

Nanoscale Organisation and Dynamics Group

University of Western Sydney



Chemical Exchange Saturation Transfer (CEST) MRI: Theory and Applications

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Abstract

Due to its exquisite soft tissue contrast and high spatial resolution, magnetic resonance imaging (MRI) is a pre-eminent clinical diagnostic tool. Chemical exchange saturation transfer (CEST) is a relatively new MRI contrast approach in which exogenous or endogenous compounds containing either exchangeable protons or exchangeable molecules are selectively imaged with enhanced sensitivity. In some cases, the sensitivity of low concentration solute molecules can be enhanced several orders of magnitude. Additionally, unlike conventional MRI contrast agents, contrast from CEST agents can be selectively turned on or off.

The CEST methodology has already allowed the use of many exogenous agents in vivo in animals, while endogenous markers such as cellular amino acids, peptides and sugar derivatives are being studied in humans. Recent data suggest that amide proton transfer (APT) may provide a biomarker for separating tumor recurrence from treatment necrosis in the brain. The field is evolving rapidly and many novel exogenous agents and endogenous markers are expected to be discovered in the near future.

This talk will give an overview of the physical principles CEST imaging, explanation of the methodology, and highlight some recent applications.

Profile

Dr Nirbhay Yadav completed his PhD at the University of Western Sydney under the supervision of Prof. William S. Price. In 2010, he moved to The Johns Hopkins University School of Medicine to take up a Post-Doctoral Fellowship in Radiology under the supervision of Prof. Peter van Zijl. Dr Yadav is currently a faculty member of the Dept. of Radiology at Johns Hopkins and the Kennedy Krieger Institute.

Staff and students at all levels are welcome to attend.

Venue and Time:

This talk will be held on Thursday May 22 at 2 pm at the Campbelltown Campus in Building 30, Lecture Theatre (CA-30.G.213).

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