

# Resolving the Dynamic Dance Between Proteins and Solvent Using NMR and Reverse Micelles

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The critical role of solvent in thermodynamically driving protein structure and function has long been recognized, yet significant controversy persists over the details of how water interacts with proteins. This fundamental gap in our basic understanding of protein systems is largely due to the paucity of experimental data regarding how water and proteins move with respect to one another at the atomic level. While the enthalpic contributions to protein structure-function relationships are well understood, the entropic contributions remain largely a mystery and the fast dynamics of water and protein provide an important window to entropy. Recent studies using nuclear magnetic resonance (NMR) have shed exciting new light on the entropic nature of proteins and of their solvating water. These experiments have revealed a likely functional role for the internal entropy of proteins and for the entropy of the water that solvates them. These recent findings and their implications for understanding (and manipulating!) protein function will be discussed. New studies using fluorescence techniques to understand anomalous diffusion in cells will also be summarized.

Date: Wed, Jan 24, 2018

Time: 4:30-5:30 pm

Location: 208 Clark Hall

Students, meet the speaker over coffee and cookies in the Bennett Conference room at 3:30 pm