National Institute of Biomedical Imaging and Bioengineering

IEEE Healthcare Innovation Point-Of-Care Technologies Conference

Final Program

NIH-IEEE Strategic Conference on Healthcare Innovations and Point of Care Technologies for Precision Medicine

9-10 November 2015

NIAID Conference Center, Bethesda, Maryland

Conference Chair

Atam P. Dhawan

Conference Co-Chair

Tiffani Lash

Program Chair

Mary Rodgers

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ASU Arizona State University

November 9, 2015

Dear Participants,

Welcome to the NIH-IEEE Strategic Conference on Healthcare Innovations and Point-of-Care (POC) Technologies for Precision Medicine. The conference will focus on defining clinical translation needs and addressing challenges on implementing technology innovative solutions to improve global healthcare. This 2 day conference will facilitate stakeholder – clinicians, healthcare providers, industry experts, innovators, government representatives, researchers and students – participation in key sessions. They include clinical needs for precision medicine, enabling technologies for POC, regulatory issues for POC devices, and sustainable global business models to support POC technologies in resource limited environments.

During the conference, stakeholders and technology leaders will have the opportunity to discuss barriers and challenges in the broad delivery of accurate and affordable healthcare. Along with keynote, panel discussion, and breakout sessions addressing clinical needs, enabling technologies, regulatory protocols funding opportunities and business models, a limited number of oral and poster presentations are included in the program. Breakout sessions will lead to strategic planning on future directions to enhance resources and collaborations for clinical POC technologies.

The program booklet includes 1-page extended abstracts of 81 papers to be presented through the oral and poster sessions. Authors of all papers presented at the conference are invited to submit full version of the papers for consideration of publication in the special issue of the open-access IEEE Journal of Translational Engineering in Health and Medicine (JTEHM). Information about and Call for Papers for JTEHM special issue and format guidelines for submission of full papers is available on the website: http://health.embs.org/special-issues/

We appreciate your participation in this strategic conference to discuss technology trends and challenges in healthcare innovations towards preventive, personalized and precision medicine. We hope that you will find the conference discussions and presentations stimulating and exciting.

We urge you to be interactive in the conference including breakout and panel sessions and let us know your comments.

Tiffani Lash
Conference Co-Chair

Atam Dhawan
Conference Co-Chair

REGISTRATION

Registration is located in the Foyer of the NIAID Conference Center, and will be open Monday, 9th November and Tuesday 10th November. Staff will be able to assist you during the following times.

Monday	07:00 – 17:00
Tuesday	07:00 – 15:00

- Attendees must wear their badges at all times to gain access to the conference.

INSTRUCTIONS FOR AUTHORS

POSTER PRESENTATION

Push pins will be provided to attach your posters to your assigned poster board. Please stay with your poster for the entire session.

- All Posters should be set up between 10:00am – 11:00am on both days and removed immediately after the poster session is over

MEALS

Continental Breakfast, Boxed Lunch, and Coffee Breaks will be provided for all Attendees in Room LD10.

CONFERENCE CHAIRS

Tiffani Lash – NIBIB/NIH
Atam P. Dhawan - NJIT

PROGRAM CHAIR

Mary Rodgers – NIBIB/NIH

STEERING COMMITTEE

Tobias Barker – CVS Caremark
Benjamin Crocker – Ambulatory Practice of the Future
Erica Forzani – Arizona State University
Jim Gallarda – Gates Foundation
William Heetderks – NIBIB/NIH
Erin Iturriaga – NHLBI/NIH
Amy Krafft – NIAID/NIH
Christine Kelley – NIBIB/NIH
Jessica Lotito - EMBS
Rishi Mathura – NIBIB/NIH
Paul Pearlman – NCI/NIH
Shannon Silkensen – NCI/NIH
Bernard Weigl – Flow Based Diagnostics, Intellectual Ventures/Global Good
Laura Wolf - EMBS

BISHOW ADHIKARI, PH.D.

Bishow Adhikari is a Program Director in the Division of Cardiovascular Sciences at the National Heart, Lung, and Blood Institute, NIH. He is responsible for administration, planning and oversight of a portfolio of basic and translational research programs in several forms of heart diseases/disorders including heart failure, arrhythmias, cardiotoxicities and various cardiomyopathies. He has organized and contributed to several initiatives, workshops and working groups in these research areas. Prior to NIH, Adhikari conducted basic research work in skeletal and cardiac muscle function, applying biophysical, biochemical, and bioengineering approaches to study the structure, function and regulation of key sarcomeric proteins involved in muscle contraction and force generation.

PATRICK A. ARENSDORF, MSM

Mr. Arensdorf has specialized in the strategic positioning and development of medical technologies and companies for nearly 20 years with a breadth of experience ranging from medical supplies through implantable Class III medical devices and selling to over a dozen medical specialties. Most recently, he was Executive Vice President at Tethys Bioscience, where as a member of the founding management team, he managed the diagnostic company's strategy, corporate development, finance, and administration functions through three venture financings and its initial product launch. Prior to this, Mr. Arensdorf was the CEO of First Medical, a pioneer in point-of-care cardiac diagnostics. He led this venture-backed startup company through its recapitalization, turnaround and acquisition by Sigma-Aldrich and continued at Sigma through product approvals, launch and initial sales growth. Mr. Arensdorf has previously been an interim CFO, general manager and private equity investor in several other diverse industries beginning his career as a strategic consultant and investment banker specializing in medical devices and supplies. He remains active in the creation of new healthcare products and ventures as an angel investor with Life Science Angels, and as a technology innovator, inventor and mentor with the Stanford Biodesign Program. Mr. Arensdorf received his bachelor's degree in Molecular Biology with a certificate in East Asian Studies from Princeton University in Princeton, New Jersey, and his master of science in management from the Stanford Graduate School of Business in Stanford, California where he was a Sloan Fellow.

MICHAEL BATES, M.D

Dr. Bates has been developing molecular diagnostics for Oncology applications since 2004, when he headed up Clinical Research for Oncology at Monogram Biosciences/ViroLogic. That work was preceded by and overlapped with a focus on phenotypic and genotypic anti-HIV drug resistance diagnostics at ViroLogic, and HIV and HCV therapeutics at Roche. Dr. Bates has been developing the pipeline of Oncology applications for the GeneXpert at Cepheid since 2011.

Prior to industry, Dr. Bates trained in Internal Medicine at UCSF, Cardiovascular Diseases at Duke, and Infectious Diseases at the University of Washington, with research training in Tumor Immunology at the Dana-Farber Cancer Institute in Boston, Molecular Genetics at the University of Texas Southwestern Medical School in Dallas, and Virology at the Fred Hutchinson Cancer Research Center in Seattle.

CHI ON CHUI, PH.D.

Associate Professor of Electrical Engineering and Bioengineering, and Member of California NanoSystems Institute (CNSI), University of California, Los Angeles (UCLA), CA, USA Co-Founder of Selfa, Inc., Los Angeles, CA, USA

Professor Chui received his B.Eng. degree from Hong Kong University of Science and Technology (HKUST) and his M.S. and Ph.D. degrees from Stanford University. He joined Intel Corporation as a Senior Device Engineer after his Ph.D. in 2004 and also served as a Researcher-in-Residence at UC Berkeley and Stanford. He was also appointed Consulting Assistant Professor at Stanford at the same time. He joined the UCLA faculty in 2007 and is currently an Associate Professor of Electrical Engineering and Bioengineering, and a member of the California NanoSystems Institute. In 2013, he co-founded Selfa, Inc.

The Chui Laboratory at UCLA conducts research on label-free technologies for ultrasensitive and transient biomolecular quantification and cellular phenotyping. One major invention in his laboratory in the past 5 years is the semiconductor electronic label-free assay (SELFA) platform, which is based on a novel amplifying transistor biosensor technology that performs electronic detection and amplification of biomolecular binding events with outstanding sensitivity and specificity. Using SELFA, his laboratory has demonstrated biomarker quantitation in clinical specimens, such as plasma and urine, with 100-1000 times lower limit of detection compared to the gold standards. His laboratory actively collaborates with cardiologists, nephrologists, infectious disease experts, toxicologists, gastroenterologists, neuroscientists and others to further validate and explore potential applications of the SELFA platform. Another recent breakthrough in his laboratory is a very high-throughput single-cell manipulation platform directly operable in physiological media.

Professor Chui has published about 130 peer-reviewed and invited archival journal and conference publications, 6 book chapters, and 9 issued patents. He has reviewed domestic and overseas research grant applications and scientific paper manuscripts, served as a technical expert witness on patent infringement litigation, and consulted for domestic and overseas medical device companies and semiconductor foundries. He has received several recognitions for his work including 3 best paper awards and 3 poster prizes. Most notably, he is the 1st recipient of the IEEE Electron Device Society Early Career Award in 2009, which is regarded as one of the Society's highest honors. He also received the Chinese American Faculty Association (CAFA) Robert T. Poe Faculty Development Award, the UCLA Faculty Career Development Award, and the UCSD von Liebig Entrepreneurism Center Regional Health Care Innovation Challenge Award. Most importantly, he received the UCLA Henry Samueli School of Engineering and Applied Science Northrop Grumman Excellence in Teaching Award.

J.BENJAMIN CROCKER, MD

J. Benjamin Crocker, MD is a general internist and serves as **Medical Director** of the Ambulatory Practice of the Future (APF).Ben attended Tufts University (B.S. Chemical Engineering 1992) and the University of Massachusetts Medical School (M.D. 1997). He completed his residency training in internal medicine at Boston Medical Center, where he also served as chief resident. In 2001, he joined Internal Medicine Associates (IMA), the largest primary care teaching practice at MGH, where he served on the clinical practice committee for 9 years. While there he led a care team in one of the first team redesign and development projects to improve patient access to care and reduce Emergency Room admissions.

Ben was intimately involved in the hiring and development of the APF team, building and implementing the practice's strategic plan of operations, developing practice guidelines and policies, expanding urgent care services, and designing team building activities and team development processes. He was a co-founder and developer of APF's Innovation Learning Program to bring collaborators together, in the clinical environment, to build solutions to primary care challenges.

Ben has received local fellowship awards at MGH and CIMIT (Center for Integration of Medicine and Innovative Technology) to investigate primary care-based post discharge telephone follow up care, point of care laboratory testing, and point of care population management platforms for chronic disease management.

ATAM P DHAWAN, PH.D.

Atam P. Dhawan obtained his bachelor's and master's degrees from the Indian Institute of Technology, Roorkee, and Ph.D. from the University of Manitoba, all in Electrical Engineering. From 1985-2000, he held faculty positions in Electrical & Computer Engineering, and Radiology departments at University of Houston, University of Cincinnati, University of Texas, University of Texas Medical Center (Dallas) and University of Toledo. In July 2000, he joined NJIT where he served as the Chair of the Department of Electrical and Computer Engineering for nine years. Currently he is Distinguished Professor of Electrical & Computer Engineering and Executive Director of Undergraduate Research and Innovation. He is also an Adjunct Professor of Radiology at the University of Medicine and Dentistry of New Jersey.

