

*Electronic Supplementary Material (ESI) for Green Chemistry*

## **Boosting the efficiency of solution-based CZTSSe solar cells by using supercritical carbon dioxide treatment**

Hai-Qin Xiao, Wen-Hui Zhou\*, Dong-Xing Kou, Zheng-Ji Zhou, Yue-Na Meng,

Ya-Fang Qi, Sheng-Jie Yuan, Qing-Wen Tian and Si-Xin Wu\*\*

The Key Laboratory for Special Functional Materials of MOE, School of Materials Science and Engineering, National & Local Joint Engineering Research Center for High-efficiency Display and Lighting Technology, Collaborative Innovation Center of Nano Functional Materials and Applications, Henan University, Kaifeng 475004,

China

\* Corresponding author. E-mail addresses: zhouwh@vip.henu.edu.cn

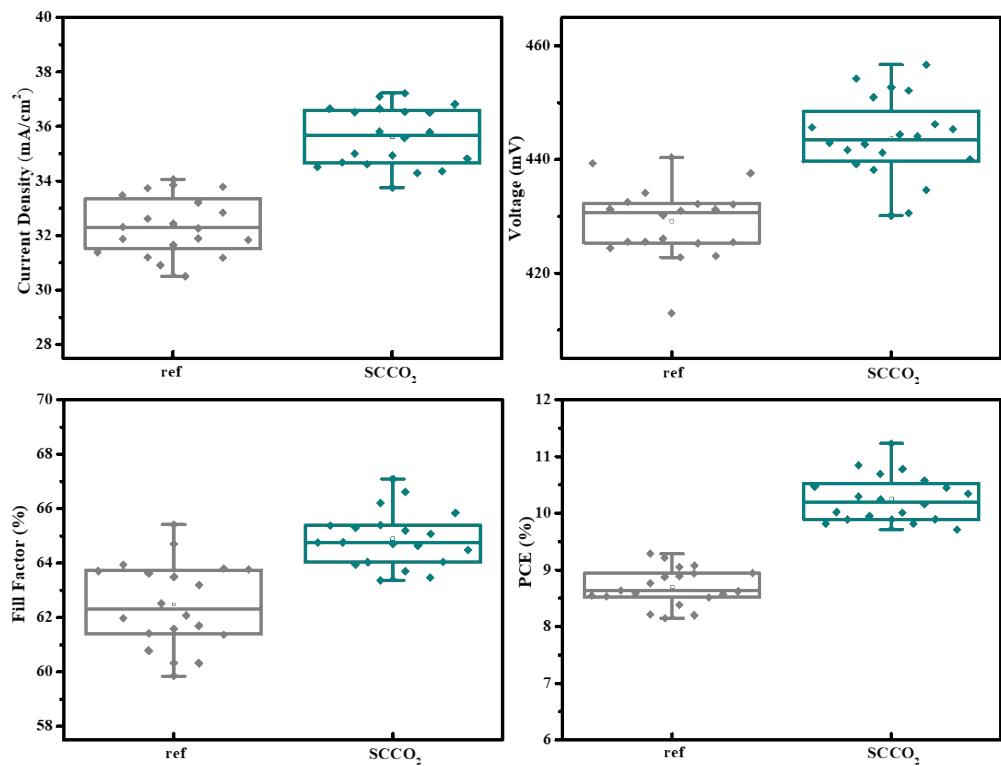
(zhouwh@foxmail.com)

