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Research Interests: Ultrafast spectroscopy, Computer Simulation, Nanoscale Materials, Inorganic Materials, Polymers, Surfaces and Interfaces

PROFESSIONAL EXPERIENCE

2004-Present: Associate Professor, University of North Carolina, Chapel Hill, NC 27599
1997-2004: Assistant Professor, University of North Carolina, Chapel Hill, NC 27599
1994-1997: Postdoctoral Associate, University of Colorado, Boulder, CO 80309
1987-1994: Ph.D. Chemical Physics; University of Colorado, Boulder, CO 80309
1983-1987: B.A. Chemistry; Bowdoin College, Brunswick, ME 04011

AWARDS

1999 UNC Junior Faculty Development Award
1997 Research Corporation, Research Innovation Award

PUBLICATIONS

1. David J. Styers-Barnett, Stephen P. Ellison, Cheol Park, Kristopher E. Wise, and John M. Papanikolas "Ultrafast Dynamics of Single-Walled Carbon Nanotubes Dispersed in Polymer Films" *J. Phys. Chem. A*, **2005**, *109*, 289-292.
2. Jon R. Schoonover, Dana M. Dattelbaum, Anton Malko, Victor I. Klimov, Thomas J. Meyer, David J. Styers-Barnett, Erika Z. Gannon, Jeremy C. Granger, W. Steven Aldridge III, and John M. Papanikolas "Ultrafast Energy Transfer Between the ³MLCT State of [Ru^{II}(dmb)₂(bpy-an)]²⁺ and the Covalently Appended Anthracene" *J. Phys. Chem. A*, **2005**, *109*, 2472-2475.
3. Wilhelm Glomm, Selina J. Moses, Matthew K. Brennaman, John M. Papanikolas, and Stefan Franzen "Detection of Adsorption of Ru(II) and Os(II) Polypyridyl Complexes on Gold and Silver Nanoparticles by Single Photon Counting Emission Measurements" *J. Phys. Chem. B*, **2005**, *109*, 804-810.
4. Matthew K. Brennaman, Thomas J. Meyer, and John M. Papanikolas "Excited state dynamics in [Ru(bpy)₂dppz]²⁺: Understanding the Light-Switch effect in Protic and Aprotic Solvents," *J. Phys. Chem. A*, **2004** *108*, 9938-9944.
5. George B. Shaw, David J. Styers-Barnett, Erika Z. Gannon, Jeremy C. Granger, and John M. Papanikolas "Interligand Electron Transfer Dynamics in Os(bpy)₃²⁺: Exploring the Excited State Potential Surfaces Using Femtosecond Spectroscopy" *J. Phys. Chem. A*, **2004**, *108*, 4998-5006.
6. Cavan N. Fleming, Paul Jang, Thomas J. Meyer, and John M. Papanikolas "Energy Migration

