

PROCEEDINGS OF SPIE

***Micro- and Nanotechnology
Sensors, Systems, and Applications V***

**Thomas George
M. Saif Islam
Achyut K. Dutta**
Editors

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Contents

xi	<i>Conference Committee</i>
xv	<i>Introduction</i>

SESSION 1 FRONTIERS IN NANOELECTRONICS RESEARCH

- 8725 02 **Nano-electro-mechanical-systems (NEMS) and energy-efficient electronics and the emergence of two-dimensional layered materials beyond graphene (Keynote Paper)** [8725-1]
A. B. Kaul, National Science Foundation (United States)
- 8725 03 **Fabrication of large-area twisted bilayer graphene for high-speed ultra-sensitive tunable photodetectors (Invited Paper)** [8725-2]
J. Bao, S. Xing, Y. Wang, W. Wu, F. Robles-Hernandez, S. Pei, Univ. of Houston (United States)
- 8725 04 **Graphene-Si heterogeneous nanotechnology (Invited Paper)** [8725-3]
D. Akinwande, L. Tao, The Univ. of Texas at Austin (United States)
- 8725 05 **Photodetection with heterojunctions of graphene and silicon (Invited Paper)** [8725-4]
F. Liu, X. An, S. Kar, Northeastern Univ. (United States)
- 8725 06 **Band gap and correlated phenomena in bilayer and trilayer graphene (Invited Paper)** [8725-5]
Y. Lee, K. Myhro, D. Tran, N. Gilgren, J. Velasco Jr., W. Bao, M. Deo, C. N. Lau, Univ. of California, Riverside (United States)
- 8725 07 **New generation transistor technologies enabled by 2D crystals (Invited Paper)** [8725-6]
D. Jena, Univ. of Notre Dame (United States)

SESSION 2 MULTIFUNCTIONAL AND ADAPTIVE STRUCTURAL MATERIALS I

- 8725 09 **Surface confined assemblies and polymers for sensing and molecular logic (Invited Paper)** [8725-106]
G. de Ruiter, M. Altman, L. Motiei, M. Lahav, M. E. van der Boom, Weizmann Institute of Science (Israel)
- 8725 0A **Active frequency selective surfaces (Invited Paper)** [8725-8]
W. R. Buchwald, Univ. of Massachusetts, Boston (United States) and Solid State Scientific Corp. (United States); J. Hendrickson, J. W. Cleary, Air Force Research Lab. (United States); J. Guo, The Univ. of Alabama in Huntsville (United States)
- 8725 0B **Adaptive multifunctional composites (Invited Paper)** [8725-9]
Y. Wang, D. J. Inman, Univ. of Michigan (United States)

SESSION 3 MULTIFUNCTIONAL AND ADAPTIVE STRUCTURAL MATERIALS II

- 8725 0D **Charge redistribution in adaptable quantum-dot and quantum-well nanomaterials for infrared sensing (Invited Paper)** [8725-11]
V. Mitin, J. K. Choi, G. Thomain, Univ. at Buffalo (United States); K. Sablon, U.S. Army Research Lab. (United States); S. Oktyabrsky, Univ. at Albany (United States); N. Vagidov, Optoelectronic Nanodevices LLC (United States); A. Sergeev, Univ. at Buffalo (United States)
- 8725 0E **Functional supramolecular nanomaterials: robust yet adaptive (Invited Paper)** [8725-12]
B. Rybtchinski, Weizmann Institute of Science (Israel)
- 8725 0F **Emission and detection of terahertz radiation using two dimensional plasmons in semiconductor nano-heterostructures for nondestructive evaluations (Invited Paper)** [8725-13]
T. Otsuji, T. Watanabe, S. A. Boubanga Tombet, A. Satou, V. Ryzhii, Tohoku Univ. (Japan); V. Popov, Institute of Radio Engineering and Electronics (Russian Federation); W. Knap, LC2 Labs., CNRS, Univ. Montpellier 2 (France)
- 8725 0G **Graphene-based integrated electronic, photonic and spintronic circuit (Invited Paper)** [8725-14]
P. Potasz, National Research Council Canada (Canada) and Wroclaw Univ. of Technology (Poland); A. D. Güçlü, National Research Council Canada (Canada) and Izmir Institute of Technology (Turkey); I. Ozfidan, National Research Council Canada (Canada) and Univ. of Ottawa (Canada); M. Korkusinski, National Research Council Canada (Canada); P. Hawrylak, National Research Council Canada (Canada) and Univ. of Ottawa (Canada)