Dr. Dhawan is a Fellow of the IEEE for his contributions in medical imaging and image analysis. He has published more than 215 research articles in refereed journals, books, and conference proceedings. His current research interests are medical imaging, multi-modality medical image analysis, adaptive learning and pattern recognition. His research work has been funded by NIH, NSF and several industries.

Dr. Dhawan is a recipient of Martin Epstein Award (1984), National Institutes of Health FIRST Award (1988), Sigma-Xi Young Investigator Award (1992), University of Cincinnati Faculty Achievement Award (1994) and the prestigious IEEE Engineering in Medicine and Biology Early Career Achievement Award (1995) and University of Toledo Doermann Distinguished Lecture Award (1999). He served as the Senior Editor of IEEE Transactions of Biomedical Engineering and Editor-In-Charge of IEEE TBME Letters (2007-2012). He is Co-Editor-In-Chief of the new open-access IEEE Journal of Translational Engineering in Health and Medicine.

He has served on many IEEE EMBS professional committees and has delivered several Workshops on Intelligent Biomedical Image Analysis in IEEE EMBS International Conferences (1996, 1997, 2000, 2003). He served as the Chair of the "Emerging Technologies Committee" of the IEEE-EMB Society from 1997-99, and 2009-11. He is also a member of the IEEE Life Sciences Committee. He was the Chair of the "New Frontiers in Biomedical Engineering" Symposium at the World Congress 2000 on Medical Physics and Biomedical Engineering. He was the Conference Chair of the IEEE 28th International Conference of Engineering in Medicine and Biology Society, New York in 2006. He served as the Conference Chair of IEEE International Conference on Point-of-Care Healthcare Technologies to be held in Bangalore India from January 16 to January 18, 2013. He serves on the Steering committee on IEEE Transactions on Medical Imaging.

Dr. Dhawan has chaired numerous NIH special emphasis and review panels including the NIH Chartered Study Section on Biomedical Computing and Health Informatics (2008-11). He is listed in Who's Who in the World, Who's Who in America, Who's Who in Engineering, and Who's Who Among America's Teachers.

KAREN W. DYER, MT (ASCP) DLM

Karen Dyer is the Director of the CLIA program at the Centers for Medicare & Medicaid Services (CMS), Baltimore, Maryland. She is a registered Medical Technologist with certification in Laboratory Management. She received a BA degree from the University of Maryland Baltimore County in Health Science and Policy. She is the CLIA subject matter expert on Electronic Health Records and the Patient Access regulation. Prior to joining the CLIA program at CMS, Karen was employed by the Johns Hopkins Hospital Medical Laboratories, as an Affiliate Laboratory Supervisor and Point of Care Testing Coordinator.

DAVID ERICKSON, PH.D.

Prof. David Erickson is a Professor in the Sibley School of Mechanical and Aerospace Engineering at Cornell University. His research focuses on: mobile and global health technology, microfluidics, photonics, and nanotechnology. Prior to joining the faculty, he was a postdoctoral scholar at the California Institute of Technology and he received his Ph.D. degree from the University of Toronto. Research in the Erickson lab is primarily funded through grants from the NSF, NIH, ARPA-E, ONR, DOE and DARPA. Prof. Erickson has helped to co-founded a number of companies commercializing smartphone enabled medical diagnostics, global health technologies, or high-throughput nanoparticle analysis instrumentation. In recent years, Dr. Erickson has received the DARPA-MTO Young Faculty Award, the NSF CAREER Award, and the Department of Energy Early Career Award. In 2011 he was awarded the Presidential Early Career Award for Scientist and Engineers (PECASE) by President Obama. For his efforts in co-founding the field of optofluidics, Erickson has been named a fellow of the Optical Society of America (OSA) and the American Society of Mechanical Engineers(ASME).

ERICA FORZANI, PH.D.

Dr. Erica Forzani is Assistant Professor of in the School for Engineering of Matter, Transport, and Energy at Arizona State University (SEMTE), Deputy Director of ASU's Center for Bioelectronics & Biosensors (CBB) at The Biodesign Institute, and Research Associate at Mayo Clinic, Arizona. Her research interests are the development of novel hybrid chemical and biosensors and the integration of sensors into wireless, non-invasive and inexpensive sensor devices. She is focused on health applications, and environmental health and safety. Currently, she has over 50 peer-reviewed publications, 11 patents and patent applications and 3 transferred intellectual properties. With a background in Clinical Chemistry, Chemistry, Engineering, and a passion in Lifestyle Behavioral Sciences, Erica directs her research, professional, and personal goals to bring new inspired-use technologies to real-world applications.

JIM GALLARDA, PH.D.

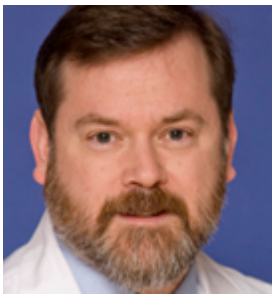
Dr. GALLARDA brings a strong background in both science and industry with more than 20 years in developing in vitro diagnostics at Abbott Laboratories, Roche Molecular Systems, and Novartis Pharmaceuticals. He has extensive experience in blood screening infectious disease assay development and has overseen multiple teams developing immunodiagnostic & PCR systems for HIV-1, HIV-2, HCV, HBV and WNV. Most recently, while at Novartis, Dr. Gallarda led a companion diagnostics program for assays used to assess the effectiveness of tyrosine kinase inhibitors for treating patients with CML. He now serves as a Senior Program Officer, Diagnostics with the Bill & Melinda Gates Foundation in Seattle.

ROBERT GARRY PH.D.

Robert F. Garry PhD is Professor of Microbiology and Immunology and Assistant Dean for Graduate Studies in Biomedical Sciences at Tulane University School of Medicine. Dr. Garry was involved in collaborative studies that lead to the determination that entry proteins of enveloped viruses form at least three distinct structural classes. This work has been the foundation for the development of novel antiviral peptide drugs. He is currently managing the Viral Hemorrhagic Fever Consortium (VHFC), a public -private partnership that is developing countermeasures against Lassa virus, Ebola virus and other severe pathogens. The VHFC developed point-of-contact, point-of-care and confirmatory diagnostics for Lassa fever to commercial standards. The VHFC leveraged these advances to develop high sensitivity and specificity immunoassays for Ebola virus and other filoviruses, including an Ebola Rapid Diagnostic Test (Ebola RDT) that can be used in austere settings. RDTs using VHFC critical reagents have been the only immunodiagnostics to obtain FDA Emergency Use Authorization and WHO Listing for us iN the current West African Ebola outbreak.

CHARLOTTE A. GAYDOS, DRPH, MPH, MS

Dr. Charlotte A. Gaydos is a Professor in the Division of Infectious Diseases, Johns Hopkins University, Director of the North American Branch for the International Union Against Sexually Transmitted Infections (IUSTI), and member of the Johns Hopkins University Center for Global Health. She received her B.S. in medical technology and her M.S. in medical microbiology from West Virginia University. Her MPH and DrPH in immunology and infectious diseases were received from Johns Hopkins University School of Public Health. She is the Director of the Johns Hopkins University International STI, Respiratory Diseases, and Biothreat Research Laboratory. She has 45 years laboratory expertise in microbiology, has authored 27 book chapters, 400 research articles, and >600 abstracts/oral presentations. Dr. Gaydos has conducted multiple FDA clinical trials for new diagnostics for STIs and respiratory pathogens. She has extensive laboratory experience in the development and evaluation of molecular amplification testing techniques for respiratory, urogenital and biothreat specimens, as well as epidemiology expertise. She performed sentinel STI studies in schools and military male and female recruits. Her Internet recruitment of home-collected samples for STI screening has been an effective out-reach program. Her CAP/CLIA-compliant laboratory is a Core Diagnostic/Reference Laboratory for international studies of STIs, respiratory diseases, and trachoma. She serves on the editorial board of the STD journal and executive committee of the American STD Association. She was a co-investigator for 10 years for the Mid-Atlantic Regional Center of Excellence (MARCE) for emerging infectious diseases. She is P.I. of an NIH Center grant to develop point-of-care tests for STIs, as well as a co-investigator for a new NIH Center of Excellence in Influenza Research and Surveillance.

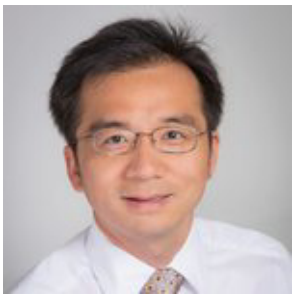


JULIAN GOLDMAN, M.D.

Julian M. Goldman, MD is an anesthesiologist at the Massachusetts General Hospital, Medical Director of Biomedical Engineering for Partners HealthCare System, and the Director of the Program on Medical Device Interoperability (MD PnP) – a multi-institutional program founded in 2004 to improve patient safety and Health IT innovation. Dr. Goldman completed his anesthesiology residency and biomedical informatics (medical device informatics) fellowship at the University of Colorado, and served as a principal anesthesiologist in the CIMIT-MGH Operating Room of the Future, a Visiting Scholar in the US FDA Medical Device Fellowship Program as well as VP of Medical Affairs for Masimo Corporation. He has served on advisory committees for the Centers for Disease Control and Prevention (CDC), National Science Foundation (NSF), and Federal Communications Commission (FCC). Dr. Goldman Chairs the international and US standardization committee for anesthesia and respiratory equipment (ISO TC 121 and ASTM F29) and the AAMI Interoperability Working Group, and convened the IEC-ISO Joint Working Group on Physiologic Controlled Loop Control Systems. His awards include the AAMI Foundation/Institute for Technology in Health Care Clinical Application Award, the International Council on Systems Engineering Pioneer Award, and the American College of Clinical Engineering award for Professional Achievement in Technology. Recently Dr. Goldman led the establishment of the non-profit ICE Alliance, to enable integrated clinical environments that are safe, secure, and interoperable.

BILL HEETDERKS, M.D, PH.D.

Dr. William J. Heetderks is the Director of Extramural Science Programs at the National Institute of Biomedical Imaging and Bioengineering (NIBIB), NIH. The extramural program supports approximately 800 research and training grants at universities and research centers throughout the United States in fields of bioengineering and biomedical imaging. Dr. Heetderks received the Ph.D. degree in Bioengineering from The University of Michigan. He received the MD degree from the University of Miami and is certified in Internal Medicine. Before joining NIBIB he was at the National institute of Neurological Disorders and Stroke where he directed the neural prosthesis program.