- Dynamics in a Ru(II) and Os(II) Based Antenna Polymer Embedded in a Disordered, Rigid Medium” *J. Phys. Chem. B*, **2004**, *108*, 2205-2209.
- Huan Xie, Alexander Tkachenko, Wilhelm R. Glomm, Joseph A. Ryan, Matthew K. Brennaman, John M. Papanikolas, Stefan Franzen, and Daniel L. Feldheim “Characterization of Peptide-modified Gold Nanoparticles by Fluorescence Spectroscopy and Time-correlated Single Photon Counting” *Anal. Chem.*, **2003**, *75*, 5797-5805.
 - Anthony M. Leone, Matthew K. Brennaman, Jennifer D. Tibodeau, John M. Papanikolas, Royce W. Murray, H. Holden Thorp “Photoinduced Electron Transfer in Nucleic Acid Molten Salts” *J. Phys. Chem. B*, **2003**, *107*, 6469-6473.
 - Matthew K. Brennaman, James H. Alstrum-Acevedo, Paul Jang, Cavan N. Fleming, Thomas J. Meyer, and John M. Papanikolas “Turning the [Ru(bpy)₂(dppz)]²⁺ Light-Switch On and Off with Temperature” *J. Am. Chem. Soc.*, **2002**, *124*, 15094-15098.
 - George B. Shaw and John M. Papanikolas “Triplet-Triplet Annihilation of Excited States of Polypyridyl Ru(II) Complexes Bound to Polystyrene” *J. Phys. Chem. B*, **2002**, *106*, 6156-6162.
 - Cavan N. Fleming, Laurence M. Dupray, John M. Papanikolas, and Thomas J. Meyer “Energy Transfer Between Ru(II) and Os(II) Polypyridyl Complexes Linked to Polystyrene” *J. Phys. Chem. A*, **2002**, *106*, 2328-2334.
 - George B. Shaw, Carter L. Brown, and John M. Papanikolas “Investigation of Interligand Electron Transfer in Polypyridyl Complexes of Os(II) Using Femtosecond Polarization Anisotropy Methods: Examination of Os(bpy)₃²⁺ and Os(bpy)₂(mab)²⁺” *J. Phys. Chem. A*, **2002**, *106*, 1483-1495.
 - Cavan N. Fleming, Kimberly A. Maxwell, Joseph M. DeSimone, Thomas J. Meyer, and John M. Papanikolas “Ultrafast Excited-State Energy Migration Dynamics in an Efficient Light-Harvesting Antenna Polymer Based on Ru(II) and Os(II) Polypyridyl Complexes” *J. Am. Chem. Soc.*, **2001**, *123*, 10336-10347.
 - Tanya Kikteva, Dmitry Star, Anthony M. D. Lee, Gary W. Leach, and John M. Papanikolas “Five Wave Mixing: Surface-Specific Transient Grating Spectroscopy as a Probe of Low Frequency Intermolecular Adsorbate Motion” *Phys. Rev. Lett.*, **2000**, *85*, 1906-1909.
 - Radoslaw Uberna, Munira Khalil, Richard M. Williams, John M. Papanikolas, and Stephen R. Leone “Phase and Amplitude Control in the Formation and Detection of Rotational Wave Packets in the E(¹□_g⁺) State of Li₂” *J. Chem. Phys.*, **1998**, *108*, 9259-9274.
 - John M. Papanikolas, Richard M. Williams, and Stephen R. Leone “Manipulating Ro-vibrational Wave Packet Composition in the Li₂ E(¹□_g⁺) Shelf State Using Intermediate State Selection and Shaped Femtosecond Laser Pulses” *J. Chem. Phys.*, **1997**, *107*, 4172-4178.
 - Richard M. Williams, John M. Papanikolas, Jacob Rathje, and Stephen R. Leone “Compositional Control in the Formation of Ro-vibrational Wave Packets in the E(¹□_g⁺) Shelf State of Li₂ via Quantum-State-Resolved Intermediate State Selection” *J. Chem. Phys.*, **1997**, *106*, 8310-8323.
 - Richard M. Williams, John M. Papanikolas, Jacob Rathje, and Stephen R. Leone “Quantum-State-Resolved 2-Level Femtosecond Rotational Coherence Spectroscopy: Determination of

Rotational Constants at Medium and High J in Li₂” *Chem. Phys. Lett.*, **1996**, *261*, 405-413.

19. John M. Papanikolas, Richard M. Williams, Paul D. Kleiber, Jeff Hart, Carsten Brink, Stephen Price, and Stephen R. Leone “Wave Packet Dynamics in the Li₂ E(1¹g⁺) Shelf State: Simultaneous Observation of Vibrational and Rotational Recurrences with Single Ro-vibronic Control of an Intermediate State” *J. Chem. Phys.*, **1995**, *103*, 7269-7276.
20. John M. Papanikolas, Paul J. Campagnola, Vasil Vorsa, Maria E. Nadal, Heinrich K. Buchenau, Robert Parson, and W.C. Lineberger “Time-Resolved Studies of Cage Recombination Dynamics in Ionic Clusters” *The Chemical Dynamics and Kinetics of Small Radicals* K. Liu and A. Wagner, Eds. (World Scientific, New Jersey) **1995**, 616-667.
21. John M. Papanikolas, Paul E. Maslen, and Robert Parson “Recombination and Relaxation of Molecular Ions in Size-Selected Clusters: Monte Carlo and Molecular Dynamics Simulations of I₂⁻(CO₂)_n” *J. Chem. Phys.*, **1995**, *102*, 2452-2470.
22. W. C. Lineberger, Maria E. Nadal, Paul J. Campagnola, V. Vorsa, Paul D. Kleiber, John M. Papanikolas, Paul E. Maslen, Jim Faeder, Robert Parson, and O.E. Poplawski “Time-Resolved Dynamics in Large Cluster Ions” *Proceedings of The Robert A. Welch Foundation 38th Conference on Chemical Research: Chemical Dynamics of Transient Species*, **1994**, 175-186.
23. Paul E. Maslen, John M. Papanikolas, Jim Faeder, Robert Parson, and S.V. Oneil “Solvation of Electronically Excited I₂⁻” *J. Chem. Phys.*, **1994**, *101*, 5731-5755.
24. John M. Papanikolas, Vasil Vorsa, Maria E. Nadal, Paul J. Campagnola, Heinrich K. Buchenau, and W.C. Lineberger “I₂⁻ Photodissociation and Recombination Dynamics in Size-Selected I₂⁻(CO₂)_n Cluster Ions” *J. Chem. Phys.*, **1993**, *99*, 8733-8750.
25. John M. Papanikolas, Vasil Vorsa, Maria E. Nadal, Paul J. Campagnola, James R. Gord, and W.C. Lineberger “I₂⁻ Photofragmentation/Recombination Dynamics in Size-Selected I₂⁻(CO₂)_n Cluster Ions: Observation of Coherent I··I Vibrational Motion” *J. Chem. Phys.*, **1992**, *97*, 7002-7005.
26. John M. Papanikolas, James R. Gord, Nancy E. Levinger, Douglas Ray, Vasil Vorsa, and W.C. Lineberger “Photodissociation and Geminate Recombination Dynamics of I₂⁻ in Mass-Selected I₂⁻(CO₂)_n Cluster Ions” *J. Phys. Chem.*, **1991**, *95*, 8028-8040.
27. John Papanikolas, Gilbert C. Walker, Vasgen A. Shamamian, Ronald L. Christensen, and J. Clayton Baum “Effects of Hydrogen Bonding on the Low-Lying Electronic States of a Model Polyene Aldehyde” *J. Am. Chem. Soc.*, **1990**, *112*, 1912-1920.
28. Douglas Ray, Nancy E. Levinger, John M. Papanikolas, and W.C. Lineberger “Time-Resolved Measurements of the Photodissociation and Recombination Dynamics of I₂⁻ in Mass Selected Cluster Ions” *J. Chem. Phys.*, **1989**, *91*, 6533-6534.

