

Martin T. Zanni

Department of Chemistry
University of Wisconsin-Madison
1101 University Ave.
Madison, WI 53706-1396

work : 608-262-4783
fax : 608-262-9918
email : zanni@chem.wisc.edu
<https://www2.chem.wisc.edu/users/zanni>

Biosketch:

Martin T. Zanni is the Meloche-Bascom Professor of Chemistry at the University of Wisconsin-Madison. He received his PhD from the University of California-Berkeley, working with Dan Neumark, and was an NIH Postdoctoral Fellow at the University of Pennsylvania with Robin Hochstrasser. He is one of the early pioneers of 2D IR spectroscopy and has made many technological innovations that has broadened the capabilities and scope for a wide range of multidimensional spectroscopies and microscopies. He utilizes these new techniques to study topics in biophysics, chemical physics, photovoltaics, and surfaces. He has received many national and international accolades for his research. Notably, he is the only person to have received the ACS Nobel Laureate Signature Award as both a student and a mentor and the first person to receive both the Craver and the Coblenz Awards. He founded PhaseTech Spectroscopy Inc., which is the first company to commercialize 2D IR and 2D Electronic spectroscopies.

Date of Birth: February 28, 1972; Portland, OR

Education:
B.S., Chemistry (highest honors), University of Rochester, 1994
B.A., Physics (highest honors), University of Rochester, 1994
Ph.D., Chemistry, University of California at Berkeley, 1999
 Advisor: Daniel M. Neumark
Postdoctoral, Chemistry, University of Pennsylvania, 1/2000-6/2002
 Advisor: Robin M. Hochstrasser

Appointments:
Helfaer Professor (7/2020 –)
Meloche-Bascom Professor (7/2010 –)
 Department of Chemistry, University of Wisconsin, Madison, WI
Meloche-Bascom Associate Professor (7/2008 – 6/2010)
 Department of Chemistry, University of Wisconsin, Madison, WI
Meloche-Bascom Assistant Professor (10/2007 – 6/2008)
 Department of Chemistry, University of Wisconsin, Madison, WI
Assistant Professor (7/2002 – 10/2007)
 Department of Chemistry, University of Wisconsin, Madison, WI
NIH Postdoctoral Fellow (1/2000-6/2002) with Robin M. Hochstrasser
 Department of Chemistry, University of Pennsylvania, Philadelphia, PA

Awards:
Ellis R. Lippincott Award, 2022
Earle K. Plyler Prize for Molecular Spectroscopy & Dynamics, APS, 2021
American Academy of Arts and Sciences, 2020
UPenn Chemistry Distinguished Alumni Award, 2019
Fellow of the Optical Society of America, 2018
Craver Award, 2017
Vilas Associate Award, UW-Madison, 2015
Raymond and Beverly Sackler International Prize in the Physical Sciences, 2011
Research Initiatives Award, National Academy of Sciences 2011
H.I. Romnes Faculty Fellowship, UW-Madison, 2011
Fellow of the American Physical Society, 2010
NIH/NIDDK 60th Anniversary Early Career Investigator/Scholar Award, 2010
American Chemical Society Nobel Laureate Signature Award for

Graduate Education in Chemistry, 2010 (as mentor)
Presidential Early Career Award for Scientists and Engineers, 2009
Kavli Frontiers of Science, 2007
Coblentz Award, 2006
Alfred P. Sloan Research Fellow, 2006
Packard Foundation Science and Engineering Fellowship, 2005
Benjamin Smith Reynolds Award for Excellence in Teaching Engineers, 2005
Beckman Young Investigators Award, 2004
UW-Madison Honored Instructor, 2003/04/05
National Science Foundation CAREER Award, 2003
Research Corporation Innovation Award, 2002
Camille and Henry Dreyfus New Faculty Award, 2002
American Chemical Society Nobel Laureate Signature Award for
Graduate Education in Chemistry, 2001 (as student)
National Institute of Health Postdoctoral Fellow (NRSA), 2000
American Chemical Society Regional Award, Rochester, NY, 1994
Bausch and Lomb Scholar, University of Rochester, 1990

Named Lectures, Plenary Talks, and Special Invitations

UPenn Chemistry Distinguished Alumni, TBD.
Plenary Talk, IRMMW-THz, Buffalo, NY Sept. 2020
Ohio State Frontiers Lecturer, Jan 2020
Peter Debye Lecture Series, Cornell, April 2019
Student Invited Seminar, UCSD, Feb. 2019.
Keynote Talk, European Conference of Spectroscopy of Biological Molecules (ECSBM),
Amsterdam, Sept. 2017
Plenary Talk, SciX, Reno, NV, Oct. 2017
Distinguished Physical Chemistry Lecturer, Univ of Nevada, Reno, Oct. 2016
Noyes Lecturer, University of Texas, Austin, March 2016.
Student Invited Seminar, University of Minnesota, 2016.
Plenary Talk, Dutch Biophysics Meeting, De Koningshof, The Netherlands, Sept 2015
Keynote Talk, IUPAC, Korea, August 2015 (declined)
Plenary Talk, 8th International Conference on Advanced Vibrational Spectroscopy (ICAVS-8), July 2015
Student Invited Lecturer, Carleton College, April 2015
Special Invited Talk, 60th Anniversary of Coblentz Society, Pittcon, New Orleans, March 2015
Plenary Talk, Advances in Structure and Dynamics, Bangalore, India, January 2015
Harry Kroto Lecture in Chemical Physics, Florida State University, 2014
Plenary Talk, European Conference of Spectroscopy of Biological Molecules (ECSBM), Oxford, Aug. 2013
Plenary Talk, Nanoscience Days, University of Jyvaskyla, Finland, Oct. 2012.
Plenary Talk and Student Invited Seminar, Biophysical Symposium, University of Michigan, April 2012.
Plenary Talk, Australian Society of Biophysics and Physical Chemical Division of the Royal Australian
Chemical Institute, Wollongong, Australia, Dec. 2011.
Student Invited Seminar, Modern Optics and Spectroscopy, MIT, Oct. 2011.
Plenary Talk, EPL Celebratory Meeting, Munich, May 2011.
Plenary Talk, Spectroscopic Society of Japan, Kyoto, Nov. 2010.
Plenary Talk, EUCMOS, Florence, Italy, Aug. 2010.
Plenary Talk, Ultrafast Phenomena, Italy, June 2008.
Special Lecturer, NSF/NIH Workshop on Instrument Development, D.C., June 2008.
Plenary Talk, US North Africa Regional Workshop on Nanostructured Materials and Nanotechnology, Tunis,
Tunisia, March. 2008.
Special Lecturer, Summer Lecture Series, University of Wyoming, Laramie, Wyoming, July 2005.
Student Invited Seminar, Joint Theoretical Chemistry Lecture Series, Harvard/MIT/Boston U., Boston, MA,
April 2005.

Invited Presentations and Seminars: >160 invited talks (listed below)

Publications listed below: (>13,000 citations, H-index=62, >1000 citations in 2021)

Our work was highlighted in C&E News in 2009 (twice), 2012 (twice), 2013 (Lead Story), 2014, 2016 (Featured Article), 2019; Spectroscopy Magazine in 2013 and 2017; and Physics Today in 2013. Other notable citations, such as journal highlights, are given in the detailed listing below.

- Patents:**
1. US Patent 7,771,938 Nonlinear spectroscopic methods for identifying and characterizing molecular interactions.
 2. US Patent 7,760,342. Multidimensional Spectrometer. (Licensed)
 3. US Patent 9,568,366. Multidimensional Spectrometer. (Licensed)
 4. US Patent 9,638,634. Multidimensional White Light Spectrometer. (Licensed)

Book

Peter Hamm and Martin Zanni, "Concepts and Methods in 2D IR spectroscopy," Cambridge University Press, Cambridge, 2011. >900 citations. Sold 600 copies in first 2 years. Pirated version now available online.

Leadership Positions

Deputy Editor, Journal of Physical Chemistry B, 2020-
Senior Editor, Journal of Physical Chemistry, 2011-2019

Chair, Executive Committee, Physical Chemistry Division, American Chemical Society,
(2018 – 4 year rotation. Vice-Chair-Elect, Vice-Chair, Chair-Elect, Past-Chair)

NIH MSFB, Standing Member, Oct. 2018. 4-year rotation.

Founder and President of PhaseTech Spectroscopy, Inc.
Startup company devoted to commercializing multi-dimensional spectroscopies.