TONY HUANG, PH.D.

tony Jun Huang is Professor of Engineering Science and Mechanics in the College of Engineering at The Pennsylvania State University. He received his Ph.D. degree in Mechanical and Aerospace Engineering from the University of California, Los Angeles (UCLA) in 2005, and his B.S. and M.S. degrees in Energy and Power Engineering from Xi'an Jiaotong University, Xi'an, China, in 1996 and 1999, respectively. His research interests are in the fields of acoustofluidics, optofluidics, and micro/nano systems for biomedical diagnostics and therapeutics. He has authored/co-authored over 140 peer-reviewed journal publications in these fields. According to the Web of Science, his journal articles have been cited more than 4300 times (h-index: 36). He also has 14 patents and invention disclosures. He is a fellow of American Institute for Medical and Biological Engineering (AIMBE), Institute of Physics (IoP), and Royal Society of Chemistry (RSC). Dr. Huang's work has been recognized with numerous awards and honors including a 2010 National Institutes of Health (NIH) Director's New Innovator Award, a 2011 Penn State Engineering Alumni Society Outstanding Research Award, a 2011 JALA Top Ten Breakthroughs of the Year Award, a 2012 Outstanding Young Manufacturing Engineer Award from the Society for Manufacturing Engineers, a 2013 Faculty Scholar Medal from The Pennsylvania State University, a 2013 JALA Top Ten Breakthroughs of the Year Award, a 2013 American Asthma Foundation (AAF) Scholar Award, and the 2014 IEEE Sensors Council Technical Achievement Award from The Institute of Electrical and Electronics Engineers (IEEE).

ERIN ITURRIAGA, PH.D.

Erin Iturriaga serves as a Program Officer and Clinical Trials Specialist at the National Heart, Lung, and Blood Institute (NHLBI). She leads an RFA called Onsite Tools and Technologies for Heart, Lung, and Blood Clinical Research Point-of-Care and has an interest in technology for home use especially in the aging population. She led a workshop with the Computer Research Association's Computing Community Consortium (CCC) funded by the National Science Foundation on September 10-11, 2014 to discuss the use and development of technologies for assisting older adults and people with chronic diseases to live independently. She brings a strong background in clinical research, including clinical trials management, education, and regulatory responsibilities.

CHARLES JAFFE, M.D, PH.D.

Dr. Jaffe is the Chief Executive Officer of Health Level 7 International (HL7). He completed his medical training at Johns Hopkins and Duke Universities and post-doctoral training at the National Institutes of Health and the Lombardi Cancer Center. He has served in various academic positions in the Departments of Medicine and Pathology, as well as in the School of Engineering.

In the course of more than 30 years, Chuck has held various leadership roles in health information management and technology. Prior to joining HL7, he was the Senior Global Strategist for the Intel Digital Health Group. In addition, he lead a national research consortium, found a consultancy for research informatics, served as the global head of Medical Informatics at AstraZeneca , and was the Vice President of Life Sciences at SAIC.

Currently, he is a Professor in the Department of Medicine at the University of California at San Diego. He has been the contributing editor for several journals and has published on a range of subjects, including clinical management, informatics deployment, and healthcare policy. In addition, he has served on leading Boards of Directors and collaborated with major charitable organizations, including the Rockefeller, Gates, and Robert Wood Johnson Foundations.

BRIAN G. JAMIESON, PH.D.

Brian G. Jamieson, Ph.D. is a co-founder and Chief Technology Officer of Diagnostic Biochips, Inc. (DBC), a Baltimore-area firm that is developing a technology for continuous, real-time monitoring of biomolecules in the blood and several different tissue preps. DBC's technology relies on two separate threads: the development of highly compact micro-sensors that are integrated into IV needles and other devices, and the ability to develop and functionalize biosensors with a highly selective and custom aptamer bio-sensing element. Jamieson is a 21-year veteran of engineering R&D, biomedical device and instrument development projects. The DBC technology platform builds on his doctoral research on implantable biosensors. Brian was a NASA civil servant from 2002-2006, where he worked on analytical instrument miniaturization for unmanned space missions. Brian left NASA in 2006 to found SB Microsystems, a successful product development and consulting firm, from which DBC was spun out in 2012. Brian serves on the Scientific Advisory Board of the Maryland Science Center, as an advisor to the graduate Industrial Leadership in Physics (ILP) program at Georgetown University, and on review panels for NASA, the NIH, and the International Technology Roadmap for Semiconductors. Brian earned a BS in Physics from Yale in 1991, and Electrical Engineering (MS, 2000) and Biomedical Engineering (Ph.D., 2003) degrees from the University of Michigan. He is also a 1996 Olympic silver medalist in rowing.

KATHERINE KIM, PH.D., MPH, MBA

Katherine Kim is an assistant professor of healthcare innovation and technology, at the University of California Davis, Betty Irene Moore School of Nursing. Her research focuses on the use of information technology to improve community health, care coordination, and clinical research. Her current clinical interests span cancer, obesity, heart disease, and other chronic conditions. Kim leads a research project exploring the use of a social networking platform for chemotherapy care coordination. She is also one of the PIs for a distributed clinical data research network that involves University of California, the national Veteran's Administration, USC, RAND, and community clinics covering 21 million patients, funded by PCORI. Kim serves on advisory boards and task forces for iDASH–NIH National Center for Biomedical Computing, the federal Office of the National Coordinator for Health Information Technology, and the Patient Centered Outcomes Research Institute. She received her PhD from UC Davis, MPH and MBA from UC Berkeley, and Bachelor of Arts in Biology from Harvard College.

TIFFANI BAILEY LASH, PH.D.

Dr. Tiffani Bailey Lash serves as a Program Director/Health Scientist Administrator at the National Institutes of Health. She manages the research portfolios for the Biosensors, Platform Technologies, and mHealth programs at the National Institute of Biomedical Imaging and Bioengineering (NIBIB). Dr. Lash is also the Program Director for the NIBIB Point of Care Technologies Research Network, consisting of three centers charged with developing point-of-care diagnostic technologies through collaborative efforts that merge scientific and technological capabilities with clinical need.

Prior to her current position, Dr. Lash worked within the NIH's science policy administration. During that time, she worked at the National Institute of General Medical Sciences and National Heart Lung and Blood Institute, as well as the NIH Office of the Director. Dr. Lash has been selected as a science policy fellow for both the American Association for the Advancement of Science (AAAS) and the National Academy of Engineering. She also has a background in small business innovation and intellectual property. Dr. Lash earned her Ph.D. in Physical Chemistry from North Carolina State University via a collaboration between the Departments of Chemistry and Chemical and Biomolecular Engineering. Her interdisciplinary research interests include microfluidics, biopolymers with controlled molecular architecture, and biosensor technologies.

Dr. Lash serves as the Co-Chair for the 2015 NIH-IEEE Strategic Conference on Healthcare Innovations and Point-of-Care (POC) Technologies for Precision Medicine.

YOHAN LEE, PH.D.

Dr. Lee has over 18 years of informatics expertise ranging from biomedical research in genomic cancer research, clinical trials, molecular pharmacology, psychiatric genetics, and bioinformatics. He has specialized technical expertise in data governance, big data visualization, enterprise BI analytics and using large-scale data warehouses.

His biomedical research experience focuses on profiling variants involved in disease classification, progression and prediction which aid in supporting clinical interpretation for Next Generation Sequencing applications.

Most recently, Dr. Lee leads strategy and technology selection with big pharma, mobile Health leaders, academic medical centers, providers, and payors. Specialties include data integration through advanced annotation, analysis, visualization and reporting. He has recently delivered these capabilities for federal and commercial health and life science organizations. His external activities include serving as an NIH grant reviewer for large multi-site initiatives. He recently published a chapter in the "2015 Health law and Compliance Update" distributed by Wolters Kluwer.

COURTNEY H. LIAS, PH.D.

Courtney H. Lias, Ph.D. – Dr. Lias studied at the Johns Hopkins University School of Medicine where she received her Ph.D. in Biochemistry, Cellular, and Molecular Biology. After leaving Johns Hopkins in 2003, she joined the FDA's Center for Devices and Radiological Health in the Office of In Vitro Diagnostics and Radiological Health. Currently, as the Director of the Division of Chemistry and Toxicology devices, she is involved in many diverse activities including premarket clearance/approval, manufacturer assistance, post market regulatory compliance actions, and the development of FDA Guidance for diagnostic devices. In addition, she has been an ongoing participant in multi-center FDA working groups focused on the developing fields of cardiovascular disease diagnosis, diabetes diagnosis/monitoring, clinical genetic testing, and biomarker development/validation.

SHARI LING, M.D

Dr. Shari M. Ling is the Deputy Chief Medical Officer for the Centers for Medicare and Medicaid Services (CMS), and Medical Officer in the Center for Clinical Standards and Quality (CCSQ). Dr. Ling is a Geriatrician and Rheumatologist who received her medical training at Georgetown University School of Medicine and graduated as a member of the Alpha Omega Alpha Honor Society. Dr. Ling received her clinical training in Internal Medicine and Rheumatology at Georgetown University Medical Center, and completed Geriatric Medicine training at Johns Hopkins University. Prior to joining the National Institute on Aging as a Clinician to study human aging and age associated chronic diseases with attention to musculoskeletal conditions and morbidity function for 8 years, she served on faculty at Johns Hopkins School of Medicine. She also served as the Clinical Services Co-director of the Andrus Older Adult Counseling Center. Dr. Ling maintains an affiliation as a part-time faculty member in the Division of Geriatric Medicine and Gerontology at Johns Hopkins University School of Medicine, and as a volunteer faculty member of the Division of Rheumatology, Allergy and Clinical Immunology at the University of Maryland and continues to see patients at the Veterans Administration Medical Center in Baltimore. Dr. Ling's focus is on the achievement of meaningful health outcomes through delivery of high quality person-centered care, with special interests in the care of persons with dementia, multiple chronic conditions, functional limitations, and reducing health disparities.

ONUR MUDANYALI, PH.D.

Onur Mudanyali is the Director of R&D at Holomic LLC, a Los Angeles based company that commercializes advanced photonics-based medical imaging, sensing and diagnostics technologies (www.holomic.com). Prior to this position, he was a research assistant and teaching fellow at UCLA Electrical Engineering Department where he received his PhD degree in 2013. He is the inventor of various technologies including computational lensfree microscopy/nanoscopy techniques and several smartphone-based diagnostics solutions that can address some of the challenges of global health problems. At Holomic, he is responsible for the technology transfer and new product development. Since 2013, he has been leading the design and development of Holomic's first product family in the market, Rapid Diagnostics Solutions, a mobile platform including smartphone based assay readers, assay developer and explorer software suite, and HIPAA-compliant cloud architecture for assay distribution and real-time mapping of diagnostics results.

SHAWN MURPHY, M.D, PH.D.

Dr. Murphy is the Director of Research Computing and Informatics at Partners Healthcare, is an Associate Professor of Neurology at Harvard Medical School, and serves as Associate Director for the Laboratory of Computer Science at the Massachusetts General Hospital. Dr. Murphy developed the Research Patient Data Registry (RPDR) for Partners Healthcare which serves over 5000 investigators performing research using the hospital medical record. Dr. Murphy is the chief architect for the open source *Informatics for Integrating Biology and the Bedside (i2b2)* software platform operating at over 120 hospitals worldwide. The work of i2b2 is focused on strengthening the understanding of the metabolic and genetic underpinnings of complex diseases by developing an informatics framework to integrate data for clinical research from electronic health records.