SESSION 4 MICRO-/NANOSENSING FOR HARSH ENVIRONMENT ENERGY APPLICATIONS AND ENVIRONMENTAL CONTROL

- 8725 0H **Harsh environment sensor development for advanced energy systems (Keynote Paper)** [8725-15]
R. R. Romanosky, S. M. Maley, National Energy Technology Lab. (United States)
- 8725 0I **Chemical sensor systems for environmental and emission control (Invited Paper)** [8725-16]
A. Lloyd Spetz, Linköping Univ. (Sweden) and Univ. of Oulu (Finland); Z. Darmastuti, Linköping Univ. (Sweden); C. Bur, Linköping Univ. (Sweden) and Univ. des Saarlandes (Germany); J. Huotari, Univ. of Oulu (Finland); R. Bjorklund, Linköping Univ. (Sweden); N. Lindqvist, Alstom Power AB (Sweden); J. Lappalainen, H. Jantunen, Univ. of Oulu (Finland); A. Schütze, Univ. des Saarlandes (Germany); M. Andersson, Linköping Univ. (Sweden) and Univ. of Oulu (Finland)
- 8725 0J **Miniaturized resonant sensors for harsh environments (Invited Paper)** [8725-17]
S. Schmidtchen, D. Richter, J. Sauerwald, H. Fritze, Technische Univ. Clausthal (Germany)
- 8725 0K **III-nitride nanostructures for optical gas detection and pH sensing (Invited Paper)** [8725-18]
S. Paul, K. Maier, EADS Innovation Works (Germany); A. Das, Commissariat à l'Énergie Atomique (France); F. Furtmayr, Justus-Liebig-Univ. Giessen (Germany); A. Helwig, EADS Innovation Works (Germany); J. Teubert, Justus-Liebig-Univ. Giessen (Germany); E. Monroy, Commissariat à l'Énergie Atomique (France); G. Müller, EADS Innovation Works (Germany); M. Eickhoff, Justus-Liebig-Univ. Giessen (Germany)

- 8725 0L **Metal oxide nanowire gas sensors for indoor and outdoor environmental monitoring (Invited Paper)** [8725-19]
A. Köck, E. Brunet, AIT Austrian Institute of Technology GmbH (Austria); O. Freudenberg, Siemens AG (Germany); C. Gamauf, Univ. of Applied Sciences Wiener Neustadt (Austria); J. Kraft, austriamicrosystems AG (Austria); G. C. Mutinati, T. Maier, AIT Austrian Institute of Technology GmbH (Austria); A. Nemecek, Univ. of Applied Sciences Wiener Neustadt (Austria); F. Schrank, M. Schrems, austriamicrosystems AG (Austria); M. Siegele, Univ. of Applied Sciences Wiener Neustadt (Austria); J. Siegert, austriamicrosystems AG (Austria); S. Steinhauer, AIT Austrian Institute of Technology GmbH (Austria); J. Teva, austriamicrosystems AG (Austria)

SESSION 5 SCANNING PROBE-BASED NANOPATTERNING AND DIP-PEN NANOLITHOGRAPHY: JOINT SESSION WITH CONFERENCES 8725 AND 8729

- 8725 0P **Nano-electro-mechanical systems fabricated using tip-based nanofabrication (Invited Paper)** [8725-23]
H. Hu, P. K. Mohseni, M. A. Shannon, X. Li, W. P. King, Univ. of Illinois at Urbana-Champaign (United States)

