UCL PET/MRI Methodology Symposium

Dates: 21-23 September, 2016

Venue: Birkbeck, University of London, Clore Management Centre,

Malet Street, Bloomsbury, London WC1E 7HX

Organisers: Brian Hutton, Kris Thielemans, David Atkinson, Simon Arridge, Sebastien Ourselin

Registration: FREE: limited to 120 attendees (see registration details below)

Sponsored by: UCL EPSRC PET/MRI and CCP grants

The symposium will focus on development of analysis methods for PET/MRI with the following objectives:

- To present relevant current research at UCL and other centres
- To provide a forum for networking and future planning
- To encourage national collaboration on PET/MRI methods

The symposium is directed especially to persons who have an interest in the development of novel methods of analysis using PET/MRI and should be of interest to scientific staff in centres establishing PET/MRI in the UK.

Invited speakers include:

Martin Burger (Munster), Gaspar Delso (Cambridge), Marc Kachelriess (Heidelberg), Thomas Kuestner (Stuttgart), Ian Law (Copenhagen), Julian Matthews (Manchester), Steven Sourbron (Leeds), Claudia Prieto Vasquez (KCL) as well as PhD students and research fellows from UCL, KCL, KU Leuven, Julich and Imanova.

The final program is provided below. Note that there will be a CCP meeting on the morning of 21 September, prior to the start of the workshop.

There are several hotels nearby but booking early is recommended. The venue is midway between Goodge Street and Russell Square underground stations and a short walking distance from Euston, Kings Cross and St Pancras railway stations.

To register go to https://ucl_petmri_symposium.eventbrite.co.uk

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Wed 10:00-12:00	CCP meeting		
Wed 21 13:30-14:00	*Symposium Registration*		
Wed 21 14:00-15:30	Introduction: National networking initiatives Chair: B Hutton	Brian Hutton (UCL) Roger Gunn (Imanova) (20) Sebastien Ourselin (UCL) (20) Kris Thielemans (UCL) (20) John Dickson (UCH/UCL) (20)	Introduction Dementia platform: methods. Dementia platform: data management. CCP: national network on PET and MR reconstruction. PET/MR harmonisation for multi-centre studies.
	Coffee break		
Wed 21 16:00-17:30	Attenuation correction Chair: S Ourselin	Gaspar Delso (Zurich) (25) Ahmad Rezaei (Leuven) (25) Ninon Burgos (UCL) (20) Martin Belzunce (KCL) (20)	PET/MR attenuation correction based on short echo-time sequences Joint estimation of activity and attenuation in TOF-PET. Image synthesis for the attenuation correction of PET/MR Data. High accuracy brain PET image reconstruction for the mMR using GATE and a composite system model.
	Welcome reception		
Thur 22 9:30-11:00	Motion correction 1 Chair: D Atkinson	Thomas Kuestner (Stuttgart) (30) Ottavia Bertolli (UCL) (20) Jamie McClelland (UCL) (20) Richard Manber (UCL) (20)	Respiratory and cardiac PET/MR motion correction for application in clinical practice. Detecting motion from the data. A generalised framework combining image registration, respiratory motion modelling, and motion compensated image reconstruction. Joint PET-MR respiratory motion models for clinical PET motion correction.
	Coffee break		
Thur 22 11:30-13:00	Kinetic modelling 1 Chair: A Barnes	Steven Sourbron (Leeds) (25) David Thomas (UCL) (25) Catherine Scott (UCL) (20) Alex Whittington (Imanova) (20)	Tracer-kinetic analysis in Dynamic Contrast-Enhanced MRI. Measuring cerebral blood flow and other haemodynamic parameters using Arterial Spin Labelling MRI. ASL-incorporated pharmacokinetic modelling of Amyloid PET data with reduced acquisition time. Spatiotemporal modelling of misfolded proteins in neurodegenerative diseases.
	Lunch		

Thur 22 14:00-15:30	Reconstruction Chair: K Thielemans	Claudia Prieto Vasquez (KCL) (30) Andrew Reader (KCL) (20) Pawel Markiewicz (UCL) (20) Debora Salvado (UCL) (20)	Under-sampled reconstruction techniques to speed up MRI acquisition. Multi-parametric MRI-guided PET image reconstruction. Uniform acquisition modelling across PET imaging systems for robust statistical analysis INSERT: challenges in developing SPECT/MRI
	Coffee break		
Thur 22 16:00-17:30	Motion correction 2 Chair: T Kuestner	Marc Kachelriess (Heidelberg) (30) Phil Noonan (Imanova) (20) Daniel Balfour (KCL) (20) Alexandre Bousse (UCL) (20)	Motion compensation, from CT to MR to PET. Motion tracking and correction for PET/MRI using external cameras. Reduced-Parameter Motion/Activity Estimation in PET Using Parameterised Motion Models. Direct motion compensation in attenuation-corrected PET reconstruction.
	Free evening		
Fri 23 9:30-11:00	Joint reconstruction Chair: S Arridge	Martin Burger (Munster) (30) Georg Schramm (Leuven) (20) Matthias Ehrhardt (Cambridge) (20) Abolfazl Mehranian (KCL) (20)	Joint PET-MR Reconstruction via coupled Bregman Iterations . PET reconstruction with convex gradient-based anatomical priors. Combined image reconstruction for combined PET-MR imaging. Non-convex joint-sparsity regularization for synergistic PET and SENSE MRI reconstruction.
	Coffee break		
Fri 23 11:30-13:00	Kinetic modelling 2 Chair: R Gunn	Julian Matthews (Manchester) (30) Kjell Erlandsson (UCL) (20) Hasan Sari (UCL) (20) Liliana Caldeira (Julich) (20)	Challenges in tracer kinetic modelling Improved kinetic modelling with cross-modality parameter coupling Blood free modelling of PET tracers using MR-corrected IDIFs. Simultaneous Acquisition of Dynamic PET-MRI: Arterial Input Function using DSC-MRI and [18F]-FET.
	Lunch		
Fri 23 14:00-15:30	Clinical considerations Chair: P Marsden	Ian Law (Copenhagen) (30) Anna Barnes (UCH/UCL) (20) Elisabetta Grecchi (KCL) (20) Isabel Dregely (KCL) (20)	Clinical Brain PET/MRI. The boundaries of simultaneous MRI and PET: what you can and can't do with MRI while collecting PET data. Multimodal-multiresolution partial volume correction - a clinical application PET/MR in prostate cancer.
15:30	*Meeting close*		