

Author's Accepted Manuscript

Polystyrene Stabilized Perovskite Component,
Grain and Microstructure for Improved Efficiency
and Stability of Planar Solar Cells

Huiyin Zhang, Jiangjian Shi, Lifeng Zhu, Yanhong
Luo, Dongmei Li, Huijue Wu, Qingbo Meng



PII: S2211-2855(17)30702-4
DOI: <https://doi.org/10.1016/j.nanoen.2017.11.024>
Reference: NANOEN2325

To appear in: *Nano Energy*

Received date: 16 August 2017
Revised date: 27 October 2017
Accepted date: 8 November 2017

Cite this article as: Huiyin Zhang, Jiangjian Shi, Lifeng Zhu, Yanhong Luo, Dongmei Li, Huijue Wu and Qingbo Meng, Polystyrene Stabilized Perovskite Component, Grain and Microstructure for Improved Efficiency and Stability of Planar Solar Cells, *Nano Energy*, <https://doi.org/10.1016/j.nanoen.2017.11.024>

This is a PDF file of an unedited manuscript that has been accepted for publication. As a service to our customers we are providing this early version of the manuscript. The manuscript will undergo copyediting, typesetting, and review of the resulting galley proof before it is published in its final citable form. Please note that during the production process errors may be discovered which could affect the content, and all legal disclaimers that apply to the journal pertain.

**Polystyrene Stabilized Perovskite Component, Grain and Microstructure for
Improved Efficiency and Stability of Planar Solar Cells**

Huiyin Zhang^{1, 2}, Jiangjian Shi^{1, 2}, Lifeng Zhu^{1, 2}, Yanhong Luo^{1, 2}, Dongmei Li^{1, 2},
Huijue Wu¹ and Qingbo Meng^{1, 2*}

1. Key Laboratory for Renewable Energy, Chinese Academy of Sciences; Beijing Key
Laboratory for New Energy Materials and Devices; Institute of Physics, Chinese
Academy of Sciences, Beijing 100190, P. R. China

2. School of Physical Sciences, University of Chinese Academy of Sciences, Beijing
100049, P. R. China

* Corresponding author qbmeng@iphy.ac.cn

Abstract: Polystyrene (PS) is introduced to stabilize the perovskite component, grains and microstructures by forming PS-capped perovskite grains. It is found that the PS coverage has significant advantages in suppressing the component loss and phase separation, obstructing moisture corrosion and promoting crystal self-healing of perovskite films. Besides, with the PS involvement, exceeding 20% efficiency of a planar TiO₂ based cell has been achieved by decreasing charge traps and nonradiative recombination.

Download English Version:

<https://daneshyari.com/en/article/7953077>

Download Persian Version:

<https://daneshyari.com/article/7953077>

[Daneshyari.com](https://daneshyari.com)