SESSION 6 NOVEL ADAPTIVE OPTICS TECHNIQUES AND APPLICATIONS

- 8725 0S **How adaptive optics may have won the Cold War (Keynote Paper)** [8725-26]
R. K. Tyson, The Univ. of North Carolina at Charlotte (United States)
- 8725 0U **Adaptive optics for fiber-fed interferometers (Invited Paper)** [8725-28]
M. Hart, T. Stalcup, O. Durney, N. Emerson, Univ. of Arizona (United States); K. Powell, MMT Observatory (United States); M. Ward, Univ. of Arizona (United States); G. Feller, R. Kendrick, J. Mason, M. Bold, L. Dewell, T. Kubo, Lockheed Martin Space Systems Co. (United States)
- 8725 0V **High-actuator-count MEMS deformable mirrors (Invited Paper)** [8725-30]
M. A. Helmbrecht, M. He, C. J. Kempf, Iris AO, Inc. (United States)
- 8725 0W **Large-aperture active optical carbon fiber reinforced polymer mirror** [8725-105]
M. E. L. Jungwirth, Sandia National Labs. (United States) and Honeywell ACS (United States); C. C. Wilcox, U.S. Naval Research Lab. (United States); D. V. Wick, M. S. Baker, C. G. Hobart, J. J. Milinazzo, Sandia National Labs. (United States); J. Robichaud, L-3 Communications IOS-SSG (United States); R. C. Romeo, R. N. Martin, Composite Mirror Applications, Inc. (United States); J. Ballesta, Imagine Optic Inc. (United States); E. Lavergne, Imagine Optic SA (France); E. L. Dereniak, College of Optical Sciences, The Univ. of Arizona (United States)

SESSION 7 NANO-/MICROSTRUCTURED MATERIALS FOR PHOTOVOLTAIC AND PHOTOELECTROCHEMICAL ENERGY HARVESTING: JOINT SESSION WITH CONFERENCES 8725 AND 8728

- 8725 0Z **Towards low-cost high-efficiency GaAs photovoltaics and photoelectrodes grown via vapor transport from a solid source (Invited Paper)** [8725-34]
J. W. Boucher, A. J. Ritenour, S. W. Boettcher, Univ. of Oregon (United States)

- 8725 10 **Direct-bandgap nanopillar photovoltaics based on patterned catalyst-free epitaxy (Invited Paper)** [8725-35]
G. Mariani, D. L. Huffaker, Univ. of California, Los Angeles (United States)

SESSION 8 MICRO- AND NANOTECHNOLOGY FOR HEALTH CARE: JOINT SESSION WITH CONFERENCES 8725 AND 8719

- 8725 12 **Microscale technologies for imaging endogenous gene expression in individual cells within 3D tissues (Invited Paper)** [8725-38]
T. Ye, Z. Luo, Univ. of California, Davis (United States); Y. Ma, H. S. Gill, N. Nitin, Texas Tech Univ. (United States)

SESSION 9 INTERACTION OF SEMICONDUCTORS AND HIGH-ENERGY PARTICLES

- 8725 14 **Present status and prospects of R&D of radiation-resistant semiconductor devices at JAEA (Keynote Paper)** [8725-41]
H. Itoh, Japan Atomic Energy Agency (Japan)
- 8725 15 **Radiation effects in solar cells (Invited Paper)** [8725-43]
M. Imaizumi, Japan Aerospace Exploration Agency (Japan); T. Ohshima, Japan Atomic Energy Agency (Japan)
- 8725 16 **Radiation tolerance of silicon and diamond detectors exposed to MeV ion beams: characterization using IBIC technique (Invited Paper)** [8725-44]
M. Jakšić, V. Grilj, N. Skukan, Institut Ruder Boškovic (Croatia); M. Pomorski, CEA-Ctr. de Saclay (France); W. Kada, T. Kamiya, Japan Atomic Energy Agency (Japan)
- 8725 17 **Radiation-tolerant microprocessors in Japanese scientific space vehicles: how to maximize the benefits of commercial SOI technologies (Invited Paper)** [8725-45]
D. Kobayashi, K. Hirose, H. Saito, Institute of Space and Astronautical Science (Japan) and The Univ. of Tokyo (Japan)
- 8725 19 **Error-rate prediction for programmable circuits: methodology, tools and studied cases (Invited Paper)** [8725-47]
R. Velazco, TIMA Lab., CNRS (France)
- 8725 1A **Ion beam induced charge analysis of radiation damage in silicon photodiodes (Invited Paper)** [8725-48]
Ž. Pastuović, Australian Nuclear Science and Technology Organisation (Australia); M. Jakšić, Institut Ruder Boškovic (Croatia); E. Vittone, Univ. degli Studi di Torino (Italy)

