



Medical Imaging: R&D Saving Lives

Speaker Biographies

Adam Zysk, Ph.D.

Moderator

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Adam M. Zysk is a research assistant professor working in the field of medical imaging. He completed his undergraduate studies in electrical engineering at Purdue University and earned M.S. and Ph.D. degrees in electrical and computer engineering from the University of Illinois at Urbana-Champaign, where he studied the use of optical coherence tomography for the detection of breast cancer tissue.

His industry work experience includes positions at Hamilton Sundstrand Aerospace, where he was involved in the design of aircraft power systems, and PrimeCo Personal Communication Systems, where he was part of a team that deployed and tested CDMA mobile communications networks. As a graduate student, he was the recipient of numerous research and presentation awards, including the Beckman Institute Graduate Fellowship and an NSF/AAS travel award that funded his work at the University of Western Australia.

He is currently at the Medical Imaging Research Center at the Illinois Institute of Technology where he is funded, in part, by an NIH National Research Service Award. He is the author of about 20 peer-reviewed scientific journal articles on electromagnetic tissue interactions, imaging techniques, statistical fields, and medical diagnostics.

Stephen A. Boppart, Ph.D.

The Future of Healthcare with Optical Biomedical Imaging

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Prof. Stephen Boppart's Biophotonics Imaging Laboratory, located in the Beckman Institute for Advanced Science and Technology on the campus of the University of Illinois at Urbana-Champaign, is focused on developing novel optical biomedical diagnostic and imaging technologies, and translating them into clinical applications. He is one of the early developers of

a technology called optical coherence tomography (OCT), and is actively participating in the growth, application, and clinical adoption of this technology, including applications in cancer imaging, primary care imaging, and the design and development of novel contrast agents specifically for OCT.

Prof. Boppart completed his Ph.D. in Medical and Electrical Engineering from MIT, and his M.D. from Harvard Medical School. He has over 200 invited and contributed publications and over 30 patents related to optical biomedical imaging technology, and has mentored over 80 undergraduate, graduate, and post-graduate interdisciplinary researchers.

He is co-founder and Chief Medical Officer of Diagnostic Photonics, Inc., which is developing instruments for optical image-guided surgery. Prof. Boppart was recognized by MIT's Technology Review Magazine as one of the Top 100 Young Innovators in the World for his development of medical technology, received the IEEE Engineering in Medicine and Biology Early Career Award, and recently, the Paul F. Forman Engineering Excellence Award from the Optical Society of America for dedication and advancement in undergraduate research education. He was Founding Director of the Mills Breast Cancer Institute at Carle Foundation Hospital, Urbana, Illinois, and has worked to establish partnership ties between the University of Illinois and local medical institutions.

In recognition for his scholarly achievements, he is a Fellow of the Institute of Electrical and Electronics Engineers (IEEE), the Optical Society of America (OSA), and SPIE, the international society for optics and photonics. Currently he holds a Bliss Professorship of Engineering and is Director of a campus-wide Illinois Imaging Initiative to integrate imaging science, technology, and applications across multiple modalities and fields.

Joseph Schmitt, Ph.D.

Optical Imaging of Coronary Artery Disease

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Dr. Schmitt is currently Vice President of Research and Development at LightLab Imaging, a St. Jude Medical company. Dr. Schmitt received the B.S. degree in biomedical engineering from Case Western Reserve University and the M.S. and Ph.D. degrees in electrical engineering from Stanford University.

After serving as Biomedical Engineering Coordinator for a non-profit health-care foundation in China for two years, he co-founded a medical photonics laboratory at the U.S. National Institutes of Health, where he worked as a Senior Staff Fellow. Dr. Schmitt joined the Hong Kong University of Science and Technology (HKUST) in 1994 as Associate Professor in the Department of Electrical Engineering, where he also served as the Co-Director of the Center for Medical Diagnostic Technology.

He left HKUST in 1998 to develop non-invasive optical technologies for patient monitoring at Nellcor Puritan-Bennett in Pleasanton, CA. He joined LightLab Imaging, Inc., in 2000 and served as Chief Technology Officer until the company was acquired by St. Jude Medical in 2010.

Joseph Izatt, Ph.D.

Optics in Eye Care

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Joseph A. Izatt received the B.S. degree in physics, and the M.S. and Ph.D. degrees in Nuclear Engineering from the Massachusetts Institute of Technology, Cambridge, Massachusetts in 1986, 1988, and 1991, respectively. He pursued postdoctoral studies in the department of Electrical Engineering and Computer Science at MIT. He was Assistant Professor of Biomedical Engineering at Case Western Reserve University and Director of the Endoscopy Research Laboratory at University Hospitals of Cleveland in Cleveland, Ohio from 1994-2001.

Dr. Izatt is currently Professor of Biomedical Engineering and Ophthalmology at Duke University and Director of the Laboratory for Biophotonics at the Fitzpatrick Institute for Photonics at Duke University. He is also Chairman and CTO of Bioptigen, Inc., a manufacturer of research-grade optical coherence tomography (OCT) instrumentation located in Research Triangle Park, North Carolina.

Dr. Izatt's research interests include biomedical optics and spectroscopy, coherence-based optical imaging in scattering media, and novel instrumentation for minimally invasive medical diagnostics. He has been involved in the development of optical coherence tomography (OCT) technology and applications since its inception in the early 1990's, and his laboratories have played a role in developing key innovations and applications of this technology, particularly in ophthalmology. He is author or co-author of over 150 peer-reviewed publications which have garnered more than 10,000 citations, more than 300 lectures and presentations, and holds over 50 patents, most of which are related to OCT.

Dr. Izatt is a Fellow of the American Institute for Medical and Biological Engineering (AIMBE), Society of Photo-Instrumentation Engineers (SPIE), and Optical Society of America (OSA). He is the founding Editor-in-Chief of Biomedical Optics Express, OSA's new peer-reviewed, rapid publication, open-access journal which is the society's principal outlet for serving the biomedical optics research community.