Thursday, February 23rd, 2023

6:50 – 7:40 am	**Continental Breakfast**
7:40 – 7:50 am	**Introductory Remarks** Rahim R. Rizi, Ph.D. University of Pennsylvania
7:50 – 8:00 am	**Welcome Remarks** Mitchell D. Schnall, M.D., Ph.D. University of Pennsylvania
Session I: Keynote Lectures – Part I Moderator: Warren Gefter, M.D.
8:00 – 8:25 am	**A Birds-eye View of Pulmonary Challenges and How Imaging Might Help** Fernando Martinez, M.D. Weill Cornell Medicine
8:25 – 8:45 am	**Imaging Needs to Guide Interventional Treatments for COPD Patients** Gerard J. Criner, M.D. Temple University
8:45 – 9:05 am	**Origins of Quantitative Functional X-ray Computed Tomography of the Lung and What's Next** Eric A. Hoffman, Ph.D. University of Iowa
9:05 – 9:25 am	**MRI in Cystic Fibrosis: Successful Translation of Functional MRI into Clinical Medicine** Hans-Ulrich Kauczor, M.D. University Hospital Heidelberg, Germany
9:25 – 9:45 am	**The Small Airways: A Key Target for Quantitative, Functional Lung Imaging** Warren Gefter, M.D. University of Pennsylvania
9:45 – 10:00 am	**Discussion**
10:00 – 10:15 am	**Break**
Session II: Keynote Lectures – Part II Moderator: Hans-Ulrich Kauczor, M.D.
10:15 – 10:35 am	**Artificial Intelligence in Chest Imaging: Is the Future Really Here?** Edwin van Beek, M.D., Ph.D. University of Edinburgh, U.K.
10:35 – 10:55 am	**Latest Advances in Imaging in Asthma – Targeted Therapy** Mario Castro, M.D. University of Kansas Medical Center
10:55 – 11:15 am	**Role of Imaging in COPD, in 2023 and Beyond** MeiLan Han, M.D. University of Michigan
11:15 – 11:35 am	**Sarcopenia: The Multiple Pathways of Muscle Loss**

	George R. Washko, M.D. Brigham and Women's Hospital
11:35 – 11:55 am	**Towards Routine Quantitative Lung Imaging** Joon Beom Seo, M.D., Ph.D. University of Ulsan, South Korea
11:55 – 12:10 pm	**Defining Human Specific Mechanisms of Lung Development, Injury & Regeneration** Maria Basil, M.D., Ph.D. University of Pennsylvania
12:10 – 12:20 pm	**Discussion**
12:20 – 1:10 pm	**Lunch**
Session III: Early Investigators   **Moderator: Stephen Kadlecek, Ph.D.**
1:10 – 1:20 pm	**Tracking Intratidal Blood Volume Redistribution with Dynamic Dual-energy CT** Jacob Herrmann, Ph.D. University of Iowa
1:20 – 1:30 pm	**Translating ^{129}Xe MRI to Clinical Practice: Preliminary Experience** Robert Thomen, Ph.D. University of Missouri
1:30 – 1:40 pm	**Optimizing Dynamic Contrast Analysis for Imaging Pulmonary Perfusion in Injured Lungs** Yi Xin, Ph.D. Massachusetts General Hospital
1:40 – 1:50 pm	**Emerging MRI Techniques and Insights for the Neonatal Lung** Nara Higano, Ph.D. Cincinnati Children's Hospital Medical Center
1:50 – 2:00 pm	**Polymorphic Deep Learning for Robust Segmentation Across Species and Diseases** Sarah E. Gerard, Ph.D. University of Iowa
2:00 – 2:15 pm	**Discussion**
2:15 – 2:30 pm	**Break**
Session IV: Lung Cancer   **Moderator: David Mankoff, M.D., Ph.D.**
2:30 – 2:45 pm	**Lung Cancer Screening Efficacy Enhanced Through Radiomic Biomarkers** Jessica C. Sieren, Ph.D. University of Iowa
2:45 – 3:00 pm	**Molecular Imaging of Lung Cancer: Metabolism and Proliferation** David Mankoff, M.D., Ph.D. University of Pennsylvania
3:00 – 3:15 pm	**The Role of Surgery in the Treatment of Mesothelioma** Joseph Friedberg, M.D. Temple University
3:15 – 3:30 pm	**Quantitative Imaging for Lung Cancer in the Era of Immuno-oncology** Ho Yun Lee, M.D., Ph.D. Sungkyunkwan University, South Korea

