University of Houston - Biomedical Engineering Seminar

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Via Zoom: https://uh-edu-cougarnet.zoom.us/j/93512038041

Probing tissue motion using magnetic resonance imaging

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Abstract

Magnetic resonance imaging methods provide the flexibility to probe molecular motion in living organisms at vastly different scales – from sub-micron level, incoherent diffusive motion to organized motion of blood blow in vessels with velocities on the order of fraction of m/s. MR imaging methods sensitized to tissue motion can provide great insight into physiology of living tissue, e.g., to diagnose acute stroke, tissue micro-circulation or perfusion, tissue stiffness, bulk blood flow, and tissue deformation. This lecture will provide a brief overview of the principles behind these MR imaging methods.

Biosketch

Dr. Muthupillai is an imaging scientist who graduated from the Mayo Graduate School with a specialization in Magnetic Resonance Imaging. His research interests are to exploit the many imaging windows offered by MRI to further our understanding of health. For over two decades, Dr. Muthupillai has developed several MRI methodologies to evaluate heart disease, diffuse diseases of the liver, and for guiding interventions. Dr. Muthupillai has over 200 publications – papers, patents, book chapters, abstracts, and his innovations are widely adopted by industry and used in clinical practice. Dr. Muthupillai also has appointments at the Texas Heart Institute and the Department of Physics at UH. Currently he heads technology development in an imaging start up. Dr. Muthupillai, has a longstanding connection to the Physics department at UH through his active research collaboration with the late Prof. Dr. Pei-Herng Hor for well over a decade. During this time, many graduate students from the Department of Physics, went through his laboratory.