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**RODERIC PETTIGREW, M.D., PH.D.**

ENGINEERING MEDICINE FOR A GLOBAL SOCIETY

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MARCH 2, 2017

4:00 P.M.

208 LIGHT HALL



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Upcoming Discovery Lecture:

**PAUL BIENIASZ, PH.D.**

*Investigator, HHMI*

*Professor and Head, Laboratory of Retrovirology,  
Aaron Diamond AIDS Research Center, The Rockefeller University*

*March 9, 2017*

*208 Light Hall / 4:00 P.M.*

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MEDICAL CENTER

## ENGINEERING MEDICINE FOR A GLOBAL SOCIETY

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The biomedical research landscape has experienced remarkable changes over the past decades, made possible by impressive innovations that have emerged from trans-disciplinary science. These innovations set the stage for more precise, patient-oriented diagnostic, treatment and prevention strategies. These depended on 1) advances in our fundamental knowledge of molecular and cell interactions in health and disease, 2) continued improvements in diagnostics across all biophysical scales, and 3) more targeted therapeutic approaches including directing the body's own immune system. Technological advances at the interface of engineering and the physical and life sciences promise new discoveries that can be turned into health through translational research. Twenty-first century challenges include global access to modern medicine, chronic disease from an aging population, the impact of a hyper-connected world, capitalizing on advances in molecular and genomic science, and realizing efficient delivery of healthcare where a conceptual value metric to be optimized for innovations is [ Utility/ Cost x Complexity]. The overarching goal is precision medicine where the vision is that "the right treatment is given to the right patient at the right time." To this end, more efficient, sensitive and quantitative tools are expected to make remarkable improvements in healthcare delivery as the 21st century progresses and medicine becomes increasingly more precise. Making sure these advances are available to everyone has been and remains a global challenge. It is also important that as advances are made in acquiring personalized data both actively and passively, actionable aspects of this information are returned to the individual to realize more patient-participatory healthcare.

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### **RODERIC PETTIGREW, M.D., PH.D.**

**DIRECTOR, NATIONAL INSTITUTE OF  
BIOMEDICAL IMAGING AND BIOENGINEERING (NIBIB),  
NATIONAL INSTITUTES OF HEALTH (NIH)**

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Prior to his appointment at the NIH, Dr. Pettigrew was Professor of Radiology, Medicine (Cardiology) at Emory University; Professor of Bioengineering at the Georgia Institute of Technology; and Director of the Emory Center for MR Research. He is known internationally for his work involving four-dimensional cardiovascular system imaging using magnetic resonance (MRI). His current research focuses on integrated imaging and biomechanical modeling of coronary atherosclerotic disease.

Early on at the NIBIB he led a national effort with the Howard Hughes Medical Institute to create interdisciplinary graduate training programs as well as the Quantum Projects program to achieve "medical moon shots". Under Dr. Pettigrew's leadership, myriad initiatives have been issued to develop technologies to reduce CT radiation dose, address hypertension, and reverse paralysis from spinal cord injuries.

Other programs established under his leadership include the NIBIB Trailblazer Award and the NIBIB-Coulter College Commercializing Innovation partnership. Dr. Pettigrew is a member of the US National Academies of Medicine and Engineering and the National Academy of Sciences, India. His awards include the Association of Black Cardiologists Herbert Nickens Award; the Biomedical Engineering Society Pritzker Distinguished Achievement Award; the National Medical Association Distinguished Service Award; the American Institute of Medical and Biological Engineering Pierre Galletti Award; the International Society of Magnetic Resonance in Medicine Distinguished Service Award; the Academy of Radiology Research Inaugural Gold Medal Award; and the American Association of Physicists in Medicine Honorary Member Award.

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