ACS Local Section
New York
Long Island Subsection

Experimental Approaches to Quantifying Noncovalent Interactions in Solution

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Tuesday, April 14th, 2026
6:30-7:30 PM on Zoom
Register to receive Zoom link:
https://suny-ow-edu.zoom.us/meeting/register/7tdD5wk0TGiYy-Z7_JM4FA

Abstract: Weak noncovalent interactions play central roles in molecular recognition, self-assembly, solvation, and chemical reactivity, yet their quantitative measurement in solution remains a longstanding challenge. This presentation will highlight a research program focused on the experimental quantification of noncovalent forces using molecular torsion balances.
By employing such model systems, small interaction energies are converted into measurable conformational equilibria that can be quantified by NMR spectroscopy. These approaches enable systematic investigation of how solvation and substituent effects modulate weak interactions in solution, while minimizing complications associated with traditional intermolecular measurements. The results provide direct insight into the physical origins of noncovalent forces and their sensitivity to molecular environment.

Biography: Dr. Emenike received his doctoral training in chemistry from Miami University (Oxford, OH) and completed postdoctoral research at Caltech with the late Professor John D. Roberts. Before joining the United States Naval Academy as a tenure-track faculty member. He held a faculty position in organic chemistry at SUNY Old Westbury. His research has been supported by various funding agencies, including ACS-PRF and NSF-IUSE.

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