Journal Editorial Advisory Boards

Journal of Physical Chemistry (Jan. 2010 – Dec. 2012).
Journal of Chemical Physics (Jan. 2010 – Dec. 2012).
Chemical Reviews (Oct. 2015 – 2021).
Structural Dynamics (August 2019 – current).

Symposium/Conference organizer

Frontiers in Biophysical Methods, Amer. Chem. Soc., NY Sept. 2003.
Vibrational Dynamics of Biomolecular Systems, Amer. Chem. Soc., Chicago, IL March, 2007.
Gas and condensed phase spectroscopy of biomolecules, Amer. Chem. Soc., Spring 2011.
Transient Raman and Vibrational Spectroscopy (TRVS), Madison WI 2015.

Conference Program Committees:

Coherent Multidimensional Spectroscopy (CMDS), (2008-present).
Conference on Time-resolved Raman and Vibrational Spectroscopy (TRVS), (2008-present)
International Conference on Ultrafast Phenomena (2010-2012, 2014)
Chair of the Biophysical Subdivision of the American Chemical Society Physical
Chemistry Section (2007 – 2010)
Chair-Elect/Chair, ACS Wisconsin Section (2010-2014)
Alternate Counselor, ACS Wisconsin Section, (2014-2015)
ICAVS Program Committee (2019, 2020, 2021)

Additional Federal Agency Workshops and Study Sections

DOE Workshop. Carbon Capture: Beyond 2020, March 2010
NSF/NIH Instrumentation Workshop, 2008.

NSF Review Panels (confidential dates)
NIH Ad Hoc Study Section, MSFA, 2010; MSFB 2015, 2016. BBM 2016.
NIDDK 2017.
NHLBI BSC Site Visit, 2021; NIDDK Site Visit, 2015.

Co-chair, MRSEC Super-SEED, UW-Madison, “Active nanomembranes and their surfaces.”
Consultant for Imago Scientific Instruments, Madison, WI. (2003 – 2005).
Member of the McPherson Eye Research Institute, University of Wisconsin.

Faculty educator

Biology Interest Groups (BIGs), Center for Biology Education, a National Science Foundation funded teaching consortium at the University of Wisconsin-Madison.
Volunteer at local elementary school Science Night by performing a series of chemistry demonstrations and activities (Wingra School since 2012 to present).
Classroom lecturer at Whitehorse Middle School (2017) and Thoreau Elementary School (2017).
“Career Day” presenter at Thoreau Elementary School, 2017
WARF Discovery Challenge, Judge, 2015.

Graduate Students

Eric Fulmer, Ph.D. 2006 (Science consultant in DC)
Terry Ding, Ph.D. 2007
Amber Krummel, Ph.D. 2007 (Faculty at Colorado State)
Prabuddha Mukherjee, Ph.D. 2008 (Research Scientist at Beckman Institute; Awarded divisional prize for the top student from the pchem division upon graduation).
Sang-Hee Shim, Ph.D. 2008 (Faculty at Korean University) (Received Nobel Laureate Signature Award from the ACS for the “top” Ph.D. dissertation in the USA in chemistry in 2008).
David Strasfeld, Ph.D. 2009 (Lumicell Diagnostics) (Received Casey Award for the top pchem student)
Yun Ling, Ph.D. 2010
Ann Woys, Ph.D. 2012 (Genen Tech, SF)
Wei Xiong, Ph.D. 2011 (Faculty at UCSD)
Emily Blanco, 11/07–5/13 (Research Fellow at the NIH)
Sudipta Mukherjee, 11/07–6/13 (Postdoc at UIUC)
Jennifer Laaser, 11/08 –8/13 (Faculty at Univ. of Pittsburgh) (NSF Fellow. Received the Casey Award for the top pchem student; Received the L’Oreal Postdoctoral Fellowship)
Lauren Buchanan, 11/08 –9/13 (NSF Fellow. Faculty at Vanderbilt)
Dong Gyun Ha, 11/08 – 5/14
David Skoff, 11/09 – 11/14 (Consultant in CA. Received the Reddy Award for the top pchem student).
Huong Tran, 11/10 – 10/16 (Postdoc at Stanford)
Randy Mehlenbacher, 11/10 – 1/16 (Associate, Schox Patent Group. NSF Fellow. Received the Reddy Award for the top experimentalist in the pchem division.)
Tianqi Zhang, 11/11 – 10/16 (Intel, Inc. Portland)
Tracey Oudenoven, 11/12 – 9/15 (Faculty Assistant, UW-Madison. NSF Fellow)
Jia-Jung Ho, 11/12 – 12/18 (Postdoc in Lausanne, Switzerland)
Tom McDonough, 11/12 –6/17 (Intel, Inc. Portland)
Kaarlin Evens, M.S. 2017
Nick Kearns, 11/13 –9/19 (Coherent, Inc. Philadelphia)
Kacie Rich, 11/13 – 4/19 (PPI, Inc. Pittsburgh)
Josh Ostrander, 11/14 – 5/19 (Assistant Prof., Indiana Wesleyan University, IN. Received Hartl Award for top pchem student and the GSFLC Mentorship Award.)
Ariel Alperstein, 11/14 – 2/2020 (Received the 2019 John & Beverly Schrag Outstanding Peer Awards, the 2018 Roger J Carlson Award for Research Excellence, and the 2020 K.V. Reddy Award for Outstanding Physical Chemistry. Postdoc at Univ of Minn)
Jessi Flach, 11/15 – 6/20. (Lam Research, Boise, Idaho)
Megan Petti, 11/16 – 6/20 (Received the Roger J. Carlson Award for Research Excellence.)(Technical

Advisor at a Patent Law Firm.)
Erin Birdsall, 11/17 – (NIH Biophysics Trainee Fellow)
Miriam Bohlmann Kunz, 11/17 – (NSF Fellow)
Cat Fields, 11/17 –
Sid Dicke, 11/18 –
Ryan Allen, 11/18 –
Kieran Farrell, 11/18 – (NSF Fellow)
Zachary Armstrong, 11/18 –
Yulia Podorova, 11/19 –
Matt Ryan, 11/20 –
Yuzhe Zhang, 11/21 –
Zac Faitz, 11/21 –
Harrison Esterly, 11/21 –

Postdoctoral Researchers and Scientists

Scientist and Business Owner, Dr. Chris Middleton, Ph.D., 7/2008 (co-Founder of PhaseTech, Inc., the First company to commercialize 2D spectroscopy)
Postdoc Dr. Sean Moran, Ph.D., 2/2009 – 12/2013 (Assistant Prof. Southern Illinois Univ.)
Postdoc Dr. Maxim Grechko, Ph.D., 2/2011 – 3/2014 (Max Planck Institute, Mainz)
Postdoc Dr. Arnaldo Serrano, Ph.D., 3/2013 – 1/2016 (Assistant Prof. Notre Dame)
Postdoc Dr. Ayanjeet Ghosh, 1/2014 – 3/2016 (Assistant Prof. University of Alabama)
Postdoc Dr. Andrew Jones, 1/2016 – 9/2019 (Staff Scientist, Las Alamos)
Postdoc Dr. Michal Maj, 2/2016 – 10/2018 (Assistant Prof. Univ. of Gothenburg, Sweden)
Postdoc Justin Lomont, 5/2016 – 5/2019 (Merck, Inc.; Senior Scientist in Analytical Chemistry Enabling Technology)
Scientist Farzaneh Chalyavi, 12/2019 – .
Postdoc Minjung Son, 9/2019 – .
Postdoc Nan Yang, 3/2021 – .

Visiting Scientists Postdoc Tarasankar Das, 12/2017 – 1/2019
Senior Scientist, Taeyun Kwon, 12/2017 – 3/2018

Undergraduate Students: Sam Bockenhauer (1/04-8/05), Krysten Dorman (1/04-6/04), Erik Harrington (1/03-5/03), Jennifer Cedzo (8/04-5/05), Kristin Jansen (8/04- 5/05), Tom Garvey (10/05-4/06), John Manzuk(12/05-12/07), Valentine van Wonteghem (10/06-4/07), Steve Schmitt (3/07-9/07), Erin Conrad (4/07-4/09), Kelvin Sutton (REU from Howard Univ., 6/10-8/10), Emily Saunders (REU from Howard University, 6/11-8/11), Igor Luzhansky (1/12-7/12), Wenting Cai (1/10-5/13), Len Roche (6/11-5/13), Chase Bruggeman (5/13-12/13), Elliot Eklund (9/13-8/16), Alex Blair (9/14-9/15), Sean Phillips (1/16-4/16), Hunter Tenor (1/16-4/16), Dan Mark (1/17-5/18), Brandon Bongard (REU student, 6/17-8/17), Isabella Tigges-Green (1/17-), Ben Feingold (9/18-5/20), Nicole Peterson (Air Force, 1/19-9/20), Caden Sillman (1/2021-), Anika Gupta (1/2021-).

