2019 FCMN Program

Monday, April 1

Reception and Registration

6:30 PM – 8:30 PM
Ferrante's Bay View Room, 10th Floor, Monterey Marriott

Tuesday, April 2

Registration and Breakfast

7:30 AM – 8:30 AM

Conference Opening

8:45 AM
Welcome and Introduction
David Seiler, NIST, Conference Chair

Keynote Talks

Session Chair: David Seiler, NIST

9:00 AM
Beyond CMOS Computing: Prospects and Best Bets
Ian Young, Intel

9:45 AM
Frontiers in Memory Technology and Metrology Drivers
Gurtej Sandhu, Micron

10:30 AM
Coffee Break and Poster/Exhibit Viewing

11:00 AM
Impact of Quantum Information Science on the Future of Nanoelectronics
Carl Williams, NIST

AI, Machine Learning, and Hybrid Metrology

Session Chairs: Ajey Jacob, GlobalFoundries, and Markus Kuhn, Intel

11:45 AM
Machine Learning and Deep Learning Opportunities for Metrology and Process Control
Phillip Leray, Imec

12:15 PM
Lunch and Poster/Exhibit Viewing

1:45 PM
Deep Learning in Atomically Resolved Imaging: from Learning Physics to Atom by Atom Fabrication
Sergei Kalinin, Oakridge

2:15 PM
AI and Machine Learning for Advanced Semiconductor Metrology and Process Control
Shay Wolfling, Nova

Microscopy

Session Chair: Alain Diebold, CNSE, SUNY Polytechnic Institute

2:45 PM
What Does Near-line TEM Bring to the Table for the CMOS Manufacturing Industry
Paul van der Heide, IMEC

3:15 PM
Coffee Break and Poster/Exhibit Viewing

3:45 PM
When Ion or Electron Channeling meets Crystal Orientation Mapping
Anne Delobbe, Tescan Orsay

4:15 PM
Low Energy Electron Resist Exposures
Rudolf Tromp, IBM

4:45 PM
Accurate and Precise Analysis of Nanoscale Semiconductor Devices with Atomprobe Tomography: a Physicist's Dream or an Analyst's Nightmare?
Wilfried Vandervorst, Imec

5:15 – 6:15 PM
Poster Session (with Drinks and Hors d'oeuvres)

6:45 PM
Banquet at Hotel (Ferrante's Bay View Room)

Wednesday, April 3

Registration and Breakfast

7:45 AM – 8:30 AM

Magnetics/Spintronics

Session Chairs: Ajey Jacob, GlobalFoundries, and Paul van der Heide, Imec

8:30 AM
Metrology for the Manufacturing Needs of MRAM
Daniel Worledge, IBM

9:00 AM
Metrology for Topological Spintronics Materials and Devices
M. Zahid Hasan, Princeton

9:30 AM
Three-Dimensional Structural and Compositional Analysis of MTJ by STEM/EDX Tomography
Yuji Otsuka, Toray Research Center

10:00 AM
Coffee Break and Poster/Exhibit Viewing

Metrology for Patterning

Session Chair: Alain Diebold, CNSE, SUNY Polytechnic Institute

10:30 AM
Critical Dimension, Thickness, and Emerging Metrology Solutions for Three Dimensional Transistors and Multi-step Patterning
Alok Vaid, GLOBALFOUNDRIES

11:00 AM
Interlayer Edge Placement Hotspots: Quantifying and Expanding Combined CD/Overlay Process Window
John Sturtevant, Mentor Graphics

11:30 AM
Optical Critical Dimension Metrology in Memory and Logic
Andy Antonelli, Nanometrics

12:00 PM
Holistic Metrology Approaches for Improved Device Overlay and Edge Placement Error
Arie den Boef, ASML

12:30 PM
Lunch and Poster/Exhibit Viewing

7-10 nm Metrology and Defect Inspection

Session Chair: Tuyen Tran, Intel

2:00 PM
Advancement on Optical Inspection Technology for 7nm or Below Process Development and Manufacturing
Yalin Xiong, KLA-Tencor

2:30 PM
Extending Electron Beam Technology Further/Deeper into the Metrology Space for 7nm or Below Process Development and Manufacturing
Ofer Adan, AMAT

3:00 PM
Advancement on Massively Parallel Electron Beam Inspection Technology for 7nm or Below Process Development and Manufacturing
Oliver Patterson, HMI