3:30 – 3:45 pm	**Intraoperative Molecular Imaging of Lung Cancer** Sunil Singhal, M.D. University of Pennsylvania
3:45 – 3:55 pm	**Discussion**
3:55 – 4:05 pm	**Break**
Session V: COVID and Post-COVID Lung Imaging **Moderator: Maurizio Cereda, M.D.**	
4:05 – 4:20 pm	**Are ^{129}Xe MRI Ventilation Abnormalities Clinically Relevant in Post-acute COVID-19 Syndrome, 3 and 15 Months Post-infection?** Grace Parraga, Ph.D. (presented by Alexander Matheson, B.S.) Western University, Canada
4:20 – 4:35 pm	**Leveraging CXR and CT Advanced Quantitative Imaging and Machine Learning Beyond COVID-19 Diagnosis to Quantification and Prognostication** Eduardo J. Mortani Barbosa Jr., M.D. University of Pennsylvania
4:35 – 4:50 pm	**Longitudinal Monitoring of Lung Function and Structure Post-COVID-19 Hospitalisation with Multinuclear Lung MRI** Jim Wild, Ph.D. University of Sheffield, U.K.
4:50 – 5:05 pm	**Visualizing Gas Exchange Defects Using Hyperpolarized ^{129}Xe MRI in Patients with Post-acute COVID-19 Respiratory Symptoms** Peter Niedbalski, Ph.D. University of Kansas Medical Center
5:05 – 5:15 pm	**Discussion**
5:15 – 5:30 pm	**Break**
Session VI: Assessment of Structural and Functional Changes in ARDS **Moderator: Marcos Vidal Melo, M.D., Ph.D.**	
5:30 – 5:45 pm	**Regional Blood Flow and Inflammation During Low Tidal Volume Mechanical Ventilation** Marcos Vidal Melo, M.D., Ph.D. Columbia University
5:45 – 6:00 pm	**Imaging Lung Perfusion to Guide ARDS Care** Maurizio Cereda, M.D. Massachusetts General Hospital
6:00 – 6:15 pm	**Ventilating the Injured Lung: Insights from Quantitative CT Imaging** David Kaczka, M.D., Ph.D. University of Iowa
6:15 – 6:30 pm	**New Approaches to Lung Repair** Nicolino V. Dorrello, M.D. Columbia University
6:30 – 6:45 pm	**Leveraging Imaging to Inform Molecular Subphenotypes of ARDS** Nadir Yehya, M.D. Children's Hospital of Philadelphia
6:45 – 7:00 pm	**Discussion**

Friday, February 24th, 2023

7:00 – 8:00 am	**Continental Breakfast**

<table>
<tr><td colspan="2" style="background:black;color:white">Session VII: Interstitial Lung Disease
Moderator: Michael Beers, M.D.</td></tr>
</table>

8:00 – 8:15 am	**Leveraging Novel Preclinical Models, Big Data Omics, and New Paradigms to Drive Discovery in Idiopathic Pulmonary Fibrosis** Michael F. Beers, M.D. University of Pennsylvania
8:15 – 8:30 am	**Regional Patterns of Fibrosis, Gas Exchange and Perfusion in IPF Using Chest CT and MRI** Sean B. Fain, Ph.D. University of Iowa
8:30 – 8:45 am	**Molecular Imaging of Fibrosis and Fibrogenesis in ILD** Peter Caravan, Ph.D. Massachusetts General Hospital
8:45 – 9:00 am	**Discussion**
9:00 – 9:15 am	**Break**

<table>
<tr><td colspan="2" style="background:black;color:white">Session VIII: Machine Learning and Deep Learning – Imaging in COPD
Moderator: Saurabh Jha, MD</td></tr>
</table>

