

MATERIALS RESEARCH SOCIETY
SYMPOSIUM PROCEEDINGS VOLUME 1288

Novel Fabrication Methods for Electronic Devices

November 29 - December 3, 2010
Boston, Massachusetts, USA

Printed from e-media with permission by:

Curran Associates, Inc.
57 Morehouse Lane
Red Hook, NY 12571
www.proceedings.com

ISBN: 978-1-61839-503-0

Some format issues inherent in the e-media version may also appear in this print version.

©Materials Research Society 2011

This reprint is produced with the permission of the Materials Research Society and Cambridge University Press.

This publication is in copyright, subject to statutory exception and to the provisions of relevant collective licensing agreements. No reproduction of any part may take place without the written permission of Cambridge University Press.

Cambridge University Press
Cambridge, New York, Melbourne, Madrid, Cape Town,
Singapore, São Paulo, Delhi, Tokyo, Mexico City

Cambridge University Press
32 Avenue of the Americas, New York, NY 10013-2473, USA
www.cambridge.org

Materials Research Society
506 Keystone Drive, Warrendale, PA 15086
www.mrs.org

CODEN: MRSPDH

ISBN: 978-1-61839-503-0

Cambridge University Press has no responsibility for the persistence or accuracy of URLs for external or third-part Internet Web sites referred to in this publication and does not guarantee that any content on such Web sites is, or will remain, accurate or appropriate.

Additional copies of this publication are available from:

Curran Associates, Inc.
57 Morehouse Lane
Red Hook, NY 12571 USA
Phone: 845-758-0400
Fax: 845-758-2634
Email: curran@proceedings.com
Web: www.proceedings.com

CURRAN ASSOCIATES INC.
proceedings
.com

TABLE OF CONTENTS

Characterization of InGaN/GaN Multiple Quantum Wells Grown on Sapphire Substrates by Nano-scale Epitaxial Lateral Overgrowth Technique	1
<i>W. K. Fong, K. K. Leung, Charles Surya</i>	
Novel Imprinting Techniques for Fabrication of Multilevel Flexible Electronics	6
<i>Daniël Turkenburg, Henk Rendering, Arjan Hovestad, Niki Stroeks, Pascale Maury, Pieter Moonen, Jurriaan Huskens, Ionut Barbu, Erwin Meinders</i>	
Oxidative Jet Deposition of Polythiophenes	13
<i>A. Davison Gilpin, F. James Boerio</i>	
Quasi-pyramidal Texturing Using Phase-segregated Masks	19
<i>Katherine L. Saenger, Roy Carruthers, Keith E. Fogel, Daniel Inns</i>	
A Factorial Design of Experiments Approach to Synthesize CZTS Absorber Material from Aqueous Media	25
<i>Prashant K. Sarswat, Michael L. Free, Ashutosh Tiwari</i>	
High-rate Etching of Organic Materials Using Gas Cluster Beam	31
<i>Takanori Suda, Noriaki Toyoda, Isao Yamada</i>	
Formation of Silicon and Silicon-Based Semiconductor Materials via Photoinduced Reaction Using Femtosecond Laser	37
<i>Masakazu Nishimura, Shingo Kanehira, Masaaki Sakakura, Yasuhiko Shimotsuma, Kiyotaka Miura, Kazuyuki Hirao</i>	
Work Function Controlled Printed Metal Alloy Pattern Prepared by Using Pressure Annealing Technique	43
<i>Manabu Yoshida, Kouji Suemori, Sei Uemura, Satoshi Hoshino, Noriyuki Takada, Takehito Kodzasa, Toshihide Kamata</i>	
Enhanced UV Photon-response of Tin Nano Cluster Loaded-laser Irradiated ZnO Thin Film Detector	49
<i>Rashmi Menon, K. Sreenivas, Vinay Gupta</i>	
Ohmic and Highly Reflective Ag based Contacts on p-GaN for Resonant Cavity Light Emitting Diodes	55
<i>V. Kumbham, S. Kuchibhatla, K. Lee, L. E. Rodak, V. Narang, D. Korakakis, L. A. Hornak</i>	
Effect of Different High-K Dielectrics on the Pt Nanocrystal Formation Statistics (Size, Density and Area Coverage) for Flash Memory Application	61
<i>Abhishek Misra, Sunny Sadana, Satya Suresh, Meenakshi Bhaisare, Senthil Srinivasan, Mayur Waikar, Amit Gaur, Anil Kottantharayil</i>	