3:30 PM
Coffee Break and Dedicated Poster/Exhibit Viewing Session

Nanoscale and Interfacial Compositional Characterization and Metrology

Session Chair: Markus Kuhn, Intel

4:00 PM
Micro X-ray Fluorescence for Integrated Dopants and Thin Film Analysis
Wenbing Yun, Sigray

4:30 PM
Integrated Process Learnings with Hybrid Characterization
Ying Zhou, Intel

5:00 PM
PIFM Nanoscale Chemical Probe for Novel Patterning Applications
Sung Park, Molecular Vista

5:30 – 6:30 PM
Poster Session (with Drinks and Hors d'oeuvres)

Thursday, April 4

Registration and Breakfast

8:00 AM – 8:30 AM

Metrology for Advanced Packaging

Session Chair: Ehrenfried Zschech, Fraunhofer IKTS Dresden

8:30 AM
Existing and Future Characterization Needs
Christian Schmidt, NVIDIA

9:00 AM
Really Nondestructive High-resolution X-ray Tomography for Advanced Packaging Applications
Ehrenfried Zschech, Fraunhofer IKTS Dresden

9:30 AM
Nondestructive and Economical Dimensional Metrology of Deep Structures
Ravikiran Attota, NIST

10:00 AM
Coffee Break and Poster/Exhibit Viewing

Emerging Characterization and Metrology

Session Chairs: Usha Varsney, NSF, and Paul van der Heide, Imec

10:30 AM
Current Status and Future Possibilities of HHG Sources for Characterization/Metrology in the Semiconductor Industry
Brennan Peterson, KMLabs

11:00 AM
Atom Probe Tomography: Toward Improved Productivity and Correlative Analysis in the Semiconductor Industry
David Larson, Ametek

11:30 AM
Current Status and Future Prospects for SPM for Supporting the Semiconductor Industry
Peter De Wolf, Bruker

12:00 PM
Hybrid SIMS: How the Orbitrap Mass Analyzer Can Improve the Self-Focusing SIMS Concept for Advanced Semiconductor Structures
Alexis Franquet, Imec

12:30 PM
Lunch and Poster/Exhibit Viewing

General

Session Chair: Alain Diebold, CNSE, SUNY Polytechnic Institute

2:00 PM
Metrology Requirements for Next Generation of Semiconductor Devices
George Orji, NIST

TCAD

Session Chair: Michael Current, Current Scientific

2:30 PM
Electromigration Power Grid Checking – Novel Design and Reliability Metrology
Valeriy Sukharev, Siemens/Mentor Graphics

Metrology for Silicon Photonics and Sensors

Session Chair: Alex Liddle, NIST

3:00 PM
Scanning Probe Technology to Make Local, Non-Contact Measurements of Photonic Circuits
Vladimir Aksyuk, NIST

3:30 PM
TBD

4:00 PM
Conference End

Poster Presentations

001, Metrology of Semiconductor Devices Using Machine Learning and Active Shapes
John Flanagan, Hayley Johanesen, Mark Biedrzycki, Jack Hager, Justin Roller, Jason Arjavac, Dan Nelson, and Umesh Adiga
Thermo Fisher Scientific, Material and Structural Analysis, Hillsboro, OR

002, Image-based Dimensional Analysis for Semiconductor and MEMS Structures
Woo Sik Yoo, Kitaek Kang, Jung Gon Kim, and Toshikazu Ishigaki
Wafermasters, Inc., 2251 Brandini Drive, Dublin, CA

003, Simultaneous Measurement of Thermal Properties and Interface Thermal Resistance of Thin Films by Thermoreflectance Microscopy
Elie Badine[1,2], Mathieu Bardoux[1], Nadine Abboud[2], Ziad Herro[2], and Abdelhak Hadj Sahraout[1]
[1]Unité de Dynamique et Structure des Matériaux Moléculaires, Université du Littoral Côte d'Opale,

Dunkerque, FRANCE
[2]Laboratoire de Physique Appliquée, Université Libanaise, Faculté des Sciences, Campus Fanar, LIBAN

004, Automatic Data Acquisition and Analytical System for High Quality Metrology

S. Kawai[1], M. Nishikawa[1], K. Somehara[1], D. Maekawa[1], H. Hashiguchi[1], N. Endo[1], H. Sakurai[1], L. L. Wei[2], K. McIlwrath[3], and H. Sawada[1]
[1]JEOL Ltd., Tokyo, Japan
[2]JIE DONG Co., Ltd., Taipei, Taiwan
[3]JEOL USA, Inc., MA, USA