9:15 – 9:35 am	**Unsupervised Machine Learning of Quantitative CT Emphysema Subtypes** R. Graham Barr, M.D., DrPH Columbia University
9:35 – 9:50 am	**AI in Chest Imaging: From Detection to Prediction** Joon Beom Seo, M.D., Ph.D. University of Ulsan, South Korea
9:50 – 10:05 am	**Synthesizing Lung Functional Images Using Deep Learning** Joseph M. Reinhardt, Ph.D. University of Iowa
10:05 – 10:20 am	**Assessments of Emphysema and Pulmonary Fibrosis on CT Using Deep Learning** Stephen Humphries, Ph.D. National Jewish Health
10:20 – 10:35 am	**Recent Advances in Assessing Vascular Morphology and Perfusion in Pulmonary Vascular Disease** Raul San Jose Estepar, Ph.D. Brigham and Women's Hospital
10:35 – 10:50 am	**Discussion**
10:50 – 11:05 am	**Break**

<table>
<tr><td colspan="2" style="background:black;color:white">Session IX: Post-Doctoral Fellow and Graduate Student Presentations
Moderator: Kai Ruppert, Ph.D.</td></tr>
</table>

11:05 – 11:13 am	**Denoising Diffusion-weighted Hyperpolarized ^{129}Xe Images with Patch-based Higher-order Singular Value Decomposition** Stephanie A. Soderlund Cincinnati Children's Hospital Medical Center
11:13 – 11:21 am	**Time-resolved Dynamic Lung Water Magnetic Resonance Imaging During Exercise Stress**

	Felicia Seemann National Institutes of Health
11:21 – 11:29 am	**3D Quantification of Clustered Lung Volume Defects in Different Lung Diseases Utilizing Hyperpolarized Gas MR Images** Gabriela Delgado University of Missouri
11:29 – 11:37 am	**Effect of CFTR Modulator Therapy with Elexacaftor/Tezacaftor/Ivacaftor on Pulmonary Ventilation Derived by 3D Phase-resolved Functional Lung MRI in Cystic Fibrosis Patients** Filip Klimeš Hannover Medical School, Germany
11:37 – 11:45 am	**Quantitative Mapping of Cardiopulmonary Oscillations Using Hyperpolarized ^{129}Xe Gas Exchange MRI** Junlan Lu Duke University
11:45 – 11:53 am	**Pulmonary Vascular Redistribution Following 2.5-year Anti-IL-5Rα Treatment in Eosinophilic Asthma** Marrissa J. McIntosh Robarts Research Institute and Western University, Canada
11:53 – 12:01 am	**Lung Volume Dependence and Repeatability of Hyperpolarized ^{129}Xe MRI Gas Uptake Metrics in Healthy Volunteers and Patients with COPD** William J. Garrison University of Virginia
12:01 – 12:10 pm	**Discussion**
12:10 – 1:00 pm	**Lunch**
Session X: Pre-COPD and Small Airways Moderator: Eric Hoffman, Ph.D.
1:00 – 1:15 pm	**Investigating COPD Progression Through Quantitative CT** Craig J. Galbán, Ph.D. (presented by Sundaresh Ram, Ph.D.) University of Michigan
1:15 – 1:30 pm	**Dysanapsis: Origins and Clinical Significance Thanks to Pulmonary Imaging** Benjamin M. Smith, M.D. McGill University and Columbia University
1:30 – 1:45 pm	**Physiologic Characterization of Respiratory Function Using Fluoroscopy-based X-ray Velocimetry** Naresh M. Punjabi, M.D., Ph.D. University of Miami
1:45 – 2:00 pm	**New Metrics for Quantification of Airway Disease in COPD** Surya P. Bhatt, M.D. University of Alabama at Birmingham
2:00 – 2:15 pm	**Reliable Lung Quantification via CT Using Virtual Imaging Trials** Ehsan Abadi, Ph.D. Duke University
2:15 – 2:30 pm	**Mucus Plugs Occluding COPD Airways: A Review of Their Clinical Impact** Alejandro A. Diaz, M.D., MPH

	Brigham and Women's Hospital
2:30 – 2:45 pm	**Discussion**
2:45 – 3:10 pm	**Break**

