

Accepted Manuscript

Selective Nickel/Silver front metallization for graphene/silicon solar cells

Muhammad Fahad Bhopal, Doo won Lee, Sang Hee Lee, Ah Reum Lee, Han Jun Kim, Soo Hong Lee

PII: S0167-577X(18)31480-0
DOI: <https://doi.org/10.1016/j.matlet.2018.09.102>
Reference: MLBLUE 24970

To appear in: *Materials Letters*

Received Date: 26 July 2018
Revised Date: 6 September 2018
Accepted Date: 18 September 2018

Please cite this article as: M.F. Bhopal, D.w. Lee, S.H. Lee, A.R. Lee, H.J. Kim, S.H. Lee, Selective Nickel/Silver front metallization for graphene/silicon solar cells, *Materials Letters* (2018), doi: <https://doi.org/10.1016/j.matlet.2018.09.102>

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.



Selective Nickel/Silver front metallization for graphene/silicon solar cells

Muhammad Fahad Bhopal, Doo won Lee, Sang Hee Lee, Ah Reum Lee, Han Jun Kim and Soo Hong Lee*
Green Strategic Energy Research Institute, Department of Electronics Engineering, Sejong University, 98 Gunja-dong, Gwangjin-gu, Seoul 05006, Korea

ABSTRACT

In this work we studied Ag/Ni front electrodes on Gr/Si solar cell structure using field induced plating. These electrodes could be used as a front electrode on 2D graphene-based devices at very low cost and low temperature (<70 °C). Adhesion was controlled between the nickel and graphene interface by varying the solution temperature ranges between 50 °C to 70 °C. Afterwards Ag plating was performed at room temperature. It was observed that contact resistivity was improved between plated electrodes and graphene, thus helped to improve the FF of the device from 49 % to 60.1 %. Efficiency was enhanced from 4.3 % to 5.01 %.

Keywords: Nickel/Silver plating, Field induced plating, Solar cells.

*Corresponding author: E-mail: shl@sejong.ac.kr,

Download English Version:

<https://daneshyari.com/en/article/11026584>

Download Persian Version:

<https://daneshyari.com/article/11026584>

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