PRESENTATIONS

Academic Presentations:

- 2005**
1. Trinity College, Chemistry Department, Dublin Ireland (April 2005)
 2. Trinity College, Physics Department, Dublin Ireland (April 2005)
 3. University of Colorado at Boulder, Boulder CO (Feb 2005)

4. Bowdoin College, Brunswick ME (Mar 2005)
- 2004** 5. College of William and Mary, Williamsburg VA (Oct 2004)
- 2002** 6. University of North Carolina, Chapel Hill, NC (Oct 2002).
 7. University of Texas at Austin, Austin, TX (Oct 2002).
 8. Northwestern University, Evanston, IL (Sep 2002).
 9. North Carolina State University, Raleigh, NC (Apr 2002).
 10. University of Wisconsin – Madison, Madison, WI (Apr 2002).
 11. Duke University, Durham, NC (Mar 2002).
 12. Florida State University, Tallahassee, FL (Feb 2002).
 13. University of Colorado/JILA, Boulder, CO (Feb 2002).
 14. Colorado State University, Fort Collins, CO (Feb 2002).
- 2001** 15. University of Alabama, Birmingham, AL (Nov 2001).
 16. University of North Carolina, Chapel Hill, NC (Nov 2001).
 17. Washington University, Saint Louis, MO (Mar 2001).
- 1998** 18. University of Georgia, Athens, GA (May 1998).
- 1997** 19. University of North Carolina, Chapel Hill NC (Jan 1997).
 20. University of California at Irvine, Irvine CA (Jan 1997).
 21. Brown University, Providence RI (Jan 1997).
 22. University of Maryland at College Park, College Park MD (Jan 1997).
 23. Michigan State University, East Lansing MI (Jan 1997).
- 1996** 24. Virginia Tech University, Blacksburg VA (Dec 1996).
 25. University of California at Davis, Davis CA (Dec 1996).
 26. University of Wisconsin at Milwaukee, Milwaukee WI (Nov 1996).
 27. University of Texas at Austin, Austin TX (Nov 1996).
 28. Wayne State University, Detroit MI (Nov 1996).

Symposium Presentations:

1. “Ultrafast Carrier Dynamics in Single-Walled Carbon Nanotubes/Polymer Composites” Sixth World Congress on Computational Mechanics (WCCM VI), Beijing China, **2004** (invited).
2. “Ultrafast Charge- and Energy-Transfer Dynamics in Functionalized Ru(II) Chromophores” 227th National Meeting of the American Chemical Society, Anaheim, CA **2004** (invited).
3. “Molecular Dynamics Simulations For Teaching: Development of a Virtual Substance for Students to Study” 227th National Meeting of the American Chemical Society, Anaheim, CA **2004** (contributed).
4. “Ultrafast Dynamics in Complex Systems” Southeast Regional Meeting of the American Chemical Society, Atlanta, GA **2003** (invited).
5. “Investigation of Energy Transport in Functionalized Polymers Using Ultrafast Spectroscopic Methods” Nano-Forum CH-US 2003: Swiss-US-Forum on Nanoscience and Nanotechnology with a focus on: Nanomechanics and Single Molecule Research, Basel Switzerland **2003** (invited).
6. “Interligand Electron Transfer in Polypyridyl Os(II) Compounds” American Physical Society

Meeting; Austin, TX **2003** (contributed).

