
State-of-the-Art Program on Compound Semiconductors 61 (SOTAPOCS 61) -and- Low-Dimensional Nanoscale Electronic and Photonic Devices 11

Editors:

T. J. Anderson

J. Hite

E. A. Douglas

S. Kilgore

C. O'Dwyer

Y.-L. Chueh

J. H. He

M. Suzuki

S. Jin

S.-W. Kim

J. C. Y. Ho

Z. Fan

Q. Li

G. W. Hunter

K. Takei

J.-M. Wu

Sponsoring Division:



Electronics and Photonics



Published by

The Electrochemical Society

65 South Main Street, Building D
Pennington, NJ 08534-2839, USA

tel 609 737 1902

fax 609 737 2743

www.electrochem.org

ecstransactions™

Vol. 86, No. 9

Copyright 2018 by The Electrochemical Society.
All rights reserved.

This book has been registered with Copyright Clearance Center.
For further information, please contact the Copyright Clearance Center,
Salem, Massachusetts.

Published by:

The Electrochemical Society
65 South Main Street
Pennington, New Jersey 08534-2839, USA

Telephone 609.737.1902
Fax 609.737.2743
e-mail: ecs@electrochem.org
Web: www.electrochem.org

ISSN 1938-6737 (online)
ISSN 1938-5862 (print)
ISSN 2151-2051 (cd-rom)

ISBN 978-1-62332-543-5 (CD-ROM)
ISBN 978-1-62332-544-2 (USB)
ISBN 978-1-60768-855-6 (PDF)

Printed in the United States of America.

Table of Contents

Preface *iii*

Chapter 1 Wide Bandgap Materials and Devices

Vertical and Lateral GaN Power Devices Enabled by Engineered GaN Substrates 3
*L. E. Luna, T. J. Anderson, A. D. Koehler, M. J. Tadjer, O. Aktas, K. D. Hobart,
F. J. Kub*

(Invited) Integration of Diamond with GaN for Thermal Management in High Power Applications 9
*T. Bai, M. S. Goorsky, Y. S. Wang, T. I. Feygelson, M. J. Tadjer, K. D. Hobart,
S. Graham*

(Invited) Understanding Interfaces in Homoepitaxial GaN Growth 15
J. K. Hite, M. A. Mastro, L. E. Luna, T. J. Anderson

Chapter 2 Narrow Bandgap Materials and Devices

Buried-Heterostructure Quantum Cascade Lasers Fabricated Using a Sacrificial Layer and a Two-Step Regrowth Process 23
R. Driad, A. Bächle, R. Aidam, Q. Yang

Chapter 3 Optoelectronics and Sensors

Chromium(III) Sensor Using Ion Selective Membrane Immobilized on FET for Ground Water Pollution 33
S. Shahim, R. Sukesan, C. Y. Hsieh, S. L. Wang, Y. L. Wang

Chapter 4
Low-Dimensional Nanoscale Electronic and Photonic Devices 11

Yield and Reliability of Nanocrystalline Graphene Field-Effect Gas Sensors <i>D. Noll, U. Schwalke</i>	41
Gate Stack Engineering in 2D Semiconductor FETs for Electronic Applications <i>H. Zhu, J. Xu, L. He, X. Nie, L. Chen, Q. Sun, D. W. Zhang</i>	51
Author Index	57