Session XI: Assessment of Pulmonary Disorders in the Pediatric Population and Imaging Asthmatic Patients **Moderator: Zackary Cleveland, Ph.D.**	
3:10 – 3:25 pm	**Structural and Functional Proton MRI in Pediatric Lung Disease** Giles Santyr, Ph.D. The Hospital for Sick Children, Canada
3:25 – 3:40 pm	**Translational Xe MRI in Pediatrics** Jason Woods, Ph.D. Cincinnati Children's Hospital Medical Center
3:40 – 3:55 pm	**Body Composition CT Metrics and Lung Function in Asthma Participants: Analyses from the Severe Asthma Research Program** Mark L. Schiebler, M.D. University of Wisconsin, Madison
3:55 – 4:10 pm	**Phenotyping Asthma/COPD Overlap in Patients with Mild Lung Disease with Xenon MRI and Lung Function - Results from the Novelty Cohort** Laurie Smith, Ph.D. University of Sheffield, U.K.
4:10 – 4:25 pm	**Discussion**
4:25 – 4:40 pm	**Break**
Session XII: Proton MRI of the Lung **Moderator: John Mugler, Ph.D.**	
4:40 – 4:55 pm	**Phase Resolved Functional Lung (PREFUL) MRI: Latest Developments and Clinical Translation** Jens Vogel-Claussen, M.D. Hannover Medical School, Germany
4:55 – 5:10 pm	**4D Proton MRI of the Lung at High Spatiotemporal Resolution** Wilson Miller, Ph.D. University of Virginia
5:10 – 5:25 pm	**Proton MR Imaging at 0.55T** Adrienne Campbell, Ph.D. National Institutes of Health
5:25 – 5:40 pm	**Quantitative Measures of Ventilation, Perfusion, and Ventilation-perfusion in the Human Lung Using Proton MRI** Rui Carlos Sa, Ph.D. National Institutes of Health
5:40 – 5:55 pm	**Discussion**
6:00 – 8:30 pm	**Poster Session**

Saturday, February 25th, 2023

7:00 – 7:45 am	**Continental Breakfast**

Session XIII: Imaging of Lung Transplant and Cell Therapy Moderator: Joel Cooper, M.D.	
7:45 – 8:00 am	**Predicting the Outcome of Lung Transplantation Using Machine Learning** Pratik Chaudhari, Ph.D. University of Pennsylvania
8:00 – 8:15 am	**The Role of CT Imaging in Lung Transplant** Micheal McInnis, M.D. University of Toronto, Canada
8:15 – 8:30 am	**Hyperpolarized ^{129}Xe Ventilation and Gas Exchange as Markers for Lung Transplantation** Faraz Amzajerdian University of Pennsylvania
8:30 – 8:45 am	**Lung Metabolism and Graft Preservation on Ex Vivo Lung Perfusion** Kentaro Noda, Ph.D. University of Pittsburgh
8:45 – 9:00 am	**Metabolic Changes in the Donor Lung During Ischemia as a Function of Time and Temperature** Zachary Schug, Ph.D. Wistar Institute
9:00 – 9:15 am	**Contemporary Challenges and Opportunities to Improve Equity and Use of Organs for Lung Transplant** Edward Cantu, M.D. University of Pennsylvania
9:15 – 9:30 am	**Neutrophil Trafficking After Lung Transplantation** Daniel Kreisel, M.D., Ph.D. Washington University in St. Louis
9:30 – 9:45 am	**Discussion**
9:45 – 10:00 am	**Break**
Session XIV: Advances in CT Imaging and Photon Counting Moderator: Peter B. Noël, Ph.D.	
10:00 – 10:15 am	**Photon-Counting CT – Opportunities for Interdisciplinary Preclinical and Clinical Research** Peter B. Noël, Ph.D. University of Pennsylvania
10:15 – 10:30 am	**Fundamentals of Photon Counting CT and Experiences with the First Clinically Available System** Juan Carlos Ramirez-Giraldo, Ph.D. Siemens Healthineers
10:30 – 10:45 am	**End-to-end Radiomics Standardization Framework** Grace Gang, Ph.D. University of Pennsylvania
10:45 – 11:00 am	**Hierarchical Phase Contrast Tomography: A Method for Imaging Multiscale Three-dimensional Structures in Whole Human Lung** Claire Walsh, Ph.D. University College London, U.K.