PAUL PEARLMAN, PH.D.

Dr. Pearlman received his BSEE from the Georgia Institute of Technology. His graduate work took place at Yale University where he earned an MS, MPhil, and PhD, all in Electrical Engineering. He has conducted research in the Georgia Tech Biomedical Engineering Department, Georgia Tech Research Institute, Yale Medical School, and University Medical Center Utrecht. His focus was biomedical image analysis, with emphasis on development, evaluation, and application of pathology-driven/clinically-applicable computer aided diagnosis and treatment planning techniques with additional focus on low-cost modalities. After years in basic and translational research, Dr. Pearlman transitioned to the fields of science policy and diplomacy, obtaining a prestigious AAAS Science and Technology Policy Fellowship. He is currently a Science Policy Advisor at the United States National Cancer Institute's Center for Global Health, where he coordinates global cancer research funding opportunities and engages in cancer control planning activities in the Asia and Pacific regions.

RODERIC PETTIGREW, PH.D., M.D

Roderic I. Pettigrew, Ph.D., M.D., is the first Director of the National Institute of Biomedical Imaging and Bioengineering (NIBIB) at the NIH. In 2013, Dr. Pettigrew was also appointed to initiate a new NIH position as the Acting Chief Officer for Scientific Workforce Diversity. This position was established by the NIH Director for the coordination and oversight of all NIH programs and activities designed to address the unique diversity and inclusion challenges of the biomedical research workforce.

Prior to his appointment at the NIH, Dr. Pettigrew was Professor of Radiology, Medicine (Cardiology) at Emory University and Bioengineering at the Georgia Institute of Technology and Director of the Emory Center for MR Research, Emory University School of Medicine, Atlanta, Georgia. He is known internationally for his pioneering work at Emory University involving four-dimensional imaging of the cardiovascular system using magnetic resonance (MRI). His current research focuses on integrated imaging and predictive biomechanical modeling of coronary atherosclerotic disease.

Early on at the NIBIB he jointly led a national effort with Howard Hughes Medical Institute to create new interdisciplinary graduate training programs, and also established the Quantum Projects program to achieve "medical moon shots" by pursuing high-risk, high-impact projects designed to solve major healthcare problems. Under Dr. Pettigrew's leadership, national collaborative and international initiatives have been issued to develop low cost and point-of-care medical technologies and at present, he leads an effort to reduce CT radiation dose to background levels. He has also recently called for a US-India collaboration to develop unobtrusive technologies for frequent recording of blood pressure to address the world wide problem of hypertension.

Dr. Pettigrew has been elected to membership in two components of the US National Academies: the Institute of Medicine, and the National Academy of Engineering. His awards include Phi Beta Kappa, the Bennie Award, Most Distinguished Alumnus of the University of Miami (1990), Herbert Nickens Award of the ABC, Pritzker Distinguished Achievement Award of the Biomedical Engineering Society, Distinguished Service Award of the National Medical Association, the Pierre Galletti Award of the American Institute of Medical and Biological Engineering, and the Inaugural Gold Medal Award of the Academy of Radiology Research.

WILLIAM (BILL) RILEY, PH.D.

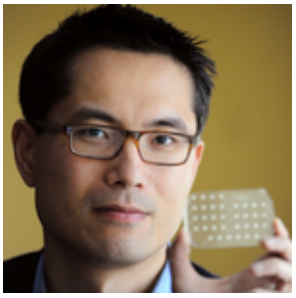
Dr. Riley was appointed Director of the NIH Office of Behavioral and Social Sciences Research, and Associate Director of NIH for Behavioral and Social Sciences in August, 2015. Before his current NIH appointment, he served as a Health Scientist Administrator and Deputy Director in the Division of AIDS and Health Behavior Research at the National Institute of Mental Health (NIMH), a Program Director at the National Heart, Lung, and Blood Institute (NHLBI), and Chief of the Science of Research and Technology Branch (SRTB) in the Division of Cancer Control and Population Sciences (DCCPS) at the National Cancer Institute (NCI). He also serves as a Professorial Lecturer in the School of Public Health at George Washington University.

Dr. Riley completed his Bachelor of Science degree in Psychology and Sociology from James Madison University (1979) and his Master of Science (1981) and Doctorate in Clinical Psychology (1984) from the Florida State University. He completed his Clinical Psychology Internship (1984) at Baylor College of Medicine. Dr. Riley served as an Assistant Professor in the Department of Psychiatry and Health Behavior at the Medical College of Georgia (1984-1989) and as Associate Professor in the Departments of Psychiatry and Psychology at Virginia Commonwealth University (1989-1999). He was Director of Research at PICS, Inc., a private research and development firm in Reston, Virginia from 1999 until 2005 when he joined the National Institutes of Health (NIH).

Dr. Riley's research interests include behavioral assessment, psychosocial health risk factors, tobacco use/cessation, and the application of technology to preventive health behaviors and chronic disease management. He has been interested in applying new technologies, particularly mobile and wireless technologies, in behavioral measurement and intervention, and the potential of these technologies to assess and intervene adaptively, in the context of the behavior, and with broad reach and scalability. His research has included the use of mobile phones and other mobile computer devices to assess and intervene on tobacco use, dietary intake, physical activity, sleep, and medication adherence. He also is interested in the application of engineering and computer science methodologies to the behavioral sciences.

SUNITA SHUKLA, PH.D.

Dr. Sunita Shukla is currently a scientific reviewer in FDA's Office of In Vitro Diagnostics and Radiological Health (OIR), Division of Chemistry and Toxicology Devices (DCTD). Dr. Shukla is responsible for both premarket and postmarket review activities in her Division. Prior to joining FDA in 2011, she was a postdoctoral fellow at the National Center for Advancing Translational Sciences (NCATS) at NIH and her research focused on quantitative high throughput screening and in vitro toxicity testing using a variety of biochemical and cell-based assays in 1,536 well format. Dr. Shukla received her Ph.D in Human Genetics from the University of Chicago and received her Master of Public Health degree and B.A. in English from Saint Louis University.



SAMUEL SIA, PH.D.

Samuel Sia is an Associate Professor in the Department of Biomedical Engineering at Columbia University. His lab focuses on using microfluidics for global health diagnostics and for 3D tissue biology. He obtained his B.S. in Biochemistry at the University of Alberta, Ph.D. in Biophysics at Harvard University, and postdoctoral fellowship in Chemistry at Harvard University. He was a Howard Hughes Medical Institute Predoctoral Fellow, National Science and Engineering Council of Canada Predoctoral Fellow, and Canadian Institute of Health Postdoctoral Fellow. Since 2005, he has been a faculty member of Columbia University's Biomedical Engineering department. His lab's work has been supported by the NIH (NHLBI and NINR), NSF, USAID/Grand Challenges Canada/Gates Foundation, Wallace H. Coulter Foundation, American Heart Association, and World Health Organization. He has been named one of the world's top young innovators by MIT Technology Review. The PI's work has garnered coverage from Nature, Science, JAMA, Washington Post, BBC, NPR, Voice of America, Science News, Popular Science, Chemical and Engineering News, and MIT Technology Review. He is a founder of Claros Diagnostics (a venture capital-backed diagnostics company acquired by Opko Health), Harlem Biospace (a biotech incubator funded by New York City Economic Development Corporation), and Junco Labs.

SHANNON L. SILKENSEN, PH.D.

Dr. Shannon L. Silkensen graduated from Carnegie Mellon University with a dual degree in Chemistry and the Biological Sciences. From there, she went on to Duke University and earned a PhD in Molecular Cancer Biology. She matriculated into the US Department of Health and Human Services-supported Emerging Leaders Program and focused on scientific grant administration. She has served as a Program Director in the National Cancer Institute's (NCI's) Division of Cancer Control and Population Sciences, the NCI's Center for Cancer Training, and the NCI's Office of Cancer Centers. Currently, she is a Senior Health Science Policy Advisory at the NCI's Center for Global Health. There, she is engaged in global, non-communicable disease research and training efforts. Outside of the office, she enjoys spending time with her family and friends at the beach and in the mountains.

PORTIA TAYLOR-SINGH, PH.D.

Portia Taylor-Singh is a Research Scientist at Philips Research North America. Her research focuses in the area of personal health and mobile health technologies. She develops solutions to help the elderly and people with chronic illness manage their health at home. The research bridges traditional hospital-based, physician-focused care to self-managed, preventative, and continuing personal care thus targeting the entirety of the care continuum. Prior to beginning a career in industry research, she served as a Hardy-Apfel IT Fellow at the Social Security Administration where she worked on disability policy and technology research. Portia received her PhD from Carnegie Mellon University in Biomedical Engineering and a Bachelor of Science degree in Computer Science from Grambling State University.

RICHARD M. THAYER, MBA

Mr. Thayer is Managing Partner of Halteres Associates, a bioscience consultancy, and serves as a business, market and strategy advisor in the biotechnology and life sciences sectors. He is also the Chief Executive Officer of The Catalysis Foundation for Health, an organization addressing gaps in global healthcare caused by inefficiencies in disease diagnosis and monitoring. With more than 20 years' experience in Biosciences, Mr. Thayer was previously Vice President and Head of Business Development at Roche Molecular Diagnostics, which included responsibility for strategic planning, and was Vice President, Head of their $260MM Global Blood Screening Business Unit. Prior to joining Roche, he co-founded and served as Chief Financial Officer and a member of the Board of a medical diagnostics company called Praxsys Biosystems. While at Praxsys, Mr. Thayer oversaw finance, corporate and manufacturing operations and was an inventor on two issued patents. He was also Director of the Blood Screening and Infectious Disease Business Unit at Chiron Corporation where he managed product development and manufacturing programs involving over 60 products and 200 employees. Mr. Thayer started his career at Chiron in the DNA sequencing laboratory where he was a member of the hepatitis C virus discovery team. He has an MBA from the Haas School of Business, University of California, Berkeley and a BS in Biochemistry from the University of California, Davis.

FRED TENOVER, PH.D.

Dr. Tenover is Vice President, Scientific Affairs at Cepheid, Consulting Professor of Pathology at Stanford University School of Medicine, and Adjunct Professor of Epidemiology in the Rollins School of Public Health at Emory University. After serving as Associate Chief, Microbiology at the Seattle Veterans Affairs Medical Center, and Associate Professor of Laboratory Medicine at the University of Washington from 1982-1990, he joined the Centers for Disease Control and Prevention in Atlanta for 18 years as Associate Director for Laboratory Science in the Division of Healthcare Quality Promotion and then as Director, Office of Antimicrobial Resistance. He concurrently served as Professor of Epidemiology at the Rollins School of Public Health at Emory University. He joined Cepheid, a molecular diagnostics company, in California in 2008. He is a Diplomate of the American Board of Medical Microbiology and a Fellow of both the American Academy of Microbiology and the Infectious Disease Society of America. He has been an author of over 350 peer-reviewed journal articles and book chapters and has edited 10 books, including Molecular Microbiology: Diagnostic Principles and Practices.

