The Singapore Bioimaging Consortium (SBIC)
presents a seminar
on

"Accelerating Biological Discovery and Medical Diagnosis with Multi-spectral Optoacoustic Tomography"

Speaker: **Prof Daniel Razansky**
Technical University of Munich and Helmhotz Center Munich (Germany)
Host : **Prof Malini Olivo**
Date : **Monday, 20 November 2017**
Time : **3.00pm – 4.00pm**
Venue : **SBIC Seminar Room**
11 Biopolis Way
Level 2, Helios Building, Singapore 138667
(Please enter via Level 1)

Abstract

In vivo imaging across multiple scales is commonly associated with challenging compromises between the achievable contrast, imaging speed and spatial resolution. Optoacoustic imaging is increasingly attracting the attention of the biomedical research community due to its excellent spatial and temporal resolution, centimeter scale penetration into living tissues, and versatile endogenous and exogenous optical absorption contrast. State-of-the-art implementations of multi-spectral optoacoustic tomography (MSOT) are based on multi-wavelength excitation of tissues to visualize specific molecules within opaque tissues. As a result, the MSOT technology can noninvasively deliver structural, functional, metabolic, and molecular information from living tissues. Our recent efforts in the field of optoacoustic functional and molecular imaging have established new technological platforms employing spherical matrix arrays, parallel acquisition hardware, GPU-based data processing and fast-tuning laser systems in order to enable acquisition and visualization of spectroscopic information from entire tissue volumes at video rates. This has set the stage for the so-called five dimensional (real-time three-dimensional multi-spectral) optoacoustic imaging that offers unparalleled capabilities among the existing bio-imaging modalities. Applications are explored in the areas of functional neuro-imaging, fast tracking of agent kinetics and biodistribution, cardiovascular research, monitoring of therapies and drug efficacy as well as targeted molecular imaging studies. Clinical translation roadmap is further discussed.

About the Speaker

Daniel Razansky is a Professor of Molecular Imaging Engineering at the Technical University of Munich and Helmholtz Center Munich. He earned his degrees in Electrical and Biomedical Engineering from the Technion - Israel Institute of Technology and completed further training in bio-optics and molecular imaging at the Harvard Medical School. His Lab has pioneered multi-spectral optoacoustic tomography (MSOT), near-field radiofrequency thermoacoustic tomography (NRT), hybrid optoacoustic ultrasound (OPUS), and five-dimensional optoacoustics and has made other innovations being successfully commercialized worldwide. He has authored over 200 peer-reviewed journal articles and holds 12 inventions in bio-imaging and bio-sensing disciplines. His research has been recognized by the German Innovation Prize, Biovaria Spin-Off Award, Human Frontiers Science Program Award, and numerous awards from the European Research Council and the US National Institutes of Health. Prof Razansky is a Fellow of the Optical Society of America (OSA), serves on the editorial boards of journals published by Nature Publishing Group, Elsevier, IEEE, and AAPM and has chaired international conferences organized by the OSA, SPIE, WMIS, and EMIM.

Admission is free and all are welcome ---