The Study of Improving the Conversion Efficiency and Reducing the Thickness of the HIT Solar Cell	67
<i>Yasuko Hirayama, Hirotada Inoue, Kenta Matsuyama, Yasufumi Tsunomura, Daisuke Fujishima, Ayumu Yano, Shigeharu Taira, Takeshi Nishiwaki, Toshio Asaumi, Toshihiro Kinoshita, Mikio Taguchi, Hitoshi Sakata, Eiji Maruyama</i>	
AlN Nanorods Synthesized by a Mechanochemical Process	73
<i>G. Rosas, J. Chihuaque, C. Patiño-Carachure, R. Esparza, R. Pérez</i>	
Tandem Photovoltaic Cells with Amorphous Silicon Cells and Organic Photovoltaic Cells	79
<i>Taehee Kim, Jun Hong Jeon, Seung Hee Han, Doh-Kwon Lee, Kyungkon Kim</i>	
Light Emitting Diode Growth on Curved Gallium Nitride Surfaces	85
<i>L. E. Rodak, K. Lee, V. Kumbham, V. Narang, L. A. Hornak, D. Korakakis</i>	
Low-damage Processing of Organic Materials with Size-controlled Gas Cluster Ion Beams	91
<i>Motohiro Nakagiri, Noriaki Toyoda, Isao Yamada</i>	
Effects of Chemical Modification of Indium-Tin-Oxide with Benzene Derivates on the Performance of Organic Photovoltaic Cells of ITO/CuPc/C₆₀/BCP/Al	97
<i>Khayankhyarvaa Sarangerel, Altantsetseg Delgerjargal, Byambasuren Delgertsetseg, Chimed Ganzorig</i>	
Creating Novel Transport Properties in Electric Double Layer Field Effect Transistors Based on Layered Materials	103
<i>J. T. Ye, M. F. Craciun, M. Koshino, S. Russo, Y. Kasahara, H. T. Yuan, H. Shimotani, A. F. Morpurgo, Y. Iwasa</i>	
Microstructural Characterization of Copper Metallic Deposition by Electroplating Growth for SIP Applications	109
<i>Céline Durand, Bernadette Domengès, Philippe Le Duc</i>	
Inkjet-printed PEDOT:PSS/SWCNTs on Paper: Substrate Effects on Conductivity	115
<i>Peter D. Angelo, Ramin R. Farnood</i>	
Observation of Large, Anomalous Pyroelectric Response in AlN Thin Films	121
<i>Everett Crisman, Vladimir Vasilyev, Alvin Drehman, Richard Webster</i>	
Incubation Time Free CVD-TiO₂ Film Preparation Using Novel Precursor of Ti-DOT	127
<i>Hirokazu Chiba, Ken-Ichi Tada, Toshiaki Yamamoto, Kohei Iwanaga, Atsushi Maniwa, Tadahiyo Yotsuya, Noriaki Oshima, Hiroshi Funakubo</i>	
Cl Doping Effect by Thermal Treatment with KCl for ZnO Single Crystals	132
<i>Akira Fujimoto, Yoshiyuki Harada</i>	
InGaN MQW LED Structures Using AlN/GaN DBR and Ag-based p-contact	138
<i>K. Lee, L. E. Rodak, V. Kumbham, V. Narang, J. S. Dudding, R. Rahimi, S. Kuchibhatla, L. Hornak, D. Korakakis</i>	

Modeling of AlGaAs on Si Tandem PV Cells for Extended Spectral Conversion	144
<i>Mahieddine Emziane, Alaeddine Mokri</i>	
Growth and Characterization of Orientation Patterned GaAs Crystals for Non-linear Optical Frequency Conversion	150
<i>O. Martínez, M. Avella, V. Hortelano, J. Jiménez, M. Snure, C. Lynch, D. Bliss</i>	
Effect of Thickness of Thin Film SnO₂ based LPG Sensors	156
<i>Divya Haridas, K. Sreenivas, Vinay Gupta</i>	
Author Index	