SESSION 10 MAST: SOFTWARE: JOINT SESSION WITH CONFERENCES 8725 AND 8741

- 8725 1B **Reduction and identification for hybrid dynamical models of terrestrial locomotion (Invited Paper)** [8725-49]
S. A. Burden, S. S. Sastry, Univ. of California, Berkeley (United States)

- 8725 1D **Stochastic receding horizon control: application to an octopedal robot (Invited Paper)** [8725-51]
S. K. Shah, H. G. Tanner, Univ. of Delaware (United States)
- 8725 1F **Bio-inspired multi-mode optic flow sensors for micro air vehicles (Invited Paper)** [8725-53]
S. Park, J. Choi, J. Cho, E. Yoon, Univ. of Michigan (United States)
- 8725 1G **Structure from motion in computationally constrained systems (Invited Paper)** [8725-54]
J. Conroy, U.S. Army Research Lab. (United States); J. S. Humbert, Univ. of Maryland, College Park (United States)
- 8725 1H **Mixed-signal odometry for mobile robotics (Invited Paper)** [8725-55]
M. J. Kuhlman, T.-H. Lee, P. A. Abshire, Univ. of Maryland, College Park (United States)

SESSION 11 FLEXIBLE AND WEARABLE ELECTRONICS FOR DEFENSE APPLICATIONS: JOINT SESSION WITH CONFERENCES 8725 AND 8730

- 8725 1I **Bio-integrated electronics and sensor systems (Invited Paper)** [8725-58]
W.-H. Yeo, R. C. Webb, W. Lee, Univ. of Illinois at Urbana-Champaign (United States); S. Jung, Pohang Univ. of Science and Technology (Korea, Republic of); J. A. Rogers, Univ. of Illinois at Urbana-Champaign (United States)
- 8725 1J **Carbon nanotube macroelectronics: toward system-on-plastic (Invited Paper)** [8725-59]
C. Wang, K. Takei, T. Takahashi, A. Javey, Univ. of California, Berkeley (United States)
- 8725 1M **Mechanically flexible optically transparent silicon fabric with high thermal budget devices from bulk silicon (100) (Invited Paper)** [8725-62]
M. M. Hussain, J. P. Rojas, G. A. Torres Sevilla, King Abdullah Univ. of Science and Technology (Saudi Arabia)

SESSION 12 NOVEL TRANSPARENT CONDUCTORS AND CARBON-BASED TECHNOLOGIES

- 8725 1S **Aligned arrays of single walled carbon nanotubes for transparent electronics (Invited Paper)** [8725-68]
F. Du, J. A. Rogers, Univ. of Illinois at Urbana-Champaign (United States)
- 8725 1V **Graphene-carbon nanotube hybrid transparent conductive films (Invited Paper)** [8725-72]
I. N. Kholmanov, The Univ. of Texas at Austin (United States) and Istituto di Acustica e Sensoristica, Univ. di Brescia, CNR (Italy); T. Y. Kim, The Univ. of Texas at Austin (United States); S. H. Domingues, The Univ. of Texas at Austin (United States) and Univ. Federal do Parana (Brazil); J.-Y. Kim, C. Tan, C. W. Magnuson, H. Li, R. Piner, R. S. Ruoff, The Univ. of Texas at Austin (United States)

