

高效率有機發光元件研究

執行單位

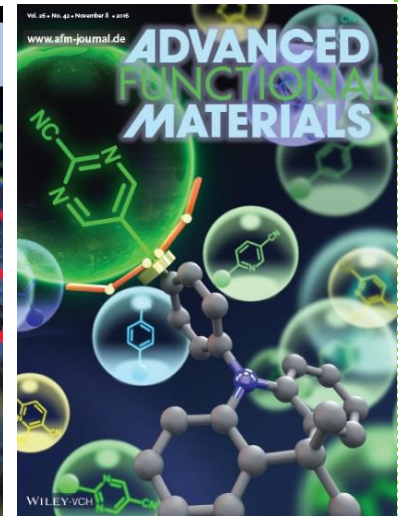
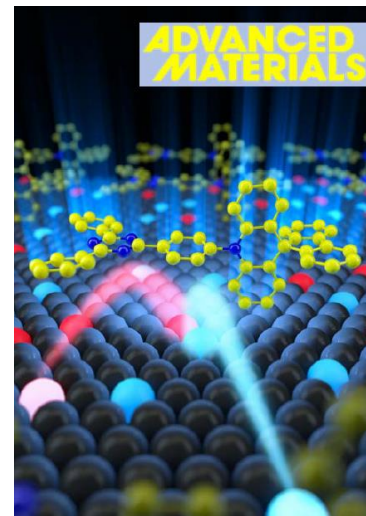
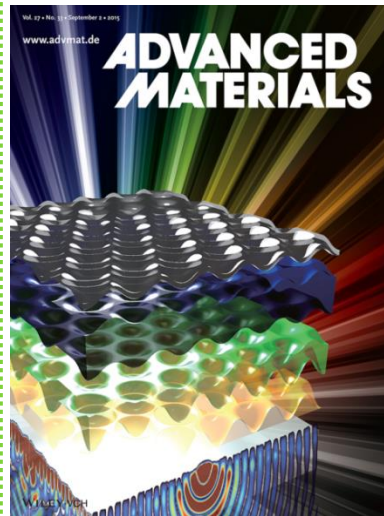
國立臺灣大學電機系

計畫主持人

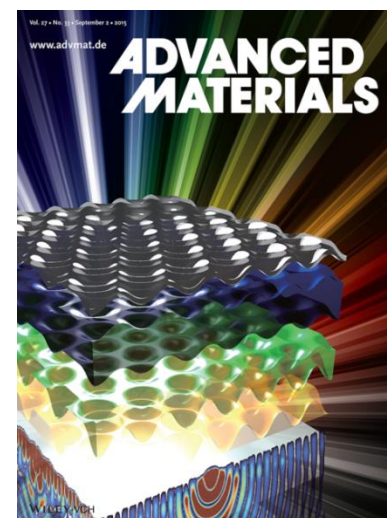
吳忠幟

- 本計畫主要針對提高OLED出光效率的材料/元件結構/製程/光學進行開發研究，開發更為便捷、符合成本效益、有效之OLED出光技術，並期能應用於OLED照明技術。

- 相關技術已申請專利7項18件 (US+台灣/大陸)
- 已獲證2件美國專利/4件台灣專利



- 全程已提出7種以上具原創性之高效率OLED光學設計/元件技術
- 開發提高OLED出光效率相關材料(4類以上)
- 最高之元件EQE/出光效率已達 62-~70% , 達國際最高水準
- 本計劃全程已申請7項/17件專利(US 7+台/陸 10) , 已獲證2件美國專利/4件台灣專利
- 全程已發表22篇相關期刊論文/35篇會議論文
 - 9 篇高影響力期刊論文 (IF 11~19.8)
 - Adv. Mater. x4
 - Adv. Funct. Mater. x2
 - Adv. Energy Mater. x1
 - ACS Nano x1
 - Angewandte Chemie x1
 - 2 篇 Adv. Mater. 之封面 (cover)
 - 1篇 Adv. Funct. Mater之封面 (cover)
 - 12 篇 conference invited/keynote talks
- 獲光寶創新獎 (貼合製程之透明OLED)
- 7件先期技轉/產學合作/技術或顧問服務 : 友達光電/台灣應材/曜凌光電/機光科技/工研院



Development of high efficiency organic light emitting devices

Execution Unit

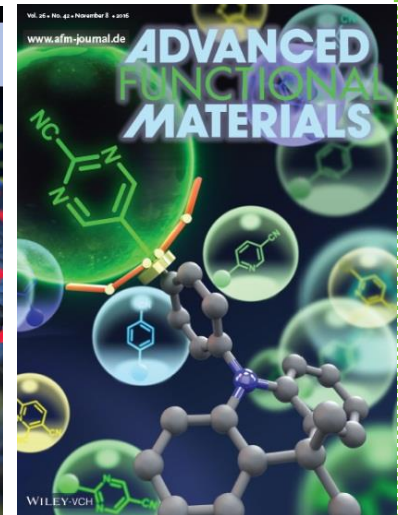
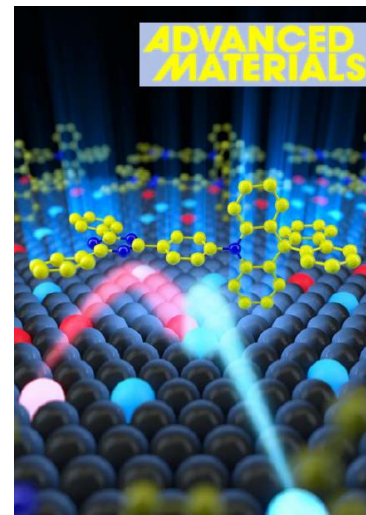
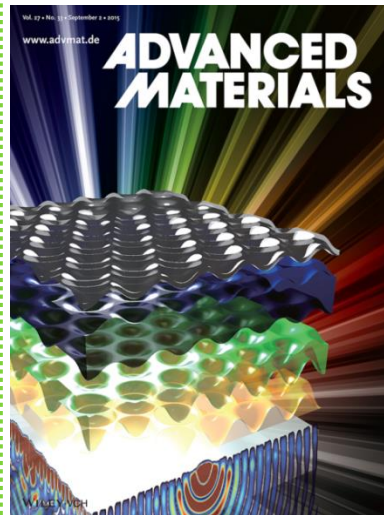
National Taiwan University, Department of EE

Project Director

Chung-Chih Wu

- This project mainly aimed to develop materials, device structures, and optics techniques that can enhance optical out-coupling (extraction) efficiencies, with better feasibility and lower cost for OLED lighting applications.

- Filed 18 US/Taiwan /China patents
- Granted 2 US patents, 4 Taiwan patents



- Developed >7 original high-efficiency OLED optical/device techniques
- Developed >4 related materials capable of enhancing OLED light extraction
- Achieved OLED EQE/light extraction efficiencies up to 62-~70% , comparable to best records over the world
- Filed 17 US/Taiwan/China patents · granted 2 US patents/4 Taiwan patents
- Published 22 related journal papers/35 conference papers
 - 9 high-impact journal papers (IF 11~19.8)
 - Adv. Mater. x4
 - Adv. Funct. Mater. x2
 - Adv. Energy Mater. x1
 - ACS Nano x1
 - Angewandte Chemie x1
 - 2 Adv. Mater. cover
 - 1 Adv. Funct. Mater. cover
 - 12 conference invited/keynote talks
- Awarded Lite-on Award (for lamination-process transparent OLED)
- 7 academia-industry collaboration projects/pre-license/technical or consulting services resulted from this project

