Curriculum Vitae

John M. Jean
Associate Professor of Chemistry
Department of Chemistry
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Current Position

Associate Professor of Chemistry, Regis University

Previous Academic Positions

2008-2011 Associate Professor and Chair, Department of Chemistry, Regis University
2006-2008 Assistant Professor of Chemistry, Regis University
1998-2005 Research Associate Professor of Molecular Biophysics, Washington University St. Louis School of Medicine
1990-1998 Assistant Professor of Chemistry, Department of Chemistry, Washington University St. Louis

Education

University of Chicago and The James Franck Institute, Postdoctoral Fellow, 1987-1990
University of Texas at Austin, Ph.D. in Chemical Physics, 1987
University of Texas at Arlington, B.S. in Chemistry, 1979

Professional Organizations

American Physical Society (Division of Chemical Physics; Forum on Education)
American Chemical Society (Division of Physical Chemistry)
American Association for the Advancement of Science
Philosophy of Science Association

Honors / Awards

DuPont Graduate Fellowship, University of Texas 1981-1982
Keynote Speaker, Regis College Fall Faculty Conference on Core Curriculum Development 2007
Fulbright Teacher Scholar, School of Letters, University of Lisbon 2013

Courses Taught (since 2008)

- Principles of Chemistry I and II
- Principles of Chemistry Laboratory I and II
- Introduction to College Chemistry
- Chemistry for the Health-Related Sciences
- Chemical Thermodynamics and Kinetics
- Quantum Theory and Spectroscopy
- Advanced Integrated Laboratory
- Writing Analytically: *20th Century Science, Technology and Ethics in* War (freshman writing seminar)
- Reason and Reality: *Philosophy of Space, Time and Matter* (upper-division core Humanities course)
- Chaos and Order (Sophomore Honors Seminar)

Other Teaching Experience

- Volunteer, English Conversation Group Leader, University of Texas International Office ESL Program 1983-84.

Research Interests

Quantum statistical mechanics; optical properties of strongly-coupled donor-acceptor systems; exciton dynamics of 2AP-DNA oligomers; philosophical problems in quantum mechanics

Committees and Service Work (2006-present)

- Member, Regis College Core Curriculum Revision Committee (2006-2007)
- Chair, Academic Policies and Standards Committee (August 2008-May 2010)
- Chair, Department of Chemistry (August 2008-August 2011)
- Member, Environmental Studies Program Advisory Committee (August 2009-May 2011)
- Member, Faculty Search Committees (Department of Biology-2009-2010, Department of Physics 2009-2010, Department of Psychology 2008-2009, School of Pharmacy, 2008-2009)
- Authored Department of Chemistry Assessment Plan (2009)
- Authored Regis College Department of Chemistry Strategic Plan (2009-2010)
- Developed revised upper-division Chemistry curriculum in response to new American Chemical Society Committee on Professional Training mandates for undergraduate curricula (2011)
- Freshman Academic Advisor (Fall 2011-present)
- Faculty co-sponsor Regis College Undergraduate Chemistry Club (2011-present)
- Member, Institutional Animal Care and Use Committee (IACUC) (Spring 2012-present)

Invited Lectures

Fretting about FRET: Theoretical and experimental studies of electronic energy transfer in 2-aminopurine-labeled DNA oligomers. University of Notre Dame, March 2008.

Conformational dynamics and rate processes in 2-aminopurine-labeled DNA, Symposium on Photodynamics in Biological Molecules - PacifiChem 2005 Conference, Honolulu, HI, December 2005.

Photophysics of 2-aminopurine in DNA, Department of Chemistry, University of Houston, March 2005.

Effects of structural fluctuations on charge-transfer and energy transfer in DNA, Department of Physics, University of Kansas, October, 2004.

Correlated electronic structure methods: Applications to DNA bases and base analogs, Center for Computational Biology, Washington University, May, 2003.

Time-dependent density functional study of DNA bases and DNA oligomers containing 2-aminopurine, 125th National Meeting of the American Chemical Society, New Orleans, LA, March, 2003.

Electronic structure and fluorescence dynamics of 2-aminopurine in DNA, Department of Chemistry, Auburn University, April, 2002.

Theoretical and experimental aspects of Fluorescence Correlation Spectroscopy: Applications to high-throughput screening, Monsanto Corporation, St. Louis, MO, March 2002.

Fluorescence dynamics of 2AP-labeled nucleic acids, Biological Fluorescence Subgroup; Biophysical Society National Meeting, Boston, MA, Feb. 2001.

