

The Minerals, Metals & Materials Society

General Abstracts: Electronic, Magnetic, and Photonic Materials Division 2007

February 25 – March 1, 2007
Orlando, Florida, USA

Printed from e-media with permission by:

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

ISBN: 978-0-87339-683-7

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

A Publication of **The Minerals, Metals & Materials Society (TMS)**

184 Thorn Hill Road
Warrendale, Pennsylvania 15086-7528
(724) 776-9000

Visit the TMS Web site at
<http://www.tms.org>

Statements of fact and opinion are the responsibility of the authors alone and do not imply an opinion on the part of the officers, staff, or members of TMS. TMS assumes no responsibility for the statements and opinions advanced by the contributors to its publications or by the speakers at its programs. Registered names and trademarks, etc., used in this publication, even without specific indication thereof, are not to be considered unprotected by the law.

No part of this book may be reproduced, stored in a retrieval system, or transmitted in any form or by any means, electronic, mechanical, photocopying, microfilming, recording, or otherwise, without written permission from the publisher.

Printed in the United States of America

ISBN Number 978-0-87339-683-7

ISSN Number 109-9586

Authorization to photocopy for internal or personal use beyond the limits of Sections 107 and 108 of the U.S. Copyright Law is granted by TMS, provided that the base fee of \$7.00 per copy is paid directly to the Copyright Clearance Center, Inc., 222 Rosewood Drive, Danvers, MA 01923 USA, www.copyright.com. Prior to photocopying items for educational classroom use, please contact the Copyright Clearance Center, Inc.

For those organizations that have been granted a photocopy license by the Copyright Clearance Center, a separate system of payment has been arranged.

This consent does not extend to copying items for general distribution or for advertising or promotional purposes or to republishing items whole or in part in any work in any format.

Please direct republication or special copying permission requests to the Copyright Clearance Center, Inc., 222 Rosewood Drive, Danvers, MA 01923 USA; (978) 750-8400; www.copyright.com.

The logo for The Minerals, Metals & Materials Society (TMS) consists of the letters 'TMS' in a large, bold, black, sans-serif font. The letters are closely spaced and have a slightly irregular, hand-drawn appearance.

Copyright 2007,
The Minerals, Metals & Materials Society.
All rights reserved.

If you are interested in purchasing a copy of this book, or if you would like to receive the latest TMS publications catalog, please telephone (724) 776-9000, ext. 270, or (800) 759-4TMS.

COLLECTED PROCEEDINGS: STRUCTURE, EXTRACTION, PROESSING, AND PROPERTIES TABLE OF CONTENTS

General Abstracts: Electronic, Magnetic, and Photonic Materials Division

GaN and Interconnects

Characterization of GaN Layers Grown on Metallic TiN Buffer Layers	1
<i>Sangjin Lee, Kazuhiro Ito, Yu Uchida, Susumu Tsukimoto, Yuhei Ikemoto, Koji Hirata, Naoki Shibata, and Masanori Murakami</i>	
Epitaxial Growth of GaN Layers on Metallic TiN Buffer Layers	7
<i>Kazuhiro Ito, Yu Uchida, Sangjin Lee, Susumu Tsukimoto, Yuhei Ikemoto, Koji Hirata, Naoki Shibata, and Masanori Murakami</i>	
Thermal Fatigue Characterization of Commonly-Used 63Sn37Pb Solder Joints in Electronic Assemblies.....	13
<i>Arun M. Iyer, Michael Oja, and Robert Tryon</i>	
Characterization of Wire Bonds Subjected to Ultrasonic Welding and Thermal Cycling	23
<i>Anil Saigal, Peterson Silva, Robert Greif, and Michael Zimmerman</i>	

ZnO Thin Films and Liquid Crystals

The Effects of Nitrogen Doping on Structural and Electrical Properties of ZnO Thin Films	33
<i>Makoto Hirai, and Ashok Kumar</i>	
Dimension Optimum Phenomenal magnonequation For Nematic Liquid Crystal.....	39
<i>Chia Fu Chang, Zou-ni Wan, and Chia-Hi Chen</i>	

Magnetic and Ferroelectric Materials

Thin Film Elastic Modulus Measurement by Magnetostrictive Sensor-A Nondestructive Measurement Technique.....	51
<i>Cai Liang, L.C. Mathison, and Bart Prorok</i>	

High-Gain Magnetic Photonic Assembly Antennas for GHz Frequencies	57
<i>Lanlin Zhang, Gokan Mumcu, Kubilay Sertel, John Leonidas Volakis, and Hendrik Verweij</i>	
Effects of Deposition Conditions on the Dielectric Non-Linearity of Ba _{0.6} Sr _{0.4} TiO ₃ Thin Films	65
<i>Hongwei Chen, Chuaren Yang, Chunlin Fu, Jihua Zhang, Shucheng Feng, and Yafanf Pei</i>	
Modeling of Dielectric Nonlinearity of Ferroelectric Ceramics	73
<i>Chunlin Fu, Liye Hu, Wei Cai, Fusheng Pan, Hongwei Chen, and Chuaren Yang</i>	
Effect of Annealing on Depletion Layer Width and Schottky Barrier Height of Pt/Ba _{0.6} Sr _{0.4} TiO ₃ Interface	81
<i>Chunlin Fu, Wei Cai, and Fusheng Pan</i>	
Formation of Nanocrystalline Structure in Metals by Severe Plastic Deformation.....	87
<i>Yoshikazu Todaka, M. Umemoto, C. Wang, and K. Tsuchiya</i>	
Author Index	
Subject Index	