UNIVERSITY of HOUSTON

Department of Physics

Seminar Speaker:

Professor Anthony Butler, Head of Department and Professor
University of Otago
Chief Medical Office/Radiologist
MARS Bioimaging Ltd.

Date and Location
12/8/2017
634 Science and Research Bldg. 1
10:30AM

"MARS 3D spectral imaging: a novel approach to an old problem"

A challenge for many biomedical researchers is being able to quickly and easily identify targets within tissue. Commonly, histology and microscopy have been used, however, there are significant limitations to these techniques and importantly, they are not suitable for larger scale applications i.e. a whole small animal. Recent advances in photon counting spectral CT mean that the MARS spectral scanner with its iterative reconstruction and processing algorithms can produce quantitative molecular imaging. In both 2D slices and 3D images, materials such as lipid, calcium and water can be identified and quantified at ug/uL levels. In addition it is possible to quantify traditional and functionalized contrast agents (iodine, gadolinium, gold). Current preclinical applications of this technology include: developing non-functionalized gold nanoparticles for measuring angiogenesis; functionalized gold nanoparticles for drug delivery in ovarian cancer; imaging of carotid plaque tissue to identify the lipid core, areas of calcification and ulceration; visualization of titanium scaffolds for bone growth; and biomarkers of cartilage and joint health. This non-destructive imaging platform provides preclinical researchers with a tool to further investigate small animal models of disease and analyze human tissue samples.

Professor Anthony Butler is a radiologist with an interest in developing new imaging technologies. In 2007 he was one of the founder of MARS Bioimaging Ltd, a company formed to commercialize spectral imaging technology. He remains on the board and is the Chief Medical Officer. Anthony has more than 150 scientific publication. He has won more than 10 awards for his research including awards from the Royal Society of NZ and the Royal Australian College of Radiologists. He is the lead investigator on over $12m of NZ government research grants, and co-investigator on more than $30m of other grants. At Canterbury District Health Board he works as a clinical radiologist. At the University of Otago Christchurch he is head of the Department of Radiology and director of the Centre for Bioengineering. At CERN he is a member of the Medipix3, Medipix4, and CMS collaborations. At the University of Canterbury he is a researcher in the Department of Physics and Astronomy.