

國立清華大學第 28 屆新進人員研究獎得獎人簡介



化學系 吳典霖助理教授

吳典霖博士自 2021 年起擔任國立清華大學化學系助理教授，專長於有機光電材料與分子設計，研究重點涵蓋多重共振熱活化延遲螢光 (MR-TADF) 分子、雙硼蒽 (diboraanthracene, DBA) 衍生物以及新型氮雜環 (carbazolocarbazole, CCz) 結構的開發。他自大學至研究所皆於清華化學系完成學業，並於國外博士後研究後重返母校，持續深耕有機光電材料領域，推動化學研究的國際能見度。

在研究成果方面，吳教授近年已於 *JACS Au*、*Materials Horizons*、*Chemical Science* 等國際重要期刊發表多篇論文，以獨立通訊作者身份刊出，展現團隊的獨立研究能力與學術影響力。他的研究兼顧基礎與應用，一方面探討分子能階設計與激發態動力學的核心問題，另一方面開拓綠色永續的合成策略，例如利用機械化學「一鍋式硼化」成功構築高效藍光 MR-TADF 分子，展現低能耗、無溶劑且環境友善的材料合成新方向。

此外，吳教授積極推動跨領域與產業合作，與國內半導體及 OLED 相關產業共同探索先進發光材料的潛能，並拓展至光催化反應、分子感測與餘暉塗料等新興應用。他同時建立具備完整分子合成、光物理量測與元件製備能力的實驗室，帶領團隊挑戰有機光電領域的前沿課題。秉持嚴謹與創新的研究理念，吳典霖助理教授持續致力於突破有機光電材料在效率與穩定性上的瓶頸，並透過結合理論設計、合成方法與應用開發，期望在材料科學與基礎化學的交會處開創具突破性的研究成果。最後，吳教授感謝家人的支持，以及合作團隊與實驗室成員的努力，讓研究得以持續前進。榮獲清華新進人員研究獎的肯定，更成為他持續追求創新與突破的重要動力。

Dr. Tien-Lin Wu has been an Assistant Professor in the Department of Chemistry at National Tsing Hua University (NTHU) since 2021. His expertise lies in organic optoelectronic materials and molecular design, with research focusing on multiple-resonance thermally activated delayed fluorescence (MR-TADF) emitters, diboraaanthracene (DBA) derivatives, and novel carbazolocarbazole (CCz) frameworks. Having completed both his undergraduate and graduate studies at NTHU, Dr. Wu returned to his alma mater after postdoctoral training abroad to further advance the field of organic optoelectronics and enhance the international visibility of chemical research.

In recent years, Dr. Wu has published extensively in international journals, including *JACS Au*, *Materials Horizons*, and *Chemical Science*. Many of these works were published as an independent corresponding author, underscoring his group's independent research capability and academic impact. His work bridges fundamental and applied research, as he investigates molecular energy-level design and excited-state dynamics on one side, and develops sustainable synthetic methodologies on the other. His team pioneered a mechanochemical "one-shot borylation" strategy to construct high-performance blue MR-TADF emitters, offering a low-energy, solvent-free, and environmentally friendly route to advanced material synthesis.

Dr. Wu also actively promotes interdisciplinary and industry collaborations, working with Taiwan's semiconductor and OLED materials industries to explore advanced optoelectronic materials, while expanding into photocatalysis, molecular sensing, and afterglow coatings. At NTHU, he established a laboratory for molecular synthesis, photophysical characterization, and device fabrication, leading his team to tackle frontier challenges in organic optoelectronics. Guided by a rigorous and innovative research philosophy, Dr. Wu is committed to overcoming the efficiency and stability trade-offs of organic light-emitting materials and continues to drive transformative advances at the intersection of materials science and fundamental chemistry. Finally, Dr. Wu is grateful for the support of his family and the dedication of his collaborators and laboratory members, whose efforts keep the research moving forward. Receiving the NTHU Early Career Research Award has further motivated him to continue pursuing innovation and breakthroughs.