11:00 – 11:15 am	**Discussion**
11:15 – 11:30 am	**Break**

Session XV: Lung Imaging with Hyperpolarized ^{129}Xe **Moderator: Rosa Tamara Branca, Ph.D.**	
11:30 – 11:45 am	**Dissecting Pulmonary Gas Exchange and Hemodynamics with ^{129}Xe MRI** Bastiaan Driehuys, Ph.D. Duke University
11:45 – 12:00 am	**Combining HP ^{129}Xe and UTE MRI with Proteomics to Phenotype Cystic Fibrosis Lung Disease** Zackary I. Cleveland, Ph.D. Cincinnati Children's Hospital Medical Center
12:00 – 12:15 pm	**Sensing the Heat with Spin Polarized ^{129}Xe** Rosa Tamara Branca, Ph.D. University of North Carolina at Chapel Hill
12:15 – 12:30 pm	**How to Capture an Atom: Developing Molecular Sensors with Useful Xenon-binding Properties** Ivan Dmochowski, Ph.D. University of Pennsylvania
12:30 – 12: 45 pm	**Role of ^{129}Xe MRI in Determining the Significance of Pulmonary Pathology in Challenging Cases (Examples of COPD, E-cigarette, and Aging)** Y. Michael Shim, M.D. University of Virginia
12:45 – 1:00 pm	**^{129}Xe MRI Phenotypes of Post-HSCT Pulmonary Complications** Laura L. Walkup, Ph.D. Cincinnati Children's Hospital Medical Center
1:00 – 1:15 pm	**Assessing Lung Structure via Hyperpolarized ^{129}Xe MR Spectroscopy: Peeking into Peaks** Kai Ruppert, Ph.D. University of Pennsylvania
1:15 – 1:30 pm	**Discussion**
1:30 – 2:15 pm	**Lunch**

Session XVI: COPD and AI **Moderator: Sean B. Fain, Ph.D.**	
2:15 – 2:30 pm	**Data Harmonization on Large Cohorts of Lung CT Scans** Andrew F. Laine, Ph.D. Columbia University
2:30 – 2:45 pm	**Image-based Multiscale Modeling of the Lung to Quantify Regional Mechanical Stress In Vivo** Reza Avaz, Ph.D. Texas A&M University
2:45 – 2:55 pm	**Dynamic Imaging of the Lung with Hyperpolarized ^{129}Xe** Hooman Hamedani, Ph.D. University of Pennsylvania
2:55 – 3:05 pm	**Airway Aerodynamics: MRI-based Modeling and Validation** Alister Bates, Ph.D.

	Cincinnati Children's Hospital Medical Center
3:05 – 3:15 pm	**AI-based Detection of COPD on Computed Tomography** Sandeep Bodduluri, Ph.D. University of Alabama at Birmingham
3:15 – 3:30pm	**Discussion**
3:30 – 3:45 pm	**Break**
Session XVII: Lung Imaging with ^{19}F **Moderator: Brandon Zanette, Ph.D.**	
3:45 – 4:00 pm	**^{19}F Lung Imaging with Octafluorocyclobutane** Mitchell Albert, Ph.D. Thunder Bay Regional Health Research Institute, Canada
4:00 – 4:15 pm	**Imaging Change in Ventilation Properties with ^{19}F-MRI: Quantitative, Repeatable and Accessible Imaging of Lung Function** Peter Thelwall, Ph.D. Newcastle University, U.K.
4:15 – 4:30 pm	**Beyond FEV1: Dynamic Perfluorinated Gas MRI in Cystic Fibrosis** Jennifer Goralski, M.D. University of North Carolina at Chapel Hill
4:30 – 4:45 pm	**Discussion**
Session XVIII: Clinical Translation and Latest Technical Developments **Moderator: G. Wilson Miller, Ph.D.**	
4:45 – 5:00 pm	**Late Breaking News: FDA Approval and Launch of Hyperpolarized Xenon MRI** Alex Dusek, Chief Commercial Officer Polarean
5:00 – 5:15 pm	**Next-generation Gas Hyperpolarization and HP Imaging on Point-of-care MRI Scanners** Boyd Goodson, Ph.D. Southern Illinois University
5:15 – 5:30 pm	**Next-generation Enabling Hyperpolarized Clinical Technologies Using Parahydrogen** Eduard Chekmenev, Ph.D. Wayne State University
5:30 – 5:45 pm	**Closing Remarks**
5:45 pm	**Adjourn**