Curriculum Vitae

David J. Leahy, Ph.D.
111 Ramona Road
Portola Valley, CA 94028
925-200-5968
leahy@leahy.to

Education

PhD, Chemical Physics, Stanford University June 1992
Advisor, Richard N. Zare
Thesis Title: "Complete Description of the Photoionization Dynamics of Nitric Oxide"
BS, Chemistry, California Institute of Technology June 1987

Background

Skilled at fostering a lively, innovative, creative atmosphere through effectively managing diverse and idiosyncratic groups, including individuals representing a wide range of talents and experience. Experienced in basic scientific research. Effective at design, development and application of new technology environments under highly constrained time schedules. Hard-working by habit and inclination.

Professional Experience

Senior Research Associate, Stanford University
October 2005 —

Lab Manager for Professor Richard N. Zare, Chemistry Department, Stanford University. Responsible for administrative oversight of personnel, budgets, research proposals, and ongoing research operations for a research group with over a dozen sponsored and unrestricted accounts totaling somewhat less than $2M/year. Duties included preparation of successful research proposals for NSF, NIH, AFOSR, and NASA, along with private companies and non-governmental research foundations. Experienced with managing subawards as both the primary and as the subaward recipient. Knowledgeable about Stanford University's policies and offices for research administration.

Senior Member of the Technical Staff, Sandia National Laboratories
January 2002 — September 2005

Co-principal investigator for five year NIH data and tool sharing project, the Collaboratory for MS3D (http://ms3d.org). Research in collaborative environments for protein structure studies using high resolution mass spectrometry tools. Focus on analysis tool sharing, data reduction workflow, and data and metadata management.

Research and development for DOE chemistry data sharing project, Collaboratory for Multi-scale Chemical Sciences (http://cmcs.org). Responsible for scientific content management system focused on combustion chemistry. Worked on data and metadata management and sharing, including applications in electronic structure calculations, thermodynamic data, kinetics data, flame measurements, and reacting flow simulations.

Developed web integrated tools for thermodynamic property calculations, reduced reaction mechanism generation, and translations of molecular structure data.

Principal, Tangibility November 1999 — February 2002

Provided technical product management as partner in a three-person product management consulting group.

Six month contract at Zing, an online digital photo site, with facilities for storage, sharing and eCommerce. Worked in multiple roles, resulting in contributions in the areas of technology assessment, technology demonstrations, technology integration, and strategic relationship management. Spent four months managing the design and launch of the Sony ImageStation site. This Sony-branded version of the Zing site included significant new features, most notably support for video upload, storage, and sharing. In the following months, the Zing business model was updated to focus on this co-brand model.

Internet Services Consultant July 1999 — October 1999

Performed tasks for an Internet consumer service company, including: creation and administration of online chat sites and merchandise stores; management of customer emailings, domain name registration and redirection, user accounts, and server software; maintenance of an ecommerce site, including database maintenance, log generation, and status report scripting.

Director of Application Development, Worlds, Inc. January 1998 — June 1999

Developed the community management plan for the Worlds Ultimate 3D Chat service.

Developed Worlds' second consumer product, Worlds Ultimate 3D Chat, launched on December 13, 1998. Was responsible for content creation and product design. Continued adding content and refining the product and service design over the following 18 months.

Built an internal world for employee conferencing for Ericsson, designed for distribution to all 100,000 of Ericsson's employees working in 50 countries.

Product Manager and Production Group Manager, Electric Communities
August 1997 — December 1997

Assumed management of the six-person production group and the half-dozen organizations and individuals working under contract to produce content for Electric Communities' products and services. This content includes 3D environments, animated 3D avatars, object catalogs, and web pages.

Product Manager, Electric Communities February 1997 — August 1997

Developed the product specification for Electric Communities' single product effort, i.e., a distributed, customizable product suite for virtual communities on the Internet. The product's platform is based on an extension of Java that

affords secure extensibility. The product management position required acting as the primary interface between marketing, design and engineering.

Producer, Worlds Inc. October 1995 — January 1997

Produced a $1.25M real-time, multi-user Internet-based game in conjunction with MGM Interactive. Managed twelve coders and artists and an outsourcing budget of $500,000.

Produced and coded Worlds Chat Gold, the first commercial 3D multi-user environment on the Internet. Led a five person team while personally handling the majority of the coding, product design and quality assurance. Worlds' first commercial product, launched on time and within budget on June 24, 1996.

Integrator, Worlds Inc. December 1994 — October 1995

Developed Worlds Chat, the first 3D multi-user environment on the Internet. Solely responsible for product management and development, including quality assurance, maintenance, expansion, support and documentation.

Developed the WorldServer client/server system (USPTO #6,219,045), with Worlds Chat as the original client implementation.

Developed Cyber Oz City, a 3D multi-user space for the Escot cybercafe in Ebisu, Tokyo, Japan. The first commercial 3D chat space, finished on time and within budget. An Internet room contained several URL launch points.

Developed over a half-dozen other real-time, 3D shared environments as technology demonstrations for corporate clients, including Tandem, UB Networks, Comdex, and the National Information Infrastructure Awards.

