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工作經驗：

- 2018/08 – 副教授 臺灣大學應用力學所
- 2018/03 – 組長 臺灣大學奈米機電系統研究中心
- 2016 – 2018 助理教授 臺灣大學應用力學所
- 2011 – 2016 助理教授 中興大學醫工所
- 2007 – 2011 Postdoctoral, University of Maryland, College Park
- 2018 – Associate Editor on *Micro & Nano Letters*

研究領域：

- 微流體系統於材料科學與生化檢測應用

High-Pressure Thermoplastic Device Fabrication

- Scalable Cost effective Flexible
- High pressure resistance > 20 MPa (~ 200 atm)
- Rapid prototyping ($\geq 100 \mu\text{m}$)
- Low dead volume

I. Polymer-Based Microstructure Fabrication

- Hot Embossing Lithography
- Injection Molding
- Mechanical Milling

II. Thermal Plastic Bonding Techniques

- Thermal Bonding
- Solvent Bonding
- Surface modification

III. Interfaces and Pumps

- Fluidic manipulation

- 定點檢測醫療照護系統

Blood Plasma Separation Using a Fidget-Spinner

a

1. Print well pattern on ordinary paper and bake for 15 min under 110 °C.
2. Add 3 μL Mouse anti-HIV-1 p24 and bake in 40 °C for 1 min.
3. Add 3 μL BSA and bake in 40 °C for 1 min.
4. Add 3 μL Recombinant HIV-1 p24 protein and bake in 40 °C for 1 min.
5. Add 3 μL Mouse anti-HIV-1 p24-BSA and bake in 40 °C for 2 min.

b

Blank 0.01 0.1 0.3 1 3 10 30

Blank 10¹ 10² 10³ 10⁴ 10⁵

Blank

2.0
1.8
1.6
1.4
1.2
1.0

p24 (ng/mL)

- 奈米材料於環境監控與醫學應用

On-Site Hg²⁺ Sensing Using Colorimetric Au Nanoparticles on a Paper Device

Analytical Chemistry, 2014, 86, 6843–6849 Highly Cited Paper

Diagnosis of Tuberculosis on a Paper Device

ACS Sensors, 2017, 2, 1345–1354

- 微型化分析系統開發

World health organization (WHO)

- Affordable
- Sensitivity
- Specificity
- User-Friendly
- Rapid and Robust
- Equipment-Free
- Delivery to End-Users

Low-Cost Miniaturized Analytical Systems

Silicon

FET Biosensor
2015, *Small*, 11, 96–102
2017, *JACS*, 139, 3045–3051

Polymer

Thermoplastic Device
2015, *Lab Chip*, 15, 4533–454
2019, *Anal Chem*, 91, 1247–1253

Paper

Paper-Based Devices
2017, *ACS Sensors*, 2, 1345–1354
2019, *Lab Chip*, 19, 598–607

榮譽獎項：

- 科技部吳大猷先生紀念獎 (2019)
- 科技部未來科技突破獎 (2019)
- 科技部優秀年輕學者研究計畫 (2018-2021)
- 指尖陀螺產生離心力，從全血中分離出血漿，並結合分析試紙，可於資源匱乏區域進行愛滋病診斷，研究成果獲選由美國化學學會製作影片發佈於 [ACS Headline Science](#) 科學頻道，同時獲得 [PressPac](#)、[C&EN](#)、[IEEE GlobalSpec](#)、[AAAS](#)、以及 [Circulation](#) 期刊等發佈專訪報導。(2019)
- 微流體試紙應用於結核病分子診斷研究成果，接受美國化學學會 [ACS](#) 與俄羅斯通訊社 [TASS](#) 專訪 (2017)

主要論文著作：

Selected Journal Paper (2015-2019)

