

Accepted Manuscript

Morphology and micro-structural studies of distinct silicon thin films deposited using very high frequency plasma enhanced chemical vapor deposition process

Sucheta Juneja, S. Sudhakar, A.K. Srivastava, Sushil Kumar

PII: S0040-6090(16)30652-6
DOI: doi: [10.1016/j.tsf.2016.10.051](https://doi.org/10.1016/j.tsf.2016.10.051)
Reference: TSF 35575

To appear in: *Thin Solid Films*

Received date: 12 April 2016
Revised date: 18 October 2016
Accepted date: 25 October 2016



Please cite this article as: Sucheta Juneja, S. Sudhakar, A.K. Srivastava, Sushil Kumar, Morphology and micro-structural studies of distinct silicon thin films deposited using very high frequency plasma enhanced chemical vapor deposition process, *Thin Solid Films* (2016), doi: [10.1016/j.tsf.2016.10.051](https://doi.org/10.1016/j.tsf.2016.10.051)

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.

Morphology and micro - structural studies of distinct silicon thin films deposited using very high frequency plasma enhanced chemical vapor deposition process

Sucheta Juneja^{a,c}, S. Sudhakar^{a,c}, A.K. Srivastava^{b,c} and Sushil Kumar^{a,c*}

^aNetwork of Institutes for Solar Energy (CSIR-NISE), Physics of Energy Harvesting Division, CSIR – National Physical Laboratory, Dr. K.S. Krishnan Marg, New Delhi, India 110012

^bElectron & Ion Microscopy Group, CSIR – National Physical Laboratory, Dr. K.S. Krishnan Marg, New Delhi, India 110012

^cAcademy of Scientific and Innovative Research (AcSIR), CSIR-NPL Campus, New Delhi Dr. K.S. Krishnan Marg, New Delhi, India 110012

*Corresponding author: E-mail address: skumar@ nplindia.org (Sushil Kumar)

Tel.: +91 11 45608650; Fax: +91 11 45609310

Abstract

In the present investigation three distinct silicon thin films designated as (i) amorphous silicon, a-Si:H (ii) mixed structure consisting of small crystallites of silicon embedded in amorphous matrix, a-Si:H/nc-Si:H & (iii) mixed structure of larger crystallites embedded in amorphous matrix, a-Si:H/ μ c-Si:H has been chosen to perform the study of morphology, optical and electrical characteristics. These films were deposited using 60 MHz assisted VHF (Very High Frequency) plasma enhanced chemical vapor deposition (PECVD) process at different argon dilution (f_{Ar}) of 10%, 60% and 80%, respectively in silane gas. The micro-

Download English Version:

<https://daneshyari.com/en/article/5466510>

Download Persian Version:

<https://daneshyari.com/article/5466510>

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