

AstroMed09

The Inaugural Sydney International Workshop
on Synergies in Astronomy and Medicine
14–16 December, 2009
The University of Sydney

SCIENTIFIC PROGRAM

DAY 1: IMAGE PROCESSING

0800-0830	Registration	
0830-0900	Opening and Welcome, Convenor	
SESSION 1 CHAIR: B. GAENSLER		
0900-1000	Plenary: The origin and evolution of Astronomical Medicine at Harvard	A. Goodman <i>Harvard University</i>
1000-1030	A critical review of scientific visualization in astronomy	C. Fluke <i>Swinburne Uni. of Technology</i>
1030-1100	Morning tea	
SESSION 2 CHAIR: R. FULTON		
1100-1145	Invited: Statistical reconstruction in emission tomography	J. Nuyts <i>Katholieke Universiteit, Belgium</i>
1145-1215	Cone-beam computerized tomography reconstruction techniques for the hybrid pixel XPAD3 prototype	Y. Boursier <i>Aix-Marseille Universite, France</i>
1215-1245	An investigation into the effects of interaction ordering on image reconstruction for SPEI	J.E. Gillam <i>Monash University</i>
1245-1415	Lunch	
SESSION 3 CHAIR: C. BALDOCK		
1415-1500	Invited: From radio astronomy to image-guided surgery	T. Peters <i>Robarts Research Institute, Canada</i>
1500-1530	From nebulae segmentation in astronomical imaging to tumor delineation in PET imaging	M. Hatt <i>INSERM, France</i>
1530-1600	Afternoon tea	
SESSION 4 CHAIR: D. BAILEY		
1600-1630	Dynamic co-registration of a moving target using robotic ultrasound imaging	C. Langton <i>QUT</i>
1630-1700	Multi-tracer image fusion for patients using multi-observation statistical image fusion framework: a feasibility study	S. David <i>INSERM, France</i>
1700-1730	Spread spectrum for interferometric and magnetic resonance imaging	Y. Wiaux <i>Ecole Polytechnique & UniGE, Switzerland</i>
1730-1830	Close of Day 1, wine and cheese	

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DAY 2: INSTRUMENTATION

SESSION 1 CHAIR: S. MEIKLE		
0900-0945	Invited: Position-sensing photon detectors	S. Cherry <i>UC Davis</i>
0945-1015	Improvement in scintillation counter energy resolution with the silicon drift detector	S. Maeo <i>Tohoku University, Japan</i>
1015-1030	Astrophotonics and medical spectroscopy	J. Bland-Hawthorn <i>USyd</i>
1030-1100	Morning tea	
SESSION 2 CHAIR: C. BALDOCK		
1100-1145	Invited: Image registration, motion and deformation in image guided clinical interventions	D. Hawkes <i>UCL</i>
1145-1215	Use of radio astronomy techniques in the analysis of acoustic phased array signals from the body	S. Hughes <i>QUT</i>
1215-1245	Multimodal optical-ultrasonic platform for tissue diagnostics	L. Marcu <i>UC Davis</i>
1245-1415	Lunch	
SESSION 3 CHAIR: J. BLAND-HAWTHORN		
1415-1500	Invited: Probing outer space and inner space with quantum-limited detectors	D. Figer <i>Rochester Imaging Detector Lab, RIT, USA</i>
1500-1530	CdZnTe detectors for astrophysical and medical applications	S. Del Sordo <i>INAF/IASF-PA, Italy</i>
1530-1600	Afternoon tea	
SESSION 4 CHAIR: Z. KUNCIC		
1600-1630	Compton gamma-ray camera using a gaseous TPC and GSO ₂ Ce-LaBr ₃ Ce scintillator pixel arrays for astronomy and medical imaging	S. Kurosawa <i>Kyoto University, Japan</i>
1630-1700	A monolithic block detector design for a hybrid MR-PET system	K. Ziemons <i>Research Centre Juelich, Germany. Central Institute for Electronics (ZEL)</i>
1700-1730	Assessment of signal sharing in a hybrid pixel detector	C.J. Hall <i>Monash University</i>
1730	Close of Day 2	
1930	Conference dinner – Sydney Rowing Club	

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DAY 3: DATA ANALYSIS

SESSION 1 CHAIR: G. LEWIS		
0900-0945	Invited: PathGrid: the transfer of astronomical image algorithms to the analysis of medical microscopy data	M. Irwin <i>Cambridge Univ., UK</i>
0945-1015	Visualising and quantifying synovitis from MRI datasets	J. Ryan <i>USyd</i>
1015-1035	Industry Presentation: Development of advanced algorithms for AstroMed applications	R. Kneusel <i>IDL/ITTVIS</i>
1035-1100	Morning tea	
SESSION 2 CHAIR: J. BLAND-HAWTHORN		
1100-1145	Invited: PathGrid: a robust, open and scalable analysis workbench for systems pathology	N. Walton <i>Cambridge Univ., UK</i>
1145-1215	Hybrid PET/MR scanners: A new tool for biomedical imaging?	S. Cherry <i>UC Davis</i>
1215-1245	Seamless astronomy	A. Goodman <i>Harvard University</i>
1245-1400	Lunch	
SESSION 3 CHAIR: B. GAENSLER		
1400-1430	Visualization-directed interactive model fitting to spectral data cubes	C. Fluke <i>Swinburne Uni. of Technology</i>
1430-1500	GPU-based volume rendering of noisy multi-spectral astronomical data	A. Hassan <i>Swinburne Uni. of Technology</i>
1500-1530	Optimisation of Monte Carlo codes for high performance computing in radiotherapy	I. Cornelius <i>QUT</i>
1530-1600	Afternoon tea	
SESSION 4 CHAIR: Z. KUNCIC		
1600-1630	Challenges for source finding in radio astronomy	T. Murphy <i>USyd</i>
1630-1700	3-D source detection in radio astronomy	M. Whiting <i>CSIRO</i>
1700-1715	Closing remarks – Convenor	
1715	Close of meeting	