

Accepted Manuscript

Sol-gel processed CZTS thin film solar cell on flexible molybdenum foil

Limei Dong, Shuying Cheng, Yunfeng Lai, Hong Zhang, Hongjie Jia



PII: S0040-6090(17)30108-6
DOI: doi: [10.1016/j.tsf.2017.02.019](https://doi.org/10.1016/j.tsf.2017.02.019)
Reference: TSF 35799

To appear in: *Thin Solid Films*

Received date: 17 September 2016
Revised date: 1 February 2017
Accepted date: 7 February 2017

Please cite this article as: Limei Dong, Shuying Cheng, Yunfeng Lai, Hong Zhang, Hongjie Jia , Sol-gel processed CZTS thin film solar cell on flexible molybdenum foil. The address for the corresponding author was captured as affiliation for all authors. Please check if appropriate. Tsf(2017), doi: [10.1016/j.tsf.2017.02.019](https://doi.org/10.1016/j.tsf.2017.02.019)

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 proof before it is published in its final 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.

Sol-gel processed CZTS thin film solar cell on flexible molybdenum foil

Limei Dong¹, Shuying Cheng^{1,2*}, Yunfeng Lai^{1,2}, Hong Zhang^{1,2}, Hongjie Jia^{1,2}

1. College of Physics and Information Engineering, and Institute of Micro-Nano

Devices & Solar Cells, Fuzhou University, Fuzhou 350108, P.R. China

2. Jiangsu Collaborative Innovation Center of Photovoltaic Science and

Engineering, Changzhou, 213164, P.R.China

* Corresponding author : Tel.: +86-0591-22866342; Email: sycheng@fzu.edu.cn

Abstract: By a simple and economical sol-gel and spin-coating technique, fine quality $\text{Cu}_2\text{ZnSnS}_4$ (CZTS) thin films were formed on flexible molybdenum foils. The CZTS thin films annealed at 500°C possessed good compositional, morphological, structural, optical and electrical properties for solar cells. The best flexible solar cell with a structure of Mo foil/CZTS/CdS/ZnO/AZO/Al exhibited a power conversion efficiency of 2.25%, with short circuit current density of 13.52 mA/cm^2 , open circuit voltage of 370 mV and fill factor of 0.45. Meanwhile, the PV performances of the flexible CZTS-based solar cell on molybdenum foil were investigated in detail.

Keyword: Sol-gel method; $\text{Cu}_2\text{ZnSnS}_4$ thin film; flexible molybdenum foil; solar cell; photovoltaic properties

1. Introduction

Thin film solar cells based on kesterite materials of $\text{Cu}_2\text{ZnSnS}_4$ (CZTS) have got

Download English Version:

<https://daneshyari.com/en/article/5466241>

Download Persian Version:

<https://daneshyari.com/article/5466241>

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