Trained new coders in Ace, Worlds' proprietary multimedia/3D scripting language.

Postdoctoral scientist, UC Berkeley July 1992 — December 1994

Performed research in fundamental gas-phase reaction dynamics. A list of publications is available on online and at request. Demonstrated knowledge and proficiency in a wide array of disciplines, including (but not limited to): quantum mechanics; gas chemistry; plasma chemistry; data acquisition, analysis and modeling; lasers and optics; high vacuum apparatus; sensitive detection electronics; pulsed high voltage circuitry; plumbing; and machining.

Publications

"New Approaches for Collaborative Sharing of Chemical Model Data and Analysis Tools," K. Schuchardt, O. Oluwole, W. Pitz, L.A. Rahn, W.H. Green, Jr., D. Leahy, C. Pancerella, M. Sjöberg, and J. Dec, Proceedings of 2005 Joint Meeting of the U.S. Sections of the Combustion Institute (2005).

"Development of the RIOT Web Service and Information Technologies to Enable Mechanism Reduction for HCCI Simulations," Schuchardt, K., O. Oluwole, W. Pitz, L.A. Rahn, J. William H. Green, D. Leahy, C. Pancerella, M. Sjöberg, and J. Dec., in Proceedings of SciDAC 2005, Journal of Physics: Conference Series. (2005): Institute of Physics Publishing, Bristol and Philadelphia, volume **16**, pp. 107-112.

"A Collaborative Informatics Infrastructure for Multi-scale Science," James D. Myers, Thomas C. Allison, Sandra Bittner, Brett Didier, Michael Frenklach, William H. Green, Jr., Yen-Ling Ho, John Hewson, Wendy Koegler, Carina Lansing, David Leahy, Michael Lee, Renata McCoy, Michael Minkoff, Sandeep Nijsure, Gregor von Laszewski, David Montoya, Luwi Oluwole, Carmen Pancerella, Reinhardt Pinzon, William Pitz, Larry A. Rahn, Branko Ruscic, Karen Schuchardt, Eric Stephan, Al Wagner, Theresa Windus, and Christine Yang, Proceedings of the Second International Workshop on Challenges of Large Applications in Distributed Environments (CLADE '04) (2004).

"Metadata in the collaboratory for multi-scale chemical science," Carmen Pancerella, John Hewson, Wendy Koegler, David Leahy, Michael Lee, Larry Rahn, Christine Yang, James D. Myers, Brett Didier, Renata McCoy, Karen Schuchardt, Eric Stephan, Theresa Windus, Kaizar Amin, Sandra Bittner, Carina Lansing, Michael Minkoff, Sandeep Nijsure, Gregor von Laszewski, Reinhardt Pinzon, Branko Ruscic, Al Wagner, Baoshan Wang, William Pitz, Yen-Ling Ho, David Montoya, Lili Xu, Thomas C. Allison, William H. Green, Jr., Michael Frenklach, Proceedings of the 2003 international conference on Dublin Core and metadata applications (2003).

"Scalable virtual world chat client-server system," Dave Leahy, Judith Challinger, B. Thomas Adler, and S. Mitra Ardon, United States Patent Office, US patent **US6219045** (2001).

"Photoelectron spectroscopy of CH_3O^- and CD_3O^-," D.L. Osborn, D.J. Leahy, E.H. Kim, E. deBeer, and D.M. Neumark, Chem. Phys. Lett. **292**, 651 (1998).

"Photodissociation spectroscopy and dynamics of CH_3O and CD_3O," D.L. Osborn, D.J. Leahy, and D.M. Neumark, J. Phys. Chem. A **101**, 6583 (1997).

"Extensive electron-nuclear angular momentum exchange in vibrational autoionization of *np* and *nf* Rydberg States of NO," H. Park, D.J. Leahy, and R.N. Zare, Phys. Rev. Lett. **76**, 1591 (1996).

"Photodissociation spectroscopy and dynamics of the $N_2O_2^-$ anion," D.L. Osborn, D.J. Leahy, D.R. Cyr, and D.M. Neumark, J. Chem. Phys. **104**, 5026 (1996).

"Exploiting Polarization in the Study of Molecular Photoionization Dynamics," K.L. Reid and D.J. Leahy, Chapter 7 of *High Resolution Laser Photoionization and Photoelectron Studies* (John Wiley & Sons Ltd, 1995).

"Predissociation dynamics of the O_2 $B\ ^3\Sigma^-_u$ state: Vibrational state dependence of the product fine-structure distribution," D.J. Leahy, D.L. Osborn, D.R. Cyr, and D.M. Neumark, J. Chem. Phys. **103**, 2495 (1995).

"Study of the predissociation of $CH_3O\ ^{\sim}$ ($^2A_1$) by fast beam photofragment translational spectroscopy," D.L. Osborn, D.J. Leahy, E.M. Ross, and D.M. Neumark, Chem. Phys. Lett. **235**, 484 (1995).

"Observation of the correlated O $^3P_{j1}$, O $^3P_{j2}$ state distribution from the predissociation of O_2 $B\ ^3\Sigma^-_u$," D.J. Leahy, D.R. Cyr, D.L. Osborn, and D.M. Neumark, Chem. Phys. Lett. **216**, 503 (1993).