005, Photo Thermal Acoustic Imaging for Sub-Surface Inspection and Alignment

W.D. Koek, E.J. van Zwet, M. Plissi, M. Eschen, D. Piras, P.L.M.J. van Neer, and M.J. van der Lans
TNO, Stieltjesweg 1, 2628 CK Delft, the Netherlands

006, Influence of Contacted Poly Pitch Dimension on Channel's Strain Level in 22nm UTBB FDSOI PMOSFET Technology

F. Ravaux[1], W. A. Gill[1], A. Al Ghaferi[1], I. Saadat[1], Z. Zhao[2], D. Utess[2], and D. Harame[2]
[1]Electrical and Computer Engineering Department, Khalifa University, Abu Dhabi, U.A.E.
[2]GLOBALFOUNDRIES, Dresden, Germany

007, A 331-Beam SEM

C. Riedesel, I. Müller, N. Kaufmann, A. Adolf, N. Kämmer, H. Fritz, and D. Zeidler
Carl Zeiss Microscopy GmbH, Carl-Zeiss-Straße 22, 73447 Oberkochen, Germany

008, Grazing Incidence X-Ray Diffraction Analysis of the Periodic Dislocation Network of Ge/Si Heterostructures

Yvo Barnscheidt[1], Jan Schmidt[1], and H. Jörg Osten[1,2]
[1]Institute of Electronic Materials and Devices, Leibniz University Hannover, Hannover, Germany
[2]Laboratory of Nano- and Quantum Engineering, Leibniz University Hannover, Hannover, Germany

009, Determination of the Dzyaloshinskii-Moriya Interaction in Magnetic Multilayers

Hans T. Nembach, Emilie Jué, Thomas J. Silva, and Justin M. Shaw
Quantum Electromagnetics Division, National Institute of Standards and Technology, Boulder, CO

010, Understanding the Role of Scanning Electron Microscope Image Noise in the Measurement of Pattern Roughness

Chris A. Mack[1], Frieda Van Roey[2], and Gian Francesco Lorusso[2]
[1]Fractilia, LLC, 1605 Watchhill Rd, Austin, TX 78703, USA
[2]imec, Kapeldreef, Leuven, Belgium

011, Measuring Step Heights from Top-Down SEM Images

K. T. Arat[1], J. Bolten[2], A. C. Zonnevylle[3], P. Kruit[1], C.W. Hagen[1]
[1]Delft University of Technology, Dept. of Imaging Physics, Lorentzweg 1, the Netherlands
[2]AMO GmbH, AMICA, Otto-Blumenthal-Str. 25, Germany
[3]Raith, De Dintel 27a, The Netherlands

012, Tomographic Mueller-matrix Scatterometry for Nanostructure Metrology: Principle and Opportunities

Xiuguo Chen and Shiyuan Liu
State Key Laboratory of Digital Manufacturing Equipment and Technology, Huazhong University of Science and Technology, Wuhan 430074, China

013, Focused Helium Ion Beam Nanofabrication of Superconducting Thin Films

Leila Kasaei[1], Hussein Hijazi[2], Mengjun Li[3], Thomas Melbourne[1], Leonard C. Feldman[2], Torgny Gustafsson[2], Ke Chen[1] and X.X. Xi[1]
[1]Department of Physics, Temple University, Philadelphia, Pennsylvania
[2]Department of Physics and Astronomy, Rutgers University, Piscataway, NJ
[3]Department of Chemistry and Chemical Biology, Piscataway, NJ

014, Metrology For E-Beam Lithography Process Characterization

Richard J. Bojko[1], Ulrich Hofmann[2], Gerald G. Lopez[3], and N. Shane Patrick[4]
[1]GenISys, Inc. San Francisco, CAS
[2]GenISys, GmbH. Taufkirchen, Germany
[3]Singh Center for Nanotechnology, Univ of Pennsylvania, Philadelphia, PA
[4]Washington Nanofabrication Facility, Univ of Washington, Seattle WA

015, 3D Metrology by FIB-SEM Tomography

Amir Avishai[1], David Pan[1], Keumsil Lee[1], Dmitry Klochkov[2], Jens Timo Neumann[2], Thomas Korb[2], Eugen Foca[2], and Alex Buxbaum[2]
[1]Carl Zeiss SMT Inc., Pleasanton, CA
[2]Carl Zeiss SMT GmbH, Rudolf-Eber-Str. 2, Oberkochen, Germany