SESSION 13 NOVEL MICRO/NANO APPROACHES TO THE CBRNE DETECTION PROBLEM: JOINT SESSION WITH CONFERENCES 8725 AND 8710

- 8725 1Y **Luminescence enhancement in LaPO₄:Ce/CdTe nanocomposite scintillators (Invited Paper)** [8725-76]
J. Wang, R. Hall, L. Ma, W. Chen, The Univ. of Texas at Arlington (United States); R. Feng, Canadian Light Source Inc. (Canada); R. Sammynaiken, Univ. of Saskatchewan (Canada); Y. Wang, D. He, Beijing Jiaotong Univ. (China)

SESSION 14 MICRO- AND NANOTECHNOLOGIES FOR STANDOFF DETECTION I: JOINT SESSION WITH CONFERENCES 8725 AND 8710

- 8725 20 **Non-intrusive telemetry applications in the oilsands: from visible light and x-ray video to acoustic imaging and spectroscopy (Keynote Paper)** [8725-78]
J. M. Shaw, Univ. of Alberta (Canada)
- 8725 22 **Chemical sensing and imaging in microfluidic pore network structures relevant to natural carbon cycling and industrial carbon sequestration (Invited Paper)** [8725-80]
J. W. Grate, C. Zhang, M. Wilkins, M. G. Warner, N. C. Anheier, J. Suter, R. Kelly, M. Oostrom, Pacific Northwest National Lab. (United States)

SESSION 15 MICRO- AND NANOTECHNOLOGIES FOR STANDOFF DETECTION II: JOINT SESSION WITH CONFERENCES 8725 AND 8710

- 8725 24 **Micro and nano devices in passive millimetre wave imaging systems (Keynote Paper)** [8725-82]
R. Appleby, Queen's Univ. Belfast (Ireland)
- 8725 25 **Towards airborne nanoparticle mass spectrometry with nanomechanical string resonators (Invited Paper)** [8725-83]
S. Schmid, M. Kurek, A. Boisen, Technical Univ. of Denmark (Denmark)
- 8725 26 **Antenna coupled detectors for 2D staring focal plane arrays (Invited Paper)** [8725-84]
M. Gritz, B. Kolasa, Raytheon Co. (United States); B. Lail, Florida Institute of Technology (United States); R. Burkholder, L. Chen, Raytheon Co. (United States)
- 8725 27 **Diffraction limit investigation with sub-wavelength pixels (Invited Paper)** [8725-85]
A. Bergeron, M. Terroux, L. Marchese, D. Dufour, L. Le Noc, C. Chevalier, INO (Canada)

SESSION 16 MICRO- AND NANOTECHNOLOGIES FOR STANDOFF DETECTION III: JOINT SESSION WITH CONFERENCES 8725 AND 8710

- 8725 28 **Raman and photothermal spectroscopies for explosive detection (Invited Paper)** [8725-87]
E. Finot, T. Brulé, P. Raj, A. Griffart, A. Bouhélier, Lab. Interdisciplinaire Carnot de Bourgogne, CNRS (France); T. Thundat, Univ. of Alberta (Canada)

- 8725 2A **Data analysis of multi-laser standoff spectral identification of chemical and biological compounds (Invited Paper)** [8725-89]
R. Farahi, Oak Ridge National Lab. (United States) and Univ. of Tennessee (United States); V. Zaharov, Univ. Politécnica de Puerto Rico (United States); L. Tefard, Oak Ridge National Lab. (United States); T. Thundat, Univ. of Alberta (Canada); A. Passian, Oak Ridge National Lab. (United States) and Univ. of Tennessee (United States)

