
RSNA 2014: Honoured Lectures and Annual Orations



RSNA 2014 will be featuring honoured lectures from esteemed researchers and lecturers during the RSNA Scientific Assembly and Annual Meeting.

Special Lecture: Francis S. Collins. Sunday, Nov. 30.

In this special lecture, Dr. Francis S. Collins, MD, PhD, Director of the National Institutes of Health (NIH) will examine the exceptional opportunities that scientific and technological breakthroughs offer for biomedical research. The talk will have a special focus on NIH-supported imaging research and will also examine recent advances in fundamental knowledge about biology and the ways in which that knowledge has served to improve human health. Topics may include the Brain Research through Advancing Innovative Neurotechnologies (BRAIN) Initiative, the Accelerating Medicines Partnership (AMP), and affordable technologies to extend imaging insights to low-resource settings.

Dr. Collin's talk will also include a discussion about future challenges, including training the next generation of researchers; supporting the development of innovative research, programs and partnerships; and encouraging broader appreciation and support for the biomedical research enterprise.

New Horizons Lecture: Jonathan M. Rubin. Monday, Dec. 1

Quantitative methods nearly unique to ultrasound are giving the modality a new life, says Jonathan M. Rubin, MD, PhD. According to Dr. Rubin, Director of the Division of Ultrasound in the Department of Radiology at the University of Michigan Hospitals in Ann Arbor, rapidly expanding applications of elasticity imaging are poised to have a major impact. Volume flow estimation, meanwhile, has the potential to significantly affect transplant evaluations, foetal evaluation through umbilical cord blood flow measurements, carotid artery flow and cerebral perfusion. He also points out that there are myriad new applications for contrast agents, using the bubbles that comprise the agents not only for contrast but also delivery.

Dr. Rubin has more than 30 years of experience in this field and has exploited the basic characteristics of ultrasound and other modalities to offer real-time imaging in neurosurgery, assess thrombus age in deep vein thrombosis, discriminate between oedema and fibrosis in Crohn's disease and improve gating methods for registering cardiac CT scans. Dr. Rubin's original paper on Power Doppler ultrasound has been referenced more than 800 times, and he was among the first to describe volume flow.

Annual Oration in Diagnostic Radiology: David C. Levin. Tuesday, Dec. 2

Dr. David C. Levin, MD, Professor and Chairman Emeritus of the Department of Radiology at Jefferson Medical College and Thomas Jefferson University Hospital in Philadelphia, believes that radiology faces several threats, ranging from commoditisation, declining reimbursements, and termination of groups by hospitals to the perception that much imaging is unnecessary. He feels that in order to counter these threats, radiologists need to move from the current volume-based practice model to a value-oriented one. Dr. Levin recommends that radiologists should become true consulting physicians, who actively assess the appropriateness of imaging requests, more closely supervise performance of the studies and are more adept at communicating results to patients. They should also focus more on quality and on developing closer ties to primary care physicians. Dr. Levin is confident that, by implementing these changes, radiology could be considered a high-value speciality within five years.

According to Dr. Lawrence B. Marks, MD, Dr. Sidney K. Simon Distinguished Professor of Oncology Research in the Department of Radiation Oncology at the University of North Carolina at Chapel Hill School of Medicine, medical imaging has markedly improved radiation therapy, but some limitations still remain. He points out that over-reliance on imaging can be detrimental.

For example, when defining targets for radiation therapy, clinicians need to understand the likely patterns of cancer spread, beyond the radiologically defined lesion. Differences in the physiologic state during diagnostic imaging, versus treatment, can influence the validity of medical images for radiation planning. "Good" diagnostic images may require breath hold, while therapy is usually not delivered in this state. Dose volume histograms, a cornerstone of modern radiation oncology, typically ignore inter- and intra-fraction motion and discard all spatial information. Meanwhile, oncologist-radiologist communication is often ambiguous, potentially increasing risks for misinterpretation and errors. Dr. Marks recommends that electronic health record-based standardisation of communication should be embraced. He also urges all to acknowledge and minimise the error bars associated with the application of medical images to radiation therapy.

RSNA/AAPM Symposium: Radiomics: From Clinical Images to Omics – Robert J. Gillies, Ph.D., and Hedvig Hricak M.D. Ph.D. Thursday, Dec. 4

In this symposium presented in conjunction with the American Association of Physicists in Medicine, Robert J. Gillies, PhD, and Hedvig Hricak, M.D, PhD, Dr. hc., will describe the motivation underlying medical imaging analyses of tumour heterogeneity and response to therapy, and the role of medical imaging omics in oncology as a biomarker and the potential benefits leading to improved outcomes. They will also address the benefits and challenges of advanced and high-throughput image analysis from large databases at multiple centres.

Dr. Gillies is chair of the Department of Cancer Imaging and Metabolism, Director of the Center of Excellence in Cancer Imaging and Technology, Vice Chair for Research in the Department of Radiology and Scientific Director of the Small Animal Imaging Lab (SAIL) and Image Response Assessment Team (IRAT) shared services at the Moffitt Cancer Center in Tampa, Fla. Dr. Hricak is chair of the Department of Radiology at Memorial Sloan-Kettering Cancer Center, a Professor of Radiology at Cornell University Medical College and an attending Radiologist at Memorial Hospital in New York.

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