

**MATERIALS RESEARCH SOCIETY  
SYMPOSIUM PROCEEDINGS VOLUME 1030**

# **Large-Area Processing and Patterning for Active Optical and Electronic Devices**

November 26-30, 2007  
Boston, Massachusetts, USA

**Printed from e-media with permission by:**

Curran Associates, Inc.  
57 Morehouse Lane  
Red Hook, NY 12571  
[www.proceedings.com](http://www.proceedings.com)

**ISBN: 978-1-60560-822-8**

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

Copyright (2008) by the Materials Research Society.  
All rights reserved.

For permission requests, please contact the Materials Research Society at the address below.

Materials Research Society  
Proceedings  
506 Keystone Dr.  
Warrendale, PA 15086  
Phone: 724-779-3004 x 531  
Fax: 724-779-4396  
[eproceedings@mrs.org](mailto:eproceedings@mrs.org)

## TABLE OF CONTENTS

<b>Large Area Carbon Nanotube Films .....</b>	<b>1</b>
<i>G. Konesky</i>	
<b>Planarization Materials for Active Matrix Thin Film Transistor Arrays.....</b>	<b>8</b>
<i>A. Krishnamoorthy, R. Spear, A. Gebrebrhan, M. Stefanos, H. Bien, M. Lowe, D. Yellowaga, P. Smith</i>	
<b>Improvement of Durability in Silicon Nitride Barrier Films for Flexible OLED Displays under High Temperature and High Humidity Conditions.....</b>	<b>16</b>
<i>K. Akedo, A. Miura, K. Noda, H. Fujikawa</i>	
<b>Reliable and Cost-Effective Dispensing Technology for Large-Area Patterning.....</b>	<b>22</b>
<i>B. Li, P. A. Clark, K. H. Church</i>	
<b>Large Area Processing and Patterning with Ink Jet Technology .....</b>	<b>28</b>
<i>M. Grove, D. Hayes, V. Shah</i>	
<b>Electrical and Optical Properties of High Mobility W-doped In<sub>2</sub>O<sub>3</sub> Thin Films .....</b>	<b>34</b>
<i>R. K. Gupta, K. Ghosh, S. R. Mishra, P. K. Kahol</i>	
<b>High-Performance Scan-Type Stage for Large Substrates .....</b>	<b>40</b>
<i>O. Takashi, K. Azuma, T. Mizutani, H. Kobayashi</i>	
<b>Specialty High Performance Coatings for Optical Fiber Applications via Perfluorocyclobutyl (PFCB) Aryl Ether Polymers.....</b>	<b>41</b>
<i>S. M. Budy, S. T. Iacono, W. Hawkins, P. Foy, J. Ballato, D. W. Smith Jr.</i>	
<b>Patterning Submicron Features on Flexible Plastic Substrates by Optical Lithography .....</b>	<b>47</b>
<i>M. Peter, W. de Laat, P. T. M. Giesen, C. Q. Gui, E. R. Meinders</i>	
<b>Flipchip Bonding of Si Chip on Flexible PEN Foil using Novel Electronic 100 µm Pitch Fan-out Circuitry .....</b>	<b>54</b>
<i>J. van den Brand, E. Veninga, R. Kusters, T. Podprocky, A. Dietzel</i>	
<b>Fabrication of Conductive Polymeric Arrays using Direct Laser Interference micro/nano Patterning .....</b>	<b>61</b>
<i>A. Lasagni, D. Acevedo, C. Barbero, F. Muecklich</i>	
<b>Two-step Defect Reduction of GaAs/Si Epitaxy by Selective Aspect Ratio Trapping.....</b>	<b>67</b>
<i>J. Li, J. Bai, C. Major, M. Carroll, A. Lochtefeld, Z. Shellenbarger</i>	
<b>Principal Pilot Line Manufacturing Challenges and Solutions in Direct Fabrication of a- Si:H TFT Arrays on Flexible Substrates.....</b>	<b>73</b>
<i>S. M. O'Rourke, D. E. Loy, C. Moyer, S. K. Ageno, B. P. O'Brien, E. J. Bawolek, D. Bottesch, M. Marrs, J. Dailey, R. Cordova, J. Trujillo, J. Kaminski, D. R. Allee, S. Venugopal, G. B. Raupp</i>	
<b>Poly and Nano-crystalline High Electron Mobility Thin Film Transistors on Plastic Substrates for Large Area Applications.....</b>	<b>82</b>
<i>S. Paydavosi, A. H. Tamaddon, S. Mohajerzadeh, M. D. Robertson</i>	
<b>Electro-Fragmentation Analysis of Dielectric Thin Films on Flexible Polymer Substrates .....</b>	<b>88</b>
<i>A. Pinyol, B. Meylan, D. Gillieron, A. Mottet, V. Mewani, Y. Leterrier, J. A. E. Manson</i>	
<b>Mechanical Limitations of Materials for Steel Foil Based Flexible Electronics .....</b>	<b>94</b>
<i>P. C. Kuo, V. G. Chouvardas, J. A. Spirk, K. M. Hatalis, M. K. Hatalis</i>	
<b>Ion Beam Deposition from Colloidal CdSe/ZnS Nanocrystals Solutions for Fabricating Electroluminescent Device.....</b>	<b>100</b>
<i>Y. Tani, S. Kobayashi, H. Kawazoe</i>	
<b>Author Index</b>	