Book Chapters

1. Peter Hamm and Martin T. Zanni, “Ultrafast two-dimensional infrared spectroscopy of proteins,” Encyclopedia of Biophysics, 2013.
2. Lauren E. Buchanan, Emily B. Dunkelberger, Martin T. Zanni, “Examining amyloid structure and kinetics with 1D and 2D infrared spectroscopy and isotope labeling,” in *Protein Folding and Misfolding: Shining Light by Infrared Spectroscopy*, Edited by Heinz Fabian and Dieter Naumann, Springer 2012.
3. David R. Skoff and Martin T. Zanni, “Protein dynamics studied with 1D and 2D IR spectroscopy,” in Encyclopedia of Biophysics.
4. Tianqi O. Zhang, Maksim Grechko, Sean D. Moran, and Martin T. Zanni, “Isotope-labeling Amyloids via Synthesis, Expression, and Chemical Ligation for Use in FTIR, 2D IR, and NMR Studies,” Methods in Molecular Biology, Humana Press, Edited by David Eliezer, 2016, pp.21-44.

5. Serrano, A.; Tu, L.-H.; Raleigh, D.; Zanni, M.: 2D IR spectroscopy reveals a beta-sheet intermediate that dictates the fiber formation of hIAPP. In *PROTEIN SCIENCE*; WILEY-BLACKWELL 111 RIVER ST, HOBOKEN 07030-5774, NJ USA, 2015; Vol. 24; pp 83-83.

Videos and News Stories

1. Wisconsin Public Radio, Wisconsin Life Series (<http://wilife.tumblr.com/post/16595889631/going-molecular-on-a-u-w-campus-a-chemistry>)
2. University Home Page Video (<http://m.wisc.edu/video/>)
3. Interview for “Celebrating 30 years of spectroscopy. Analysis of the State of the Art: IR Spectroscopy,” 2 Spectroscopy 30(6) June 2.

Detailed list of Invited Presentations and Seminars: >160 invited talks in addition to plenary and special talks listed above.

2022

Colorado State University, Jan 2021
University of Chicago, Jan 2021
ACS San Diego, March 2022
Nobel Symposium NS173, Sweden, June 2022.
CMDS, 2022.

2021 (9 total)

APS, March 2021
IIT Delhi, April, 2021
Loyola College, April 2021
University of California, Berkeley, May 2021
CMDS June 2021 (postponed)
TRVS June 2021
Japan Biophysical Society, Nov 2021

2020 (11 total)

Ohio State University, Jan 2020.
Louisiana State University (postponed)
Columbia University, March 2020
ACS, Philadelphia, March 2020
University of Pennsylvania, May 2020
WONTON 2020, June 2020 (postponed)
ACS, San Francisco, August 2020
University of Arizona, Nov 2020
Arizona State University, Nov 2020
Boston University, Nov 2020
IRMMW-THz, Dec 2020

2019 (10 total)

Naval Research Lab Chemistry Division, Jan 2019
University of Tennessee, March 2019
UCSF, May 2019
International Conference on Photochemistry, Boulder, July 2019.
American Chemical Society, San Diego, August 2019.
Nature Conference on Functional Dynamics, Arizona, Nov. 2019
Northwestern University, Nov. 2019.
Pathomechanisms of Amyloid Diseases, Florida, Dec. 2019

2018 (9 total)

University Würzburg, Würzburg, Germany, Jan 2018
Zernike Institute Colloquia, University of Groningen, The Netherlands, Feb. 2018
University of Geneva, Geneva, March 2018.
Politecnico di Milano, April 2018.

University Konstanz, Collaborative Research Center, Konstanz, Germany, April 2018
Technical University Berlin, June 2018.

University of Rochester, Rochester, NY, June 2018.

American Chemical Society, Boston, August 2018.

Virginia Tech, Life Science Seminar, October 2018.

2017 (13 total)

Pennsylvania State University, State College, Feb. 2017

American Physical Society, New Orleans, Mar. 2017

American Chemical Society, San Francisco, Apr. 2017

Genentech, South San Francisco, Apr. 2017

CLEO, San Jose, Tutorial Talk, May 2017

Eli Lilly, Indianapolis, IN Jun. 2017

Time-resolved Vibrational Spectroscopy (TRVS), Cambridge, UK, Jul. 2017

EPFL, Lausanne Oct. 2017

Stanford University, CA Nov. 2017

Zurich University, Zurich, Switzerland, Dec. 2017

Technical University, Munich, Germany, Dec. 2017

2016 (14 total)

GRC Protein Folding, Galveston, TX Jan. 2016

University of Texas at Austin, TX, Mar. 2016.

University of California, Berkeley, CA Feb. 2016.

New York University, New York, Feb. 2016.

Cornell (Biochemistry), New York, Feb. 2016.

University of Minnesota, Minn., Apr. 2016

Rice University, TX, Jun 2016

American Chemical Society, San Diego, Aug. 2016

Coherent Multidimensional Spectroscopy (CMDS), Groningen, The Netherlands, June 2016

University of Utah, Salt Lake City, Oct. 2016

University of Georgia, GA, Oct. 2016

MIT, Mass., Nov. 2016

2015 (15 total)

Pacificchem, American Chemical Society (three talks), Hawaii, Dec. 2015

Rice University, Houston, Texas Oct. 2015

Notre Dame, South Bend, Indiana, Nov. 2015

American Chemical Society, Boston, August 2015

Workshop on Nanotube Optics and Nanospectroscopy (WONTON), Bavaria, June 2015

Stanford University, Palo Alto, May 2015

American Chemical Society, Denver, March 2015

Johns Hopkins, Baltimore, February 2015

Tata Institute of Fundamental Research (TIFR), Mumbai, India, January 2015

Faraday Discussion, Bangalore, India, January 2015

2014 (12 total)

Workshop on Light Driven Processes in Bio-Inspired Materials, Rice Univ., Dec. 2014

University of Chicago, Molecular Engineering, November 2014

University of Delaware, Delaware, October 2014

University of Illinois, Urbana-Champagne, Sept 2014

SPIE Nanoscience and Engineering Conference, San Diego, August 2014

Coherent Multidimensional Spectroscopy, Eugene, July 2014

Ultrafast Phenomena, Japan, July 2014

Nonlinear Optics at Interfaces, Telluride, June 2014

American Chemical Society, Dallas, March 2014

Northwestern, March 2014

UC-Santa Barbara, March 2014

Indiana University, Feb. 2014

2013 (13)

Eastern Analytical Society Meeting, NJ Nov. 2013
University of Pennsylvania, Biophysics, Sept. 2013
FACSS, Milwaukee, WI Oct. 2013
Protein Dynamics Workshop, Telluride, CO Aug. 2013
Vibrational Dynamics Workshop, Telluride CO July 2013
American Chemical Society, Indianapolis, August 2013
Transient Raman Vibrational Spectroscopy (TRVS), Japan, May 2013
American Chemical Society, New Orleans, April 2013
Ohio State University, March 2013
American Physical Society, Baltimore, March 2013
Caltech, Jan. 2013
Physics of Quantum Electronics, Utah, Jan. 2013

2012 (13)

SUNY Stony Brook, Nov. 2012
Rockford College, Rockford Illinois, Oct. 2012
University of North Carolina, Sept. 2012.
Rice University, Sept. 2012.
ACS, Philadelphia, August, 2012
CMDS, Berlin, July 2012.
Interfaces, Telluride, June 2012.
University of Houston, April 2012.
ACS, San Diego, Mar. 2012.
APS, Boston, Feb. 2012
Temple University, Feb. 2012.
Howard University, Jan. 2012

2011 (13)

Georgia Tech, Department of Chemistry, Nov. 2011.
University of Chicago, Oct. 2011.
Emory University, Oct. 2011.
Yale University, Department of Chemistry, Sept. 2011.
GRC Quantum Control, Mt. Holyoke, MA, July 2011.
TRVS, Switzerland, June 2011.
American Chemical Society, Anaheim, Mar. 2011.
Pittcon, Atlanta, Mar. 2011.
McGill University, Canada, Feb. 2011.
University of California, Irvine, Jan. 2011.