"Fast beam photodissociation of the CH_2NO_2 radical," D.R. Cyr, D.J. Leahy, D.L. Osborn, R.E. Continetti, and D.M. Neumark, J. Chem. Phys. **99**, 8751 (1993).

"Photodissociation dynamics of the N_3 radical," R.E. Continetti, D.R. Cyr, D.L. Osborn, D.J. Leahy, and D.M. Neumark, J. Chem. Phys. **99**, 2616 (1993).

"Fast beam studies of free radical photodissociation: the CH_2NO_2 radical," D.J. Leahy, D.R. Cyr, D.L. Osborn, and D. M. Neumark, SPIE Proceedings **49**, 1858 (1993).

"Measurement of circular dichroism in rotationally resolved photoelectron angular distributions following the photoionization of NO $A\ ^2\Sigma^+$," D.J. Leahy, K.L. Reid, H. Park, and R.N. Zare, J. Chem. Phys. **97**, 4948 (1992).

"Complete description of molecular photoionization from circular dichroism of rotationally resolved photoelectron angular distributions," K.L. Reid, D.J. Leahy, and R.N. Zare, Phys. Rev. Lett. **68**, 3527 (1992).

"A method to determine the orientation of an ensemble of symmetric top molecules," D.J. Leahy, K.L. Reid, and R.N. Zare, J. Phys. Chem. **95**, 8154 (1991).

"Complete description of two-photon (1+1') photoionization of NO deduced from rotationally resolved photoelectron angular distributions," D.J. Leahy, K.L. Reid, and R.N. Zare, J. Phys. Chem. **95**, 1757 (1991).

"Effect of breaking cylindrical symmetry on photoelectron angular distributions resulting from resonance-enhanced two-photon ionization," K.L. Reid, D.J. Leahy, and R.N. Zare, J. Phys. Chem. **95**, 1746 (1991).

"Effect of breaking cylindrical symmetry on photoelectron angular distributions resulting from resonance-enhanced two-photon ionization," K.L. Reid, D.J. Leahy, S.W. Allendorf and R.N. Zare, published in *Resonance Ionization Spectroscopy* (IOP, Bristol) 1991.

"Experimental Measurement of the Radiative Lifetimes of NO^+ ($X\ ^1\Sigma^+$, v = 1, 2 and 3)," C.-H. Kuo, C.G. Beggs, P.R. Kemper, M.T. Bowers, D.J. Leahy, and R.N. Zare, Chem. Phys. Lett. **163**, 291 (1989).

"High resolution energy- and angle-resolved photoelectron spectroscopy of NO: Partial wave decomposition of the ionization continuum," S.W. Allendorf, D.J. Leahy, D.C. Jacobs, and R.N. Zare, J. Chem. Phys. **91**, 2216 (1989).

- **Presentations**

"Fast Beam Studies of the Predissociation of O_2 and CH_3O," D.J. Leahy, D.L. Osborn, D.R. Cyr, E.M. Ross, and D.M. Neumark. Poster presentation, *Gordon Conference on Atomic and Molecular Interactions*, New London, New Hampshire, July 1994.

"Predissociation dynamics of O_2 $B\ ^3\Sigma^-_u$ from the correlated O $^3P_{j1}$, $^3P_{j2}$ state distributions," D.J. Leahy, D. L. Osborn, D. R. Cyr, and D. M. Neumark. Oral presentation, *American Chemical Society*, San Diego, California, March 1994.

"Fast Beam Translational Spectroscopy of Free Radical Photodissociation," D.J. Leahy, D.R. Cyr, D.L. Osborn, and D.M. Neumark. Poster presentation, *14th Conference on the Dynamics of Molecular Collisions*, Helen, Georgia, June 1993.

"Complete description of molecular photoionization from circular dichroism of rotationally resolved photoelectron angular distributions," D.J. Leahy, K.L. Reid, H. Park, and R.N. Zare. Oral presentation, *Gordon Conference on Multiphoton Processes*, New London, New Hampshire, June 1992.

"Complete description of the (1+1') two-photon ionization of nitric oxide," D.J. Leahy, K.L. Reid, and R.N. Zare. Oral presentation, *Very High Resolution Spectroscopy with Photoelectron--ZEKE Spectroscopy*, Kreuth, Germany, November 1991.

"Determination of molecular symmetry axis ($\hat{}$) orientation via photoelectron angular distribution measurements," D.J. Leahy, K.L. Reid, and R.N. Zare. Oral presentation,

Seventh Interdisciplinary Laser Science Conference, Monterey, California, September 1991.

"Vibrational autoionization of NO," D.J. Leahy, K.L. Reid, and R.N. Zare. Poster presentation, *Gordon Conference on Multiphoton Processes*, New London, New Hampshire, June 1990.

"Photoionization of NO: decomposition of the ionization continuum," S.W. Allendorf, D.J. Leahy, D.C. Jacobs, and R.N. Zare. Poster presentation, *Fifth Interdisciplinary Laser Conference*, Stanford, California, September 1989.