\*\* Corresponding author. E-mail addresses: wusixin@henu.edu.cn

### **Contents:**

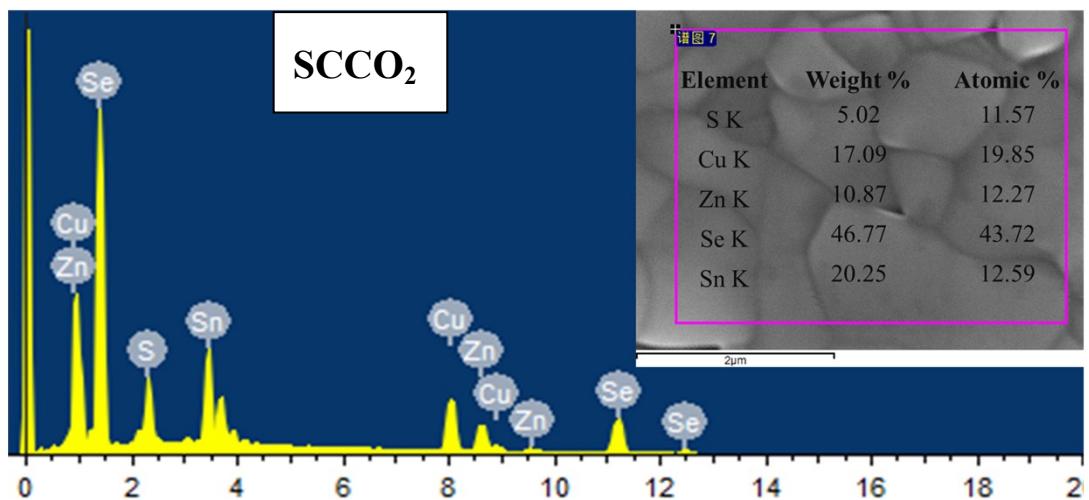
**Fig. S1** Statistical distribution of photovoltaic parameters ( $J_{sc}$ ,  $V_{oc}$ , FF and PCE) for CZTSSe solar cells treated under optimal conditions and references.

**Fig. S2** EDS spectra of CZTSSe precursor films with (SCCO<sub>2</sub>) and without (ref) SCCO<sub>2</sub> treatment after selenization.

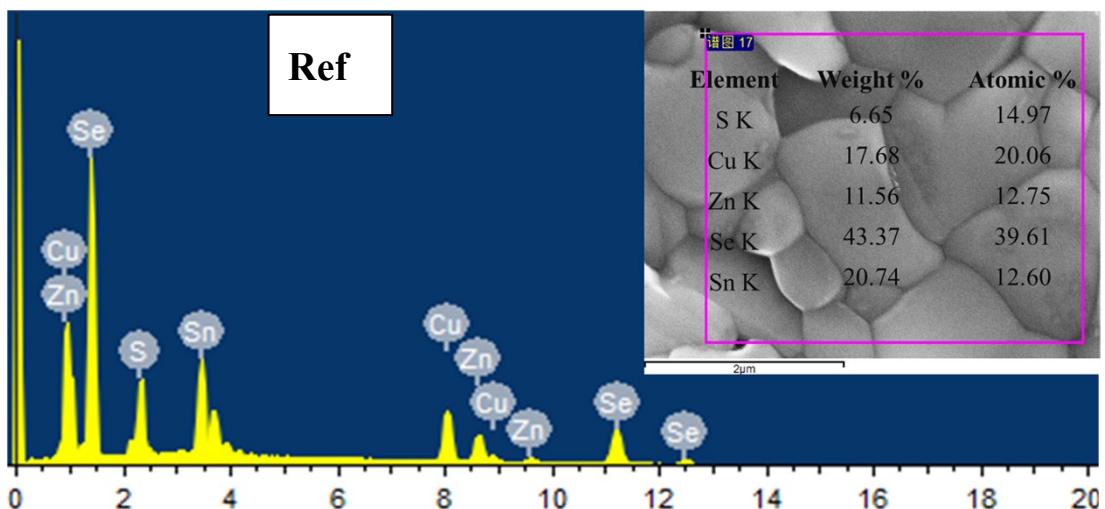


**Fig. S1** Statistical distribution of photovoltaic parameters ( $J_{sc}$ ,  $V_{oc}$ , FF and PCE) for CZTSSe solar cells treated under optimal conditions and references.

Full scale = 24437 cts Cursor = 0.000 KeV



Full scale = 24437 cts Cursor = 0.000 KeV



**Fig. S2** EDS spectra of CZTSSe precursor films with (SCCO<sub>2</sub>) and without (ref) SCCO<sub>2</sub> treatment after selenization.