

國際期刊論文 Journal papers

1. Chun-Hong Chen, **Sung-Lin Tsai** and Ling-Sheng Jang, "Droplet creation using liquid dielectrophoresis", *Sensors and Actuators B: Chemical*, volume 142, issue 1, October 12, 2009, pages 369-376. (SCI, 12/70, IF:3.083, Q1)
2. **Sung-Lin Tsai**, Jih-Lin Hong, Ming-Kun Chen and Ling-Sheng Jang, "Experimental study of dielectrophoresis and liquid dielectrophoresis mechanisms for particle capture in a droplet", *Electrophoresis*, volume 32, issue 11, June 28, 2011, pages 1337-1347. (SCI, 14/73, IF:3.303, Q1) (第一作者)
3. Chun-Hong Chen, **Sung-Lin Tsai**, Ming-Kun Chen and Ling-Sheng Jang, "Effects of gap height, applied frequency, and fluid conductivity on minimum actuation voltage of electrowetting-on-dielectric and liquid dielectrophoresis", *Sensors and Actuators B: Chemical*, volume 159, issue 1, November 28, 2011, pages 321-327. (SCI, 11/73, IF:3.898, Q1)
4. Sheng-Yu Lai, **Sung-Lin Tsai**, Min-Haw Wang, Ming-Kun Chen and Ling-Sheng Jang, "Effect of Cell Position on Impedance Measurement in Microfluidic Channel with Planar Microelectrodes and a Three-pillar Structure", *Japanese Journal of Applied Physics*, volume 51, issue 9, August 23, 2012, pages 097001-1-097001-5. (SCI, 82/128, IF:1.067, Q3)
5. **Sung-Lin Tsai**, Min-Haw Wang, Ming-Kun Chen and Ling-Sheng Jang, "Analytical and Numerical Modeling Methods for Electrochemical Impedance Analysis of Single Cells on Coplanar Electrodes", *Electroanalysis*, volume 26, issue 2, February 20, 2014, pages 389-398. (SCI, 36/74, IF:2.138, Q2) (第一作者)
6. **Sung-Lin Tsai**, Yang Chiang, Min-Haw Wang, Ming-Kun Chen and Ling-Sheng Jang, "Battery-powered portable instrument system for single-cell trapping, impedance measurements, and modeling analyses", *Electrophoresis*, volume 35, issue 16, August 11, 2014, pages 2392-2400. (SCI, 14/74, IF:3.028, Q1) (第一作者)
7. Yang Chiang, Ling-Sheng Jang, **Sung-Lin Tsai**, Ming-Kun Chen and Min-Haw Wang, "Impedance Analysis of Single Melanoma Cells in Microfluidic Devices", *Electroanalysis*, volume 26, issue 10, October 16, 2014, pages 2129-2137. (SCI, 36/74, IF:2.138, Q2)
8. **Sung-Lin Tsai** and Min-Haw Wang, "24 h observation of a single HeLa cell by impedance measurement and numerical modeling", *Sensors and Actuators B: Chemical*, volume 229, issue 28, January 16, 2016, pages 225-231. (SCI, 3/29, IF:5.401, Q1) (第一作者)
9. **Sung-Lin Tsai**, Jiunn-Jye Wey, Szu-Chia Lai, You-Qian Lin, Chiao-Jou Chang, Pao-Cheng Huang, "Drone inspection system based on the electrochemical impedance detector by dengue NS1 biomarkers in water environments", *IEEE Sensors Letters* volume 8, issue 9, 2024, page 6011804. (ESCI, 40/79, IF:2.2, Q3) (第一作者兼通訊作者)
10. **Sung-Lin Tsai**, Jiunn-Jye Wey, Szu-Chia Lai, "Investigation and Demonstration for immunoassay technology based on impedance Amplifies of magnetic and dielectric microbeads", *Microchemical Journal*, volume 207, December 2024, page 111899. (SCIE, 23/111, IF:5.1, Q1) (第一作者兼通訊作者)
11. **Sung-Lin Tsai**, Jiunn-Jye Wey, Szu-Chia Lai, Yu-Yin Huang, "A novel microfluidic chip based on an impedance-enhanced electrochemical immunoassay", *Physics of fluids*, volume 37, 27 January 2025, issue 1, page 011920. (SCIE, 3/41, IF:4.3, Q1) (第一作者兼通訊作者)
12. **Sung-Lin Tsai**, "A Novel Method for Automatic Modeling of Multielectrode Measurements Based on Single Cell Analysis", *IEEE Transactions on Instrumentation and Measurement*, volume 74, 28 April 2025, page 1-11, Art no. 4009011. (SCIE, 8/79, IF:5.9, Q1) (第一作者兼通訊作者)

