwan (Invited Speaker)
9. Li-Ying Huang *et al.*, Electrospinning of Amphiphathic Chitosan Nanofibers for Wound Dressing Application. 5th NANOSMAT Conference (NANOSMAT-5) (2010) France, Reims. (Poster)
10. **Ting-Yu Liu et al.**, Monitoring Chemistry of Bacteria Using Raman Scattering Enhanced by Nanoparticle Array. 5th NANOSMAT Conference (NANOSMAT-5) (2010) France, Reims. (Poster)

11. Shang-Hsiu Hu, Ting-Yu Liu, Chia-Hui Tsai and San-Yuan Chen, Preparation and characterization of magnetic ferroscaffolds for tissue engineering, The 17th International Conference on Magnetism (2006) Kyoto, Japan. **(Poster)**
12. Kun-Ho Liu, Ting-Yu Liu, Dean-Mo Liu and San-Yuan Chen, Ultra-Fast Reactive Drug Release System Composed of Electrical-Sensitive Chitosan and TEOS-IPN Hybrid Nanoparticle under Applied DC Electrical Fields, NIPER-NANO-2006-Nanotechnology in Advanced Drug Delivery Conference (2006) Chandigarh, India. **(Poster)**
13. Shang-Hsiu Hu, Ting-Yu Liu, Kun-Ho Liu, Dean-Mo Liu and San-Yuan Chen., Drug Controlled Release Characteristics of Intelligent Magnetic-Gelatin Nanospheres, NIPER-NANO-2006-Nanotechnology in Advanced Drug Delivery Conference (2006) Chandigarh, India. **(Poster)**
14. Ting-Yu Liu, Shang-Hsiu Hu, Sheng-Hsiang Hu, Szu-Ping Tsai, Dean-Mo Liu and San-Yuan Chen, Preparation and Characterization of Thermal-Sensitive Ferrofluids for Drug Delivery Application, The 17th International Conference on Magnetism (ICM) (2006) Kyoto, Japan **(Oral presentation)**
15. Ting-Yu Liu, Shang-Hsiu Hu, Kun-Ho Liu, Dean-Mo Liu and San-Yuan Chen., Self-Assembled Core-Shell Magnetic Nanoparticles of Heparin Conjugates as Recycling Anticoagulants, NIPER-NANO-2006- Nanotechnology in advanced drug delivery Conference (2006) Chandigarh, India. **(Poster)**
16. Ting-Yu Liu, Hung-Chou Liao, Chin-Ching Lin, Shang-Hsiu Hu and San-Yuan Chen, Immobilization of Proteins on Arrayed ZnO Nanorods Grown on Thermoplastic Polyurethane (TPU) Flexible Substrate for Biomedical Applications, 2005 Materials Research Society (MRS) Spring Meeting (2005) San Francisco, USA. **(Oral presentation)**
17. Ting-Yu Liu, Shang-Hsiu Hu, Kun-Ho Liu, Dean-Mo Liu and San-Yuan Chen, Preparation and Characterization of Smart Magnetic Hydrogels and Its Use for Drug Release, ISAMT/SOMMA 2005 Conference (2005) Tapei, Taiwan. **(Poster)**

### **Books**

1. San-Yuan Chen, Shang-Hsiu Hu, Ting-Yu Liu, Smart Materials for Drug Delivery, Chapter 14 Magnetic-Responsive Nanoparticles for Drug Delivery, Royal Society of Chemistry (RSC), 2013, vol. 2, pp. 32-60 (ISBN: 978-1-84973-552-0)
2. 博士論文：智慧型磁性水膠及奈米微球於藥物控制釋放之探討 (指導教授：陳三元 教授)，2008
3. 碩士論文： PAN/PVDF 混摻血液透析膜及其表面固定生物分子之滲透性質和血液相容性之探討 (指導教授：楊銘乾 教授)，2003

### **Patents**

1. 林江珍、劉定宇、王玉麟、魏郡菽、何俊瑩，銀奈米粒子/奈米黏土矽片/界面活性劑之功能化拉曼增強系統，中華民國專利 (申請中)
2. Functionalized Raman-enhanced system based on surfactant-modified nanohybrids of silver nanoparticles and nanoclay platelets US Patent , *submission*
3. 林江珍、劉定宇、王玉麟、魏郡菽，銀奈米粒子/奈米黏土矽片之可撓式及具備三維熱點之拉曼增強基板，中華民國專利 (申請中)
4. Jiang-Jen Lin, Ting-Yu Liu, Yuh-Lin Wang, Jiun-Chiou Wei, Flexible and 3-Dimensional Hot-Junctions of Raman-Enhancing Substrate Based on Hybrids of Silver Nanoparticles and Nanoclay Platelets, US Patent , *submission*
5. Yuh-Lin Wang, Ting-Yu Liu, Huai-Hsien Wang, Glycopeptide-Functionalized Nanoparticles Arrays for Capturing and Detecting Biomolecules , US Patents #12/945,052 pending, filed on Nov. 18, (2010)
6. 王玉麟、劉定宇、王懷賢，覆蓋胜肽糖之表面增強拉曼基板於捕捉、偵測與監測微生物之應用，Patent pending, filed on April 2011。

7. 楊銘乾、黃瑞仁、黃曉瑩、劉定宇，中華民國專利 TW I335216 (2008) “一種表面具有多層包覆結構之心血管支架”。

### **Honors and Others**

1. 胡尚秀、劉定宇、蕭繼聖、劉典謨、陳三元，第五屆國家新創獎學生組**第二名**，智慧型生物訊號誘導藥物釋放系統前瞻研究 (2007)。
2. 國科會千里馬計畫-赴美國賓州大學(University of Pennsylvania)訪問 (2007-2008)。
3. 獲聘99年度第一梯次中央研究院博士後研究學者，享有每年15萬元研究經費 (2010-2011)。
4. 臺大追求卓越關懷社會記者會-臺大跨校團隊奈米科技光譜技術，台大校訊1076期 (2011)。  
([http://www.ntu.edu.tw/spotlight/2011/111228\\_1.htm](http://www.ntu.edu.tw/spotlight/2011/111228_1.htm); <http://vp.ntu.edu.tw/effort1001220.htm>)
5. 劉定宇、王玉麟、王懷賢、蔡焜棟，2013年台灣奈米影像暨奈米新詩創作競賽-掃描探針顯微鏡影像組**佳作** (2013)。
6. 陳珏伶、林江珍、劉定宇，2013亞洲區奈米影像邀請賽，穿透式電子顯微鏡影像組**第三名** (2013)。
7. 雍敦元、劉定宇，2013亞洲區奈米影像邀請賽，掃描式電子顯微鏡影像組**佳作** (2013)。
8. 詹子儀、鄒惠名、簡維德、陳冠宇、盧泓翰、王冠勛、劉定宇，2013亞洲區奈米影像邀請賽，穿透式電子顯微鏡影像組**佳作** (2013)。

### **Teaching Courses**

1. 台大高分子所開設課程：奈米生醫材料、生物高分子科技專論、高分子分析學、高分子複合材料、高分子表面分析專論、高分子實驗、高分子實驗-II及專題討論等**8門課**。
2. 明志材料系開設課程：物理冶金、陶瓷材料、腐蝕與防蝕、近代物理、奈米檢測分析、奈米薄膜技術、高等材料選擇與設計、書報討論2、生物材料與綠色工程、複合材料、高分子材料特論等**11門課**