MAY DONGMEI WANG, PH.D.

Dr. May D. Wang is an Associate Professor in the Joint Department of Biomedical Engineering of Georgia Tech and Emory and School of Electrical and Computer Engineering of Georgia Tech. She is a Kavli Fellow, a Georgia Research Alliance Distinguished Cancer Scholar, and a Fellow of The American Institute for Biological and Medical Engineering (AIMBE). She serves as Co-Director of Biomedical Informatics Program of Georgia Tech in Atlanta Clinical and Translational Science Institute (ACTSI), Co-Director of Georgia-Tech Center of Bio-Imaging Mass Spectrometry, and Biocomputing and Bioinformatics Core Director in Emory-Georgia-Tech Cancer Nanotechnology Center. She is also with Emory Winship Institute, Georgia Tech IBB and and IPaT.

Prof. Wang's research is in Biomedical Big Data analytics. She focuses on Biomedical and Health Informatics (BHI) for Personalized and Predictive Health such as high throughput NGS and -omic data mining to identify clinical biomarkers, bionanoinformatics, pathological imaging informatics to assist clinical diagnosis, critical and chronic care health informatics for evidence-based decision making, and predictive systems modeling to improve health outcome. Prof. Wang published 190+ peer-reviewed articles in BHI. She is the corresponding/co-corresponding author for articles published in Journal of American Medical Informatics Association (JAMIA), Journal of Biomedical and Health Informatics (JBHI), IEEE/ACM Transactions on Computational Biology and Bioinformatics (TCBB), Proceedings of The IEEE, IEEE Transactions on Information Technology in Biomedicine (TITB), Proceedings of National Academy of Sciences (PNAS), Annual Review of Medicine, Nature Protocols, Circulation Genetics, Nanomedicine, Annals of BME (ABME), and Trends in Biotechnology etc. She has led RNA-data analysis investigation within FDA-led Sequencing Consortium (SEQC) of MAQC-III.

Currently, Prof. Wang serves as the Senior Editor for IEEE Journal of Biomedical and Health Informatics (J-BHI), an Associate Editor for IEEE Transactions on Biomedical Engineering (TBME), and an Emerging Area Editor for Proceedings of National Academy of Science (PNAS). She also serves as IEEE EMBS Biomedical and Health Informatics Technical Committee Chair. She is an IEEE-EMBS 2014-2015 Distinguished Lecturer, and an EMBS Administrative Committee Officer representing North America. In addition, Dr. Wang has devoted to the training of young generation of data scientists and engineers, and is a recipient of Georgia-Tech's Outstanding Faculty Mentor for Undergraduate Research.

BRUCE WHEELER, PH.D.

Bruce Wheeler recently joined the University of California at San Diego as an Adjunct Professor of Bioengineering with duties principally aimed at supporting the new Systems Bioengineering major at UCSD. He had served for 7 years at the University of Florida, including service as Acting Chair of the Biomedical Engineering Department and co-author of the successful proposal for the BMS BME program. Previously he served for 28 years at the University of Illinois, including as Associate Head of the Electrical and Computer Engineering Department, Chair of the Neuroscience Program and Founding Head of the Department of Bioengineering. He has also served President of the IEEE Engineering in Medicine and Biology Society, the world's largest, oldest, and most global bioengineering society, and Editor in Chief of the IEEE Transactions on Biomedical Engineering, one of the most influential general biomedical engineering journals.

Common to all these positions has been his concern for the preparation of students for careers in the expanding field of biomedical engineering. This has led him to advocate for point-of-care-technologies and biomedical and health informatics as rapidly emerging fields that offer challenges and opportunities for the next generation of engineers who wish to dedicate their careers to improving healthcare, even to a global scale.

Prof. Wheeler's research interests lie in the application of electrical engineering methodologies to basic neuroscience, most notably "brain on chip" technology, with considerable national funding. He is a Fellow of the IEEE, BMES, AAAS, IAMBE, AIMBE and BMES. He is likely the only person to start two undergraduate BME degree programs.

MONDAY, 9TH NOVEMBER 2015

7:30-8:30	Breakfast	LD10
08:30-9:30	Inauguration and Welcome/Overview/Goals **Roderic I. Pettigrew, Ph.D., M.D (NIBIB)** Keynote – Precision Medicine **William Riley, Ph.D. (NCI)**	1D13
09.30-10.30	Panel Session I Clinical Needs Driving Technology Innovation for Precision Medicine **William Heetderks, M.D, Ph.D. (NIBIB)** **Jim Gallarda, Ph.D. (BMGF)** **Michael Bates, M.D (Cepheid)** **Mike Mauro,M.D (MSKCC)** **Erin Zammett Ruddy**	1D13
10.30-10.45	Coffee Break	LD10
10.45-11.45	Panel Session II Enabling Technologies: Point-Of-Care Devices for non-invasive monitoring of wellness, health, and lifestyles **Atam Dhawan, Ph.D. (NJIT)** **Erica Forzani, Ph.D. (ASU)** **Jose Gomez-Marquez, (MIT)** **Onur Mudanyali, Ph.D. (Holomic LLC)** **Portia Taylor-Singh, Ph.D. (Phillips)** **David Erickson, Ph.D. (Cornell University)**	1D13
11.45-13.45	Lunch, Poster Session, POC Technologies Demonstrations	LD20A & B
13.45-14.45	Panel Session III Regulatory Issues for POC Technologies (FDA, CMS, etc) **Katherine Serrano (FDA)** **Sunita Shukla Ph.D. (FDA)** **Shari Ling, M.D (CMS)** **Karen Dyer, MT (ASCP) DLM (CMS)**	1D13

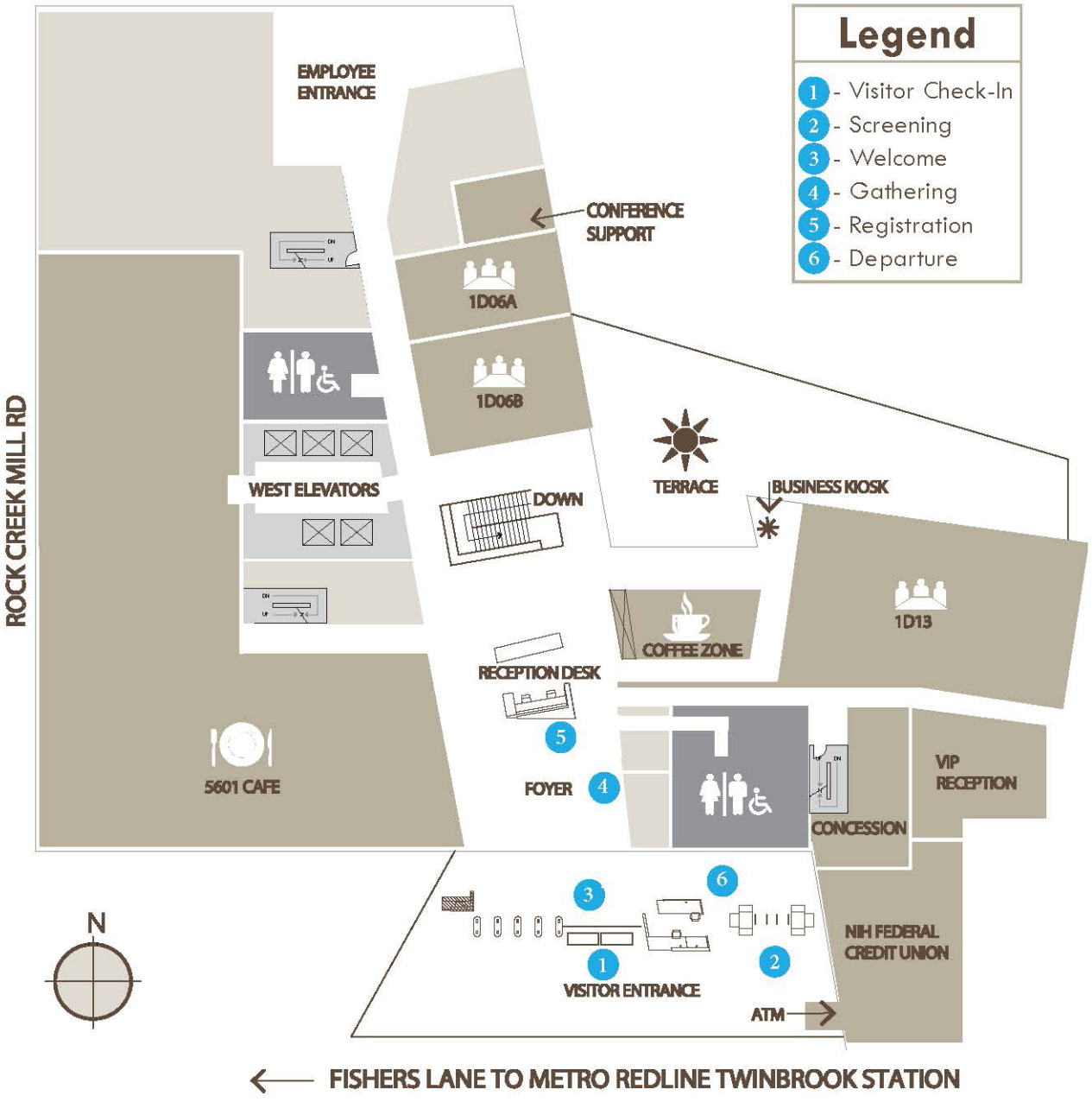
14.45-15.45	Panel Session IV Business Models Supporting a Sustainable Global Point of Care Business: From Resource Limited Settings to Your Local Retail Pharmacy Clinic **Richard Thayer, M.B.A (Halteres Associates, LLC, and Catalysis Foundation for Health)** **Patrick Arensdorf, M.S.M (Halteres Associates, LLC)**	1D13
15.45-16:00	Coffee Break	LD10
16.00-17.00	Federal Funding Opportunities and Resource Showcase **Miguel Ossandon, M.S (NCI)** **Pushpa Tandon, Ph.D. (NCI)**	1D13
18.00-20.00	Welcome Reception	Hilton Rockville (Atrium)

TUESDAY, 10TH NOVEMBER 2015

07.30-8:30	Breakfast	LD10
08.30-10.00	POC Technologies for Clinical and Healthcare Facilities	1D13
08.30-10.00	POC Technologies in Home-Based or Resource Limited	1D06 A & B
08.30-10.00	POC Diagnostics	LD30 A & B
08.30-10.00	Atrial Fibrilation Monitoring	LD40
10:00-10:15	Coffee Break	LD10
10.15-11.45	Low Cost POC Technologies for Cervical Cancer **Paul Pearlman, Ph.D. (NCI)** **Shannon Silkenson, Ph.D. (NCI)** **Ted Trimble, M.D, MPH (NCI)** **Jose Jeronimo, M.D (PATH)** **Rebecca Richards-Kortum, M.D, Ph.D.(Rice University)** **Jean Anderson, M.D (JHU)**	1D13
10.15-11.45	Emerging POC Technologies for Heart, Lung, Blood, and Sleep (HLBS) Disorders **Erin Iturriaga, Ph.D. (NHLBI)** **Bishow Adhikari, Ph.D. (NHLBI)** **Chi On Chui, Ph.D. (University of California)** **Brian Jamieson, Ph.D. (Diagnostic Biochips)** **Tony Jun Huang, Ph.D. (The Pennsylvania State University)**	1D06 A & B

