The 2004 International Workshop on Pulmonary Functional Imaging at Penn

hosted by
Department of Radiology and MMRRCC, University of Pennsylvania Health System
Philadelphia, Pennsylvania, USA

November 12-14, 2004

Friday, November 12, 2004

7:00 – 8:00 a.m.  Registration and Continental Breakfast

8:00 – 8:15 a.m.  Welcome and Introduction
Rahim R. Rizi

Special Lectures
Moderators: Warren Gefter, Masaru Ishii

8:15 – 9:00 a.m.  Quantitative Measurements of Lung Parameters Using CT
Eric Hoffman
University of Iowa

9:00 – 9:30 a.m.  Relating Pulmonary Function Tests to Lung Imaging – Part One
Wayne Mitzner
Johns Hopkins University

9:30 – 10:00 a.m.  Relating Pulmonary Function Tests to Lung Imaging – Part Two
Solbert Permutt
Johns Hopkins University

10:00 – 10:15 a.m.  Questions and Answers

10:15 – 10:30 a.m.  Refreshment Break

10:30 – 11:15 a.m.  Molecular Imaging of the Lungs
Daniel Schuster
Washington University

11:15 – 11:45 p.m.  Historical Perspective of Polarized Helium
William Happer
Princeton University
11:45 – 12:15 p.m.  Quantification of Regional Gas Exchange with PET
Jose Venegas
Harvard University

12:15 – 1:15 p.m.  Lunch on your own

**COPD**

**Moderators:** John Hansen-Flaschen, David Lipson

1:15 – 1:45 p.m.  Clinical Aspects of COPD
John Hansen-Flaschen
University of Pennsylvania

1:45 – 2:15 p.m.  A Thoracic Surgeon's Perspective on Functional Lung Imaging
Joseph Shrager
University of Pennsylvania

1:45 – 2:15 p.m.  A Pulmonologist's Perspective on Functional Lung Imaging
David Lipson
University of Pennsylvania

2:15 – 2:45 p.m.  Inflammation Imaging of the Lungs
Daniel Schuster
Washington University

3:15 – 3:30 p.m.  Questions and Answers

3:30 – 3:45 p.m.  Refreshment Break

3:45 – 4:30 p.m.  Regional Ventilation and PAO2 Measurements
Martin Fischer
University of Pennsylvania

4:30 – 5:15 p.m.  ADC: A New Method for the Early Detection of Emphysema
Per Akeson, Ingrid Casselbrant
Lund University

5:15 – 5:45 p.m.  Quantitative Analysis of COPD Using Computed Tomography
Harvey O Coxson
Vancouver General Hospital

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**Saturday, November 13, 2004**

7:15 – 8:00 a.m.  Continental Breakfast
**Functional Lung Imaging I**

**Moderators:** John Mugler, Dean Kuethe

8:00 – 8:30 a.m.  
**Overview of Techniques for MR Imaging of Hyperpolarized Gases**  
John Mugler  
University of Virginia

8:30 – 9:00 a.m.  
**The Transition from $^3$He to $^{129}$Xe - Issues and Opportunities**  
Bastiaan Driehuys  
Duke University Medical Center

9:00 – 9:30 a.m.  
**Production of Large Quantities of $^{129}$Xe**  
F. William Hersman  
University of New Hampshire

9:30 – 9:45 a.m.  
**Panel Discussion**

9:45 – 10:00 a.m.  
**Refreshment Break**

10:00 – 10:30 a.m.  
**Measurement of Regional Ventilation and Perfusion Ratio From Polarized $^3$He**  
Rahim Rizi  
University of Pennsylvania

10:30 – 11:00 a.m.  
**Assessment of Lung Function by SF6**  
Dean Kuethe  
New Mexico Resonance

11:00 – 11:30 a.m.  
**Production of Polarized Carbon-13 by DNP**  
Stephen Kadlecek  
University of Pennsylvania

11:30 – 12:00 a.m.  
**Production of Polarized Carbon-13 by Parahydrogen**  
Joachim Bargon  
University of Pennsylvania

12:00 – 12:15 p.m.  
**Panel Discussion**

12:15 – 1:15 p.m.  
**Lunch on your own**

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**Functional Lung Imaging II**

**Moderators:** Erik Hoffman, Rahim Rizi

1:15 – 1:45 p.m.  
**Early Detection of Emphysema by Polarized Gas MRI**  
Mark Conradi  
Washington University

1:45 – 2:15 p.m.
Assessment of Lung Perfusion from Polarized Gas MRI  
Masaru Ishii  
Johns Hopkins University

Regional Ventilation and Lung Mechanics by CT Methods  
Brett Simon  
Johns Hopkins University

Assessment of Cystic Fibrosis in Children Using Polarized Gas MRI  
Edwin van Beek  
University of Sheffield

Hyperpolarized Helium-3 MR Application in Pediatric Lung Disease  
Talissa Altes  
University of Virginia

Refreshment Break

Imaging of the Upper Airways  
Moderator: Mitch Schnall

Imaging of the Paranasal Sinuses  
James Zinreich  
Johns Hopkins University

Assessment of Paranasal Sinuses with Polarized Gas MRI  
Masaru Ishii  
Johns Hopkins University

Upper Airways Dynamics  
Raanan Arens  
Children’s Hospital of Philadelphia

Image-based Computational Fluid Dynamics Modeling of the Upper Airway in Children with Obstructive Sleep Apnea  
David M. Wootton  
Drexel University

Panel Discussion

Poster Session

Sunday, November 14, 2004

Continental Breakfast
Functional Lung Imaging III

Moderators: Jay Udupa, Jose Venegas

Recent Development in Image Analysis: Potential Application for Lung Function
Jay Udupa
University of Pennsylvania

Registration of CT Lung Volumes Using an Optical Flow Method
Larry Dougherty
University of Pennsylvania

The Dilemma of the Solitary Pulmonary Nodule—Current Status and Future Directions
Drew A. Torigian
University of Pennsylvania

Panel Discussion

Refreshment Break

Current Imaging Method for Pulmonary Embolism
Warren Gefter
University of Pennsylvania

Lung Functional Correlates Polarized He Imaging in Murine Models of Asthma
Angela Haczku
University of Pennsylvania

Quantitative Assessment of the Lungs by MIGET
James Baumgardner
University of Pennsylvania

Generating Microaerosols
Mike Bono
AMICI

Lunch on your own

Conclusion

Panel Discussion

Concluding Remarks Rahim Rizi and Warren Gefter