

MATERIALS RESEARCH SOCIETY
SYMPOSIUM PROCEEDINGS VOLUME 1577

Oxide Thin Films and Heterostructures for Advanced Information and Energy Technologies

April 1-5, 2013
San Francisco, California, USA

Printed from e-media with permission by:

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

ISBN: 978-1-63266-156-2

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

©Materials Research Society 2013

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: 978-1-63266-156-2

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

Room Temperature Ferromagnetism and Band Gap Engineering in Mg Doped ZnO RF/DC Sputtered Films	1
<i>Sreekanth K. Mahadeva, Zhi-Yong Quan, Jin-Cheng Fan, Hasan B. Albargi, Gillian A. Gehring, Anastasia V. Riazanova, Lyubov M. Belova, K. V. Rao</i>	
The Electron Transport Within Bulk Wurtzite Zinc Oxide in Response to Strong Applied Electric Field Pulses	7
<i>Walid A. Hadi, Michael S. Shur, Stephen K. O'Leary</i>	
Steady-State and Transient Electron Transport Within Bulk Wurtzite Zinc Oxide and the Resultant Electron Device Performance	13
<i>Walid A. Hadi, Michael S. Shur, Stephen K. O'Leary</i>	
Optical Switching and Photoluminescence in Erbium Implanted Vanadium Dioxide Thin Films	19
<i>Herianto Lim, Nikolas Stavrias, Jeffrey C. McCallum, Robert E. Marvel, Richard F. Haglund</i>	
First-Principles Study of Bias Effect on Magnetoresistance of Fe/MgO/Fe Tunnel Junctions	25
<i>Ning Deng, Hongguang Cheng</i>	
Unipolar Resistive Switching and Associated Photoresponse in Sm doped BiFeO₃ Thin Film Grown by RF Sputtering	30
<i>Rajesh K. Katiyar, Pankaj Misra, G. L. Sharma, Gerardo Morell, J. F. Scott, Ram S. Katiyar</i>	
Electron Transport within the Two-dimensional Electron Gas Formed at a ZnO/ZnMgO Heterojunction: Recent Progress	36
<i>Walid A. Hadi, Erfan Baghani, Michael S. Shur, Stephen K. O'Leary</i>	
Effect of O₂/Ni Ratio on Structure and Surface Morphology of Atmospheric Pressure MOCVD Grown NiO Thin Films	42
<i>Teuku M. Roffi, Motohiko Nakamura, Kazuo Uchida, Shinji Nozaki</i>	
Optimization of IGZO/Cu/IGZO Multilayers as Transparent Composite Electrode on Flexible Substrate by Room-Temperature Sputtering and Post-Deposition Anneals	48
<i>Aritra Dhar, T. L. Alford</i>	
High Mobility IGZO/ITO Double-layered Transparent Composite Electrode: A Thermal Stability Study	54
<i>Aritra Dhar, T. L. Alford</i>	
Synthesis, Characterization and Pseudocapacitive Behaviour of MnO_x/CNT Heterostructures	60
<i>Chung-Ying Tsai, Kanchan Mondal, S. Talapatra</i>	
Author Index	