BOSE INSTITUTE COLLOQUIUM

FEBRUARY 15, 2023 (WEDNESDAY) at 4 PM

Main Auditorium, Unified Academic Campus
Bose Institute

Michael T. McMahon

F.M. Kirby Research Center for Functional Brain Imaging
Kennedy Krieger Institute, Baltimore, MD, USA

The Russell H. Morgan Department of Radiology and Radiological Sciences
Johns Hopkins School of Medicine, Baltimore, MD, USA

Michael T. McMahon, Ph.D.
Professor

Title and Abstract :

Chemical Exchange Saturation Transfer MRI contrast agents based on intramolecular hydrogen bonded systems and their applications to kidney and cancer imaging

Chemical exchange saturation transfer (CEST) is a novel MRI contrast mechanism readily implemented on standard 3 T clinical scanners with one of its promising features sensitivity to environmental changes including changes in pH values. CEST MRI contrast can be produced by a number of organic compounds with exchangeable protons, such as glucose, creatine, nucleic acids and peptides, however, most organic CEST agents suffer from reduced sensitivity because of their small exchangeable proton chemical shift (< 4.0 ppm). Recently, our group has demonstrated that use of intramolecular hydrogen bonding can help to shift the exchangeable protons to higher ppm(>6 ppm) and fine tune the proton exchange with water. In this talk, I will discuss several versatile scaffolds which contain intramolecular hydrogen bonding and enable tuning of shift and exchange rate. I will also discuss how these agents can be applied for kidney and cancer imaging.