016, Substrate Effects in EUV Photoresist Patterning

Mengjun Li[1], Sylvie Rangan[1], Aaron Dangerfield[2], Hussein Hijazi[2], Danielle Hutchison[4], May Nyman[4], Robert A. Bartynski[2], Yves Chabal[3], Torgny Gustafsson[2], Leonard C. Feldman[2], and Eric L. Garfunkel[1,2]
[1]Department of Chemistry and Chemical Biology
[2]Department of Physics and Astronomy, Rutgers University, Piscataway, NJ
[3]Department of Materials Science & Engineering, University of Texas at Dallas, Dallas, TX
[4]Department of Chemistry, Oregon State University, Corvallis, OR

017, Characterization of Subsurface Selective Etching of a Nanowire Test Structure using CD-SAXS

Madhulika Korde[1], R. Joseph Kline[2], Daniel Sunday[2], Cheryl Alix[3], Subhadeep Kal[3], Aelan Mosden[3], and Alain C Diebold1
[1]SUNY Polytechnic Institute, Albany, NY
[2]National Institute of Standards and Technology, Gaithersburg, MD
[3]TEL Technology Center, America, LLC, Albany, NY

018, Multi-Modal Imaging and Analysis for Microcontamination Source Identification

Suwen Liu and Haizheng Zhang
Entegris, Inc. 129 Concord Road, Billerica, MA

019, Micro Four-Point Probe Seebeck Measurements on nm-Wide Si Fins

M.-L. Witthøft[1], S. Folkersma[2,3], T. A. Marangoni[1], J. Bogdanowicz[2], A. Schulze[2], H. H. Henrichsen[4], F. W. Østerberg[4], O. Hansen[1], W. Vandervorst[2,3], and D. H. Petersen[1]
[1]Department of Micro- and Nanotechnology, Technical University of Denmark, Lyngby, Denmark

[2]IMEC, Kapeldreef 75, B-3001 Leuven, Belgium
[3]Instituut voor Kern- en Stralingsfysika, KU Leuven, Belgium
[4]CAPRES A/S, Scion-DTU, Lyngby, Denmark

020, Understanding of and Opportunities for Electrical Characterization of Scaled Devices Using Scanning Spreading Resistance Microscopy

Kristof Paredis[1], K. Pandey[2,1], L. Wouters[1], U. Celano[1], O. Dixon-Luinenburg[1], T. Boehme[2,1], T. Hantschel[1], P. van der Heide[1], G. Pourtois[1], and W. Vandervorst[1,2]
[1]IMEC, Kapeldreef 75, B-3000 Leuven, Belgium
[2]Instituut voor Kern- en Stralingsfysica, KU Leuven, Celestijnenlaan 200D, B-3001 Leuven, Belgium

021, Solving Zero Sensitivity Points in Diffraction-Based Overlay Metrology

C. Messinis[1,2], V.T. Tenner[1,2], and A.J. den Boef[1,2]
[1]Department of Physics and Astronomy, and LaserLab, Vrije Universiteit, Amsterdam, The Netherlands
[2]Advanced Research Center for Nanolithography (ARCNL), Amsterdam, The Netherlands

022, Versatile Thickness and Composition Metrology of Graphene and Other Carbon Based Materials by SEM/EDX

Charles C Wang, Erica Chen, Christopher Lazik, and Chris Ying
Applied Materials, Inc., M/S 0203, 3100 Bowers Avenue, Santa Clara, CA

023, Low Level of –OH Analysis in SiOx and SiCOH Dielectric Films by FTIR using Multiple Internal Reflection Technique

Yiping Yao[1], Son Nguyen[2], Anuja De Silva[2], Devika Sil[2], and Joyce Molinelli Acocella[1]
[1]IBM Systems, 2070 Route 52, Hopewell Junction, NY, 12533, USA
[2]IBM Semiconductor Technology Research, 257 Fuller Rd., Albany, NY, 12203, USA

024, Atom Probe Tomography Using Extreme-Ultraviolet Light

Luis Miaja-Avila[1], Ann N. Chiaramonti[1], Paul T. Blanchard[1], David R. Diercks[2], Brian P. Gorman[2], and Norman A. Sanford[1]
[1]National Institute of Standards and Technology, Boulder, CO, USA
[2]Colorado School of Mines, Golden, CO, USA

