



# 2022「中技社科技獎學金」

2022CTCI Foundation Science and Technology Scholarship

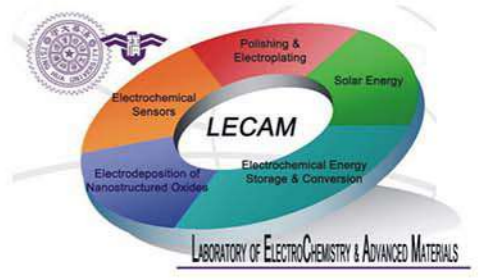
研究獎學金  
Research Scholarship

## Highly efficient water purification devices utilizing the microfluidic electrochemical deionization technique



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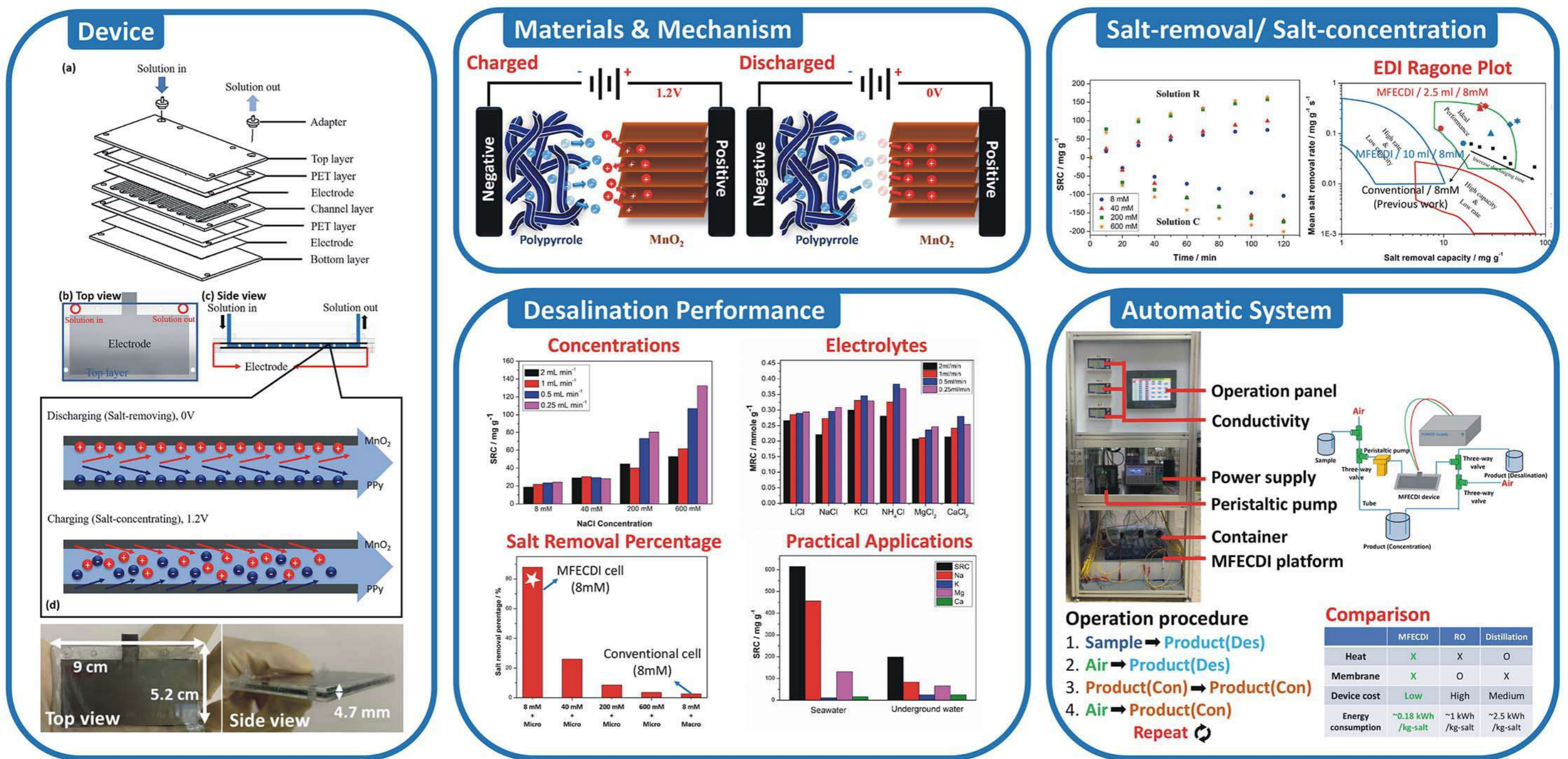
指導教授 胡啟章教授



### 研究重點

A highly efficient water purification device is designed by a combination of electrochemical deionization and microfluidic techniques (MFECDI). The device is constructed with seven layers, in which  $MnO_2$  and polypyrrole are employed as positive and negative electrodes, respectively. This MFECDI device shows excellent salt removal capacity (SRC) among various concentrations and electrolytes. The performance is 33 times higher compared to a conventional system. Furthermore, the MFECDI cell exhibits great stability by preserving 100% of SRC after 100-cycle of operation. The "memory effect" provides both deionization and concentration ability without using a membrane. This innovative device has been tested in real salinized underground water and seawater and demonstrates the ability to process real water resources.

### 研究成果



### 研究生活及心得

在研究了路途上我過得非常充實，經歷過實驗做到半夜的疲累、實驗失敗的挫折、以及苦盡甘來得到結果的雀躍。感謝指導教授一路上的栽培與協助，讓我能夠自由的探索各種問題，在找不到方向的時候照亮前方的路，遇到挫折時鼓勵我，讓我能夠擁有如今的研究成果。同時感謝實驗室夥伴們的共同奮鬥，家人朋友們的支持以及陪伴。最後感謝中技社給我這個機會讓我能夠獲得此獎學金。未來的路上，我將繼續努力，期待有天能夠回饋這個社會。



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