

IEEE Medical Imaging Conference Workshop

Image Guidance for Radiotherapy: From Today's Best Practice in the Clinic to Future Applications using Synchrotron Radiation

17/11/18 Sydney - ICC Darling Harbour , Room C3.8

Chairs: Daniel Haeusermann, Michael Jackson, Tomas Kron, Paul Keall, Daniel Moses

Description: The workshop provides an overview of the role and importance of imaging in the context of radiotherapy using conventional or emerging X-ray sources with particular emphasis on real time imaging directly prior or during delivery. This image guidance has been one of the few 'game changers' in radiotherapy with clinical outcomes demonstrating significantly reduced toxicity as well as new indications. Of particular note is the introduction of highly focused 'stereotactic' delivery techniques that deliver very high doses in a highly precise fashion. The workshop is aimed at physical scientist and engineers as well as technology minded oncologists and therapists. It provides insights in current best practice from a technical and clinical perspective. It then explores future applications mostly in the context of work performed at the Australian Synchrotron (AS) in Melbourne.

Preliminary Program:

8:30	Welcome and outline of the day	Daniel Haeusermann/Tomas Kron
8:40	Image Guidance for Radiotherapy: History and Role	Tomas Kron (PeterMac, Melbourne)
9:00	Imaging for RT guidance and quantitative imaging biomarkers: a radiologist's view	Daniel Moses (Sydney)
9:25	Radiomics in response assessment	Lois Holloway (Liverpool, NSW)
9:50	Morning tea	
10:20	Medical Applications of Synchrotron Radiation	Daniel Hausermann (AS, Melbourne)
10:40	Translational applications of phase contrast imaging for the newborn: Improving respiratory support strategies and modelling transient tachypnea.	Erin McGillick (Monash, Melbourne)
11:00	IGRT at the Australian Synchrotron Imaging and Medical Beamline	Micah Barnes (RMIT, Melbourne)
11:25	Dosimetry in Image Guided MRT	Michael Lerch (CMRP, Wollongong)
11:50	Panel discussion/Q&A	
12:10	Lunch	
13:30	Medipix 1 MARS Photon counting 8-energies CT : first human results.	Anthony Butler (Otago, NZ)
13:50	Medipix 2 Energy resolved tomography	Martin Pichotka (CVUT, Prague)
14:10	Modern radiotherapy – clinical evidence for IGRT	Michael Jackson (POWH, Sydney)
14:30	IGRT tools overview: kV to MV and US to MRI	Jeremy Booth (RNSH, Sydney)
14:50	Targeting Internal Anatomy in Real-Time During Radiotherapy	Paul Keall (Sydney University)
15:10	Small animal image guided radiotherapy research	Ross Berbeco (Harvard, USA)
15:30	Afternoon tea	
16:00	MRI for treatment response and biomarker discovery	Trang Pham (Liverpool, NSW)
16:20	PET guidance and early response assessment	Sarah Everitt (Peter Mac, Melbourne)
16:40	Panel discussion/Q&A	