2018 IEEE Workshop on Microelectronics and Electron Devices (WMED 2018)

Boise, Idaho, USA 20 April 2018



IEEE Catalog Number: ISBN:

CFP18564-POD 978-1-5386-4954-1

Copyright © 2018 by the Institute of Electrical and Electronics Engineers, Inc. All Rights Reserved

Copyright and Reprint Permissions: Abstracting is permitted with credit to the source. Libraries are permitted to photocopy beyond the limit of U.S. copyright law for private use of patrons those articles in this volume that carry a code at the bottom of the first page, provided the per-copy fee indicated in the code is paid through Copyright Clearance Center, 222 Rosewood Drive, Danvers, MA 01923.

For other copying, reprint or republication permission, write to IEEE Copyrights Manager, IEEE Service Center, 445 Hoes Lane, Piscataway, NJ 08854. All rights reserved.

*** This is a print representation of what appears in the IEEE Digital Library. Some format issues inherent in the e-media version may also appear in this print version.

 IEEE Catalog Number:
 CFP18564-POD

 ISBN (Print-On-Demand):
 978-1-5386-4954-1

 ISBN (Online):
 978-1-5386-4953-4

ISSN: 1947-3834

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) 758-2633

E-mail: curran@proceedings.com Web: www.proceedings.com



IEEE WMED 2018 Table of Contents

Welcome to IEEE WMED 2018
Organizing Committeev
Technical Program vi
High School Programvii
Keynote Address and Talk
Memory: Transforming the Futurex Russ Meyer, Micron
Nanomaterials for a New Era of Electronic Devices: Extending and Transforming the Trend
Invited Tutorials
Physical Characterization of Advanced Device Materials
Predicting the Impact of Device Noise on Circuits and Systems
Invited Talks
EUV Lithography's Path to Manufacturing: Challenges and Opportunities
Novel Circuit Design Techniques Inspired by Physics
Planar CMOS Devices for Ultra-Low Power Applications at Nanometer Nodesxvi Dr. Samar K. Saha, Prospicient Devices
Considerations and Implementations for High Data Rate Serial Link Designxvii Dr. Daniel Friedman, IBM Thomas, I. Watson Research Center

Invited Contributions

and Materials Research Related to the Occurring Effects Effects	xxi
Maria Mitkova, Department of Electrical and Computer Engineering, Boise State University	
Behavioral Modeling of Memristor Radiation Interaction Events	xxii
Contributed Paper Sessions	xxvii
Machine Learning Based Predictive Maintenance Strategy: A Super Learning Approach with Deep Neural Networks	1
Achieving 16 Gb/s Single-ended Signaling in High-performance Graphics Memory	6
Poster Session	11
Thin POP Package Development of Mobile DRAM	13
Comparative Analysis of Various Design Configurations of CLA Carry Chains	14
An Experimental and Modelling Approach for Screening CMP Consumables for Better Planarization Efficiency, Within Wafer Uniformity and Defectivity	15
Author Index	17
Sponsors	18