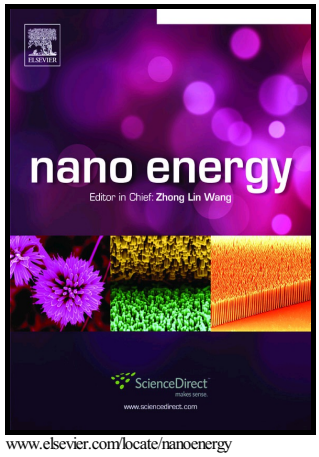

www.elsevier.com/locate/nanoenergy

Avoiding Ambient Air and Light Induced Degradation in High-Efficiency Polymer Solar Cells by the Use of Hydrogen-Doped Zinc Oxide as Electron Extraction Material

Ermioni Polydorou, Elias Sakelis, Anastasia Soultati, Andreas Kaltzoglou, Theodoros Papadopoulos, Joe Briscoe, Dimitris Tsikritzis, Mihalis Fakis, Leonidas C. Palilis, Stella Kennou, Panagiotis Argitis, Polycarpos Falaras, Dimitris Davazoglou, Maria Vasilopoulou

PII: S2211-2855(17)30125-8
DOI: http://dx.doi.org/10.1016/j.nanoen.2017.02.047
Reference: NANOEN1823

To appear in: *Nano Energy*

Received date: 14 December 2016
Revised date: 21 February 2017
Accepted date: 22 February 2017

Cite this article as: Ermioni Polydorou, Elias Sakelis, Anastasia Soultati, Andreas Kaltzoglou, Theodoros Papadopoulos, Joe Briscoe, Dimitris Tsikritzis, Mihalis Fakis, Leonidas C. Palilis, Stella Kennou, Panagiotis Argitis, Polycarpos Falaras Dimitris Davazoglou and Maria Vasilopoulou, Avoiding Ambient Air and Light Induced Degradation in High-Efficiency Polymer Solar Cells by the Use o Hydrogen-Doped Zinc Oxide as Electron Extraction Material, *Nano Energy* http://dx.doi.org/10.1016/j.nanoen.2017.02.047

Avoiding Ambient Air and Light Induced Degradation in High-Efficiency Polymer Solar Cells by the Use of Hydrogen-Doped Zinc Oxide as Electron Extraction Material

Ermioni Polydorou,[1,2] Elias Sakelis,[1,3] Anastasia Soultati,[1,4] Andreas Kaltzoglou,[1] Theodoros Papadopoulos,[5] Joe Briscoe,[6] Dimitris Tsikritzis,[7] Mihalis Fakis,[2] Leonidas C. Palilis,[2] Stella Kennou,[7] Panagiotis Argitis,[1] Polycarpos Falaras,[1] Dimitris Davazoglou,[1] Maria Vasilopoulou[1,*]

[1]*Institute of Nanoscience and Nanotechnology, National Center for Scientific Research Demokritos, 15310, Agia Paraskevi, Attiki, Greece*

[2]*Department of Physics, University of Patras, 26504 Patras, Greece*

[3]*University of Athens, Physics Department, Section of Solid State Physics, Panepistimiopolis, GR 15684 Zografos, Athens, Greece*

[4]*Department of Chemical Engineering, National Technical University of Athens, 15780, Athens, Greece*

[5]*Department of Natural Sciences, University of Chester, Thornton Science Park, CH2 4NU, Chester, U. K.*

[6]*Materials Research Institute, School of Engineering and Materials Science, Queen Mary University of London, U. K.*

[7]*Department of Chemical Engineering, University of Patras, 26500 Patras, Greece*

**email: m.vasilopoulou@inn.demokritos.gr*

Keywords: Zinc oxide, Hydrogen doping, Polymer solar cells, Passivation, Long-term stability, Photostability.

Abstract

Polymer solar cells have undergone rapid development in recent years. Their limited stability to environmental influence and during illumination, however, still remains a major stumbling block to the