POSTER SESSION

- 8725 2C **Ion irradiation effects on electric properties of hydrogenated amorphous silicon thin films** [8725-91]
S. Sato, T. Ohshima, Japan Atomic Energy Agency (Japan)
- 8725 2D **Effects of x-ray and gamma-ray irradiation on the optical properties of quantum dots immobilized in porous silicon** [8725-92]
G. Gaur, D. Koktysh, D. M. Fleetwood, R. A. Reed, R. A. Weller, S. M. Weiss, Vanderbilt Univ. (United States)
- 8725 2E **Nonlinear-optical up and down frequency-converting backward-wave metasensors and metamirrors** [8725-93]
A. K. Popov, Univ. of Wisconsin-Stevens Point (United States); I. S. Nefedov, Aalto Univ. (Finland); S. A. Myslivets, Kirensky Institute of Physics (Russian Federation); M. I. Shalaev, V. V. Slabko, Siberian Federal Univ. (Russian Federation)
- 8725 2G **Effects of radiation-induced defects on the charge collection efficiency of a silicon carbide particle detector** [8725-96]
N. Iwamoto, S. Onoda, T. Makino, T. Ohshima, Japan Atomic Energy Agency (Japan); K. Kojima, National Institute of Advanced Industrial Science and Technology (Japan); S. Nozaki, The Univ. of Electro-Communications (Japan)
- 8725 2H **Subwavelength resonant nanostructured films for sensing** [8725-97]
K. J. Alvine, B. E. Bernacki, J. D. Suter, W. D. Bennett, D. J. Edwards, A. Mendoza, Pacific Northwest National Lab. (United States)
- 8725 2K **Development of a versatile lab-on-a-chip enzyme assay platform for pathogen detection in CBRNE scenarios** [8725-101]
R. Klemm, S. Schattschneider, T. Jahn, N. Hlawatsch, microfluidic ChipShop GmbH (Germany); S. Julich, Friedrich-Loeffler-Institut (Germany); H. Becker, C. Gärtner, microfluidic ChipShop GmbH (Germany)
- 8725 2L **Radiation detection with CdTe quantum dots in sol-gel glass and polymer nanocomposites** [8725-102]
K. Manickaraj, B. K. Wagner, Georgia Tech Research Institute (United States); Z. Kang, Georgia Tech Research Institute (United States) and Georgia Institute of Technology (United States)

8725 2N **Solution-based photodetectors for monolithically integrated low-cost short-wave infrared focal plane arrays** [8725-104]
E. Heves, H. Kayahan, Y. Gurbuz, Sabanci Univ. (Turkey)

Author Index

Conference Committee

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Thomas G. Thundat, University of Alberta (Canada)
Christopher C. Wilcox, U.S. Naval Research Laboratory (United States)
Jongseung Yoon, The University of Southern California (United States)

Session Chairs

- 1 Frontiers in Nanoelectronics Research
Thomas George, Zyomed Corporation (United States)
- 2 Multifunctional and Adaptive Structural Materials I
Andre U. Sokolnikov, Visual Solutions and Applications (United States)
- 3 Multifunctional and Adaptive Structural Materials II
Andre U. Sokolnikov, Visual Solutions and Applications (United States)
- 4 Micro-/Nanosensing for Harsh Environment Energy Applications and Environmental Control
Bilge Saruhan-Brings, Deutsches Zentrum für Luft- und Raumfahrt e.V. (Germany)
- 5 Scanning Probe-Based Nanopatterning and Dip-Pen Nanolithography: Joint Session with Conferences 8725 and 8729
Ronald G. Dixon, National Institute of Standards and Technology (United States)
Debjyoti Banerjee, Texas A&M University (United States)
- 6 Novel Adaptive Optics Techniques and Applications
Christopher C. Wilcox, U.S. Naval Research Laboratory (United States)
- 7 Nano-/Microstructured Materials for Photovoltaic and Photoelectrochemical Energy Harvesting: Joint Session with Conferences 8725 and 8728
Jongseung Yoon, The University of Southern California (United States)
- 8 Micro- and Nanotechnology for Health Care: Joint Session with Conferences 8725 and 8719
Brian M. Cullum, University of Maryland, Baltimore County (United States)
Eric S. McLamore, University of Florida (United States)
Noriko Satake, UC Davis Medical Center (United States)
Scott D. Collins, University of Maine (United States)
Thomas George, Zyomed Corporation (United States)

