Main contributors to the Point-of-care Microfluidic Diagnostics issue

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Chong Ahn

Chong Ahn is a professor in the Department of Electrical and Computer Engineering and Biomedical Engineering at the University of Cincinnati. He is also currently the Director of the Center for BioMEMS and Nanobiosystems at the University of Cincinnati and the founder of Siloam Biosciences Inc. in Cincinnati, Ohio, USA. He obtained his PhD degree in Electrical Engineering at Georgia Institute of Technology in 1993. Prior to joining the University of Cincinnati, he worked as a Post-Doctoral Fellow at IBM T. J. Watson Research Center, NY, USA. Since joining the University of Cincinnati in 1994, he has initiated and established a multidisciplinary Bio-MEMS and Microfluidic program, which is currently recognized well for the development of hand-held bio/chemical detection systems, smart polymer lab-on-a-chips, and point-of-care testing (POCT) biochips for clinical diagnostics. His research interests include the design, simulation, fabrication and characterization of BioMEMS devices, microfluidic devices and systems, biosensors and biochips, lab-on-a-chips, and manufacturable nano biosensors with self-assembled nanofabrication technology.

Christopher Backhouse is a professor in the Department of Electrical and Computer Engineering at the University of Alberta with an interest in the life sciences, MEMS, microfluidics (otherwise known as "lab on a chip" (LOC)) and miniaturised instrumentation. These interests involve the application of micro/nanotechnologies for uses ranging from nanobiotechnology for medical diagnostics to microfabricated devices for use in space. His past industrial experience has been in the application of quantum devices to medical imaging and of microfluidic devices to the life sciences.

Christopher Backhouse

Prof. Backhouse moved from industry to this department in 1999. There has been a tremendous amount of LOC technology developed worldwide in the last decades and much of the research in his lab is directed to making such technologies more accessible through miniaturisation and integration into very low-cost systems. A dominant theme in this research is that often humanity has the technologies to solve a given problem but cannot afford to apply them. Nowhere is this more important than in applying nanobiotechnologies in LOC systems. In particular, he works closely with academic and industrial collaborators in developing medical diagnostic devices that have the potential to dramatically affect how healthcare is delivered.

Jaephil Do received his BS in 1999 from Seoul National University in South Korea and his PhD in 2006 from the University of Cincinnati. After a year of post doctoral research scientist at Siloam Bioscience, LLC, Dr Do joined the Department of Biomedical Engineering at Boston University as a Research Associate in 2008. His research focuses on the design and engineering of manufacturable, disposable microfluidic systems for low-cost point-of-care molecular diagnostics. He is currently working on on-chip DNA amplification and on-chip surface enhanced Raman scattering (SERS) devices for the detection of infectious microorganism.

Jaephil Do

Chih-Ming Ho

Chih-Ming Ho received PhD from the Johns Hopkins University. He holds the UCLA Ben Rich–Lockheed Martin Professor. His research areas are bio-nanotechnology, micro/nanofluidics, and turbulence. He was ranked by ISI as

one of the top 250 most cited researchers in engineering category. Dr Ho is a member of US National Academy of Engineering and an Academician of Academia Sinica. Dr Ho is a Fellow of APS and AIAA.

Daniel Irimia

Daniel Irimia was educated in Romania as a medical doctor, received his PhD in Bioengineering from the University of Illinois at Chicago, and currently is an Instructor in Surgery and Bioengineering at Harvard Medical School. Dr Irimia is an expert in microfluidic tools for the quantitative studies of cell migration and the integration of engineering principles into biological research and medical diagnostics.

Takehiko Kitamori

Takehiko Kitamori has pioneered microfluidic research in Japan and is the inventor of thermal lens microscopy (TLM). He is the author of more than 200 papers and is currently the vice dean of Engineering at the University of Tokyo and the vice president of the Chemical and Biological Microsystems Society (CBMS). He has recently taken great interest in extended nanospace, defined as 10–1000 nm, and is currently exploring new phenomena in this regime.

Luke P. Lee

Luke Lee is Lloyd Distinguished Professor of Bioengineering at UC Berkeley. He is also Director of the Biomolecular Nanotechnology Center and Co-Director of Berkeley Sensor and Actuator Center. He was Chair Professor in Systems Nanobiology at the Swiss Federal Institute of Technology (ETH, Zurich). He received both his BA in Biophysics and PhD in Applied Physics/Bioengineering from UC Berkeley. He has more than ten years of industrial experience in integrated optoelectronics, superconducting quantum interference devices (SQUIDs), and biomagnetic assays. His current research interests are molecular imaging, single cell biophysics, quantitative systems biology, molecular diagnostics, and biologically-inspired photonics-optofluidics-electronics technology and science (BioPOETS). Prof. Lee has authored and co-authored over 200 papers on bionanophotonics, integrated microfluidics, single cell biology, microfluidic systems biology, quantitative biomedicine, optofluidics, BioMEMS, biosensors, SQUIDs, SERS, and nanogap biosensors for label-free biomolecule detection.