Probing nucleic acid structure and dynamics with fluorescent base analogs, Department of Chemistry, St. Louis University, November, 2000.

Vibrationally-coherent photobiology, Department of Chemistry, Ohio State University, May, 1997.

Vibrationally-coherent photobiology, Department of Chemistry, Vanderbilt University, February, 1997.

A crash course on density matrices and relaxation processes, Graduate Student Seminar Series; Department of Chemistry, Vanderbilt University, February, 1997.

Quantum coherence effects in ultrafast electron transfer reactions, Department of Chemistry, University of Oregon, February, 1997.

Picosecond Raman spectroscopy as a probe of vibrational energy transfer in solution, Department of Chemistry, University of Missouri, St. Louis, September, 1996.

Vibrationally coherent electronic curve crossing in condensed phases, 112th National Meeting of the American Chemical Society, Orlando, FL, August, 1996.

Probing the effects of structural rigidity on intra- and intermolecular vibrational dynamics: Picosecond Raman scattering from stilbene and its rigid electronic analogs, Department of Chemistry, University of Missouri, October, 1995.

Time- and frequency-resolved fluorescence as a probe of coherent dynamics in ultrafast electron transfer processes, 108th National Meeting of the American Chemical Society, Washington, D.C. August, 1994.

New insights into condensed phase barrier crossing: Picosecond resonance Raman scattering and fluorescence studies of trans-stilbene in solution, Department of Physics, Washington University, November, 1993.

Probing excited state vibrational dynamics in trans-stilbene with picosecond resonance Raman spectroscopy , Department of Chemistry, Trinity University, November, 1993.

Macroscopic and microscopic aspects of electronic energy transport in photosynthesis, Department of Chemistry, University of Illinois, Urbana-Champaign, December 1991.

Inclusion of Herzberg-Teller coupling effects in a time-domain theory of resonance Raman scattering, University of Chicago, James Franck Institute, March 1991.

Publication List

J.M. Jean, B.P. Krueger, *Structural fluctuations and excitation transfer between adenine and 2-aminopurine in single-stranded deoxytrinucleotides,.* **J. Phys. Chem. B.** 110, 2899 (2006).

L. Kurz, B. Fite, J.M. Jean, T.R. Erpelding, P.R. Callis. *Photophysics of tryptophan fluorescence: Link with the catalytic strategy of the citrate synthase from Thermoplasma acidopholum.* **Biochemistry** 44 1394 **(**2005**)**.

J.M. Jean, *Stacking-unstacking dynamics of oligodeoxynucleotide trimers.* **Biochemistry** 43, 10277 (2004).

J.M. Jean, K.B. Hall, *2-Aminopurine Electronic Structure and Fluorescence Properties in DNA.* **Biochemistry**, 41, 13152 (2002).

J.M. Jean, K.B. Hall, *2-aminopurine fluorescence quenching and lifetimes: Role of base-stacking.* **Proc. Natl. Acad. Sci.** 98, 37 (2001).

J.M. Jean, K.B. Hall, *Theoretical study of the excited state properties and transitions of 2-aminopurine in the gas phase and in solution.* **J. Phys. Chem. A.** 104, 1930 (2000).

J.M. Jean, C. Clerte, K.B. Hall, *Global and local dynamics of the human U1A protein determined by tryptophan fluorescence.* **Protein Science** 8, 2110 (1999).

J. M. Jean, *Excitation effects on the quantum dynamics of condensed phase two-dimensional electronically nonadiabatic processes.* **J. Phys. Chem.** 102, 7549 (1998).

J. Qian, S.L. Schultz, J.M. Jean, *Separability of intra- and intermolecular vibrational relaxation processes in in the S_1 state of trans-stilbene.* **J. Phys. Chem.** 101, 1000 (1997).

J. Qian, S.L. Schultz, J. Zdrodowski, J.M. Jean, *Picosecond anti-Stokes studies of intramolecular vibrational redistribution in trans-stilbene.* **Proc. XVth International Conference on Raman Spectroscopy** (1996).

J. M. Jean, *Vibrational coherence effects on electronic curve crossing.* **J. Chem. Phys.** 104, 5638 (1996).

J. Qian, S.L. Schultz, J.M. Jean, *Picosecond anti-Stokes studies of intramolecular vibrational redistribution in solution.* **Proc. VIIth International Conference on Time-Resolved Vibrational Spectroscopy**, Santa Fe, NM. (1996).

J. Qian, S.L. Schultz, J.M. Jean, *Observation of intramolecular vibrational redistribution and vibrational cooling in the S_1 state of trans-stilbene and 2-phenylindene.* **Chem. Phys. Lett.** 233, 9 (1995).

