

**Program  
Oral Presentations**

8:00am	Thursday, October 2nd Opening Remarks		
	Plenary: What does the clinician need from imaging Gary Hunninghake, MD, Ph.D, Iowa City, IA, USA Bryan Meyers, MD, MPH, St. Louis, MO, USA Eric Milne, MD, California, USA		
9:30-10:30am	Coffee/Posters		
10:30-12:00	Parallel Session 1: Functional heterogeneity of the lung		
	Session Chairs Sylvia Verbanck, Ph.D., Brussels, Belgium G. Kim Prisk, PhD, DSc, California, USA Brett A. Simon, MD, Ph.D. Baltimore, MD, USA		
	1) Spatial-temporal heterogeneity of pulmonary perfusion in the human lung	Matthew V. Cronin, M.D., Susan R. Hopkins, M.D., Ph.D, Richard B. Buxton, Ph.D., David J. Dubowitz M.D., Ph.D, Tatsuya Arai B.S., Kim G. Prisk Ph.D, D.Sc <sup>1</sup>	University of California, San Diego, La Jolla, CA., USA
	2) Ventilation Heterogeneity in Asthma Using Hyperpolarized 3HE MRI	Yanping Sun, Yang-Sheng Tzeng, Sanaz Zhalehdoust Sani, Michael H. Cho, Elliot Israel, Kenneth R. Lutchen, Mitchell Albert	Dept of Radiology, Brigham and Women's Hospital & Harvard Medical School, Boston, MA, USA Biomedical Engineering, Boston University, Boston, MA Dept of Radiology, University of Massachusetts Medical

			School, Worchester, MA, USA
	3) Visualizing and Quantifying Hyperpolarized $^3\text{He}$ Magnetic Resonance Imaging Ventilation in COPD pre- and post- Salbutamol	M. Kirby, A. Wheatley, G. Santyr, DG. McCormack and G. Parraga	Robarts Research Institute, London Canada, The University of Western Ontario, London Canada
	4) Hyperpolarized $^3\text{He}$ Measurement of Alveolar Oxygen Partial Pressure in Asthmatics	Alexei Ouriadov, Roya Etemad-Rezai, David McCormack, Andrew Wheatley, Grace Parraga, and Giles Santyr	Robarts Research Institute, London, Canada
	5) Monitoring Changes in Lung Microstructure at Initial stages of Emphyseme via in vivo lung morphometry with hyperpolarized $^3\text{He}$ diffusion MRI	D. Yablonskiy, J. Quirk, B. Lutey, J. Woods, A. Sukstanskii, S. Haywood, A. Bashir, D. Gierada, M. Conradi	Mallinckrodt Institute of Radiology. St. Louis, Missouri, USA
	6) Characterization of vasculature changes in smokers with MDCT-based perfusion measurements	SK Alford, EJ van Beek, RG Barr, G McLennan, EA Hoffman	University of Iowa, Iowa City, IA, USA
	<b>Parallel Session 2</b> <b>Image processing</b>		
	Session Chairs: Milan Sonka, Ph.D, Iowa, USA James Gee, Ph.D., Pennsylvania, USA		
	7) Image Registration Algorithm for Xenon-Enhanced Computed Tomography of Regional Ventilation in the Rat Lung for Comparison with Hyperpolarized $^3\text{He}$ Magnetic Resonance Imaging	M.J. Couch, W.W. Lam, A. Ouriadov, M. Drangova, M. Wierzbicki, D.W. Holdsworth, and G.E. Santyr	Robarts Research Institute, London, Canada The University of Western Ontario, London, Canada
	8) A Simultaneous Segmentation and	Gang Song, Alonso Ramirez Manzanares,	Penn Image Computing and

	Regularization Framework for vessel extraction in CT images	James C. Gee	Science Laboratory, University of Pennsylvania, USA
	9) Applications of regional lung parenchyma analysis in thoracic CT data	Jan-Martin Kuhnigk; Stefan Krass, Aleksandar Grgic; Erich Hecker; Michael Owsijewitsch; Nicola Sverzellati; Heinz-Otto Peitgen	Universitaetsallee Bremen, Germany,
	10) Impact of different registration algorithms on four-dimensional CT-based ventilation assessment	Tokihiro Yamamoto, Sven Kabus, Jens von Berg, Roland Opfer, and Paul J. Keall	Stanford University School of Medicine, Stanford, CA, USA
	11) Optimal Graph-search Based Segmentation of 3D Pulmonary Airway and Vascular Trees across Bifurcations	Xiaomin Liu, Danny Z. Chen, Xiaodong WU, Milan Sonka	University of Notre Dame, Notre Dame IN,, USA
	12) Registration-based estimates of lung tissue strain in supine sheep	Kunlin Cao, Kai Ding, Madhavan L. Raghavan, Gary E. Christensen, Eric A. Hoffman, Joseph M. Reinhardt	University of Iowa, Iowa City, IA, USA
12:00-1:30pm	Lunch/Posters		
1:30-3:00pm	Plenary: Gold Standards and Pathological Correlations Mattias Ochs,MD, Bern Switzerland Michiaki Mishima, MD, Kyoto Japan Magnus Dahlback, Ph.D, Lund Sweden		
3:00-4:00pm	Break/Posters		
4:00-5:30pm	Parallel Session 3 Image guided diagnosis and intervention Session Chairs: David Naidich, MD, New York, USA Atul C. Mehta, MD, Brussels, Belgium		
	13) Fully-Automatic Quantitative Assessment of Emphyseme in Computed Tomography -	Heussel CP, Eberhard R, Herth F, Kappes J, Weinheimer O, Kauczor HU,	Thoraxklinik at University Hospital Heidelberg.

