

## BIOGRAPHICAL SKETCH

Brent P. Krueger

### A. Professional Preparation

Truman State University, Kirksville, MO Physics and Chemistry	B.S.1993
The University of Chicago, Chicago, IL Physical Chemistry	Ph.D. 1999
Vrije Universiteit, Amsterdam, The Netherlands Ultrafast Spectroscopy	1999
University of California at San Francisco, CA Molecular Dynamics (Pharmaceutical Chemistry)	1999 -2001

### B. Appointments

Associate Professor of Chemistry, Hope College, 2007 – Present  
Assistant Professor of Chemistry, Hope College, 2001 – 2007  
Towsley Research Scholar, Hope College, 2004-2007

### C. Publications (\* denotes undergraduate co-author; bold-faced denotes REU undergraduate co-author)

1. Fretting about FRET: Correlation between  $k$  and  $R$ . D.B. VanBeek\*, **M.C. Zwier\***, J.M. Shorb\*, B.P. Krueger. *Biophys J.* 92, 4168-4178 (2007).
2. Hybrid Molecular Dynamics-Quantum Mechanics Simulations of Condensed Phase Spectral Properties: Evaluation of Simulation Parameters. **M.C. Zwier\***, J.M. Shorb\*, and B.P. Krueger. *J. Comput. Chem.* 28, 1572-1581 (2007).
3. Structural Fluctuations and Exciton Transfer Between Adenine and 2-Aminopurine in Single-Stranded DNA Trimers. J.M. Jean and B.P. Krueger. *J. Phys. Chem. B.* 110, 2899-2909 (2006).
4. Energy Transfer in the Nanostar: The Role of Coulombic Coupling and Dynamics. W. Ortiz, B.P. Krueger, V.D. Kleiman, J.L. Krause, and A.E. Roitberg. *J. Phys. Chem. B.* 109, 11512-11519 (2005).
5. Molecular Dynamics Simulations of a Highly-Charged Peptide from an SH3 Domain: A Possible Sequence-Function Relationship. B.P. Krueger and P.A. Kollman. *Proteins.* 45, 4-15 (2001).

#### (ii). Other Publications

1. Energy Transfer in Light-Harvesting Complexes LHCII and CP29 of Spinach Studied with Three-Pulse Echo Peak Shift and Transient Grating. J.M. Salverda, M. Vengris, B.P. Krueger, G.D. Scholes, A.R. Czarnoleski, V. Novoderezhkin, H. van Amerongen, and R. van Grondelle. *Biophys J.* 84, 450-465 (2003).
2. Energy Transfer in the Peridinin Chlorophyll-a Protein of *Amphidinium carterae* Studied by Polarized Transient Absorption and Target Analysis. B.P. Krueger, S.S. Lampoura, I.H.M. van Stokkum, E. Papagiannakis, J.M. Salverda, C.C. Gradinaru, D. Rutkauskas, R.G. Hiller, and R. van Grondelle. *Biophys. J.* 80, 2843-2855 (2001).
3. Observation of the S1 State of Spheroidene in LH2 by Two-Photon Fluorescence Excitation. B.P. Krueger, J. Yom, P.J. Walla, and G.R. Fleming. *Chem. Phys. Lett.* 310, 57-64 (1999).

4. Calculation of Couplings and Energy Transfer Pathways Between the Pigments of LH2 by the ab initio Transition Density Cube Method. B.P. Krueger, G.D. Scholes, and G.R. Fleming. *J. Phys. Chem. B.* 102, 5378-5386 (1998).
5. Electronic Excitation Transfer from Carotenoid to Bacteriochlorophyll in the Purple Bacterium *Rhodospseudomonas acidophila*. B.P. Krueger, G.D. Scholes, R. Jimenez, and G.R. Fleming. *J. Phys. Chem. B.* 102, 2284-2292 (1998).

#### **D. Synergistic Activities**

- Supervisor of the Computational Science and Modeling Laboratory at Hope College, 2005 -2007. (Headed planning and development of the entire CSM program, which began in 2003.)
2. Founded and organized the Midwest Undergraduate Computational Chemistry Consortium (MU3C) and related biannual conferences, 2003 to 2006.
  3. Presented the talk "Computational Analysis of the Assumptions Underlying Use of FRET as a Spectroscopic Ruler," at the Midwest Computational Structural Biology Workshop, Brook Lodge, Augusta, MI 30 April 2005.
  4. Presented the talk "Hybrid molecular dynamics-quantum mechanics simulations of solvation dynamics," at the American Chemical Society National Meeting, San Diego, CA, 14 March 2005
  5. Presented the talk "Can physics and biology get along? Using computation and spectroscopy to develop new tools in structural biology," at the Organic Chemistry Summer Seminar Series at Michigan State University, 21 July 2004.

#### **E. Collaborators & Other Affiliations:**

- (i). Collaborators: Karen Allen (Boston University School of Medicine), Michael Feig (Michigan State University), Maria Burnatowska-Hledin (Hope College), Tom Guarr (Gentex Corporation), Barbara Imperiali (Massachusetts Institute of Technology), John Jean (Washington University School of Medicine), Valeria Kleiman (University of Florida), Daniela Kohen (Carleton College), Jeffrey Krause (University of Florida), Keith Kuwata (Macalester College), Laurens Mets (University of Chicago), David Millar (The Scripps Research Institute), Michael Pikaart (Hope College), William Polik (Hope College), Adrian Roitberg (University of Florida), Greg Scholes (University of Toronto), Michael Silver (Hope College), Jonathan Smith (Gustavus Adolphus College), David Thomas (University of Minnesota), Ross Walker (University of California, San Diego)
- (ii). Graduate and Postdoctoral Advisors: Graham Fleming (UC Berkeley), Peter Kollman (UC San Francisco), Rienk van Grondelle (Vrije Universiteit, Amsterdam)
- (iii). Thesis Advisor and Postgraduate-Scholar Sponsor: none
- (iv). Undergraduate Research Students Supervised: 21