

**MRS** **Advances**

# Electronic Devices and Materials

<https://doi.org/10.1557/adv.2017.569> Published online by Cambridge University Press

# MRS Advances: Electronic Devices and Materials

## Associate Editor:

Jeremy Theil, *Mountain View Energy*

## Principal Editors:

Kurt Gaskill, *US Naval Research Laboratory, USA*  
Rong Zhao, *Singapore University of Technology and Design, Singapore*

Nadine Collaert, *IMEC, Belgium*

John Capobianco, *Concordia University, Canada*

Binsong Li, *Tsinghua Innovation Center in Dongguan, China*

Mykhailo (Misha) Sytnyk, *Materials for Electronics and Energy Technology, Germany*

Alexander Demkov, *University of Texas at Austin, USA*

Biwu Ma, *Florida State University, USA*

Jeff Bielefeld, *Intel Corporation, USA*

Viktoriia Babicheva, *Georgia State University, USA*

Yuta Saito, *National Institute of Advanced Industrial Science and Technology (AIST), Japan*

Anatoliy Pinchuk, *University of Colorado, Colorado Springs, USA*

## MRS Advances Editorial Board:

**Editor-in-Chief:** David F. Bahr, *Purdue University*

Asa Barber, *University of Portsmouth, United Kingdom*

Meenakshi Dutt, *Rutgers University*

Elizabeth L. Fleischer, *Materials Research Society*

Marian Kennedy, *Clemson University*

Marilyn L. Minus, *Northeastern University*

Roger J. Narayan, *University of North Carolina/North Carolina State University*

Jeremy Theil, *Mountain View Energy*

## Materials Research Society Editorial Office, Warrendale, PA:

Ellen W. Kracht, *Publications Manager*

Susan Dittrich, *Journals Editorial Assistant*

Kirby L. Morris, *Journals Production Assistant*

Eileen M. Kiley, *Director of Communications*

## Disclaimer

Authors of each article appearing in this Journal are solely responsible for all contents in their article(s) including accuracy of the facts, statements, and citing resources. Facts and opinions are solely the personal statements of the respective authors and do not necessarily represent the views of the editors, the Materials Research Society, or Cambridge University Press.

*MRS Advances* (EISSN: 2059-8521) is published by Cambridge University Press, One Liberty Plaza, Floor 20, New York, NY 10006 for the Materials Research Society.

**Copyright © 2017, Materials Research Society.** All rights reserved. No part of this publication may be reproduced, in any form or by any means, electronic, photocopying, or otherwise, without permission in writing from Cambridge University Press. Policies, request forms and contacts are available at: <http://www.cambridge.org/rights/permissions/permission.htm>. Permission to copy (for users in the USA) is available from Copyright Clearance Center at: <http://www.copyright.com>, email: [info@copyright.com](mailto:info@copyright.com).

## Purchasing Options:

**Premium Subscription-** Premium Subscription includes current subscription and one year's lease access to the full MRS Online Proceedings Library Archive for \$7,219.00 / £4,888.00 / €6,647.00. **Subscription-** Subscription with perpetual access to the content subscribed to in a given year, including three years of back-file lease access to content from the MRS Online Proceedings Library Archive. The price for a 2017 subscription is \$3,019.00 / £1,948.00 / €2,625.00. **MRS Members-** Access to *MRS Advances* is available to all MRS members without charge.

## Contact Details:

For all inquiries about pricing and access to *MRS Advances*, please get in touch via the following email addresses: [online@cambridge.org](mailto:online@cambridge.org) (for the Americas); [library.sales@cambridge.org](mailto:library.sales@cambridge.org) (for UK, Europe, and rest of world).

[cambridge.org/adv](http://cambridge.org/adv)

# CONTENTS

<b>* CMP Challenges for Advanced Technology Nodes beyond Si . . . . .</b>	<b>2891</b>
John H Zhang, Stan Tsai, Charan Surisetty, Jody Fronheiser, Shariq Siddiqui, Steven Bentley, Raghuveer Patlolla, Donald F. Canaperi, Walter Kleemeier, and Cathy Labelle	
<b>Low Energy Ion Implantation and Annealing of Au/Ni/Ti Contacts to n-SiC . . . . .</b>	<b>2903</b>
Neelu Shrestha, Martyn H. Kibel, Patrick W. Leech, Anthony S. Holland, Geoffrey K. Reeves, Mark C. Ridgway, and Phillip Tanner	
<b>A Model for Estimating Chemical Potentials in Ternary Semiconductor Compounds: The Case of InGaAs . . . . .</b>	<b>2909</b>
Vadym Kulish, Wenyan Liu, and Sergei Manzhos	
<b>GaAs(100) Surface Passivation with Sulfide and Fluoride Ions. . . . .</b>	<b>2915</b>
Pawan Tyagi	
<b>Germanium Junctions for Beyond-Si Node Using Flash Lamp Annealing (FLA) . . . . .</b>	<b>2921</b>
H. Tanimura, H. Kawarazaki, K. Fuse, M. Abe, Y. Ito, T. Aoyama, S. Kato, I. Kobayashi, T. Nagayama, N. Hamamoto, and S. Sakai	
<b>Understanding the Photoluminescence Mechanism of Carbon Dots. . . . .</b>	<b>2927</b>
Zhoufeng Jiang, Marta J. Krysmann, Antonios Kelarakis, Petr Koutnik, Pavel Anzenbacher Jr, Paul J. Roland, Randy Ellingson, and Liangfeng Sun	
<b>Investigation of Charge Transport Between Nickel Oxide Nanoparticles and CdSe/ZnS Alloyed Nanocrystals . . . . .</b>	<b>2935</b>
R. Vasan, F. Gao, M.O. Manasreh, and C.D. Heyes	

\*Invited Paper

<b>Growth Control of Twin InSb/GaAs Nano-stripes by Molecular Beam Epitaxy . . . . .</b>	<b>2943</b>
Phisut Narabadeesuphakorn, Jirayu Supasil, Supachok Thainoi, Aniwat TандаeChanurat, Suwit Kiravittaya, Noppadon Nuntawong, Suwat Sopitopan, Songphol Kanjanachuchai, Somchai Ratanathammaphan, and Somsak Panyakeow	
<b>Polarization-induced Transport: A Comparative Study of Ferroelectric and Non-ferroelectric Dielectric-gated Organic Field-effect Transistors . . . . .</b>	<b>2951</b>
Amrit Laudari, Shubhra Gangopadhyay, and Suchismita Guha	
<b>Template-synthesis of Conjugated Poly(3-Hexylselenophene) (P3HS) Nanofibers Using Femtosecond Laser Machined Fused Silica Templates . . . . .</b>	<b>2957</b>
L. Costa, M. Al-Hashimi, M. Heeney, A. Terekhov, D. Rajput, W. Hofmeister, and A. Verma	
<b>Solution-processed High-voltage Organic Thin Film Transistor . . . . .</b>	<b>2961</b>
Andy Shih and Akintunde Ibitayo Akinwande	
<b>Proton Radiation Studies on Conjugated Polymer Thin Films . . . . .</b>	<b>2967</b>
Harold O. Lee III, Muhammed Hasib, and Sam-Shajing Sun	