A Critical Review of Photovoltaic Cells Based on Organic Monomeric and Polymeric Thin Film Heterojunctions

S. Antohe, Sorina Iftimie, Laura Hrostea, V.A. Antohe, Mihaela Girtan

PII: S0040-6090(17)30714-9
DOI: doi:10.1016/j.tsf.2017.09.041
Reference: TSF 36247

To appear in: *Thin Solid Films*

Please cite this article as: S. Antohe, Sorina Iftimie, Laura Hrostea, V.A. Antohe, Mihaela Girtan, A Critical Review of Photovoltaic Cells Based on Organic Monomeric and Polymeric Thin Film Heterojunctions, *Thin Solid Films* (2017), doi:10.1016/j.tsf.2017.09.041

A Critical Review of Photovoltaic Cells Based on Organic Monomeric and Polymeric Thin Film Heterojunctions

S. Antohe,[1,2*] Sorina Iftimie,[1] Laura Hrostea,[3,4] V. A. Antohe,[1] and Mihaela Girtan[4,*]

[1]*University of Bucharest, Faculty of Physics, 405 Atomistilor Street, PO Box MG-11, 077125, Magurele-Ilfov, Romania*

[2]*Academy of Romanian Scientists, 54 Splaiul Independenţei, 0505094, Bucharest, Romania*

[3]*Al.I.Cuza University of Iasi, Faculty of Physics, Bd. Carol I, no 11, 700506, Iasi Romania*

[4]*LPHIA Laboratory, UBL - LUNAM - Angers University, 2 Bd. Lavoisier, 49045, Angers, France*

Corresponding authors: Stefan ANTOHE, E-mail: santohe@solid.fizica.unibuc.ro

Mihaela GIRTAN, E-mail: mihaela.girtan@univ-angers.fr

Abstract

We review the present state of the art on organic photovoltaic cells based on both small molecule and polymeric absorbers. In the case of small molecules, different configurations with one, two and three active layers have been synthesized and characterized. In the case of structures based on single layer polymeric absorbers, bilayer and blend configurations have also been investigated. The properties of each category of solar cells, based on small molecules and polymers, are discussed. Transport mechanisms and stability studies have been carried out on the organic materials and the photovoltaic structures