025, Group Surface Chemical Analysis of Combinatorial Film Systems

C. E. Moffitt[1], N. al-Hasan[2], and J. D. P. Counsell[3]
[1]Kratos Analytical, Inc., Chestnut Ridge, NY, USA
[2]Dept. of Materials Sci. and Eng., University of Maryland, College Park, MD, USA
[3]Kratos Analytical, Ltd., Wharfside, Manchester M17 1GP, UK

026, Differential Hall Effect Metrology (DHEM) for Depth Profiling of Electrical Properties at High Resolution

Abhijeet Joshi[1], Steven W. Novak[2], and Bulent M. Basol[1]
[1]Active Layer Parametrics Inc. (ALP), Scotts Valley, CA
[2]SUNY Polytechnic Institute, Albany, NY

027, Size Effects on Dopant Activation in Si Fins

S. Folkersma[1,2], J. Bogdanowicz[1], P. Favia[1], L. Wouters[1], K. Paredis[1], A. Franquet[1], V. Spampinato[1], D. H. Petersen[3], O. Hansen[3], H. H. Henrichsen[4], P. F. Nielsen[4], L. Shiv[4], and W. Vandervorst[1,2]
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[2]Instituut voor Kern- en Stralingsfysika, KU Leuven, Leuven, Belgium
[3]Department of Micro- and Nanotechnology, Technical University of Denmark, Lyngby, Denmark
[4]CAPRES A/S, Scion-DTU, Lyngby, Denmark

028, Near-Surface Sub-nm Resolution Activation Profiles in P and Sb+P Doped Ge

Pranav Ramesh[1], Krishna Saraswat[1], Abhijeet Joshi[2], Bulent M. Basol[2], Stephen P. Smith[3], Larry Wang[3], and Temel Buyuklimanli[3]
[1]Stanford University, Electrical Engineering Dept., Stanford, CA
[2]Active Layer Parametrics (ALP), Scotts Valley, CA
[3]EAG Laboratories, Sunnyvale, CA

029, Understanding Structure of Doped Semiconductor Quantum Dots

Heather Renee Sully[1], Katayoun Tabatabaei[2], Sue Carter[2], Susan Kauzlarich[2], and Frank Bridges[1]
[1]University of California Santa Cruz, CA
[2]University of California Davis, CA

030, Latest Advancements in Nanoscale IR Spectroscopy for Failure Analysis of Electronic Devices

Anirban Roy, Qichi Hu, Honghua Yang, and Peter De Wolf
Bruker Nano Surfaces, 112 Robin Hill Road, Santa Barbara, CA

031, High Resolution Secondary Ion Mass Spectroscopy (SIMS) for Characterization

Brett Lewis, Fouzia Khanom, Alexander Lombardi, Sybren Sijbrandij, Christelle Guillermier, and John Notte
ZEISS Process Control Solutions (PCS), Carl Zeiss SMT, Inc, 1 Corporation Way, Peabody, MA

032, The Development of X-ray Metrology for Thin Film Thickness in Semiconductor Inspection

Guo-Dung Chen, Bo-Ching He, Chun-Ting Liu, Wei-En Fu, and Wen-Li Wu
Center for Measurement Standards, Industrial Technology Research Institute, Hsinchu, Taiwan

033, 3D Atomistic Mapping in Group-IV Ultrathin Silicon Germanium Superlattices

Samik Mukherjee[1], Matthias Bauer[2], Anis Attiaoui[1], and Oussama Moutanabbir[1]
[1]Department of Engineering Physics, Ecole Polytechnique de Montreal, C. P. 6079, Succ. Centre-Ville, Montreal, Quebec, Canada
[2]Applied Materials Inc., 974 E. Arques Avenue, Sunnyvale, CA

034, Developing a Low-cost Electric Hysteresis Measurement Device and Studying Hysteresis Effects of Thickness in PVDF

Dr. Jeffrey Carvell[1], Kyle Stewart[1,2], and Samantha Miller[1]
[1]Department of Chemistry and Physical Sciences, Marian University, Indianapolis IN
[2]Aerospace Engineering, San Jose State University, San Jose CA

035, Electron Reflectometry for Measuring Nanostructures on Opaque Substrate

Lawrence H. Friedman[1] and Wen-Li Wu[2]
[1]Materials Science and Engineering Division, Materials Measurement Laboratory, NIST, Gaithersburg, MD
[2]Materials Measurement Science Division, Materials Measurement Laboratory, NIST, Gaithersburg, MD

036, Liquid-metal-Jet X-ray Technology for Characterization and Metrology of Nanoelectronics