國際研討會論文 Conference papers

1. Chun-Hong Chen, **Sung-Lin Tsai**, Ling-Sheng Jang and Yi-Chu Hsu, "Particle capture in a droplet by LDEP", The 22nd International Microprocesses and Nanotechnology Conference (MNC2009), November 16-19, 2009, Sapporo, Japan, Pages 710-711.
2. **Sung-Lin Tsai**, Jih-Lin Hong, Ming-Kun Chen and Ling-Sheng Jang, "Design and fabrication of microfluidic devices for particle capture in a droplet using dielectrophoresis and liquid dielectrophoresis", 2011 International Symposium on Nano Science and Technology, November 18-19, 2011, Tainan, Taiwan, Page 20-21. (第一作者)
3. **Sung-Lin Tsai**, Min-Haw Wang, Ming-Kun Chen and Ling-Sheng Jang, "A compact single-bead impedance measurement system", 2012 International Symposium on Nano Science and Technology, page 42, November 8-9, 2012, Tainan, Taiwan. (第一作者)
4. **Sung-Lin Tsai**, Min-Haw Wang, Ming-Kun Chen and Ling-Sheng Jang, "Single cell measurement using the portable impedance analyzer", 6th International Conference on Sensing Technology, page 110, December 18-21, 2012, Kolkata, India. (第一作者)
5. **Sung-Lin Tsai**, Min-Haw Wang, Ming-Kun Chen and Ling-Sheng Jang, "EIS Algorithm Based on Single-cell Impedance System", 1st International Conference on Orange Technologies, page 17, March 12-16, 2013, Tainan, Taiwan. (第一作者)

