

Title of talk:

Multimodal Neuroimaging for Quantitative Probing of Brain Function and Metabolism

Abstract:

While BOLD fMRI has proven an invaluable tool for mapping brain activity, it provides little quantitative information about the underlying physiological mechanisms associated with this activity. The lack of physiological specificity and the fact that the BOLD signal is dependent on baseline conditions largely account for the limited success of efforts to translate BOLD fMRI into clinical research. To achieve this goal we need to move fMRI from a mapping tool to a physiologically meaningful quantitative probe of neural activity. Recent developments in multimodal imaging have become increasingly important because no single imaging approach has the capacity to accomplish this goal. Multimodal techniques combine anatomical with functional information to identify mechanism-based changes in the brain responsible for changes in activation pattern due to various factors such as aging and disease.