2010 (13)

Pacificchem, ACS, Hawaii, Dec. 2010.
APS Laser Science Meeting, Rochester, NY, Oct. 2010.
CMDS, Minneapolis, MN, Aug. 2010.
Ultrafast Phenomena, July 2010.
Chautauqua on Nonlinear Optics, Purdue, June. 2010.
Intern. Conf. on Ultrafast Struc. Dyn., Lausanne, Switzerland, Jun. 2010.
University of Washington, Seattle, May 2010.
UW-Madison, Chem. E., Mar. 2010.
Pittcon, Orlando, FL, Mar. 2010
Western Spectroscopy Association, Asilomar, CA, Feb. 2010.
Northwestern, Jan. 2010

2009 (6)

Princeton University, New Jersey, Oct. 2009.
American Chemical Society, Washington D.C., August 2009.
TRVS, New Hampshire, May 2009.
University of Zurich, Switzerland, Apr. 2009.
University of Groningen, Netherlands, Apr. 2009.
Hebrew University and Weizmann Institute, Israel, March 2009.

2008 (13)

Max Planck Institute, Berlin, Dec. 2008
American Chemical Society Meeting, Philadelphia, PA, Aug. 2008.
Vibrational Spectroscopy Gordon Conference, Massachusetts, Aug. 2008
Coherent Multidimensional Spectroscopy, Kyoto, Japan, Aug. 2008
Optical Society of America, San Jose, CA, May 2008.
American Chemical Society Meeting, New Orleans, Apr. 2008.
University of Chicago at Illinois, IL, Apr. 2008.
American Physical Society, New Orleans, March 2008.
Michigan State University, East Lansing, MI, Feb. 2008.
University of Minnesota, Minneapolis, MN, Jan. 2008.

2007

40 invited talks and seminars prior to 2008.

Departmental and University Committees:	2005-08,12	Graduate Admissions Committee
	2005-2011	Awards Committee
	2005-2016	Shops Committee
	2005-2008	Faculty Senator
	2006	University Orientation & New Student Programs Advisory Committee
	2007	Website Committee
	2009, 2016, 2019	Graduate Student Faculty Liaison Committee
	2009	Safety Committee
	2009-2011	Graduate School Research Committee
	2009-2011	Faculty Search Committee
	2012-2013	Chemical Biology Division Steering Committee
	2013	Seminar Coordinator
	2013-2016	Department Finance and Rooms Committee
	2018-2021	Path (Division) Chair
	2018-2021	Graduate Curriculum Committee

Classes Taught

Chem 103: Introductory General Chemistry (**Fall 2019 teaching evaluation: 4.33; Quotes below.**)
Chem 109: Honors Introductory General Chemistry
Chem 115: Invitation only General Chemistry
Chem 562: Physical Chemistry (for juniors/seniors. mostly quantum)
Chem 563/564: Physical Chemistry Laboratory
Chem 675: Quantum Mechanics (for incoming graduate students)
Chem 763: Introduction to Molecular Spectroscopy (graduate level class)
Chem 960: Seminar Series (graduate level class on topics in the seminar series)

Detailed list of Publications: (>13,000 citations, H-index=61, >1000 citations in 2021)

Our work was highlighted in C&E News in 2009 (twice), 2012 (twice), 2013 (Lead Story), 2014, 2016 (Featured Article), 2019; Spectroscopy Magazine in 2013 and 2017; and Physics Today in 2013. Other notable citations, such as journal highlights, are listed below.

166. Application of 2D IR Bioimaging: Hyperspectral Images of Formalin-Fixed Pancreatic Tissues and Observation of Slow Protein Degradation, Sidney S Dicke, Ariel M Alperstein, Kathryn L Schueler, Donald S Stapleton, Shane P Simonett, Caitlyn R Fields, Farzaneh Chalyavi, Mark P Keller, Alan D Attie, Martin T Zanni, *The Journal of Physical Chemistry B* 125 (33), 9517-9525, 2021.

165. Ultrafast Fluctuations in PM6 Domains of Binary and Ternary Organic Photovoltaic Thin Films Probed with Two-Dimensional White-Light Spectroscopy, ZT Armstrong, MB Kunz, MT Zanni, *The Journal of Physical Chemistry Letters* 12, 8972-8979, 2021.

164. Analysis of amyloid-like secondary structure in the Cryab-R120G knock-in mouse model of hereditary cataracts by two-dimensional infrared spectroscopy, AM Alperstein, KS Molnar, SS Dicke, KM Farrell, LN Makley, MT Zanni, Usha P Andley, *PloS one* 16 (9), e0257098, 2021.
163. Structure Changes of a Membrane Polypeptide under an Applied Voltage Observed with Surface-Enhanced 2D IR Spectroscopy, ER Birdsall, MK Petti, V Saraswat, JS Ostrander, MS Arnold, MT Zanni, *The journal of physical chemistry letters* 12 (7), 1786-1792 (2021)
162. Shot-to-shot 2D IR spectroscopy at 100 kHz using a Yb laser and custom-designed electronics KM Farrell, JS Ostrander, AC Jones, BR Yakami, SS Dicke, CT Middleton, Peter Hamm, Martin T Zanni, *Optics Express* 28 (22), 33584-33602 (2020).
161. A Different hIAPP Polymorph Is Observed in Human Serum Than in Aqueous Buffer: Demonstration of a New Method for Studying Amyloid Fibril Structure Using Infrared Spectroscopy CR Fields, SS Dicke, MK Petti, MT Zanni, JP Lomont, *The journal of physical chemistry letters* 11 (15), 6382-6388 (2020)
160. Providing Time to Transfer: Longer Lifetimes Lead to Improved Energy Transfer in Films of Semiconducting Carbon Nanotubes, JT Flach, J Wang, MS Arnold, MT Zanni, *The Journal of Physical Chemistry Letters* 11 (15), 6016-6024 (2020)
159. Vibrational spectroscopic map, vibrational spectroscopy, and intermolecular interaction, CR Baiz, B Błasiak, J Bredenbeck, M Cho, JH Choi, SA Corcelli, ..., MT Zanni, *Chemical reviews* 120 (15), 7152-7218, (2020)
158. ZT Armstrong, M Bohlmann Kunz, AC Jones, MT Zanni, "Thermal Annealing of Singlet Fission Microcrystals Reveals the Benefits of Charge Transfer Couplings and Slip-Stacked Packing," *The Journal of Physical Chemistry C*. 124 (28), 15123-15131 (2020)
157. CJ Burrows, J Huang, S Wang, HJ Kim, GJ Meyer, K Schanze, TR Lee, ... "Editorial: Confronting Racism in Chemistry Journals," *ACS Materials Letters* 2, 829-831 (2020)
156. Megan K Petti, Joshua S Ostrander, Erin R Birdsall, Miriam Bohlmann Kunz, Zachary T Armstrong, Ariel M Alperstein, Martin T Zanni, "A Proposed Method to Obtain Surface Specificity with Pump-Probe and 2D Spectroscopies" *The Journal of Physical Chemistry A* 124 (17), 3471-3483 (2020).
155. SE Strong, NJ Hestand, AA Kananenka, MT Zanni, JL Skinner, "IR Spectroscopy Can Reveal the Mechanism of K⁺ Transport in Ion Channels." *Biophysical Journal*, 118 (1), 254-261 (2020). * **Selected for Cover.**
154. Andrew C. Jones, Nicholas M. Kearns, Jia-Jung Ho, Jessica T. Flach, Martin T. Zanni, "Impact of non-equilibrium molecular packings on singlet fission microcrystals observed using 2D White-Light microscopy," *Nature Chemistry*, 1-8 (2019)
153. Andrew C. Jones, Nicholas M. Kearns, Miriam Bohlmann Kunz, Jessica T. Flach, Martin T. Zanni, "Multidimensional spectroscopy on the microscale: Development of a multimodal imaging system incorporating 2D White-Light spectroscopy, broadband transient absorption, and atomic force microscopy." *JPCA*, 123 (50), 10824. (2019) Special issue on transient absorption imaging.
152. Andrew C. Jones, Miriam Bohlmann Kunz, Isabelle Tigges-Green**, Martin T. Zanni, "Dual Spectral Phase and Diffraction Angle Compensation of a Broadband AOM 4-f Pulse-shaper for Ultrafast Spectroscopy," *Optics Express*, 27, 37236 (2019)