10.15-11.45	Advances in Point-of-Care (POC) Tests for Infectious Diseases **Charlotte Gaydos, DrPH, MPH, MS (JHMI)** **Robert Garry, Ph.D. (Tulane University)** **Samuel Sia, Ph.D. (Columbia University)** **Fred Tenover,Ph.D. (Cepheid)**	LD30 A & B
10.15-11.45	Enabling Interoperable Informatics in Point of Care Systems **Vinay Pai, Ph.D. (NIBIB)** **Shawn Murphy, M.D, Ph.D. (Partners)** **Yohan Lee, Ph.D. (Booz Allen Hamilton)** **Charles Jaffe, M.D, Ph.D. (Health Level 7 International)** **Katherine Kim, Ph.D., M.H.P, M.B.A. (UC Davis)** **Julian Goldman, M.D (Massachusetts General Hospital)**	LD40
11.45 – 13.30	Lunch & Poster Session II	LD20 A & B
13.30-15.15	Breakout Session I: Point-of-Care Technologies in Resource-Limited Settings **Jim Gallarda, Ph.D. (BMGF)**	1D06 A & B
13.30-15.15	Breakout Session II: POC-Clinical Use and Acceptance **J.Benjamin Crocker, MD (AMF)** **Kent Lewandrowski, M.D (MGH Harvard)**	1D13
13.30-15.15	Breakout Session III: Patient Education and Acceptance **Anne Rompalo, M.D, ScM (JHMI)**	LD30 A & B
13.30-15.15	Breakout Session IV: Comprehensive Diagnostics Evaluation and Validation **Bernhard Weigl, Ph.D. (Intellectual Ventures)**	LD40
15.15-15.30	Coffee Break	LD10

15.30-17:00	Reports from Breakouts, Drafting for White Papers, Meeting Wrap Up – Next Steps Panelists: **Tiffani Bailey Lash, Ph.D. (NIBIB)** **Atam Dhawan, Ph.D. (NJIT)** **Mary Rodgers, PT, Ph.D., FAPTA, FASB, FISB (NIBIB)** **Bill Heetderks, M.D, Ph.D. (NIBIB)** **Jim Gallarda, Ph.D. (BMGF)** **J.Benjamin Crocker, MD (AMF)** **Kent Lewandrowski, M.D (MGH Harvard)** **Anne Rompala, M.D (JHMI)** **Bernhard Weig, Ph.D. (Intellectual Ventures)** **May Wang, Ph.D. (GeorgiaTech)** **Bruce Wheeler, Ph.D. (EMBS)** **Ed Livingston, M.D. FACS, AGAF (JAMA)** **Katherine Serrano (FDA)** **Charles Jaffe, M.D Ph.D. (HL7)**	1D13


Legend
1 - Visitor Check-In
2 - Screening
3 - Welcome
4 - Gathering
5 - Registration
6 - Departure
EMPLOYEE ENTRANCE
CONFERENCE SUPPORT
1D06A
1D06B
ROCK CREEK MILL RD
WEST ELEVATORS
DOWN
TERRACE
BUSINESS KIOSK
1D13
COFFEE ZONE
RECEPTION DESK
5601 CAFE
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LOBBY LEVEL

NIH-IEEE 2015 Strategic Conference on Healthcare Innovations and Point-of-Care Technologies for Precision Medicine

National Institute of Biomedical Imaging and Bioengineering

IEEE Healthcare Innovation Point-Of-Care Technologies Conference

Program in Chronological Order

* – Corresponding Author

Monday, November 9, 2015

MoPoster04: 11:45-13:45 LD20A&B
POC Technologies Poster Session I (Poster Session)
Chair: Mathura, Rishi *National Institute of Biomedical Imaging and Bioengineering*
Co-Chair: Rodgers, Mary *University of Maryland School of Medicine*

11:45-13:45 MoPoster04.1
Activity Monitoring for Point-of-Care using Internet-of-Things Sensing + Cloud Analytics
Bodine, Cathy* University of Colorado, Anschutz Medical Campus; Wolf, Marilyn Georgia Institute of Technology

11:45-13:45 MoPoster04.2
A Novel Point-of-Care Intraoperative Vigilance System to Enhance Surgical Quality and Safety
Zenati, Marco* Harvard Medical School; Grumbine, Michael 3si LLC; Pieraccini, Roberto Jibo Inc; Gabany, Jennifer Veterans Affairs Boston Healthcare System; Quin, Jacquelyn Veterans Affairs Boston Healthcare System; Haime, Miguel Veterans Affairs Boston Healthcare System; Goldman, Julian Massachusetts General Hospital, CIMIT, Partners HealthCare

11:45-13:45 MoPoster04.3
Development of an Adaptive Morphological Filter for Removal of Baseline Wanders in Electrocardiogram
Yamauchi, Tsuyoshi* Graduate School of Biomedical Engineering, Tohoku University; Abe, Makoto Tohoku University; Sugita, Norihiro Tohoku University; Yoshizawa, Makoto Tohoku University

11:45-13:45 MoPoster04.4
Personalized Medicine with Individualized Dosing and Precision Printing
Giridhar, Arun *Purdue University*; DeLaurentis, Poching *Purdue University*; Icten, Elcin *Purdue University*; Taylor, Lynne *Purdue University*; Reklaitis, Gintaras V.* *Purdue University*

11:45-13:45 MoPoster04.5
Interoperability and Reliability of Medical Devices – Issues with Smart Infusion Pump Update Process
DeLaurentis, Poching* Purdue University;
Bitan, Yuval Ben-Gurion University of the Negev

11:45-13:45 MoPoster04.6
Point-of-Care Technology Models for the Emergency Department
Camorlinga, Sergio* University of Winnipeg; Ramganesh, Ajay University of Winnipeg; Henry, Christopher J. University of Winnipeg; Camorlinga, Paola University of British Columbia; Brahmbhatt, Parth University of Winnipeg

11:45-13:45 MoPoster04.7
Improving Assay Detection Limit via a Smart Reagent System
Srinivasan, Selvi University of Washington; Nehilla, Barrett University of Washington; Hil, John University of Washington; Andrews, Ian University of Washington; Lutz, Barry University of Washington; Stayton, Patrick University of Washington; Lai, James* University of Washington

11:45-13:45 MoPoster04.8
Evaluation of a Wheelchair Roller Platform for Home and Community Propulsion Training
Rammer, Jacob* Marquette University; Cohen, Tamara L. Marquette University; Harris, Gerald Marquette University

11:45-13:45 MoPoster04.9
Markerless Upper Extremity Technology for Functional Outcomes Assessment in a Pediatric Community Therapy Setting
Rammer, Jacob* Marquette University; Zarb, Rakel Medical College of Wisconsin; Rana, Puneet Medical College of Wisconsin; Boerigter, Rebecca Marquette University; Osborn, Christy Bay Cliff Health Camp; Daley, Roger Medical College of Wisconsin; Harris, Gerald Marquette University

11:45-13:45 MoPoster04.10
Point of Care Mobile based Game for Neurodevelopmental Assessment of Infants and Children in Resource-Limited Settings
Pemba, Dhonam* University of California, Irvine; Azartash, Kaveh Kadho Inc.; Wais, Tameena University of California, Irvine;
Jiang, Jingjing Kadho Inc.

11:45-13:45 MoPoster04.11
Reconfigurable Architecture for Wearable Sensor Network
Mahajan, Ruhi* University of Memphis; Morshed, Bashir The University of Memphis

11:45-13:45 MoPoster04.12
Flexible and Disposable Rwaps Printed Sensors on Paper Substrate
Morshed, Bashir* The University of Memphis

11:45-13:45 MoPoster04.13
A Sonographic Approach to Remote Maternal-Fetal Monitoring
Kazantsev, Alexander* Institute for Biological Instrumentation of Russian Academy of S; Ponomareva, Julia Moscow State University of Medicine and Dentistry; Chatskis, Elena Road Clinical Hospital at the Chita-2 Station of Russian Railway

11:45-13:45 MoPoster04.14
Functional Glove for Pediatric Therapy of Hemiplegia
Khuon, Lunal* Drexel University; Genis, Vladimir Drexel University; Carr, Eric Drexel University; Rosen, Warren Drexel University

11:45-13:45 MoPoster04.15
"More Than Just Accuracy": A Novel Method to Incorporate Multiple Test Attributes in Evaluating Point of Care Tests
Thompson, Matthew* University of Washington;
Weigl, Bernhard PATH -Program for Appropriate Technology in Health;
FItzpatrick, Annette University of Washington;
Ide, Nicole University of Washington

11:45-13:45 MoPoster04.16
Better Measurements for Better Medicine: The N=1 Approach
DeLaurentis, Poching* *Purdue University*; Kissinger, Peter *Purdue University*; Kissinger, Candice *Purdue University*;
Pekny, Joseph *Purdue University*

11:45-13:45 MoPoster04.17
Automated Age Related Macular Degeneration Diagnostics via Pre-Trained Deep Learning
Burlina, Philippe* *Johns Hopkins University*; Freund, David *JHU/APL*; Kankanahalli, Srihari *Johns Hopkins University*; Neil, Joshi *Johns Hopkins University*; Wolfson, Yulia *Johns Hopkins University*; Bressler, Neil *JHU*

11:45-13:45 MoPoster04.18
Beyond Regulations for Mobile Apps: A Patient-Oriented Solution for Reliably Selecting Mhealth Applications
Pinciroli, Francesco* Politecnico di Milano; Marceglia, Sara Università degli Studi di Trieste

11:45-13:45 MoPoster04.19
Point-of-Care Therapeutic Drug Monitoring Kit using Nanoimprint Lithography-Based Flexible Two-Dimensional Photonic Crystals
Yamada, Kenji* Osaka university; Jeong, Hieyong Osaka University; Kido, Michiko Osaka University; Ohno, Yuko Osaka University Graduate School of Medicine; Yoshimoto, Kayo Osaka City University; Yagi, Masakazu Osaka University

11:45-13:45 MoPoster04.20
Mobile Technology for Home-Based Gait Monitoring
Bennett, Christopher* University of Miami; Agrawal, Vibhor University of Miami; Lucarevic, Jennifer University of Miami; Allseits, Eric University of Miami; Gaunaurd, Ignacio University of Miami, Miller School of Medicine, Department of Ph

11:45-13:45 MoPoster04.21
Asthma Academy: Developing Educational Technology to Improve Asthma Medication Adherence Intervention Efficiency
Nair, Aiswaria Georgia Institute of Technology; Freedle, Karen Children's Healthcare of Atlanta, Emory University; Cheng, Chihwen Georgia Institute of Technology; Wang, May D.* Georgia Tech and Emory University