	Comparizon to Lung Function Testing in COPD and Interstitial Lung Disease	Hantusch R, Hartlieb S	Heidelberg, Germany
	14) Comparison of Thoracic diameters to lung are measurement for assessing lung function with dynamic 2D-MRI	R. Tetzlaff, MD, T. Schwarz, MSc, M. Eichinger, MD, M. Puderbach, MD, H.P. Meinzer, MSc and H.U. Kauczor, MD.	German Cancer Research Center, Heidelberg, Germany
	15) Texture-based automated quantification of regional disease patterns at HRCT in patients with UIP and NSIP	Joon Beom Seo, Sang Ok Park, Namkug Kim, Young Kyung Lee, Jeongjin Lee, Dong Soon Kim	University of Ulsan College of Medicine, Asan Medical Center, Seoul, Korea
	16) Comparison of an anatomical and a non-anatomical approach in distribution analysis of COPD associated emphysema	Michael Owsijewitsch, Julia Ley-Zaporozhan, Jan-Martin Kuhnigk, Claus Peter Heussel, Hans-Ulrich Kauczor, Sebastian Ley	German Cancer Research Center , Heidelberg, Germany
	17) Combined morphological and functional proton-MRI in patients with Lung Cancer: Initial Results in Differentiating Tumor from Atelectasis - Comparision to FDG-PET	C. Hintze, A. Dimitrakopoulou-Strauss, L. G. Strauss, F. Risse, C. Thieke, J. Dinkel, C. P. Heußel, J. Biederer, H-U. Kauczor	German Cancer Research Center, Heidelberg, Germany
	Parallel Session 4 CFD, Modeling, and Atlas Session Chairs: Ching-Long Lin, Ph.D, Iowa, USA Merryn Tawhai, Ph.D., Auckland, New Zealand		
	18) Practical Approach of rapid prototyping raw models for respirator flow dynamics	Giesel FL , Mehndiratta A, Kauczor HU, van Beek E Wild J	Radiology, German Cancer Research Center, Heidelberg, Germany Indian Institute of Technology, New Delhi,

			India University of Heidelberg, Germany University of Iowa, Iowa, USA University of Sheffield, Sheffield, UK
	19) Robustness and Capacities of the Human Respiratory System assessed by Multiscale Imaging and Modeling	Andres Kriete , Uday Kiran Thummalapalli , Andreas Schmidt , Stephan Zidowitz , Kai Zhao , Warren B. Gefer	School of Biomedical Drexel University, Philadelphia; Institute of Anatomy, Medical School at the University of Giessen; Center for Medical Image Computing, Mevis Bremen; Monell Institute, Philadelphia; University of Pennsylvania, Philadelphia
	20) Assessment of endobronchial valves using high resolution CT (HRCT) and computational fluid dynamics (CFD)	Jan De Backer, Wim Vos, Paul Germonpré, Paul Parizel, Wilfried De Backer	University Hospital Antwerp Edegem, Belgium
	21) Atlas-based models for species - and subject-specific analysis of pulmonary perfusion	Kelly Burrowes, Merryn Tawha	Oxford University U.K University of Auckland, Auckland New Zealand University of Iowa, Iowa City, IA, USA
	22) Open Collateral Pathway in Healthy Lungs: Computer Simulation and Measurements of Long-Range 3HE ADC	Jason C. Woods, Dmitriy A. Yablonski, David S. Gierada, Susan E. Haywood, Seth-Emil Bartel, Mark S. Conradi	Washington University, St Louis, MO, USA Washington University, St Louis, MO, USA

