Functional Metal Oxide Nanostructures
CONTENTS

Preface ................................................... ix
Materials Research Society Symposium Proceedings .................... xi

SYNTHESIS OF NANOSTRUCTURED OXIDES

* Zinc Oxide and Copper Oxide Nanostructures: Fundamentals and Applications. ............................................ 3
  Magnus Willander, Omer Nur, Gul Amin,
  A. Zainelabdin, and S. Zaman

Characterization of Un-stabilized Orthorhombic Zirconia
Synthesized at Ambient Temperature and Pressure .................. 11
  Miriam P. Trubelja, Donald Potter, Claudia Rawn,
  Karren More, and Joseph J. Helble

Surface Physical Property of the CrO₂ Thin Films Prepared
using a Closed Chemical Vapor Deposition Method ................. 17
  Y. Muraoka, S. Yoshida, T. Wakita,
  M. Hirai, and T. Yokoya

Direct Synthesis of Pure Radiative Vo₂ (M) Plate Like Structures
Via Hydrothermolysis at Low Temperature ......................... 23
  A. Simo, L.C. Edomwonyi-Otu, R. Madjoe,
  and M. Maaza

Microstructure Dependence of Hydrogen Sensing Properties
of Palladium Functionalized Tungsten Oxide Films .............. 29
  Meng Zhao, Jian-Xing Huang, and Chung-Wo Ong

Synthesis of ZnO Nanowires by Hydrothermal Technique
for Integration into Chalcopyrite Thin Films .................... 35
  H. Karaagac, M. Parlak, and M. Saif Islam

Reusable Hybride CoFe₂O₄-ZnO Hollow Nanosphere
Photocatalysts .............................................. 41
  A. Wilson, S.R. Mishra, B.K. Rai,
  R.K. Gupta, and K. Ghosh

*Invited Paper
<table>
<thead>
<tr>
<th>Title</th>
<th>Page</th>
</tr>
</thead>
<tbody>
<tr>
<td>Rapid Synthesis of Nanocrystalline ZnGa$_2$O$_4$ Phosphor at Low Temperature</td>
<td>49</td>
</tr>
<tr>
<td>Suresh D. Kulkarni and S.A. Shivashankar</td>
<td></td>
</tr>
<tr>
<td>PHOTOELECTROCHEMICAL, ELECTRICAL AND MAGNETIC PROPERTIES OF NANOSTRUCTURED OXIDES</td>
<td></td>
</tr>
<tr>
<td>Metal- Metal Oxide Electrode: A Promising Energy Storage</td>
<td>57</td>
</tr>
<tr>
<td>Anirudha Jena, N. Munichandraiah, and S.A. Shivashankar</td>
<td></td>
</tr>
<tr>
<td>Resistance Change Caused by Electrochemically Induced Carrier Injection in NiO Films</td>
<td>63</td>
</tr>
<tr>
<td>T. Yoda, K. Kinoshita, T. Fukuhara, S. Kishida, N. Sawai, and K. Honda</td>
<td></td>
</tr>
<tr>
<td>Synthesis and Characterization of CeO$_2$ Nanoparticles by Low Temperature Hydrothermal and Solvent Thermal Process</td>
<td>69</td>
</tr>
<tr>
<td>Eric Y.H. Teo, Ming Lin, Ziyuan Fu, Seng C. Ng, Siliang Song, and Jun C. Tan</td>
<td></td>
</tr>
<tr>
<td>Photo-induced Changes in the Langmuir Adsorption Constants of Metal Oxide Layers in Self-cleaning Cation Sensors</td>
<td>77</td>
</tr>
<tr>
<td>Philip S. Foran and Colin Boxall</td>
<td></td>
</tr>
<tr>
<td>Hydrothermally Grown Nanostructured Tungsten Trioxide (hydrate) Films and their Photocatalytic Properties</td>
<td>83</td>
</tr>
<tr>
<td>Z.H. Jiao and X.W. Sun</td>
<td></td>
</tr>
<tr>
<td>Intercluster Interaction and Magnetic Interaction between Iron Core and Iron Oxide Shell in Core-Shell Nanoclusters</td>
<td>89</td>
</tr>
<tr>
<td>Maninder Kaur, Qi Yao, and You Qiang</td>
<td></td>
</tr>
<tr>
<td>High Mobile Electron Gas at LaAlO$_3$/SrTiO$_3$ Heterointerface</td>
<td>95</td>
</tr>
<tr>
<td>Shanshan Su and Jeong Ho You</td>
<td></td>
</tr>
<tr>
<td>The Characterization of Electronic State from Surface to Several Nanometer Region on MgO:Si Thin Film</td>
<td>101</td>
</tr>
<tr>
<td>Mikihiko Nishitani, Mutsumu Fukada, Yukihiro Morita, Masaharu Terauchi, Tessei Kurashiki, Hiroki Tsuchiura, and Yasushi Yamauchi</td>
<td></td>
</tr>
</tbody>
</table>
Gaussian Distribution of Schottky Barrier Heights on SnO₂
Cleber A. Amorim, Olivia M. Berengue, Luana Araújo, Edson R. Leite, and Adenilson J. Chiquito

107

Correlation Between Filament Distribution and Resistive Switching Property in Binary-Transition-Metal-Oxide Based Resistive Random Access Memory
H. Tanaka, K. Kinoshita, M. Yoshihara, and S. Kishida

113

Electrical Properties of Magnesium Carbon Co-sputtered Thin Films Applied Post Hydroxylation Treatment
Masafumi Chiba, Daisuke Endo, Mikihiko Maizono, Mikiteru Higashi, and Hideo Kiyota

119

Insight into Distribution and Switching of ReRAM Filaments Based on Variation Analysis of Memory Characteristics
Kentaro Kinoshita, Hayato Tanaka, Masataka Yoshihara, and Satoru Kishida

125

Effects of Size and Load on Transport Properties of Nanoscale Metal-Oxide Interfaces
Ramsey Kraya

131

Author Index

137

Subject Index

139
Symposium Z, “Functional Metal Oxide Nanostructures” was held November 27–December 2 during the 2011 MRS Fall Meeting in Boston, Massachusetts.

Metal oxides represent an assorted and appealing class of materials whose properties cover the entire range from metals to semiconductors to insulators and almost all aspects of material science and physics in areas including superconductivity and magnetism. In the past few years, a great deal of progress has been made in the field of metal oxide nanostructures particularly with regard to innovative synthetic pathways as well as the structural, physical and chemical characterization, modification and assembly of nanostructured oxides to exploit their nanoscopic properties and their size-dependent modulation.

Specifically, the field of metal oxide nanostructured morphologies (e.g., nanowires, nanobelts, nanorods, nanotetrapods) has become one of the most active research areas within the nano-science community.

New fundamental research together with original and inspired potential applications is being continuously proposed, including nanowire electronics, nanowire photonics, nanowires as electron sources, and nanowires and their heterostructures for energy conversion and storage.

These proceedings captures some of the most recent developments in the field of synthesis, structural and functional characterization of self-assembled metal oxides nanostructures and heterostructures thereof to illustrate their application potential as functional materials, with particular consideration given to the capability to tailor and control material properties via surface and structural modifications and possible device integration.

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