6. Yi-Ling Lin, **Sung-Lin Tsai**, Min-Haw Wang, Ming-Kun Chen and Ling-Sheng Jang, "Long-Term Impedance Measurement Results of Single HeLa Cell Based on Three-pillars Structure", 1st International Conference on Orange Technologies, page34, March12-16, 2013, Tainan, Taiwan.
7. Yun-Jung Hung, Chung-Chia Liao, **Sung-Lin Tsai**, Chih-Wei Chen, and Chun-Hong Chen, "Experimental and theoretical analysis of the actuation voltages of aqueous solutions on the single plate device", 2023 International Symposium on Novel and Sustainable Technology, in the E Library and Information Building (13th floor) at the Southern Taiwan University of Science and Technology (STUST), October 19-20, 2023, Tainan, Taiwan.
8. Chung-Chia Liao, Yun-Jung Hung, **Sung-Lin Tsai**, Tzu-Ping Chang Chien, Xi-Yan Liu, and Chun-Hong Chen "Parameter investigation on the minimum actuation voltage of electrowetting-on-dielectric on the coplanar microfluidic", 2023 International Symposium on Novel and Sustainable Technology, in the E Library and Information Building (13th floor) at the Southern Taiwan University of Science and Technology (STUST), October 19-20, 2023, Tainan, Taiwan.
9. **Sung-Lin Tsai**, Jou-Chiao Chang, Cheng-Chieh Cheng, Rong-Chyang Lee, "Application of unmanned aerial vehicle in microplastics detection", 2023 Aeronautical and Astronautical Society of the Republic of China Conference (AASRC), November 25, 2023, Taichung, Taiwan. (第一作者兼通訊作者)
10. **Sung-Lin Tsai**, "Cell-based observation system using electrochemical impedance spectroscopy for early diagnosis of melanoma", 2024 IEEE 10th International Conference on Applied System Innovation (ICASI), in Kyoto International Conference Center (国立京都国際会館), April 17-21, 2024, Kyoto, Japan. (第一作者兼通訊作者)
11. **Sung-Lin Tsai**, Jiunn-Jye Wey, Szu-Chia Lai, You-Qian Lin; Chiao-Jou Chang, Pao-Cheng Huang, "Drone Inspection System Based on the Electrochemical Impedance Detector by Dengue NS1 Biomarkers in Water Environments", 2024 IEEE Sensors conference, October 20-23, 2024, paper no. 7271, Kobe, Japan. (第一作者兼通訊作者)
12. **Sung-Lin Tsai**, Chiao-Jou Chang, Yi-Hsun Lee, Chun-Hong Chen, Liang-Yo Tu, "Cost-Effective Manufacturing Technique for Microfluidic Chips Designed for Portable Microplastic Monitoring", 2024 Aeronautical and Astronautical Society of the Republic of China Conference (AASRC), December 7, 2024, paper no. 1043, Tainan, Taiwan. (第一作者兼通訊作者)
13. You-Qian Lin, **Sung-Lin Tsai**, Pao-Cheng Huang, Chun-Hong Chen, Yi-Hsun Lee, "Development of a Water Sampling Device for Unmanned Aerial Vehicles ", 2025 IEEE International Conference on Consumer Electronics - Taiwan (ICCE-TW), 16-18 July 2025, Kaohsiung, Taiwan.
14. Pao-Cheng Huang, Yang Zhong, I-Chun Kuo, Min-Haw Wang, **Sung-Lin Tsai**, "A Method for Non-invasive Blood Pressure Prediction Using Tiny Machine Learning", 2025 IEEE International Conference on Consumer Electronics – Taiwan (ICCE-TW), 16-18 July 2025, Kaohsiung, Taiwan.
15. **Sung-Lin Tsai**, Yi-Hsun Lee, Jiunn-Jye Wey, Szu-Chia Lai, Yu-Yin Huang, Chun-Hong Chen, Shih-Hung Lin, Electrochemical microfluidic chip fabrication using a bondless and solventless method, 2025 6th International Conference on Engineering, Physics, MEMS-Biosensors and Applications (ICEBA2025), Taoyuan, Taiwan. (第一作者兼通訊作者)

國內論文及發表 Domestic papers and publications

1. 蔡松霖、陳俊宏、陳乃勤，應用介電泳與液體介電泳產生單一細胞環境的微流體系統之研製，國際臨床工程及醫學資訊研討會暨國科會醫學工程學門成果發表會，100年12月3日，台南，台灣。
2. 張凌昇、陳俊宏、蔡松霖、陳乃勤，應用介電泳與液體介電泳產生單一細胞環境的微流體系統之研製，2012生物醫學工程科技研討會暨國科會醫工學門成果發表會，pp.29-30，101年11月17-18，中原大學，桃園，台灣。
3. 張凌昇、蔡松霖、江洋、王文瑜，可攜式單細胞阻抗分析系統之研發，2013生物醫學工程科技研討會暨國科會醫工學門成果發表會，pp.PA2-66，102年11月15-16，清華大學，新竹，台灣。
4. 蔡松霖、劉憲宗、張辰嘉、魏俊傑、賴思佳，生物晶片研製之微流體微珠感測晶片開發，新新科技季刊，107年7月，第46卷第3期，pages 85-94。
5. 劉憲宗、蔡松霖、張辰嘉，微流體生物晶片製程精進與澆鑄模具設計之概述，新新科技季刊，108年4月，第47卷第2期，pages 226-230。
6. 蔡松霖、劉憲宗、張辰嘉、魏俊傑、賴思佳，生物晶片應用於登革熱檢驗技術開發，新新科技年刊，108年4月，第15卷，pages 107-119。
7. 蔡松霖、劉憲宗、周蕎茵，應用微流體生物晶片於生化檢測分析之研究，新新科技季刊，109年10月，第48卷第4期，pages 239-244。
8. 蔡松霖、周蕎茵，快速新型冠狀病毒檢驗系統之設計與應用，新新科技年刊，111年1月，第18卷，pages 175-184。
9. 蔡松霖，應用無人飛行載具及微流體晶片於水源微塑膠檢測之研究，2025 International Automatic Control Conference (CACS 2025)及2025 International Conference on Fuzzy Theory and Its Applications (iFUZZY 2025)暨行政院國科會工程處控制學門113年度成果報告研討會，114年11月7日，新竹，台灣。