	23) Studying structure-function relationships in the lung using subject-specific computational models of ventilation and tissue mechanics	Merryn H. Tawhai, Ching-Long Lin, Eric A. Hoffman	Auckland Bioengineering Institute, The University of Auckland, Auckland, New Zealand.; Iowa City, Iowa, USA
6:00-7:00pm	RECEPTION / hors d'oeuvres Downtown at OLD CAPITOL		
	Dinner on your own		

	Friday October 3rd		
8:00am	<p>Plenary: Phenotyping and Genetics  David Naidich, MD; New York, NY, USA  Edwin K. Silverman, MD, Ph.D; Boston, MA, USA  William Hersman Ph.D, DURHAM, NH, USA  Samual Patz, Ph.D., Boston, MA, USA</p>		
9:30-10:30am	Coffee/Posters		
10:30-12:00	<p>Session 5  Molecular Imaging  Session Chairs:  Michael Graham, MD, Ph.D, Iowa, USA  Hazel Jones, MD, London, United Kingdom</p>		
	24) Dynamic Xenon Ventilation CT Using Dual-Source and Dual-Energy Techniques in Children with Congenital Bronchial Obstruction: Initial Experience	Hyun Woo Goo, Joon Beom Seo, Eun Jin Chae, Krauss Bernhard	Asan Medical Center, University of Ulsan College of Medicine. Seoul, Korea
	25) Gas washout experiments with 3HE MR and SF6 inert gas washout	Martin Deppe, Alex Horsley, Kenny Macleod, Juan Parra-Robles, Salma Ajraoui, Jim Wild	University of Sheffield, UK Molecular Medicine Centre, University of Edinburgh, UK
	26) 1H MR Human Lung Imaging in the Upright Posture	David Chu, Robert Wolf	Fonar Corporation, Melville, NY, USA
	27) Time Resolved Lung Ventilation Imaging by Fourier Decomposition	Michael Deimling, V. Jellus, B. Geiger, and C.	Siemens Healthcare. Princeton, New Jersey, USA

		Chefd'hotel	
	28) Airway Measurement in 3D using Dynamic Hyperpolarized He-3 Multi-Echo VIPR	Eric Peterson, James H. Holmes, Sean B. Fain	University of Wisconsin – Madison, WI, USA
	29) FDG-PET imaging as a biomarker for neutrophilic lung inflammation	Delphine L. Chen, Daniel B. Rosenbluth, Thomas W. Ferkol, Mark A. Mintun, Michael J. Walter, Daniel P. Schuster	Washington University School of Medicine, St. Louis, MO., USA
	Parallel Session 6 Animal Models Session Chairs: Michael Welsh, MD. Ph.D., Iowa, USA Wayne Mitzner, Ph.D., Baltimore, MD, USA		
	30) Measuring xenon gas-exchange time constants using XTC MRI	Kai Ruppert, J.F. Mata, Y. Chang, C. Wang, T.A. Altes, J.R. Brookeman, K.D. Hagspiel, J.P. Mugler III	The Children's Hospital of Philadelphia. Havertown, PA , USA
	31) Three-dimensional histology for the evaluation of elastase-induced emphyseme in Mice	A. Rozik, L. Mathew, J. McCallum, D. Slipetz, A. Fenster and G. Parraga	Robarts Research Institute Merck Frosst Canada Ltd, The University of Western Ontario, and Lawson Health Research Institute, London, Canada
	32) Hyperpolarized Noble Gas Magnetic Resonance Imaging of a Gastric Aspiration Model of Acute Lung Injury in Rats	M. S. Fox, A. Ouriadov, L. McCaig, R. Kraayvanger, R. Veldhuizen, G. E. Santyr	Robarts Research Institute. London, Ontario, Canada

	33) Lung Cancer: An evaluation of volumetric histopathological content and correlation to computed tomography	de Ryk J, Weydert J, Thiesse J, Namati E, Reinhardt J.M, Hoffman E.A, McLennan G	University of Iowa, Iowa City, Iowa, USA
	34) Micro-computed tomography and microscope: Phenotyping differences in the lungs of Inbred mouse strains	Jacqueline Thiesse, Eman Namati, Amanda R. Smith, Jessica de Ryk, Joseph M. Reinhardt, Eric A. Hoffman and Geoffrey McLennan	University of Iowa, Iowa City, USA.
	35) Visualization and Quantification of Collateral Ventilation in a Canine Model of Bronchial obstruction with Xenon-enhanced, Dynamic Dual Energy CT	Eun Jin Chae, Joon Beom Seo, Namkug Kim, Yu Mi Jang, Yedaun Lee, Tae-Hyung Kim	Asan Medical Center, Seoul, Korea
	36) Functional Assessment of Donor Lungs using Multi-Detector Row Computed Tomography	Lynch WR, Alford SK, Schmidt AJ, and Hoffman EA.	University of Iowa, Iowa City, IA, USA
12:00-1:30pm	Lunch/Posters		
1:30-3:00pm	Plenary: <u>Advances in Multi Modality Imaging</u> Osama Mawlawi, Ph.D, Houston, TX, USA Paul Kinahan, Ph.D,, Seattle, WA, USA Timothy Hughes, Erlangen, Germany		
3:00-4:00pm	Break/Posters		
4:00-5:30pm	Session 7 <u>Lung oxygen and vascular tone</u> Session Chairs:		

