

姓名：朱子齊 (Tzu-Chi Chu)

壁報題目：Lead-Free Perovskite Solar Cell with 2D/3D mix 3D Composition and  
Brand New 2D Component

指導教授：陳浩銘 教授

論文摘要：

Toxicity of Pb used in high performance devices is the biggest hurdle for commercialization of perovskite solar cells (PSCs). Sn perovskite, which has low toxicity and nearly ideal band gap, is the most hopeful substitute for Pb perovskite. But unfortunately, Sn PSCs suffers from underwhelming efficiency and severe stability issue. To solve these problems, we utilized a brand new 2D component (TEA) to fabricate 2D/3D mix 3D composition Sn perovskite solar cell. From our results, we realized this composition have many beneficial effects, such as better film quality, better carrier lifetime, lower trap density, to solar cell performance and stability. We also found out that mixing the lower band gap 3D perovskite to 2D/3D perovskite, surprisingly would yield higher Voc. After these arrangements, we were able to make Sn perovskite solar cell with good efficiency, and much better stability compared to conventional 3D Sn perovskite solar cell or even pure 2D/3D Sn perovskite. The report not only demonstrate a new type of 2D/3D Sn perovskite that has better performance, but also shows the potential of 2D/3D dominant 2D/3D mix 3D composition.

---

個人簡歷：

- |   |              |           |
|---|--------------|-----------|
| 1 | 國立台灣大學化學系 學士 | 2013-2017 |
| 2 | 國立台灣大學化學系 碩士 | 2017-2019 |

聯絡方式：

姓名	組別	指導老師	聯絡電話
朱子齊	Materials Chemistry	陳浩銘	0975069721
E-mail	r06223134@ntu.edu.tw		