期刊審查委員 Peer review (9 reviews for 5 publications/grants)

1. 擔任2025國際期刊 **Physics of fluids** (SCIE, 3/41, IF:4.3, Q1, AIP Publishing) 審查委員(4)。
2. 擔任2025國際期刊 **Biomicrofluidics** (SCIE, 50/86, IF:2.4, Q3, AIP Publishing) 審查委員(1)。
3. 擔任2025國際期刊 **Analytica Chimica Acta** (SCIE, 16/111, IF:6.0, Q1, ELSEVIER) 審查委員(1)。
4. 擔任2025國際期刊 **IEEE Sensors journal** (SCIE, 16/79, IF:4.5, Q1, IEEE) 審查委員(2)。
5. 擔任2026國際期刊 **Food Analytical Methods** (SCIE, 89/182, IF:3.0, Q2, IEEE) 審查委員(1)。

專利 Patents

申請人	發明人	名稱	狀態	備註
國立虎尾科技大學	蔡松霖	移動式水中微塑膠及生物顆粒檢驗裝置	中華民國發明專利，公告號 I900357，申請日 2024 年 12 月 4 日，公開日 2025 年 10 月 1 日。	
國防醫學院、國家中山科學研究院	蔡松霖、魏俊傑等	複合微珠體及其應用	中華民國發明專利，公告號 I717766，申請日 2019 年 6 月 20 日，公告公開日 2021 年 2 月 1 日。	

研究計畫 Projects

研究專案	執行起迄	補助機構	核定金額
114 年國科會專題研究計畫 微流體晶片與無人機系統整合於微塑膠檢驗之研究 (NSTC 114-2221-E-150-049-)	11408-11507 (主持人)	國科會	1,033,000
113 年國科會專題計畫 應用無人飛行載具及微流體晶片於水源微塑膠檢測之研究 (NSTC 113-2222-E-150-002 -)	11301-11312 (主持人)	國科會	1,120,000
111 年國防委製案 新冠病毒檢測晶片維護 (國院預防字第 1110041737 號)	11107-11012 (總工程師)	國防部	1,500,000
110 年國防委製案 新冠病毒檢測晶片研發 (國院預防字第 1100030337 號)	11006-11012 (總工程師)	國防部	1,500,000
110 年研究試製案 COVID-19 檢測晶片之開發	11001-11012 (總工程師)	中科院	469,000
109 年國防委製案 登革熱生物晶片檢測系統研改及維護 (國院預防字第 1090000166 號)	10903-10912 (總工程師)	國防部	1,500,000
109 年研究試製案 登革熱生物晶片快速檢驗系統之開發(二)	10901-10912 (總工程師)	中科院	1,500,000
108 年國防委製案 登革熱生物晶片檢測系統 (國院預防字第 1080000413 號)	10807-10812 (總工程師)	國防部	1,500,000
108 年研究試製案 登革熱生物晶片快速檢驗系統之開發	10801-10812 (總工程師)	中科院	1,500,000