- 9 Interaction of Semiconductors and High-Energy Particles
Takeshi Ohshima, Japan Atomic Energy Research Institute (Japan)
Shinji Nozaki, The University of Electro-Communications (Japan)
- 10 MAST: Software: Joint Session with Conferences 8725 and 8741
Christopher M. Kroninger, U.S. Army Research Laboratory
(United States)
William D. Nothwang, U.S. Army Research Laboratory (United States)
Paul D. Samuel, Daedalus Flight Systems, LLC (United States)
- 11 Flexible and Wearable Electronics for Defense Applications: Joint
Session with Conferences 8725 and 8730
Muhammad M. Hussain, King Abdullah University of Science and
Technology (Saudi Arabia)
Ali Javey, University of California, Berkeley (United States)
- 12 Novel Transparent Conductors and Carbon-based Technologies
Kyung-Ah Son, HRL Laboratories, LLC (United States)
- 13 Novel Micro/Nano Approaches to the CBRNE Detection Problem:
Joint Session with Conferences 8725 and 8710
Joan A. Hoffmann, Johns Hopkins University Applied Physics
Laboratory (United States)
Stergios J. Papadakis, Johns Hopkins University Applied Physics
Laboratory (United States)
- 14 Micro- and Nanotechnologies for Standoff Detection I: Joint Session
with Conferences 8725 and 8710
Michael K. Rafailov, University of Alberta (Canada)
Thomas G. Thundat, University of Alberta (Canada)
- 15 Micro- and Nanotechnologies for Standoff Detection II: Joint Session
with Conferences 8725 and 8710
Michael K. Rafailov, University of Alberta (Canada)
Thomas G. Thundat, University of Alberta (Canada)
- 16 Micro- and Nanotechnologies for Standoff Detection III: Joint Session
with Conferences 8725 and 8710
Michael K. Rafailov, University of Alberta (Canada)
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Introduction

The 2013 Micro- and Nanotechnology Sensors, Systems, and Applications V Conference continued its trailblazing approach to showcasing a diverse range of MEMS and Nanotechnology topics that are a testament to the practically limitless applications of these exciting technologies. The sheer breadth of potential MEMS and Nanotechnology applications was also strongly validated by the synergy we were able to establish between our conference and other, equally diverse, and broad set of conferences within the DSS symposium. Successful joint sessions were conducted with the Scanning Microscopies (8729), Energy Harvesting and Storage (8728), Smart Biomedical and Physiological Sensor Technology (8719), Unmanned Systems Technology (8741), Flexible Electronics (8730), Chemical, Biological, Radiological, Nuclear, and Explosives (CBRNE) Sensing (8710) and the Passive and Active Millimeter-Wave Imaging (8715) Conferences. Exciting new sessions that were introduced in 2013 were sessions on Frontiers in Nanoelectronics Research (showcasing Dr. Anupama Kaul's program at the NSF), Multifunctional and Adaptive Structural Materials, Flexible and Wearable Electronics for Defense Applications, Novel Transparent Conductors and Carbon-based Technologies, Devices, Nano-/Microstructured Materials for Photovoltaic and Photoelectrochemical Energy Harvesting, and Interaction of Semiconductors and High-Energy Particles.

As in previous years, each session was designed by the session chairs to address three “cornerstones” of our conference philosophy namely, describing programmatic investments that set the overall context for the cutting-edge research and development being presented, and the challenges involved in transitioning these exciting concepts to applications in defense, homeland security and space. A wide variety of advanced micro and nanoscale research being conducted by the Defense Advanced Research Projects Agency, Air Force Office of Scientific Research, National Institutes of Health, Department of Energy, Office of Naval Research and the Naval Research Laboratory, Army Research Laboratory, NASA, and the Japanese Atomic Energy Agency was presented.

Thanks to our distinguished contributors, in this proceedings volume, you will find papers covering a breathtaking range of topics from “How adaptive optics may have won the cold war” to “Nano-electro-mechanical-systems (NEMS) and Energy-efficient Electronics and The Emergence of Two-dimensional Layered Materials Beyond Graphene.” Enjoy!

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