

Specialized iNANO lecture

- open to all

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Title: Fluorescent Diffuse Optical Tomography fused with PET and CT for multimodal imaging

Time: Thursday 2 December 2010 at 10.15

Location: Department of Mathematical Sciences, building 1531 room 215, AUD-D3

Abstract:

The performance of small animal photonic imaging has been considerably improved since the development of fluorescence diffuse optical tomography (fDOT), which can reconstruct fluorescent probe distribution inside tissue. fDOT is mainly a preclinical tool that allows the absolute quantification of fluorescent signal even in deep tissues. Apart from the use of fDOT as a stand alone modality it can also be integrated as a part of a multimodal imaging framework, in particular in combination with established molecular imaging modalities like PET or CT. To this direction we have developed a method that allows multimodal imaging of the same animal with fDOT, PET and CT.

This seminar is divided in two parts. In the first part, the principles of fDOT will be presented. This will include a brief instrumentation description and introduction on the optical theory applied for extracting quantitative fluorescent images. The advantages over the planar imaging systems will also be highlighted. In the second part applications of the fDOT in combination with PET will be presented. These include the use of PET as a mean to calibrate the fDOT technology as well as multimodal fDOT/PET imaging of tumour processes.

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