Andres Martinez was born in California, raised in Cochabamba, Bolivia, and attended Diablo Valley College and Stanford University, where he obtained his BS in chemistry in 2003. He is currently a PhD student under George M. Whitesides at Harvard University. His research is focused on the development of simple and inexpensive diagnostic devices for use in developing countries.

Andres Martinez

John McDevitt is Professor of Chemistry at the University of Texas at Austin (UT). In 1982 Prof. McDevitt received his BS in Chemistry from California Polytechnic State University, and in 1987 secured his PhD from Stanford University. In 1989, he accepted an Assistant Professorship in Chemistry at UT. In 1990, he received a Presidential Young Investigator Award and in 1991 the Exxon Education Foundation Award. He was promoted to Associate Professor in 1995 and to full Professor in 2000. He and his research group of 25 members have published over 160 peer-reviewed manuscripts and secured over 100 patents/patent applications, establishing one of largest patent portfolios in the history of UT. Prof. McDevitt will join the Rice faculty as the Brown–Wiess Professor of Chemistry and Bioengineering in July 2009 with the opening of the new Collaborative Research Center. McDevitt group's nano-bio-chip work was recently selected

John T. McDevitt

as part of Science Coalition's Best Scientific Advances for Year as well as for the 2008 Popular Science's "Best of What's New Award" in the Medical Device category for a new saliva heart attack test system. McDevitt group's current focus is on the development of integrated mini-assay platforms for point-of-care testing. Prof. McDevitt serves as scientific founder for Labnow that targets release of HIV immune tests in resource scarce settings.

Vamsee K. Pamula

Vamsee Pamula is a cofounder and chief technology officer, along with Michael Pollack, of Advanced Liquid Logic Inc. which develops digital microfluidics for clinical diagnostics and other lab-on-a-chip applications. His research interests include development of inexpensive and accessible diagnostics. He has a PhD in electrical and computer engineering from Duke University.

Samuel K. Sia

Samuel Sia is an Assistant Professor of Biomedical Engineering at Columbia University. He obtained his BS at the University of Alberta and his PhD at Harvard University. As a postdoctoral fellow at Harvard University, he focused on developing simple but powerful microfluidic techniques for biomolecular detection in resource-poor settings. His current work focuses on microfluidics for global health diagnostics, and microfluidics for studying 3D biology and tissue engineering. Dr Sia is also a co-founder of Claros Diagnostics, a venture capital-backed company focused on microfluidics-based point-of-care diagnostics.

Anup K. Singh

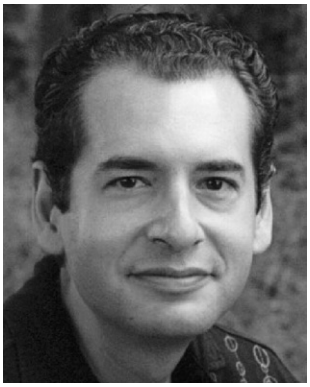
Anup Singh leads a group of over 30 researchers including scientists, postdoctoral associates and technologists at Sandia National Laboratories and the Joint BioEnergy Institute involved in infectious disease, bioenergy, microfluidics and proteomics research. His current interests include application of microfluidic technology for clinical diagnostics, high-content screening and studying cellular signaling.

Dean Y. Stevens

Dean Stevens received his BS in physics from the University of Washington in 2001. As an opto-mechanical engineer in industry, he worked on the development of a novel platform for imaging cells in flow. He is currently conducting his PhD at the Department of Bioengineering, University of Washington, under the supervision of Professor Paul Yager. Dean's research interests include microfluidic and optical systems, image analysis, and diagnostic tools for low-resource settings.