11:45-13:45 MoPoster04.22
Image Analysis of Blood Slides for Automatic Malaria Diagnosis
Poostchi, Mahdieh* University of Missouri-Columbia; Ersoy, Ilker University of Missouri - Columbia; Bansal, Abhisheka National Institute of Allergy and Infectious Diseases; Palaniappan, Kannappan University of Missouri-Columbia; Antani, Sameer National Library of Medicine; Jaeger, Stefan National Institutes of Health; Thoma, George National Library of Medicine, NIH

11:45-13:45 MoPoster04.23
A Systematic, Multiscale and Multi-Factorial Modelling Approach to Understanding Hydrocephalus
Vardakis, John* University College London; Chou, Dean University of Oxford; Guo, Liwei University College London; Tully, Brett First Light Fusion Ltd.; Ventikos, Yiannis University College London

11:45-13:45 MoPoster04.24
Operational Health Information Exchange Platform
Hsu, Kang-Yu *Purdue University*; DeLaurentis, Poching *Purdue University*; Adibuzzaman, Mohammad* *Purdue University*; Zink, Rich *Purdue University*; Yih, Yuehwern *Purdue University*

11:45-13:45 MoPoster04.25
Prediction of Cardiac ICU Length of Stay after Infant Cardiac Surgery Using Exome Sequencing Data
Wu, Po-Yen Georgia Institute of Technology; Phan, John H. Georgia Institute of Technology; Wang, May D.* Georgia Tech and Emory University

11:45-13:45 MoPoster04.26
A Comprehensive Approach for Evidence-Based Medical Device Alarm Management
Adibuzzaman, Mohammad* *Purdue University*; Haque, Munirul *Purdue University*; Zink, Rich *Purdue University*

11:45-13:45 MoPoster04.27
From Services to Sensors? An Alternative Vision for Research in Home-Based Point-of-Care Solutions for Chronic Conditions
Arvind, D K* University of Edinburgh

11:45-13:45 MoPoster04.28
Sensing System for Personalized Asthma Trigger Identification and Management
Raharjo, Inez Georgia Institute of Technology; Venugopalan, Janani Georgia Institute of Technology; Wang, May D.* Georgia Tech and Emory University

11:45-13:45 MoPoster04.29
Using Mobile-Based Technology to Detect Arrythmias in Rural India
Soni, Apurv University of Massachusetts Medical School; Handorf, Anna University of Massachusetts Medical School; Earon, Allison University of Massachusetts Medical School; Fahey, Nisha Des Moines University; Allison, Jeroan University of Massachusetts Medical School; Chon, Ki University of Connecticut; Napolitano, Craig University of Massachusetts Medical School; Chin, Michael University of Massachusetts Medical School; Nimbalkar, Somashekhar Pramukhswami Medical College; Thanvi, Sunil Pramukhswami Medical College; McManus, David* University of Massachusetts Medical Center

11:45-13:45 MoPoster04.30
Optical Sensor and Nanowire Sensor Arrays on Paper for Biomedical Sensing and Diagnostics
Chen, Yu *Tufts University*; Mostafalu, Pooria *Tufts University*; Sonkusale, Sameer* *Tufts University*

11:45-13:45 MoPoster04.31
StethAid: Automated Point-of-Care Identification of Innocent Still's Murmur in Children
Shekhar, Raj* Children's National Health System; Kang, Sukryool Children's National Medical Center; McConnaughey, James Children's National Health System; Doroshow, Robin Children's National Health System

11:45-13:45 MoPoster04.32
Ovarian Cancer Diagnosis using Micro Biochip
Nunna, Bharath Babu New Jersey Institute of Technology; Shiqiang, Zhuang New Jersey Institute of Technology;
Ivette, Malave New Jersey Institute of Technology;
Lee, Eon Soo* New Jersey Institute of Technology

11:45-13:45 MoPoster04.33
Electrical Imaging of Patients with Cystic Fibrosis
Mueller, Jennifer* Colorado State University; Mellenthin, Michelle Colorado State University; Muller, Peter Colorado State University; Deterding, Robin Children's Hospital of Colorado; Sagel, Scott Children's Hospital of Colorado

Tuesday, November 10, 2015

TuAT1: 08:30-10:00 1D13
POC Technologies for Clinical and Healthcare Facilities (Oral Session)
Chair: Tridandapani, Srini *Emory University*
Co-Chair: Schachter, Steven *Beth Israel Deaconess Medical Center, Harvard Medical School*

08:30-08:45 TuAT1.1
Which Point of Care Tests are Needed in Family Medicine Settings?
Thompson, Matthew* University of Washington; Hardy, Victoria University of Washington; Hornecker, Jaime University of Wyoming; Alto, William Swedish Family Medicine; Linares, Adriana Family Medicine of Southwest Washington; Robitaille, Beth University of Wyoming; Keppel, Gina University of Washington; Baldwin, Laura-Mae University of Washington

08:45-09:00 TuAT1.2
Valid Point of Care IT for Improved Decision making Precision
Nemeth, C.* Applied Research Associates; Pamplin, Jeremy U.S. Army Institute for Surgical Research; Blomberg, Josh Applied Research Associates; Argenta, Christopher Applied Research Associates; Serio-Melvin, Maria U.S. Army Institute of Surgical Research; Salinas, Jose U.S. Army Institute of Surgical Research

09:00-09:15 TuAT1.3
A Cascaded Regression Approach for Precision Medication Dosing
Ghassemi, Mohammad* Massachusetts Institute of Technology; Mark, Roger Massachusetts Institute of Technology; Nemati, Shamim Harvard School of Engineering and Applied Sciences

09:15-09:30 TuAT1.4
Point of Care Outcomes Assessment using Mobile Motion Analysis Technology
Boerigter, Rebecca* Marquette University; Rammer, Jacob Marquette University; Teich, Meghan Medical College of Wisconsin; Murphy, Michael Stritch School of Medicine; Osborn, Christy Bay Cliff Health Camp; Harris, Gerald Marquette University

09:30-09:45 TuAT1.5
Precision Medicine in Point-of-Care Management of Surgical Complications
Sun, Zhifei* *Duke University*; Futoma, Joseph *Duke University*; Sendak, Mark *Duke University*; Lorenzi, Elizabeth *Duke University*; Brown, Stephanie *Duke University*; Huang, Ouwen *Duke University*; Heller, Katherine *Duke University*; Thacker, Julie *Duke University*; Mantyh, Christopher *Duke University*; Huang, Erich *Duke University*

09:45-10:00 TuAT1.6
Medium-Appropriate Biometric Signatures for Authenticating Medical Data Streams
Tridandapani, Srini* Emory University;
Bhatti, Pamela Georgia Institute of Technology

TuAT2: 08:30-10:00 1D06A&B
POC Technologies in Home-Based or Resource Limited Applications (Oral Session)
Chair: Wheeler, Bruce *University of Florida*
Co-Chair: Gaydos, Charlotte *John Hopkins Medical Center*

08:30-08:45 TuAT2.1
Global Challenges for Point-of-Care Technologies at Emergency Care Systems in Countries with Different Income Levels
Brahmbhatt, Parth *Univ. of Winnipeg*; Camorlinga, Sergio* *Univ. of Winnipeg*; Camorlinga, Paola *Univ. of British Columbia*

08:45-09:00 TuAT2.2
Heat-Actuated Wax Valves for Multistep Paper-Fluidic Diagnostics
Phillips, Elizabeth *Purdue University*; Clift, Tori *Purdue University*; Linnes, Jacqueline Callihan* *Purdue University*

09:00-09:15 TuAT2.3
Smartphone-Based, 3D Chip Diagnostic Strategy for Disease Self Management and Point-of-Care
Plevniak, Kimberly Kansas State University;
He, Mei* Kansas State University

09:15-09:30 TuAT2.4
Point-of-Care Test by Gold Nanoparticle Aggregation: Effects of Nanoparticle Concentration and Size
Revuru, Naga Aravind University of Texas at Dallas;
Kang, Peiyuan The University of Texas at Dallas;
Qin, Zhenpeng* University of Texas at Dallas

09:30-09:45 TuAT2.5
Assistive Writing Device for Tremor Patients
Belton, Siri Eileen* Northeastern University; Sipahi, Rifat Northeastern University; Gouldstone, Andrew Northeastern University; Jaeger, Beverly K. Northeastern University; Hinckel Cavalcante, Larissa Federal Institute of Santa Catarina

09:45-10:00 TuAT2.6
Capturing Behavioral Biomarkers to Guide Personalized Treatment
Skubic, Marjorie* University of Missouri; Rantz, Marilyn University of Missouri; Miller, Steven University of Missouri;
Musterman, Kathryn University of Missouri

TuAT3: 08:30-10:00 LD30A&B
POC Diagnostics (Oral Session)
Chair: Wang, May D. *Georgia Tech and Emory University*
Co-Chair: Klapperich, Catherine M. *Boston University*

08:30-08:45 TuAT3.1
Ultra-Low-Cost Endoscopy for Upper Gastrointestinal Malignancy Screening in Low-Income Countries
Lyne, Christopher Vanderbilt University; Campisano, Federico Vanderbilt University; Vartanian, Alexander Vanderbilt University; Jones, William Vanderbilt University; Morgan, Douglas Vanderbilt University Medical Center; Obstein, Keith Vanderbilt University Medical Center; Valdastri, Pietro* Vanderbilt University

08:45-09:00 TuAT3.2
100-Fold Improvement in Detection Limit of Group-A Strep Lateral Flow Immunoassays using Isotachophoresis
Kerr, Karl* University of Washington

09:00-09:15 TuAT3.3
Toward a Miniaturized Dielectric Coagulometer for Monitoring Blood Coagulation Disorders at the Point-of-Care
Suster, Michael Case Western Reserve University; Maji, Debnath Case Western Reserve University; Kucukal, Erdem Case Western Reserve University; Stavrou, Evi Case Western Reserve University; Gurkan, Umut A. Case Western Reserve University; Mohseni, Pedram* Case Western Reserve University

09:15-09:30 TuAT3.4
Towards a Pulmonary Diagnostic Kit for Telemedicine and Global Health Point-of-Care Diagnosis
Chamberlain, Daniel* Massachusetts Institute of Technology; Kodgule, Rahul Chest Research Foundation; Fletcher, Richard Ribon Massachusetts Institute of Technology

09:30-09:45 TuAT3.5
Smart-Cup: A Minimally-Instrumented, Smartphone-Based Point-of-Care MolecularDiagnostic Device
Liao, Shih-Chuan University of Pennsylvania; Peng, Jing University of Pennsylvania; Mauk, Michael University of Pennsylvania; Song, Jinzhao University of Pennsylvania; Bau, Haim University of Pennsylvania; Liu, Changchun* University of Pennsylvania

09:45-10:00 TuAT3.6
Optical Imaging Falloposcope for Ovarian Cancer Detection
Keenan, Maureen* University of Arizona; Howard, Caitlin University of Arizona; Tate, Tyler University of Arizona; Utzinger, Urs University of Arizona; Barton, Jennifer University of Arizona