Anasuya Adibhatla[1], Ulf Lundström[2], Björn Hansson[2], Julius Hållstedt[2]
[1]55 Schuman Blvd, Naperville IL
[2]Excillum AB, Torshamnsgatan 35, 164 40 Kista, Sweden

037, Characterization of the Ferroelectric Phase of Encapsulated $Hf_{1-x}Zr_xO_2$ Using a Combination of Synchrotron-based Grazing Incidence XRD and Polarization Measurements

Vineetha Mukundan[1], Steven Consiglio[2], Kandabara Tapily[2], Gert Leusink[2], Arthur Woll[3], Karsten Beckmann[1], Nathanial Cady[1], and Alain C Diebold[1]
[1]SUNY Polytechnic Institute, 257 Fuller Road, Albany, NY 12203, USA
[2]TEL Technology Center, America, LLC, 255 Fuller Road, Suite 214, Albany, NY 12203, USA
[3]Cornell High Energy Synchrotron Source (CHESS), Ithaca, NY 14853, USA

038, High Precision Iron Measurement in Silicon with Whole Wafer Mapping for Contamination Control in Ultra-Pure IC Fablines

M. Wilson, A. Savtchouk, B. Schrayer, C. Almeida, and J. Lagowski
Semilab SDI, 10770 N. 46th St., Ste. E700, Tampa, FL

039, Calibration of Nano- and Pico- Meter Range Displacement Measures with Static Measures

P. Luskinovich, V. Zhabotinsky, S. Rudas, A. Dikov, and A. Shavykin
Technosystems LV SIA, Latvia, Tukums

040, Micro Four-Point Probe Electrical Characterization of MoS_2

Kristoffer G. Kalhauge[1], Abhay Shivayogimath[1,2], David M. A. Mackenzie[3], Henrik H. Henrichsen[4], Ole Hansen[1], Timothy J. Booth[1,2], and Dirch H. Petersen[1]
[1]Department of Micro- and Nanotechnology, Technical University of Denmark, Denmark
[2]Centre of Nanostructured Graphene (CNG), Technical University of Denmark, Denmark
[3]Department of Electronics and Nanoengineering, Aalto University, Micronova, Finland
[4]CAPRES A/S, Scion-DTU, Denmark

041, Analysis Lab Will Be placed on in-FAB Metrology?

Kyung Woo Lee, Joong Jung Kim, and Hongsig Kim
Samsung Electronics, 1, Samsungjeonja-ro, Hwaseong-si, Gyeonggi-do, 18448, KOREA

042, Ions and Chemistry to Fulfill Observation and Probing Specifications of sub-28nm Devices

G. Goupil[1], P. Gounet[2], C. Hollerith[3], F. Altmann[4], S. Brand[4], and A. Delobbe[1]
[1]Orsay Physics/Tescan Orsay Holding, Fuveau, France
[2]ST Microelectronics, Grenoble, France
[3]Infineon Technologies AG, Neubiberg, Germany
[4]Fraunhofer Institute IMWS, Halle, Germany

043, Electric Field Gradient Reference Material for Scanning Probe Microscopy

J. J. Kopanski, M. Fu, and L. You
National Institute of Standards and Technology, Nanoscale Device Characterization Division, Gaithersburg, MD

044, Direct Atomic Layer Deposition of High-κ Dielectric Films on Graphene with Assistance of Pre-H2O Treatment

Li Zheng, Xinhong Cheng, Wen Zhou, Shaoyu Liu, Xiaobo Liu, and Yuehui Yu
State Key Laboratory of Functional Materials for Informatics, Shanghai Institute of Microsystem and Information Technology, Chinese Academy of Sciences, Shanghai, China

045, Contribution of CL and TEM Spatial Correlation on InGaAs QW Grown on Silicon for Advance CMOS

J. Roque, S. David, N.Rochat, F. Bertin, and N. Gambacorti
Univ. Grenoble Alpes, CEA, LETI, Grenoble, France

046, Super-Resolution Single-Molecule Microscopy: a Characterization Tool for Materials

J. Alexander Liddle[1], Muzhou Wang[2], Stephen Stranick[3], Abhishek Kumar[1,4], and Jeffrey Gilman[3]
[1]Center for Nanoscale Science and Technology, National Institute of Standards and Technology
[2]Department of Chemical and Biological Engineering, Northwestern University
[3]Material Measurement Laboratory, National Institute of Standards and Technology
[4]IREAP, University of Maryland, College Park, MD