J.M. Jean, G.R. Fleming, *Competition between energy and phase relaxation in electronic curve crossing processes.* **J. Chem. Phys.** 103, 2092 (1995).

J.M. Jean, *Time and frequency-resolved spontaneous emission as a probe of coherence effects in ultrafast electron transfer reactions.* **J. Chem. Phys.** 101, 10464 (1994).

J. Qian, S.L. Schultz, G.R. Bradburn, J.M. Jean, Picosecond resonance Raman studies of ultrafast vibrational dynamics of S_1 trans-stilbene in solution. **J. Luminescence** 61, 727 (1994).

J. Qian, S.L. Schultz, G.R. Bradburn, J.M. Jean, *Picosecond resonance Raman studies of vibrational cooling of trans-stilbene in alcohols and alkanes.* **J. Phys. Chem.** 97, 10638 (1993).

D.C. Todd, G.R. Fleming, J.M. Jean, *Calculation of absorption and emission spectra: A study of cis-stilbene.* **J. Chem. Phys.** 97, 8915 (1992).

J.M. Jean, R.A. Friesner, G.R. Fleming, *Application of a multi-level Redfield theory to electron transfer in condensed phases.* **J. Chem. Phys.** 96, 5827 (1992).

Y.W. Jia, J.M. Jean, M.M. Werst, C.-K Chan, G.R. Fleming, *Simulations of the temperature dependence of energy transfer in the PSI core antenna.* **Biophys. J.** 63, 259 (1992).

D.C. Todd, J.M. Jean, S.J. Rosenthal, D. Yang, G.R. Fleming, *Fluorescence upconversion study of cis-stilbene isomerization.* **J. Chem. Phys.** 93, 8658 (1990).

J.M. Jean, D.C. Todd, S.J. Rosenthal, A.J. Ruggiero, G.R. Fleming, *Dynamics of cis-stilbene isomerization.* in **Ultrafast Phenomena VII**, ed. C.B. Harris & E.P. Ippen, G.A. Mourou, A.H. Zewail, Springer-Verlag, Berlin (1990).

J.M. Jean, R.A. Friesner, G.R. Fleming, *Classical and quantum models for activationless reaction dynamics.* **Ber. Bunsenges. Phys. Chem.** 95, 253 (1990).

M. Belhadj, J.M. Jean, R.A. Friesner, J. Schoonover, W.H. Woodruff, *Theoretical analysis of resonance Raman spectra from the blue copper protein azurin.* **J. Phys. Chem.** 94, 2160 (1990).

J.M. Jean, C.-K. Chan, L. Mets, R.S. Alberte, G.R. Fleming, T.G. Owens, *Energy transfer in photosynthesis.* **Proc. International Conference on Energy and Electron Transfer (Prague)** Vol. 2, 64-68 (1990).

J.M. Jean, C.-K. Chan, G.R. Fleming, *Excitation transport and trapping on spectrally disordered lattices.* **Biophys. J.** 56, 1203 (1989).

M. Belhadj, J.M. Jean, R.A. Friesner, J.Schoonover, W.H. Woodruff, *Theoretical simulation of low-temperature resonance Raman spectra from blue copper proteins*. **Proc. Raman Centennial Conference, Calcutta, India** (1988).

J.M. Jean, C.-K. Chan, G.R. Fleming, *Electronic energy transfer in photosynthetic bacterial reaction centers.* **Isr. J. Chem.** 28, 169 (1988).

J.M. Jean, R.A. Friesner, *An accurate and efficient decoupling approximation for temperature-dependent multimode resonance Raman spectra*. **J. Chem. Phys.** 85, 2353 (1986).

R.A. Friesner, B.M. Pettitt, J.M. Jean, *Calculation of temperature-dependent multimode resonance Raman lineshapes for harmonic potentials*. **J. Chem. Phys.** 82, 2918. (1985).

G.T. Babcock, J.M. Jean, L.N. Johnston, G. Palmer, W.H. Woodruff, *Flow-flash time-resolved resonance Raman spectroscopy of the oxidation of reduced and mixed-valence cytochrome oxidase by dioxygen*. **J. Inorg. Biochem.** *23*, 243 (1985).

G.T. Babcock, J.M. Jean, L.N. Johnston, G. Palmer, W.H. Woodruff, *Time-resolved resonance Raman scattering of transients formed during the oxidation of cytochrome oxidase by dioxygen*. **J. Am. Chem. Soc**. 106, 8305 (1984).