



2015 DSS CONFERENCE & EXHIBITION

East Coast's Largest Scientific Conferences and Exhibition
on Optics, Imaging, and Sensing

**Call for Papers.
Submit Abstracts
by 6 October 2014**

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Conferences & Courses: 20-24 April 2015
DSS EXPO: 21-23 April 2015
Baltimore Convention Center
Baltimore, Maryland, USA

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TWO MAJOR SYMPOSIA:
Sensing Technology + Applications
Defense + Security

Advances in Global Health through Sensing Technologies 2015

Conference Chair: **Šárka O. Southern**, Gaia Medical Institute (USA)

Conference Co-Chair: **Isaac Rodriguez-Chavez**, National Institute of Dental and Craniofacial Research (USA)

Program Committee: **James Delehanty**, U.S. Naval Research Lab. (USA); **Theresa G. Evans-Nguyen**, Draper Lab. (USA); **Peter Kiesel**, Palo Alto Research Center, Inc. (USA); **Baochuan Lin**, U.S. Naval Research Lab. (USA); **Daniel Malamud**, New York Univ. (USA); **Igor Medintz**, U.S. Naval Research Lab. (USA); **Richard M. Ozanich**, Pacific Northwest National Lab. (USA); **Ava M. Puccio**, Univ. of Pittsburgh Medical Ctr. (USA); **Steven A. Ripp**, The Univ. of Tennessee (USA); **Albert Skip Rizzo, III**, The Univ. of Southern California (USA); **Kim E. Sapsford**, U.S. Food and Drug Administration (USA); **Shadrin B. Strong**, Johns Hopkins Univ. Applied Physics Lab. (USA); **David E. Wolf**, Radiation Monitoring Devices, Inc. (USA); **Aurel Ymeti**, Ostendum R&D BV (Netherlands)

MISSION: to host a discussion forum that will enable sharing applied scientific information, appraising the latest developments and facilitating the establishment of collaborations in projects within advanced sensing technologies linked to Global Health by connecting investigators, funding managers, commercialization experts and business developers.

BENEFITS: cross-disciplinary networking and new collaborations in life sciences, engineering, scientific marketing and governmental funding opportunities.

AREAS OF INTEREST: Global health is certainly one of the top priorities for all nations. It represents improving human health and quality of life and also constitutes a central point for strategic development, economic prosperity and political stability worldwide. Global health advances are closely linked to the latest technological developments that facilitate disease detection through sensing technologies that enable screening, diagnosing and monitoring of disease. Sensing technologies also play an important part in the development of globally effective vaccines and drugs. Sensing technologies used in Global Health are in broad demand due to disease burden worldwide. Global Health technologies must evolve continually and rapidly to keep pace with emerging diseases, new toxins and effects of climate change. Global Health technologies have cross-cutting applications in military medicine, environmental safety monitoring as well as sports and spaceflight medicine. Global Health progress demands successful integration of multiple steps in product development from multi-disciplinary scientific concepts to commercial development, manufacture, regulatory compliance and globally-effective scientific marketing. Fast growing technologies include pathogen microarrays, molecular biomarkers and multiplexed assays. Functionality of sensing devices is enhanced by nanotechnology, sensor fusion, bioinformatics and wireless platforms. Advanced communication technologies such as satellite networks are used to bridge global data sharing. Main trends include rapid in vitro diagnostics, point-of-care tests, saliva diagnostics, disease biomarkers, wearable sensors and telemedicine.

Papers are solicited for the following topics:

GLOBAL HEALTH I: SENSING TECHNOLOGIES: FROM LAB TO MARKETPLACE

- assay platforms, collection devices and readers for noninvasive disease diagnostics (saliva, finger prick blood)
- microarray technologies for pathogen detection
- biomarker discovery and validation
- miniature optical sensors
- rapid scalable molecular assays
- technology transfer from R&D to commercial settings: legal, technical and logistical aspects
- product development cycle for sensing technologies
- challenges in manufacture and commercialization of sensing technologies
- regulatory compliance for product licensure: USA and developing countries

- scientific marketing of sensing technologies used in Global Health
- funding strategies for development of sensing technologies for Global Health

GLOBAL HEALTH II: HIV/AIDS, MALARIA AND TUBERCULOSIS AND MRSA

- noninvasive rapid tests for point-of-care and field settings
- biomarkers for screening, diagnostics and therapeutic monitoring
- globally effective vaccines
- next-generation antimicrobials: biologically-derived MRSA prevention/treatment
- oral microbiome in health and disease
- Saliva-based diagnostics for HIV, Malaria and oral pathogens (viruses, bacteria and fungi)
- systemic diseases associated with HIV/AIDS
- oral cancers and oral opportunistic infections associated with HIV/AIDS and immunosuppression
- rapid tests to detect latent HIV reservoirs

GLOBAL HEALTH III: APPLICATIONS TO MILITARY MEDICINE

- optimization of human performance: sensors, biomarkers, monitoring software
- environmental health: effects of extreme environments (heat, cold, altitude), metabolic stressors, toxins and operational stress
- sensing technologies and biomarkers for monitoring dehydration, heat injury, fatigue, cognitive deficits
- traumatic brain injury (TBI) and post-traumatic stress disorder (PTSD)
- field-expedient tests for pathogen detection
- portable diagnostic systems
- wearable biosensors and physiological monitors
- technologies for Integrated Soldier Sensor System
- telemedicine

GLOBAL HEALTH IV: APPLICATIONS TO SPACEFLIGHT MEDICINE

- sensing technologies and biomarkers for monitoring space radiation exposure, microgravity, decompression sickness, fatigue, cognitive deficits and effects of prolonged bedrest
- undersea habitat as a research analog for space missions
- telemedicine

GLOBAL HEALTH V: APPLICATIONS TO ENVIRONMENTAL MONITORING

- impact of climate change on public health and national security
- chemical and biological sensors for health outcome studies
- biomarkers for emerging disease and zoonotic infections
- satellite-based environmental sensors

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