TuAT4: 08:30-10:00 LD40
Atrial Fibrilation Monitoring (Oral Session)
Chair: Livingston, Edward *JAMA*
Co-Chair: Dhawan, Atam *New Jersey Institute of Technology*

08:30-08:45 TuAT4.1
Screening Cardiovascular Diseases from Scleral Images using Smart Phones: Preliminary Results
ELhussieny Mohamed, Nada Yehia *Nile University*; Fahmy, Ahmed S.* *Cairo University*

08:45-09:00 TuAT4.2
BEAT: A Low-Cost, Point-of-Care, Real-Time Arrhythmia Monitor
Abhinav, Abhinav Cardea Biomedical Technologies (P) Ltd.; Mankodiya, Kunal* University of Rhode Island

TuPoster-02: 11:45-13:30 LD20A&B
POC Technologies Poster Session II (Poster Session)
Chair: Mathura, Rishi *National Institute of Biomedical Imaging and Bioengineering*
Co-Chair: Rodgers, Mary *University of Maryland School of Medicine*

11:45-13:30 TuPoster-02.1
A High-Efficiency, Superhydrophobic, Point of Care Plasma Separator
Liu, Changchun* University of Pennsylvania; Liao, Shih-Chuan University of Pennsylvania; Song, Jinzhao University of Pennsylvania; Mauk, Michael University of Pennsylvania; Bau, Haim University of Pennsylvania

11:45-13:30 TuPoster-02.2
A Wearable System Prototype for Activity-Contextualized Knee-Joint Health Assessment via Acoustic Emissions
Töreyin, Hakan Georgia Institute of Technology; Teague, Caitlin Georgia Institute of Technology; Hersek, Sinan Georgia Institute of Technology; Millard-Stafford, Mindy Georgia Institute of Technology; Jones, Michael Georgia Institute of Technology; Kogler, Geza Georgia Tech; Sawka, Michael Georgia Institute of Technology; Inan, Omer* Georgia Institute of Technology

11:45-13:30 TuPoster-02.3
Point-of-Care Rate-Based Transcutaneous Pco2 Sensor
Adangwa, Prosper Center for Advanced Sensor Technology and Department of Computer; Chattergee, Madhubanti Center for Advanced Sensor Technology and Department of Chemical; Ge, Xudong Center for Advanced Sensor Technology and Chemical, Biochemical; Rao, Govind Center for Advanced Sensor Technology and Chemical, Biochemical; Kostov, Yordan* University of Maryland Baltimore County

11:45-13:30 TuPoster-02.4
Adoption of Point-of-Care Testing Services in Community Pharmacy
Klepser, Donald* University of Nebraska Medical Center; Klepser, Michael Ferris State University; Smith, Jaclyn University of Nebraska Medical Center; Dering-Anderson, Allison University of Nebraska Medical Center

11:45-13:30 TuPoster-02.5
Perturbation Detection Prediction Fuzzy Modeling for Posturally Perturbed Standing Subjects
Sani, Shahrokh* Clarkson University

11:45-13:30 TuPoster-02.6
"HyperShear in a Channel": A Microfluidic Facsimile of Mechanical Circulatory Support Devices to Reduce Thrombotic Risk and Enhance Patient Safety
Dimasi, Annalisa Politecnico di Milano; Consolo, Filippo Politecnico di Milano; Valerio, Lorenzo San Raffaele Hospital; Rasponi, Marco Politecnico di Milano; Tran, Phat University of Arizona; Redaelli, Alberto Politecnico di Milano; Bluestein, Danny Stony Brook University; Slepian, Marvin J.* University of Arizona

11:45-13:30 TuPoster-02.7
Device to Assess Banked Blood Quality
Mailo, Shawn Bioengineering Dept., Univ. of California San Diego; Athar, Ali Bioengineering Dept., Univ. of California San Diego; Jani, Vivek P. Bioengineering Dept., Univ. of California San Diego; Cabrales, Pedro* University of San Diego California

11:45-13:30 TuPoster-02.8
Fiber Optic Biosensor using Glucose Binding Protein to Detect Passive Diffusion of Transdermal Glucose
Tiangco, Cristina Univ. of Santo Tomas; Brown, Sheniqua Univ. of Maryland Baltimore County; Kostov, Yordan Univ. of Maryland Baltimore County; Rao, Govind Center for Advanced Sensor Tech. and Chemical, Biochemical; Sevilla III, Fortunato Univ. of Santo Tomas; Tolosa, Leah* Univ. of Maryland Baltimore County

11:45-13:30 TuPoster-02.9
A Graphical User Interface for Monitoring Micrographia
Zhi, Naiqian* Northeastern University; Jaeger, Beverly K. Northeastern University; Gouldstone, Andrew Northeastern University; Sipahi, Rifat Northeastern University

11:45-13:30 TuPoster-02.10
Constructing Patient Specific Clinical Trajectories from Electronic Healthcare Reimbursement Claims using Sequential Pattern Mining
Malhotra, Kunal Georgia Institute of Technology; Hobson, Tanner Oak Ridge National Laboratory; Valkova, Silvia IMS Health Government Solutions; Pullum, Laura Oak Ridge National Laboratory; Ramanathan, Arvind* Oak Ridge National Laboratory

11:45-13:30 TuPoster-02.11
Internet-of-Things (IoT) Connects Instruments to Improve Clinical Outcomes
Pearsall, C Robert* *Axon Research, Inc.*

11:45-13:30 TuPoster-02.12
A Low-Cost Breast Cancer Triage System for Low and Middle-Income Countries
Love, Susan Dr. Susan Love Research Foundation; Berg, Wendie University of Pittsburgh School of Medicine, Magee-Women's Hospital; Podilchuk, Christine* Clearview Diagnostics Inc.; Jairaj, Ajit Clearview Diagnostics Inc.; Barinov, Lev Clearview Diagnostics Inc.; Hulbert, William Clearview Diagnostics Inc.; Mammone, Richard Rutgers University

11:45-13:30 TuPoster-02.13
Unobtrusive Sensing for Sleep Quality Monitoring and Assessment
Kim, Jungyoon* University of Michigan;
Chu, Chao-Hsien Pennsylvania State University

11:45-13:30 TuPoster-02.14
Development of Automated High Throughput Microfluidic Single Molecule Detection Platform for Point of Care Applications
Huang, Po-Jung Texas A&M University;
Kameoka, Jun* Texas A&M University

11:45-13:30 TuPoster-02.15
An Ultra Low Power System for Personalized, Wearable Seizure Detection
Page, Adam* University of Maryland Baltimore County; Mohsenin, Tinoosh University of Maryland Baltimore County; Oates, Tim University of Maryland Baltimore County; Hopp, Jennifer University of Maryland School of Medicine

11:45-13:30 TuPoster-02.16
Possible Neural Correlates between the Oculomotor and Cardiac Pacing Systems
Ghahari, Alireza University of Connecticut; Cheng, Michael* Retired Professional

11:45-13:30 TuPoster-02.17
An Ultra Low Power Tongue Drive System for Paralyzed Patients
Jafari, Ali* UMBC; Viseh, Sina University of Maryland Baltimore County; Page, Adam University of Maryland Baltimore County; Ghovanloo, Maysam Georgia Institute of Technology; Mohsenin, Tinoosh University of Maryland Baltimore County

11:45-13:30 TuPoster-02.18
Optimized High-Performance Compute Infrastructure for Precision Medicine Workflows at Hospitals
Sukumar, Sreenivas* Oak Ridge National Laboratory; Lim, Seung-Hwan Oak Ridge National Laboratory; Tourassi, Georgia Duke University Medical Center

11:45-13:30 TuPoster-02.19
Data-Driven Payment-Model Recommendation System for Cost-Effective Healthcare Delivery
Sukumar, Sreenivas* Oak Ridge National Laboratory; Jackson, Indigo Oak Ridge National Lan; Frank, Aline Oak Ridge National Lab; Wheeler, Jessica Oak Ridge National Lab; Tourassi, Georgia Duke University Medical Center

11:45-13:30 TuPoster-02.20
Sensor-Cells as Platform Technology for Early Detection in Low Resource Settings
Bhatnagar, Parijat* SRI International; Oka, Kazuhiro Baylor College of Medicine; Diaz-Arrastia, Concepcion Baylor College of Medicine

11:45-13:30 TuPoster-02.21
A Naturalistic Human Interface for Chronic Disease Monitoring
Sun, Ye* Michigan Technological University

11:45-13:30 TuPoster-02.22
Achieve Precision through Feature Selection in Covariance-Based Outlier Detection
Zwilling, Chris University of Illinois, Champaign-Urbana; Wang, Michelle Yongmei* University of Illinois at Urbana-Champaign

11:45-13:30 TuPoster-02.23
Frequency Domain Beamformer for Point-of-Care Ultrasound Imaging System
Vaidya, Avinash* BITS-Pilani, Hyderabad Campus; M.B, Srinivas Birla Institute of Technology and Science - Pilani, Hyderabad Ca

11:45-13:30 TuPoster-02.24
In Silico Exploration of Care Delivery Innovations
Ozmen, Ozgur* Oak Ridge National Laboratory; Schryver, Jack Oak Ridge National Laboratory; Shankar, Mallikarjun Oak Ridge National Laboratory; Weigand, Gilbert Oak Ridge National Laboratory; Kieltyka, Suzanne Summit Strategic Solutions

11:45-13:30 TuPoster-02.25
Reading Out Single-Molecule Digital RNA and DNA Isothermal Amplification Visually and with Unmodified Cell Phones
Rodriguez Manzano, Jesus California Institute of Technology; Karymov, Mikhail California Institute of Technology; Begolo, Stefano California Institute of Technology; Selck, David California Institute of Technology; Zhukov, Dmitriy California Institute of Technology; Jue, Erik California Institute of Technology; Ismagilov, Rustem* California Institute of Technology

11:45-13:30 TuPoster-02.26
Near-Infrared Fluorescence Imaging on a Mobile Phone Platform: Image Quality Assessment with Targets and 3D-Printed Phantoms
Wang, Bohan* University of Maryland, College Park; Wang, Quanzeng food and Drug Administration; Ghassemi, Pejhman Food and Drug Administration; Chen, Yu University of Maryland; Pfefer, Joshua Food and Drug Administration

11:45-13:30 TuPoster-02.27
Evaluation of Portable NIRS Devices for Hematoma Detection: In Vivo Measurements and Phantom Development
Wang, Jianting* Food and Drug Administration; Huang, Stanley U.S. Food and Drug Administration; Myers, Matthew Food and Drug Administration; Chen, Yu University of Maryland; Welle, Cristin Food and Drug Administration, Center for Devices and Radiologica; Pfefer, Joshua Food and Drug Administration

11:45-13:30 TuPoster-02.28
Systems Engineering and Point of Care Testing: Report from the NIBIB POCTRN Systems Engineering Workshop
Stahl, James Massachusetts General Hospital;
Carleton, Penny* CIMIT

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