Mehmet Toner

Mehmet Toner is a Professor of Biomedical Engineering at the Harvard Medical School and Massachusetts General Hospital (MGH) and also a Professor of Health Sciences and Technology at Harvard-Massachusetts Institute of Technology (MIT), Division of Health Sciences and Technology. Dr Toner received a Bachelor of Science degree from Istanbul Technical University and a MS degree from the Massachusetts Institute of Technology (MIT), both in Mechanical Engineering. Subsequently he completed his PhD degree in Medical Engineering at Harvard-MIT Division of Health Sciences and Technology in 1989. Dr Toner's research interests include tissue engineering and preservation, and micro/nanosystems in clinical medicine. Dr Toner has received funding from NIH, NSF, DARPA, Whitaker Foundation, National Textile Center, and many industrial outfits. Dr Toner serves on the Scientific Advisory Board of multiple biotechnology and medical device companies and he is a co-founder of several start-up companies. He has published over 200 scientific publications and has delivered over 350 invited and scientific meeting presentations.



Victor M. Ugaz

Victor Ugaz holds a PhD in Chemical Engineering from Northwestern University (USA), and became interested in microfluidics during a postdoc at the University of Michigan (USA) under the direction of Prof. Mark Burns. Currently an Associate Professor of Chemical Engineering at Texas A&M University (USA), Dr Ugaz's research involves developing miniaturized components that can help enable biomedical assays to be performed more efficiently and inexpensively.

Albert van den Berg

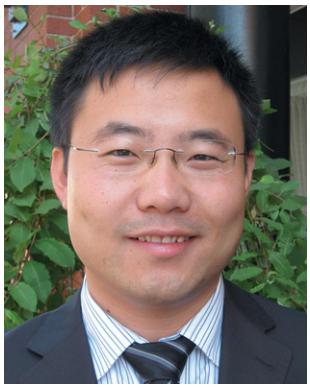
Albert van den Berg received his PhD at the University of Twente in 1988 on the topic of chemically modified ISFETs. From 1988–1993 he worked in Neuchatel, Switzerland, at the CSEM and the University (IMT) on miniaturized chemical sensors. From 1993 until 1999 he was research director Micro Total Analysis Systems (μTAS) at MESA, University of Twente, a topic that was extended to Miniaturized Chemical Systems (MiCS) in 1999. In 1998 he was appointed as part-time professor "Biochemical Analysis Systems", and later in 2000 as full professor on Miniaturized Systems for (Bio)Chemical Analysis in the faculty of Electrical Engineering, embedded the MESA+ Institute for Nanotechnology. In 2002 he received the Simon Stevin Master award from the Dutch Technical Science foundation (STW). In 2003 he was appointed as captain of the Nanofluidics Flagship within the national nanotechnology program Nanoned. In 2005 he spent six months in San Diego (USA) at the La Jolla Institute for Allergy and Immunology (LIAI, group Green) during sabbatical leave, while he received an Advanced Research Grant from ERC in 2008. His current research interests focus on microanalysis systems and nanosensors, nanofluidics and single cells on chips, with applications in health care and the environment. Prof. van den Berg is a member of the Royal Dutch Academy of Sciences (KNAW), the Dutch Health council and a member of the Chemical and Biological Microsystems Society.

Bernhard H. Weigl

Bernhard Weigl heads the Diagnostics Group at PATH, and directs the NIBIB Center for Point-of-Care Diagnostics for Global Health. He is also an Affiliate Professor at the University of Washington Department of Bioengineering. He received his MSc and PhD from Karl-Franzens-University, Graz, Austria, and completed postdoctoral studies at the University of Southampton and the University of Washington. He has authored more than 70 scientific papers and is an inventor on over 65 US patents and patent applications.

George M. Whitesides

George Whitesides was born in 1939 in Louisville, KY. He received an A. B. degree from Harvard University in 1960 and a PhD from the California Institute of Technology in 1964 (with J. D. Roberts in NMR spectroscopy). He was a faculty member of the Massachusetts Institute of Technology from 1963 to 1982. He joined the Department of Chemistry of Harvard University in 1982, was Department Chairman 1986–89, and Mallinckrodt Professor of Chemistry from 1982–2004. He is now the Woodford L. and Ann A. Flowers University Professor. His current research interests include physical-organic chemistry, materials science, protein biophysics, complexity, organic surface science, microfluidics, self-assembly, micro- and nanoscience, cell biology, optics, origin of life, electrets.



Weian Zhao

Weian Zhao completed his BSc and MSc degrees in Chemistry at Shandong University (China). He obtained his PhD in Chemistry at McMaster University (Canada) in 2008. He is now a postdoctoral fellow at Harvard-MIT Division of Health Sciences and Technology, Harvard Medical School and Brigham and Women's Hospital. Dr Zhao has broad interests in biomedical and tissue engineering, nanobiotechnology and biosensors.