151. JS Ostrander, JP Lomont, KL Rich, V Saraswat, BR Feingold, MK Petti, Erin R Birdsall, Michael S Arnold, Martin T Zanni, "Monolayer Sensitivity Enables a 2D IR Spectroscopic Immuno-biosensor for Studying Protein Structures: Application to Amyloid Polymorphs," *JPC Lett*, 10 (14), 3836 (2019)
150. Megan K Petti, Joshua S Ostrander, Vivek Saraswat, Erin R Birdsall, Kacie L Rich, Justin P Lomont, Michael S Arnold, Martin T Zanni, "Enhancing the signal strength of surface sensitive 2D IR spectroscopy," *The Journal of Chemical Physics* 150 (2), 024707 (2019)
149. AM Alperstein, JS Ostrander, TO Zhang, MT Zanni, "Amyloid found in human cataracts with two-dimensional infrared spectroscopy", *PNAS*, 201821534 (2019)
***C&E News Highlight**
148. NM Kearns, AC Jones, M Bohlmann Kunz, RT Allen, JT Flach, MT Zanni, "Two-Dimensional White-Light Spectroscopy Using Supercontinuum from an All-Normal Dispersion Photonic Crystal Fiber Pumped by a 70 MHz Yb Fiber Oscillator," *JPCA*, 123, 3046 (2019)
147. Aritra Mandal, Michelle Chen, Eileen D Foscz, Jonathan D Schultz, Nicholas M Kearns, Ryan M Young, Martin T Zanni, Michael R Wasielewski, "Two-Dimensional Electronic Spectroscopy Reveals Excitation Energy-Dependent State Mixing during Singlet Fission in a Terrylenediimide Dimer," *JACS*, 140, 17907 (2018)
146. Lauren E. Buchanan, Michał Maj, Emily B. Dunkelberger, Pin-Nan Cheng, James S. Nowick, and Martin T. Zanni, Structural Polymorphs Suggest Competing Pathways for the Formation of Amyloid Fibrils That Diverge from a Common Intermediate Species. *Biochemistry* 57 (46), 6470-6478, 10.1021/acs.biochem.8b00997
145. JJ Ho, A Ghosh, TO Zhang, MT Zanni, "Heterogeneous Amyloid β -Sheet Polymorphs Identified on Hydrogen Bond Promoting Surfaces Using 2D SFG Spectroscopy", *J. Phys. Chem. A*, 122, 1270, (2018). 10.1021/acs.jpca.7b11934
144. Petti, Megan; Lomont, Justin; Maj, Michał; Zanni, Martin, "2D Spectroscopy is Being Used to Address Core Scientific Questions in Biology and Materials Science", *J. Phys. Chem. B*, 2018, 122, 1771. DOI: 10.1021/acs.jpcb.7b11370
143. JP Lomont, KL Rich, M Maj, JJ Ho, JS Ostrander, MT Zanni, "A Spectroscopic Signature for Stable β -Amyloid Fibrils Versus β -Sheet Rich Oligomers," *J. Phys. Chem. B*, 122, 44, (2018) 10.1021/acs.jpcb.7b10765
142. Matthew J. Shea,¹ Jiali Wang, Jessica T. Flach, Martin T. Zanni, and Michael S. Arnold, "Less severe processing improves carbon nanotube photovoltaic performance," *APL Materials* 6 (5), 056104 (2018)
141. Vivek Saraswat, Robert M. Jacobberger, Joshua S. Ostrander, Courtney L. Hummell, Austin J. Way, Jiali Wang, Martin T. Zanni, and Michael S. Arnold, "Invariance of water permeance through size-differentiated graphene oxide laminates," *ACS Nano*, 12, 7855, 10.1021/acsnano.8b02015 (2018)
140. Michał Maj, Justin P Lomont, Kacie L Rich, Ariel M Alperstein and Martin Zanni, "Site-specific detection of protein secondary structure using 2D IR dihedral indexing : A proposed assembly mechanism of oligomeric hIAPP", *Chem. Sci.*, 9, 463 (2017).
139. Serrano, Arnaldo; Lomont, Justin; Tu, Ling-Hsien; Raleigh, Daniel; Zanni, Martin, "A Free Energy Barrier Caused by the Refolding of an Oligomeric Intermediate Controls the Lag Time of Amyloid Formation by hIAPP", *JACS*, 139, 16748 (2017)
138. Lomont, Justin; Ostrander, Joshua; Ho, Jia-Jung; Petti, Megan; Zanni, "Not All β -Sheets Are the Same: Amyloid Infrared Spectra, Transition Dipole Strengths, and Couplings Investigated by 2D IR Spectroscopy", *JPCB, ASAP*.

137. Zhang TO, Alperstein AM, Zanni MT, "Amyloid β -Sheet Secondary Structure Identified in UV-Induced Cataracts of Porcine Lenses using 2D IR Spectroscopy," *J. Mol. Biol.*, 429, 1705 (2017)
136. Kratochvil, Huong; Maj, Michał; Matulef, Kimberly; Annen, Alvin; Ostmeyer, Jared; Perozo, Eduardo; Roux, Benoît; Valiyaveetil, Francis; Zanni, Martin, "Probing the effects of gating on the ion occupancy of the K⁺ channel selectivity filter using 2D IR spectroscopy", *JACS*, 139, 8837 (2017)
*** Selected for JACS Spotlight and Cover.**
135. Nicholas M. Kearns, Randy D. Mehlenbacher, Andrew C. Jones, and Martin T. Zanni, "Broadband 2D electronic spectrometer using white light and pulse shaping: noise and signal evaluation at 1 and 100 kHz", *Optics Express*, 25, 7869 (2017).
134. Thomas J McDonough, Lushuai Zhang, Susmit Singha Roy, Nicholas M Kearns, Michael S Arnold, Martin T Zanni, Trisha L Andrew, "Triplet Exciton Dissociation and Electron Extraction in Graphene-Templated Pentacene Observed with Ultrafast Spectroscopy, " *Physical Chemistry Chemical Physics*, 19, 4809 (2017)
133. Wang, Jialiang; Shea, Matthew; Flach, Jessica; McDonough, Thomas; Way, Austin; Zanni, Martin; Arnold, Michael, "The Role of Defects as Exciton Quenching Sites in Carbon Nanotube Photovoltaics" *JPCC*, 121, 8310 (2017).
132. Samuel H. Schneider, Huong T. Kratochvil, Martin T. Zanni, Steven G. Boxer, "Solvent Independent Anharmonicity for Carbonyl Oscillators" *JPCA*, In Press.
131. Joshua S. Ostrander, Robert Knepper, Alexander S. Tappan, Jeffrey J Kay, Martin T. Zanni, and Darcie A. Farrow, "Energy Transfer Between Coherently Delocalized States in Thin Films of the Explosive Pentaerythritol Tetranitrate, (PETN) Revealed by Two-Dimensional Infrared Spectroscopy," *J. Phys. Chem. B*, (2016), In Press (ASAP).
130. Ayanjeet Ghosh, Joshua S. Ostrander, and Martin T. Zanni, Watching Proteins Wiggle: Mapping Structures with Two-Dimensional Infrared Spectroscopy *Chemical Reviews*, Article ASAP DOI: 10.1021/acs.chemrev.6b00582
129. Yano, Y., Kondo, K., Watanabe, Y., Zhang, T. O., Ho, J.-J., Oishi, S., Fujii, N., Zanni, M. T. and Matsuzaki, K. (2017), GXXXG-Mediated Parallel and Antiparallel Dimerization of Transmembrane Helices and Its Inhibition by Cholesterol: Single-Pair FRET and 2D IR Studies. *Angew. Chem.*. doi:10.1002/ange.201609708
****Very important paper.****
128. Huong T. Kratochvil, Joshua K. Carr, Kimberly Matulef, Alvin W. Annen, Hui Li, Michał Maj, Jared Ostmeyer, Arnaldo L. Serrano, 1 H. Raghuraman, Sean D. Moran, J. L. Skinner, 1 Eduardo Perozo, Benoît Roux, Francis I. Valiyaveetil, Martin T. Zanni, Instantaneous ion configurations in the K⁺ ion channel selectivity filter revealed by 2D IR spectroscopy, *Science*, 353, 1040 (2016).
***C&E News Highlight**
127. R.D. Mehlenbacher, T. J. McDonough, N. M. Kearns, M. J. Shea, Y. Joo, P. Gopalan, M.S. Arnold, and M.T. Zanni, Polarization-Controlled Two-Dimensional White-Light Spectroscopy of Semiconducting Carbon Nanotube Thin Films, *J. Phys. Chem. C*, 2016, 120, 17069.
126. Joshua S. Ostrander, Arnaldo L. Serrano, Ayanjeet Ghosh, and Martin T. Zanni, Spatially Resolved Two-Dimensional Infrared Spectroscopy via Wide-Field Microscopy, *ACS Photonics*, 2016, 3, 1315.
125. Abedini, A.; Plesner, A.; Cao, P.; Ridgway, Z.; Zhang, J.; Tu, L. H.; Middleton, C. T.; Chao, B.; Sartori, D. J.; Meng, F.; Wang, H.; Wong, A. G.; Zanni, M. T.; Verchere, C. B.; Raleigh, D. P.; Schmidt, A. M.: Time-