7. "Ultrafast Energy Transfer Dynamics Between a Polypyridyl Ru(II) Chromophore and a Covalently Attached Acceptor" American Physical Society Meeting; Austin, TX **2003** (contributed).
8. "Investigations of Excited State Dynamics in Polypyridyl Complexes of Os(II) Using Femtosecond Transient Absorption Spectroscopy" 224th National Meeting of the American Chemical Society; Boston, MA **2002** (poster).
9. "Evidence for the Existence of a Two-state Equilibrium in the Photoexcited State of [Ru(bpy)₂(dppz)]²⁺" 224th National Meeting of the American Chemical Society; Boston, MA **2002** (poster).
10. "Synthesis and Ultrafast Energy Migration Dynamics in Chromophore Loaded Styrenic Polymers and Block Copolymers Based on Polypyridyl Ru(II) Complexes" 224th National Meeting of the American Chemical Society; Boston, MA **2002** (poster).
11. "Ultrafast Investigation of the Excited State Energy Migration Dynamics in a Light-Harvesting Polymer Based on Ru(II) and Os(II) Polypyridyl Complexes" 24th Department of Energy Solar Photochemistry Research Conference, Lake Tahoe, CA **2001** (poster).
12. "Excited State Relaxation Dynamics in Os(II) Polypyridyl Complexes" Inorganic Chemistry into the New Millennium, Santa Fe, NM **2001** (invited).
13. "Ultrafast Excited-state Dynamics in a Supramolecular Array Based on Ru(II)/Os(II) Polypyridyl Coordination Complexes" 219th National Meeting of the American Chemical Society; San Francisco, CA **2000** (invited).
14. "Ultrafast Excited State Dynamics in a Light Antenna Nanoparticle Sensitizer" Southeast Regional Meeting of the American Chemical Society; Knoxville, TN **1999** (invited).
15. "Ultrafast Excited State Dynamics in a Supramolecular Light Antenna Assembly" XIX International Conference on Photochemistry; Duke University, Durham, NC **1999** (contributed).
16. "Observing And Manipulating Chemical Systems on Ultrafast Timescales" FACSS Conference; Austin, TX, **1998** (invited).
17. "Control of the Ro-vibrational State Composition of a Wave Packet by Combining Ultrafast and CW Excitation: Application to Lithium Dimer" with Richard M. Williams and Stephen R. Leone, OSA/ILS-XI; Portland, Oregon, **1995** (contributed).
18. "Computer Simulations of I₂⁻(CO₂)_n Photodissociation and Cage Recombination Dynamics" with Paul Maslen and Robert Parson, Gordon Conference on Molecular Energy Transfer; New Hampton, New Hampshire, **1993** (poster).
19. "I₂⁻ Photodissociation and Recombination Dynamics in Size-Selected I₂⁻(CO₂)_n Cluster Ions" with V. Vorsa, M.E. Nadal, and W.C. Lineberger, Conference on Condensed Phase Reaction Dynamics; Newport, California, **1992** (poster).

RESEARCH SUPPORT

1. National Science Foundation, “Ultrafast Dynamics in Complex Systems: Connecting the Molecular Architecture with the Functional Properties of Nanoscale Materials,” (8/03-7/06), \$366,000.
2. NASA University Research, Engineering and Technology Institute on Bio-Inspired Materials (URETI-BIMat), Funding is for the study of “*Ultrafast Dynamics in SWNT Materials*” \$29,000/year.
3. Los Alamos National Lab, “*Ultrafast Transient Absorption Studies of Metal Complex Excited States*” (6/02-9/02), \$20,685.
4. Petroleum Research Fund, “*Ultrafast Spectroscopic Investigation of the Energy Migration Dynamics in Supramolecular Assemblies Based on Ru(II) and Os(II) Polypyridyl Complexes,*” (09/01-08/03), \$25,000.
5. University Research Council, “*Investigation of Molecular Motion through Surface Second Harmonic Generation,*” (12/00-11/02), \$4,000.
6. Research Corporation – Research Innovation Award, “*The Effect of Adsorbate Structure on the Electron Transfer Dynamics between Semiconductor Nanoclusters and Adsorbed Dyes,*” (12/97-12/02), \$33,750.