	Yoshiharu Ohno MD., Ph.D., Kobe, Japan Sebastian Ley, Heidelberg, Germany		
	36) SNR, T2, and oxygen Partial Pressure Measurement in Rodent Lungs Using Hyperpolarized <sup>3</sup> He and <sup>129</sup> Xe in Variable Field Strength MRI System	William Dominguez Viqueira, Ryan Kraavanger Juan Parra-Robles, and Giles E.	Robarts Research Institute, London, Canada University of Sheffield, Sheffield, UK
	37) Additional Detection of peripheral emboli at dual energy pulmonary CT angiography with the use of computer-aided detection, lung PBV, lung vessels softwares	Joon Beom Seo, Choong Wook Lee, Jae-Woo Song, Mi Young Kim, Ha Young Lee, Yang Sin Park, Yu Mi Jang, Namkug Kim	Asan Medical Center, Seoul, Korea
	38) Navigator-Triggered Oxygen-Enhanced MR Imaging of the Lung: a study of Short Term Reproducibility	Francesco Molinari, MD ; Michael Puderbach, MD ; Monika Eichinger, MD ; Sebastian Ley, MD ; Michael Bock, PhD ; Lorenzo Bonomo, MD ; Hans-Ulrich Kauczor, MD	Catholic University of Rome, Italy Deutsches Krebsforschungszentrum Heidelberg, Germany University of Heidelberg, Heidelberg, Germany
	39) Improved visualization of delayed regional pulmonary perfusion in cystic fibrosis patients	Monika Eichinger, Michael Puderbach, Hans-Ulrich Kauczor, Frank Risse	Deutsches Krebsforschungszentrum, Heidelberg, Germany
	40) Effects of oral corticosteroid treatment on the ventilation and lung microstructure in patients with severe asthma: Assessment with hyperpolarized helium-3 MR imaging	C Wang, PhD, Charlottesville, VA; S Marc, MD; J M Olazagasti, MD; T A Altes, MD; J P	University of Virginia, Charlottesville, VA, USA

		Mugler, PhD; E E de Lange, MD; et al	
	41) Assessment of lobar pulmonary perfusion of COPD patients: Preliminary experience with dual-energy CT angiography	V Pansini, M Remy-Jardin, JB Faivre, A Bothelo, T Perez, A Duhamel, J Remy <sup>1</sup>	Hospital Calmette; University Center of Lille, Lille cedex – France
	Parallel Session 8 Optical Imaging. Cancer assessment and image acquisition Session Chairs: Geoff McLennan, Ph.D., Iowa, USA Jennifer K. Barton, Ph.D., Tucson, AZ, USA		
	42) Evaluation of respiratory kinetics with rapid 2D dynamic MRI of a He-3 gas bolus	Rafael L O'Halloran, James H Holmes, Ryan C Lipscomb, Sean B Fain	University of Wisconsin – Madison, USA
	43) 4D MRI in unilateral diaphragm dysfunction due to malignant infiltration	Julien Dinkel, Christian Thieke, Christian Hintz, Jurgen Biederer, Peter Huber, Jurgen Debus, Hans-Ullrich Kauczor	German cancer research center. Heidelberg, Germany
	44) Multi-modal optical imaging of the pulmonary airways	M. J. Suter, D. K. Kang, B. E. Bouma, G. J. Tearney	Harvard Medical School, Wellman Center for Photomedicine, Massachusetts General Hospital Boston, Massachusetts, USA
	45) Image registraion of hyperpolarized 3HE MRI and X-ray CT images of the lung via 1H MRI and mutual information	RH Ireland, N Woodhouse, JA Swinscoe, MQ Hatton, BH Foran, JM Wild	University of Sheffield, Sheffield, UK
	46) Quantitative Tumor perfusion	Nunzia Tacelli, Martine	Hospital Calmette; University

	assessment with dual-energy, single-source 64-slice multidetector-row CT (MDCT): Technical approach with pathologic-CT Orrelations in 13 patients	Remy-Jardin, Marie- Christine Copin, Arnaud Scherpereel, Eric Mensier, Sophie Jaillard, Jean-Jacques Lafitte, Alain Duhamel , Jacques Remy	Center of Lille, Lille cedex – France
6:00-10:00pm	SOCIAL EVENING @ the Marriott Dinner and entertainment		