resolved studies define the nature of toxic IAPP intermediates, providing insight for anti-amyloidosis therapeutics. *eLife* 2016, 5. <http://dx.doi.org/10.7554/eLife.12977>

124. Mehlenbacher, R.; Wang, J.; Kearns, N.; Shea, M.; Flach, J.; McDonough, T.; Wu, M.-Y.; Arnold, M.; Zanni, M. "Ultrafast Exciton Hopping Observed in Bare Semiconducting Carbon Nanotube Thin Films With 2DWL Spectroscopy", *JPC Lett*, 2016, 7, 2024.
123. Commentary: Zanni, M. T., "Two-dimensional infrared spectroscopy measures the structural dynamics of a self-assembled film only one molecule thick," *PNAS*, 113, 4890, 2016.
122. Roy, S.; Skoff, D.; Perroni, D. V.; Mondal, J.; Yethiraj, A.; Mahanthappa, M.; Zanni, M.; Skinner, J. L.: "Water Dynamics in Gyroid Phases of Self-Assembled Gemini Surfactants." *JACS*, 138, 2472, 2016.
121. Ghosh, A.; Serrano, A. L.; Oudenhoven, T. A.; Ostrander, J. S.; Eklund, E. C.; Blair, A. F.; Zanni, M. T.: "Experimental implementations of 2D IR spectroscopy through a horizontal pulse shaper design and a focal plane array detector." *Optics letters* 2016, 41, 524-527.
120. Chan GKL, Witkowski A, Gantz DL, Zhang TO, Zanni MT, Jayaraman S, Cavigiolio G, "Myeloperoxidase-mediated Methionine Oxidation Promotes an Amyloidogenic Outcome for Apolipoprotein A-I," *Journal of Biological Chemistry*, 290, 10958-10971 (2015)
119. Dunkelberger, E. B.; Grechko, M.; Zanni, M. T.: Transition Dipoles from 1D and 2D Infrared Spectroscopy Help Reveal the Secondary Structures of Proteins: Application to Amyloids. *The Journal of Physical Chemistry B* 2015, 119, 14065-14075.
118. Zhang, T. O.; Grechko, M.; Moran, S. D.; Zanni, M. T.: Isotope-Labeled Amyloids via Synthesis, Expression, and Chemical Ligation for Use in FTIR, 2D IR, and NMR Studies. *Protein Amyloid Aggregation: Methods and Protocols* 2016, 21-41.
117. Serrano, Arnaldo L.; Ghosh, Ayanjeet; Ostrander, Joshua S.; Zanni, Martin T. "Wide-field FTIR microscopy using mid-IR pulse shaping," *Optics Express*, 23, 17815 (2015)
116. Ho, Jia-Jung, Skoff, David R., Ghosh, Ayanjeet, Zanni Martin T. "Structural Characterization of Single-Stranded DNA Monolayers Using Two-Dimensional Sum Frequency Generation Spectroscopy," *J. Phys. Chem. B*, 119 10586 (2015)
115. Kratochvil HT, Ha DG, and Zanni MT, "Counting tagged molecules one by one: Quantitative photoactivation and bleaching of photoactivatable fluorophores," *J. Chem. Phys.* 143, 104201 (2015).
114. Tracey A. Oudenhoven, Yongho Joo, Jennifer E. Laaser, Padma Gopalan, and Martin T. Zanni, "Dye aggregation identified by vibrational coupling using 2D IR spectroscopy," *J. Chem. Phys.*, 142, 212449 (2015)
113. Bei Ding, Afra Panahi, Jia-Jung Ho, Jennifer E. Laaser, Charles L. Brooks, III, Martin T. Zanni, Zhan Chen, "Probing Site-specific Structural Information of Peptides at Model Membrane Interface in Situ," *JACS*, 137, 10190 (2015).
112. Ayanjeet Ghosh, Jia-Jung Ho, Arnaldo L. Serrano, David R. Skoff, Tianqi Zhang and Martin T. Zanni Journal Article, Faraday Discuss., Two-dimensional sum-frequency generation (2D SFG) spectroscopy: summary of principles and its application to amyloid fiber monolayers, *Faraday Discussions*, 2015, 177, 493.
111. Randy D. Mehlenbacher, Thomas J. McDonough, Maksim Grechko, Meng-Yin Wu, Michael S. Arnold, Martin T. Zanni, Energy Transfer Pathways in Semiconducting Carbon Nanotubes Revealed using Two Dimensional White-Light Spectroscopy, *Nature Communications*, 6, 6732 (2015).

110. Shea MJ, Mehlenbacher RD, Zanni MT, Arnold MS. 2014. Experimental Measurement of the Binding Configuration and Coverage of Chirality-sorting Polyfluorenes on Carbon Nanotubes. *J. Phys. Chem. Lett.* 5, 3742 (2014)
109. Zhang TO, Buchanan LE, Zanni MT. Insights into amylin aggregation by 2D IR spectroscopy. *Biomedical Spectroscopy and Imaging*. 3(3):189-196 (2014)
108. Ghosh A, Wang J, Moroz YS, Korendovych IV, Zanni M, DeGrado WF, Gai F, Hochstrasser RM. 2D IR spectroscopy reveals the role of water in the binding of channel-blocking drugs to the influenza M2 channel. *The Journal of Chemical Physics*. 140(23):235105 (2014)
107. Grechko M, Ye Y, Mehlenbacher RD, McDonough TJ, Wu M-Y, Jacobberger RM, Arnold MS, Zanni MT. Diffusion Assisted Photoexcitation Transfer in Coupled Semiconducting Carbon Nanotube Thin Films. *ACS Nano*. 8(6):5383–5394, 2014.
106. Moran SD, Zanni MT. 2014. How to Get Insights into Amyloid Structure and Formation from Infrared Spectroscopy. *The Journal of Physical Chemistry Letters*. (5):1984–1993 PMCID: PMC4051309
105. Peran I, Oudenhoven TA, Woys AM, Watson MD, Zhang TO, Carrico I, Zanni MT, Raleigh DP. 2014. A General Strategy for the Bio-orthogonal Incorporation of Strongly Absorbing, Solvation Sensitive Infrared Probes into Proteins.. *The Journal of Physical Chemistry B*. 118(28):7946–7953
104. Tu L-H, Serrano A L, Zanni M T, Raleigh D P. 2014. Mutational Analysis of Preamyloid Intermediates: The Role of His-Tyr Interactions in Islet Amyloid Formation. *Biophysical Journal*. 106(7):1520-1527 PMCID: PMC3976524
103. Lauren E. Buchanan, Joshua K. Carr, Aaron M. Fluit, Andrew J. Hoganson, Sean D. Moran, Juan J. de Pablo, James L. Skinner, and Martin T. Zanni, “Structural motif of polyglutamine amyloid fibrils discerned with mixed-isotope infrared spectroscopy,” *PNAS*, 111, 5796 (2014) PMCID: PMC4000827
102. Jennifer E. Laaser, Christianson JR, Oudenhoven, TA, Joo Y, Gopalan P, Schmidt JR, Zanni, MT, “Dye Self-Association Identified by Intermolecular Couplings between Vibrational Modes As Revealed by Infrared Spectroscopy, and Implications for Electron Injection,” *J. Phys. Chem. C.*, 118, 5854 (2014)
101. Jennifer E. Laaser, David R. Skoff, Jia-Jung Ho, Yongho Joo, Arnaldo L. Serrano, Jay D. Steinkruger, Padma Gopalan, Samuel H. Gellman, and Martin T. Zanni, “Two-Dimensional Sum-Frequency Generation Reveals Structure and Dynamics of a Surface-Bound Peptide,” *JACS*, 136, 956 (2013) 10.1021/ja408682s. PMCID: PMC3956615 ***News and Views C&E News**.
100. Ling-Hsien Tu, Arnaldo L. Serrano, Martin T. Zanni, and Daniel P. Raleigh, “Mutational Analysis of Pre-Amyloid Intermediates: The Role of His-Tyr Interactions in Islet Amyloid Formation,” *Biophysical J.*, 106, 1520 (2014). ***New and Notable Article written on our article in this issue.**
99. Sean D. Moran, Tianqi O. Zhang, and Martin T. Zanni, An alternative structural isoform in amyloid-like aggregates formed from thermally denatured human gD-crystallin., *Protein Science*, 23, 321 (2014). PMCID: PMC3945840
98. Lauren E. Buchanan, Emily B. Dunkelberger, Huong Q. Tran, Pin-Nan Cheng, Chi-Cheng Chiu, Ping Cao, Daniel P. Raleigh, Juan J. de Pablo, James S. Nowick, Martin T. Zanni, “Mechanism of IAPP amyloid fibril formation involves an intermediate with a transient β -sheet,” *PNAS*, 110, 19285 (2013). PMC: PMC3845187. ***Lead story C&E News. Highlighted in Physics Today.**

