The awesome power of Fluorine NMR – ligand binding, PREs and other applications

Angela M. Gronenborn, Department of Structural Biology and Pittsburgh Center for HIV-Protein Interaction, University of Pittsburgh School of Medicine, Pittsburgh, PA, 15261

^{19}F NMR is a powerful and versatile tool to study protein structure and protein–ligand interactions due to the favorable NMR characteristics of the ^{19}F atom, its absence in naturally occurring biomolecules, and small size. ^{19}F atoms can be introduced readily into proteins and ligands, permitting to use them as 'beacons' to study interactions by NMR. Both, ligand and protein resonances can be exploited for this purpose. I will discuss several applications, involving ^{19}F-modified proteins and ^{19}F-containing ligands, demonstrating the awesome power of ^{19}F NMR.