

# Structural Dynamics of Proteins and Nucleic Acids



## Brent P. Krueger

Assistant Professor

Chemistry

[kruegerb@hope.edu](mailto:kruegerb@hope.edu)

B.S., Truman State University, 1993

M.S., University of Chicago, 1994

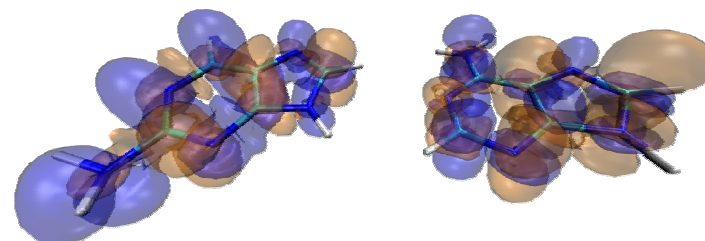
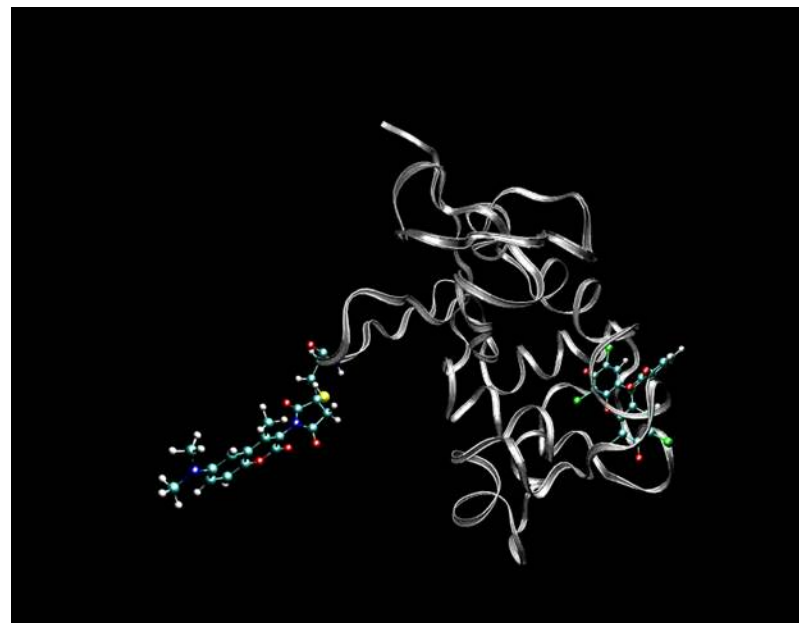
Ph.D., University of Chicago, 1999

Areas of expertise:      Biophysical Chemistry  
    Laser Spectroscopy  
    Computation

2005-8	NSF-MRI	\$ 379,609
2005-7	ACS-PRF	\$ 35,000
2004-6	NCSA	200,000 CPU hours
2004-7	Towsley	\$ 16,000 + sabbatical
2002-4	Res. Corp.	\$ 45,200

- Fretting about FRET: Correlation Between  $\kappa$  and  $R$ . D.B. VanBeek\*, M.C. Zwier\*, J.M. Shorb\*, B.P. Krueger. submitted *Biophys. J.*
- Structural Fluctuations and Excitation Transfer Between Adenine and 2-Aminopurine in Single-Stranded Deoxytrinucleotides. J.M. Jean and B.P. Krueger. *J. Phys. Chem. B.* **110** 2899-2909 (2006).
- Hybrid molecular dynamics-quantum mechanics simulations of solvation dynamics. ACS National Meeting, March 2005.
- NSF-MRI Grant. Acquisition of a Computer Cluster for Research, Research Training, and Teaching. 2005-08. (4 co-PIs) \$ 379,609.

Acknowledgements: NSF, NCSA, ACS-PRF, Research Corp., Pew



We seek to understand the role structural dynamics plays in biological function. Molecular dynamics simulations examine structural fluctuations in biopolymers. Quantum calculations then connect structure with spectroscopic behavior allowing us to connect directly with experiment, at the level of the spectroscopic observable.