97. Carr JK, Buchanan LE, Schmidt JR, Zanni MT, Skinner JL, Structure and dynamics of urea/water mixtures investigated by vibrational spectroscopy and molecular dynamics simulation. *J Phys Chem B.* 117, 13291 (2013). PMC3808478
96. Ding, Bei; Laaser, Jennifer; Liu, Yuwei; Wang, Pengrui; Zanni, Martin; Chen, Zhan, "Site-Specific Orientation of an α -Helical Peptide Ovispirin-1 from Isotope Labeled SFG Spectroscopy," *JPCB*, 117, 14625 (2013). PMC3896219
95. Sudipta S. Mukherjee , David R. Skoff , Chris T. Middleton and Martin T. Zanni , " Fully absorptive 3D IR spectroscopy using a dual mid-infrared pulse shaper," *J. Chem. Phys.* 139 , 144205 (2013). PMCID: PMC4108792
94. Sean D. Moran, Tianqi O. Zhang, Sean M. Decatur, and Martin T. Zanni , "Amyloid Fiber Formation in Human γ D-Crystallin Induced by UV–B Photodamage, " *Biochemistry*, 52, 6169 (2013) DOI: 10.1021/bi4008353 PMCID: PMC3859806
93. Dunkelberger EB, Woys AM, Zanni MT, "2D IR Cross Peaks Reveal Hydrogen-Deuterium Exchange with Single Residue Specificity." *J Phys Chem B.* 117, 15297 (2013). PMCID: PMC3812256 *Mike Fayer Festschrift. ** **Featured in a virtual issue with ACS Photonics and Analytical Chemistry**
92. A. R. Lam, S. D. Moran, N. K. Prekete, T. O. Zhang, M. T. Zanni, and S. Mukamel, Study of the γ D-Crystallin Protein Using Two-Dimensional Infrared (2DIR) Spectroscopy: Experiment and Simulation," *J. Phys. Chem. B*, 117, 15436 (2013) DOI: 10.1021/jp405159v. PMCID: PMC3865159
91. Mehlenbacher RD, Wu M-Y, Grechko M, Laaser JE, Arnold MS, Zanni MT, "Photoexcitation Dynamics of Coupled Semiconducting Carbon Nanotube Thin Films," *Nano Letters*, 13, 1495 (2013).
90. Laaser JE and Zanni MT, Extracting Structural Information from the Polarization Dependence of One-and Two-Dimensional Sum Frequency Generation Spectra, *JPCA*, 117, 5875 (2013) DOI: 10.1021/jp307721y ***John Wright Festschrift**.
89. Woys AM, Mukherjee SS, Skoff D, Moran SD, Zanni MT, "A Strongly Absorbing Class of Non-Natural Labels for Probing Protein Electrostatics and Solvation with FTIR and 2D IR Spectroscopies," *J. Phys. Chem. B*, 117, 5009 (2013). PMCID: PMC3648522.
88. Skoff DR, Laaser JE, Mukherjee SS, Middleton CT, Zanni MT. "Simplified and economical 2D IR spectrometer design using a dual acousto-optic modulator." *Chemical Physics*, 422, 8 (2013). PMC PMCID: PMC3959789.
87. Woys AM, Almeida AM, Wang L, Chiu C-C, McGovern M, de Pablo JJ, Skinner JL, Gellman SH, Zanni MT, "Parallel β -Sheet Vibrational Couplings Revealed by 2D IR Spectroscopy of an Isotopically Labeled Macrocyclic: Quantitative Benchmark for the Interpretation of Amyloid and Protein Infrared Spectra," *J. Am. Chem. Soc.*, 134 19118.
86. Grechko, M. and Zanni MT. "Quantification of transition dipole strengths using 1D and 2D spectroscopy for the identification of molecular structures via exciton delocalization: Application to α -helices" *JCP*, 137, 184202 (2012). PMID: 23163364 ***Highlighted on cover.**
85. Moran SD, Woys AM, Buchanan LE, Bixby E, Decatur SM, Zanni MT., "Structural and Sequence Analysis of the Human γ D-Crystallin Amyloid Fibril Core Using 2D IR Spectroscopy, Segmental ^{13}C Labeling, and Mass Spectrometry," *JACS*, 134, 18410 (2012).
84. Dunkelberger EB, Buchanan LE, Marek P, Cao P, Raleigh DP; Zanni MT, "Deamidation accelerates amyloid formation and alters amylin fiber structure," *JACS*, 134, 12658 (2012). PMCID: PMC3410046 ***Highlighted in C&E News**

