

**MATERIALS RESEARCH SOCIETY
SYMPOSIUM PROCEEDINGS VOLUME 1113**

Low-Cost Solution-Based Deposition of Inorganic Films for Electronic/Photonic Devices

December 1-5, 2008
Boston, Massachusetts, USA

Printed from e-media with permission by:

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

ISBN: 978-1-61567-759-7

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.

Printed by Curran Associates, Inc. (2009)

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

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: currans@proceedings.com
Web: www.proceedings.com

CURRAN ASSOCIATES INC.
proceedings
.com

TABLE OF CONTENTS

High Performance Polymer/BaTiO₃ Nanocomposites based on Surface-modified Metal Oxide Nanoparticles using Functional Phosphonic Acids for Electronic Applications	1
<i>P. Kim, N.M. Doss, J.P. Tillotson, X. Zhang, S.C. Jones, P.J. Hotchkiss, J. Li, J.P. Calame, B. Domercq, B. Kippelen, S.R. Marder, J.W. Perry</i>	
Rapid Electrical Sintering of Nanoparticle Structures	7
<i>A.T. Alastalo, T. Mattila, M.L. Allen, M.J. Aronniemi, J.H. Leppaniemi, K.A. Ojanpera, M.P. Suhonen, H. Seppa</i>	
Binding Characteristics of Surface Ligands on PbSe QDs and Impact on Electrical Conductivity	13
<i>W.J. Kim, S.J. Kim, J. Seo, Y. Sahoo, A.N. Cartwright, K. Lee, P.N. Prasad</i>	
Investigation of the Adhesion of Electroless Copper to Glass Substrates	19
<i>X. Cui, D.A. Hutt, P.P. Conway</i>	
Preparation of Smooth Zinc Oxide Thin Film via Liquid Phase Reaction with Cation Additives	25
<i>T. Saito, Y. Hirata, N. Okamoto, K. Kondo</i>	
Nanostructured Metal Oxide and Composite Electrodes for Use in Ultracapacitors	31
<i>M.T. Brumbach, T.M. Alam, P.G. Kotula, B.B. McKenzie, B.C. Bunker</i>	
Ultrasonic Spray Assisted Mist-CVD Method for High-quality Crystalline and Amorphous Oxide Semiconductors Growth	38
<i>H. Nishinaka, Y. Kamada, K. Kiba, N. Kameyama, S. Fujita</i>	
Preparation and Characterization of Tin-doped Indium (ITO) Film by Photo Reaction of Nano-Particle (PRNP) Using Excimer Laser	44
<i>T. Tsuchiya, F. Yamaguchi, I. Morimoto, T. Nakajima, T. Kumagai</i>	
Low-Temperature Processing of Sol-Gel Derived Metal Oxide Thin Films using Supercritical Carbon Dioxide Fluid	50
<i>H. Uchida, K. Fujioka, S. Koda</i>	
Electrochemical Co-deposition of In-Se and Ga-Se Thin Films for Preparation of CIGS Solar Cells	56
<i>S. Aksu, J. Wang, B.M. Basol</i>	
Synthesis of InGaZnO₄ Colloids and Its Application in a TFT Device	62
<i>C. Kao, K. Chou, Y.H. Yang, S.S. Yang</i>	
TiO₂ Nanotube Arrays by using ZnO Nanorod Template through Liquid Phase Deposition for Organic-Inorganic Hybrid Photovoltaic Cells	68
<i>T. Rattanavoravipa, T. Sagawa, S. Yoshikawa</i>	
Monolayer Film of Gold Nanoparticles on a 3 inch or Larger Silicon Wafer	73
<i>M.N. Martin, S. Eah</i>	

Fabrication of PLZT Film-on-Foil Dielectric Sheets for Embedded Passives	79
<i>B. Ma, M. Narayanan, U. Balachandran</i>	
CaBi₄Ti₄O₁₅ Thin Film Deposition on Electroplated Platinum Substrates using a Sol-gel Method	85
<i>T. Saito, Y. Hirota, M. Ooyanagi, N. Okamoto, K. Kondo, T. Yoshimura, N. Fujimura</i>	
Formation of Controlled Alumina Films Using Supercritical Fluids Chemical Deposition for Electronic and Telecommunication Devices	91
<i>C. Aymonier, M. Lamirand-Majimel, C. Bousquet, C. Moncade, F. Cansell, M. Maglione, C. Ellisalde, J.M. Heintz, J.F. Silvain</i>	
Low Temperature Solution-Based Fabrications of Metal Oxide Semiconductor Films by Mechanical Sintering	98
<i>M. Yoshida, K. Suemori, S. Uemura, S. Hoshino, N. Takada, T. Kodzasa, T. Kamata</i>	
Solution Processed Silver Sulfide Filament Memories.....	104
<i>S. Yin, S.K. Volkman, V. Subramanian</i>	
Organosoluble Silicon and Germanium Nanoclusters	110
<i>A. Watanabe, T. Miyashita</i>	
Silicon Oxide Composite Film Fabricated by Wet-Process at Low Temperature as a Passivation Layer for Printable Electric Device.....	116
<i>S. Uemura, K. Suemori, M. Yoshida, S. Hoshino, N. Takada, T. Kodzasa, N. Ibraki, T. Kamata</i>	
Synthesis and Characterization of Highly Transparent Sol-Gel Glass for Photovoltaic Applications	122
<i>M. Shammugam, M.F. Baroughi, X. Yan, D. Galipeau</i>	
FASST® Reactive Transfer Printing for Morphology and Structural Control of Liquid Precursor Based Inorganic Reactants	127
<i>P. Hersh, M. Taylor, B. Sang, M. van Hest, J. Nekuda, A. Miedaner, C. Curtis, J. Leisch, D. Ginley, B. Stanberry, L. Eldada</i>	
CuIn(Se,S)₂ Absorbers Processed using a Hydrazine-Based Solution Approach	137
<i>W. Liu, D. B. Mitzi, S. J. Chey, A. Kellock</i>	
Fabrication and Performance of Highly Textured Electrodeposited ZnO Back Reflector for nc-Si Solar	143
<i>D. Attygalle, Q. H. Fan, S. Zhang, W. Ingler, X. Liao, X. Deng</i>	
Author Index	