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Medical Imaging 2014

Biomedical Applications in Molecular, Structural, and Functional Imaging

Robert C. Molthen
John B. Weaver
Editors

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Introduction

The Biomedical Applications in Molecular, Structural, and Functional Imaging Conference held at the Town & Country Resort and Convention Center in San Diego, California was another great success. Chairs Robert Molthen and John Weaver welcomed Simon Cherry from UC Davis, a brilliant, high caliber expert in the field of Technology Development in Molecular and Genomic Imaging, for the Keynote entitled, 'Advancing technologies for preclinical molecular imaging'. Dr. Cherry's talk included new detector technology, optical imaging of radiotracers via Cerenkov luminescence, high sensitivity single photon imaging without the use of any physical collimation, and views of many opportunities for clinical translation. Mohammed Farhoud and Melissa Moore from Sofie Biosciences presented the conference workshop entitled 'The Evolution of Preclinical Molecular Imaging' which included a great overview and specific details of preclinical imaging modalities, practical laboratory knowledge, as well as a preview of a small desktop cassette based microfluidic synthesizer being developed by Sofie, likely to be groundbreaking and revolutionize research-based molecular imaging projects.

Pleasant weather and friendly, sunny skies warmed the outdoor lunches and conversations that intermingled with the scientific sessions which included General MR Techniques, fMRI and Brain, Optical Coherence Tomography, Fluidics and Vascular, Myocardial Function (a joint session and Keynote entitled 'Noninvasive Functional Assessment of Coronary Artery Disease using Cardiac CT Imaging and Computational Fluid Dynamics' with the Physics of Medical Imaging Conference), Molecular Imaging, Lung, Bone, Microenvironment and Magnetic Particle Imaging, MR Elastrography, Breast, and Ultrasound Elastography (a joint session with the Ultrasonic Imaging and Tomography Conference). The Biomedical Applications conference also had a lively poster session with notable works including: 'Novel T lymphocyte proliferation assay using whole mouse cryo imaging' by Patiwet Wuttisarnwattana at Case Western Reserve University (USA), 'Accurate 3D kinematic measurement of temporomandibular joint using X-ray fluoroscopic images', by Takaharu Yamazaki at the Graduate School of Medicine, FOM (Japan), and 'Characterizing the spatial distribution of micro-hemorrhages resulting from traumatic brain injury (TBI)' by Ningzhi Li at the National Institutes of Health (USA), getting the highest scores from the judging committee.

Robert C. Molthen
John B. Weaver

Awards

Robert F. Wagner Award

Robert F. Wagner was an active scientist in the SPIE Medical Imaging meeting, starting with the first meeting in 1972 and continuing throughout his career. He ensured that the BRH, and subsequently the CDRH, was a sponsor for the early and subsequent Medical Imaging meetings, helping to launch and ensure the historical success of the meeting. The Robert F. Wagner All-Conference Best Student Paper Award (established 2014) is acknowledgment of his many important contributions to the Medical Imaging meeting and his many important advances to the field of medical imaging.

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2014 Recipients:

First Place: **MRI signal and texture features for the prediction of MCI to Alzheimer's disease progression** (9035-78)
A. Martínez-Torteya, J. A. Rodriguez-Rojas, J. M. Celaya-Padilla, J. I. Galván-Tejada, V. M. Treviño-Alvarado, Sr., J. G. Tamez-Peña, Tecnológico de Monterrey (Mexico)

Second Place: **Distinguishing benign confounding treatment changes from residual prostate cancer on MRI following laser ablation** (9036-49)
G. Litjens, H. Huisman, Radbound Univ. Nijmegen Medical Ctr. (Netherlands); R. Elliot, Case Western Reserve Univ. (United States); N. Shih, M. Feldman, Univ. of Pennsylvania (United States); S. Viswnath, Case Western Reserve Univ. (United States); J. Futterrer, J. Bomers, Radboud Univ. Nijmegen Medical Ctr. (Netherlands); A. Madabhushi, Case Western Reserve Univ. (United States)