1. Tsung-Ting Tsai, Chung-An Chen, Natalie Yi-Ju Ho, Shuan Yang, and [Chien-Fu Chen*](#), (2019). Fluorescent Double-Stranded DNA-Templated Copper Nanoprobes for Rapid Diagnosis of Tuberculosis, *ACS Sensors*, Accepted. **(Cover)** (Corresponding author) (SCI, 4/84, Chemistry, Analytical)
2. Chung-An Chen, Wen-Shin Yeh, Tsung-Ting Tsai, Yu-De Li, and [Chien-Fu Chen*](#) (2019, Feb). Three-Dimensional Origami Paper-Based Device for Portable Immunoassay Applications. *Lab on a Chip*, 19, 598 - 607. **(Back cover)** (Corresponding author) (SCI, 5/79, Biochemical Research Methods)
3. Chao-Hsuan Liu, Chung-An Chen, Shi-Jia Chen, Tsung-Ting Tsai, Chin-Chou Chu, Chien-Cheng Chang*, and [Chien-Fu Chen*](#) (2018, Dec). Blood Plasma Separation Using a Fidget-Spinner. *Analytical Chemistry*, 91, 1247–1253. (Corresponding author) (SCI, 7/84, Chemistry, Analytical) (Highlighted and reported by the ACS Headline Science, C&EN, Presspac, American Association for the Advancement of Science, IEEE GlobalSpec, and on the journal of Circulation).
4. Chung-An Chen, Peng-Wei Wang, Yu-Chun Yen, Hsin-Lan Lin, Yao-Chung Fan, Shou-Mei Wu*, and [Chien-Fu Chen*](#) (2018, Nov). Fast Analysis of Ketamine Using a Colorimetric Immunosorbent Assay on a Paper-Based Analytical Device. *Sensors and Actuators B: Chemical*, 282, 251-258. (Corresponding author) (SCI, 2/61, Instrument and Instrumentation)
5. Chun-Hui Yang, Chung-An Chen and [Chien-Fu Chen*](#) (2018, Jul). Surface-Modified Cellulose Paper and Its Application in Infectious Disease Diagnosis. *Sensors and Actuators B: Chemical*, 265, 506-513. (Corresponding author) (SCI, 2/61, Instrument and Instrumentation)
6. Jia-Yu Huang, Hong-Ting Lin, Tzu-Heng Chen, Chung-An Chen, Huan-Tsung Chang* and [Chien-Fu Chen*](#) (2018, Jan). Signal Amplified Gold Nanoparticles for Cancer Diagnosis on Paper-Based Analytical Devices. *ACS Sensors*, 3 (1), 174-182. (Corresponding author) (SCI, 4/84, Chemistry, Analytical)
7. Tsung-Ting Tsai, Chia-Yu Huang, Chung-An Chen, Shu-Wei Shen, Mei-Chia Wang, Chao-Min Cheng and [Chien-Fu Chen*](#) (2017, Sep). Diagnosis of Tuberculosis Using Colorimetric Gold Nanoparticles on a Paper-Based Analytical Device. *ACS Sensors*, 2, 1345-1354. (Corresponding author) (SCI, 4/84, Chemistry, Analytical) (Highlighted and reported by the American Association for the Advancement of Science, IEEE GlobalSpec, the American Chemical Society, and the Russian News Agency).
8. Jun You Chen, Yi Ting Huang, Hsin-Hao Chou, Cheng-Po Wang and [Chien-Fu Chen*](#) (2015, Dec). Rapid and Inexpensive Blood Typing on Thermoplastic Chips. *Lab on a Chip*, 15(24), 4533-4541. **(Back cover)** (Corresponding author) (SCI, 5/79, Biochemical Research Methods)
9. Allen L. Ng, Yong Sun, Lyndsey Powell, Chuan-Fu Sun, [Chien-Fu Chen*](#), Cheng S. Lee and YuHuang Wang* (2015, Jan). Selective Breakdown of Metallic Pathways in Double-Walled Carbon Nanotube Networks. *Small*, 11(1), 96-102. **(Cover)** (Corresponding author) (SCI, 13/148, Chemistry, Physics)