83. Manor J, Feldblum E, Zanni MT, Arkin IT, "Environment Polarity in Proteins Mapped Noninvasively by FTIR Spectroscopy," *J. Phys. Chem. Lett.*, 3, 939 (2012). PMCID: PMC3341589
82. Middleton CT, Marek P, Cao P, Chiu CC, Singh S, Woys AM, de Pablo JJ, Raleigh DP, Zanni MT, "Two-dimensional infrared spectroscopy reveals the complex behavior of an amyloid fibril inhibitor," *Nature Chemistry*, 4, 355 (2012). PMCID: PMC3334878. **C&E News Article written about this publication*.
81. Moran SD, Woys AM, Buchanan LE, Bixby E, Decatur SM, Zanni, MT, "Two-dimensional IR spectroscopy and segmental ¹³C labeling reveals the domain structure of human gD-crystallin amyloid fibrils," *PNAS*, 109, 3329 (2012). PMCID: PMC3295317 **Highlighted in C&E News*
80. Xiong W, Laaser JE, Mehlenbacher RD, Zanni MT, Adding a dimension to the infrared spectra of interfaces using heterodyne detected 2D sum frequency generation (HD 2D SFG) spectroscopy," *PNAS*, 108, 20902 (2011). PMCID: PMC3248474
79. Middleton, C.T., Buchanan, L.E., Dunkelberger, E.B., Zanni, M.T., "Utilizing lifetimes to suppress random coil features in 2D IR spectra of peptides," *JPC Letters*, 2, 2357, 2011. PMCID: PMC3182477.
78. Wang, L., Middleton, C.T., Singh, S., Reddy, A., Woys, A.M., Strasfeld, D.B., Marek, P., Raleigh, D.P.; de Pablo, J.J., Zanni, M.T., Skinner, J.L., "2DIR Spectroscopy of Human Amylin Fibrils Reflects Stable β -sheet Structure," *JACS*, 133, 16062 (2011). PMCID: PMC3196637
77. Wang, L., Middleton, C.T., Zanni, M.T., Skinner, J.L., "Development and Validation of Transferable Amide I Vibrational Frequency Maps for Peptides," *J. Phys. Chem. B*, 115, 3713-3724 (2011). PMCID: PMC3274961.
76. Laaser, J. E., W. Xiong, and Zanni, M.T. "Time-domain SFG spectroscopy using mid-IR pulse shaping: Practical and intrinsic advantages," *J. Phys. Chem. B*, 115, 2536-2546 (2011).
75. Marek, P., Woys, A. M., Sutton, K., Zanni, M.T., Raleigh, D.P., "An Efficient Microwave Assisted Synthesis of Human Islet Amyloid Polypeptide Designed to Facilitate the Specific Incorporation of Labeled Amino Acids," *Org. Lett.*, 12, 4848 (2010). PMCID: PMC3052696
74. Middleton, C.T., Woys, A.M., Mukherjee, S. S., Zanni, M. T., "Residue-Specific Structural Kinetics of Proteins through the Union of Isotope Labeling, Mid-IR Pulse Shaping, and Coherent 2D IR Spectroscopy," *Methods*, 52, 12 (2010). PMCID: PMC2933966 **Special issue on protein folding*.
73. Marek, P., Mukherjee, S.; Zanni, M.T.; Raleigh, D.P., "Residue Specific, Real Time Characterization of Lag Phase Species and Fibril Growth During Amyloid Formation: A Combined Fluorescence and IR Study of p-Cyanophenylalanine Analogs of Islet Amyloid Polypeptide," *J. Mol. Biol.*, 400, 878 (2010) PMC3061969.
72. Meng, F., Abedini, A., Plessner, A., Middleton, C. T.; Potter, K. J., ; Zanni, M. T.; Verchere, C. B., Raleigh, D.P., "The Sulfated Triphenyl Methane Derivative Acid Fuchsin is a Potent Inhibitor of Amyloid Formation by Human Islet Amyloid Polypeptide and Protects against the Toxic Effects of Amyloid Formation," *J. Mol. Biol.*, 400, 555-566 (2010) PMC2902639.
71. Reddy, A.S., Wang, L., Singh, S., Ling, Y.L., Zanni, M.T., Skinner, J.L., de Pablo, J.J., "Stable and Metastable states of human amylin in solution," *Biophysical J.*, 99, 2208 (2010) PMC3042569.
70. Paoprasert, P., Laaser, J.E., Xiong, W., Franking, R.A., Hamers, R.J., Zanni, M.T., Schmidt, J. R., Gopalan, P., "Bridge-Dependent Interfacial Electron Transfer from RheniumBipyridine Complexes to TiO₂ Nanocrystalline Thin Films," *J. Phys. Chem. C.*, 114, 9898 (2010).

69. A. M. Woys, Y.-S. Lin, A.S. Reddy, W. Xiong, J. J. de Pablo, J. L. Skinner, M. T. Zanni, "2D IR line shapes probe ovispirin peptide conformation and depth in lipid bilayers", *J. Amer. Chem. Soc.*, 132, 2832 (2010).
68. Reddy, A. S., Wang, L., Lin, Y.S., Ling, Y., Chopra, M., Zanni, M.T., Skinner, J.L., De Pablo, J.J., "Solution structures of rat amylin peptide: Simulation, theory and experiment." *Biophys. J.*, 98, 443-451 (2010). PMC2814214
67. Calamai, M.; Zanni, M.; Chiti, F.; Pavone, F., "Tracking of single A-beta oligomers on the plasmamembrane reveals an heterogeneous dynamic behaviour", *Febs Journal* 276, 133-133 (2009) (Abstract).
66. W. Xiong, J. E. Laaser, P. Paoprasert, R. Franking, R. J. Hamers, P. Gopalan, and M. T. Zanni, "Transient 2D IR spectroscopy of charge injection in dye-sensitized nanocrystalline thin films," *J. Amer. Chem. Soc.*, 131, 18040 (2009).
65. D.B. Strasfeld, Y.L. Ling, R.Gupta, D.P. Raleigh, and M.T. Zanni, "Strategies for extracting structural information from 2D IR spectroscopy of amyloid: application to islet amyloid polypeptide.", *J. Phys. Chem. B*, 113, 15679 (2009) PMC2901919.
64. C.T. Middleton, D.B. Strasfeld, and M.T. Zanni, "Polarization shaping in the mid-IR and polarization-based balanced heterodyne detection with application to 2D IR spectroscopy," *Optics Express*, 17, 14526 (2009) PMC2814313.
63. D.B. Strasfeld, C.T. Middleton, and M.T. Zanni, "Mode Selectivity with Polarization Shaping in the Mid-IR," *New Journal of Physics*, 11, 105046 (2009) PMC2867476. ***Special Issue on Coherent Control**
62. Y.-S. Lin, J. M. Shorb, P. Mukherjee, M. T. Zanni and J. L. Skinner , "Empirical Amide I Vibrational Frequency Map: Application to 2D-IR Line Shapes for Isotope-Edited Membrane Peptide Bundles", *J. Phys. Chem. B*, 113, 592 (2009) PMC2633092.
61. S.-H. Shim and M. T. Zanni, "How to turn your pump-probe experiment into a multidimensional spectrometer: 2D IR and Vis spectroscopies via pulse shaping," Perspective Article, *Physical Chemistry Chemical Physics*, 748, 11 (2009) PMC2821705. ***Featured on the cover.**
60. S.-H. Shim, R. Gupta, Y.L. Ling, D.B. Strasfeld, D.P. Raleigh and M. T. Zanni, "2D IR spectroscopy and isotope labeling defines the pathway of amyloid formation with residue specific resolution," *Proceedings of the National Academy of Sciences*, 106, 6614 (2009) PMC2672516. ***Featured on the cover of C&E News.**
59. Y.L. Ling, D.B. Strasfeld, S.-H. Shim, D. P. Raleigh, and M.T. Zanni, "2D IR Provides Evidence of an On-pathway Intermediate in the Membrane-catalyzed Assembly of Diabetic Amyloid," *J. Phy. Chem. B.*, 113, 2498 (2009) PMC2692222.
58. J. Manor, P. Mukherjee, Y.-S. Lin, H. Leonov, J. L. Skinner, M.T. Zanni and I.T. Arkin, "Gating mechanism of the Influenza A M2 channel revealed by 1 and 2D IR spectroscopies," *Structure*, 17, 247 (2009) PMC2820372. ***Article was highlighted in an accompanying Perspective article.**
57. W.V. Xiong, D. B. Strasfeld, S.-H. Shim and M. T. Zanni, "Automated 2D IR spectrometer mitigates the influence of high optical densities," *Vibrational Spec.*, 50, 136 (2009). ***Special Issue for Young Investigators.**
56. D. B. Strasfeld, Y. L. Ling, S.-H. Shim and M. T. Zanni, "Tracking fibril formation in human islet amyloid polypeptide with automated 2D-IR spectroscopy," *JACS*, 130, 6698-6699 (2008). PMCID: PMC3209517.

55. W. V. Xiong and M. T. Zanni, "Signal enhancement and background cancellation in collinear 2D spectroscopies," *Optics Letters*, 33, 1371-1373 (2008).
54. A. T. Krummel and M. T. Zanni, "Evidence for Coupling between Nitrile Groups Using DNA Templates: A Promising New Method for Monitoring Structures with Infrared Spectroscopy," *Journal of Physical Chemistry B*, 112, 1336-1338 (2008).
53. E. M. Grumstrup, S.-H. Shim, M. A. Montgomery, N. H. Damrauer, and M. T. Zanni, "Facile collection of two-dimensional electronic spectra using femtosecond pulse-shaping technology," *Optics Express*, 15, 16681 (2007).
52. S.-H. Shim, D. B. Strasfeld, Yun L. Ling and M. T. Zanni, "Automated 2D IR spectroscopy using a mid-IR pulse shaper and application of this technology to the human islet amyloid polypeptide," *Proceedings of the National Academy of Sciences*, 104, 14197 (2007) PMC1964818.
51. D. B. Strasfeld, S.-H. Shim and M. T. Zanni, "New advances in mid-IR pulse shaping and its applications to 2D IR spectroscopy and ground state coherent control." *Advances in Chemical Physics*, 141, 1 (2009).
50. D. B. Strasfeld, S.-H. Shim and M. T. Zanni, "Controlling vibrational excitation with shaped mid-IR pulses," *Physical Review Letters*, 99, 038102 (2007).
49. F. Ding and M. T. Zanni, "Heterodyned 3D IR spectroscopy," *Chemical Physics, Special Issue for Douwe Wiersma*, 341, 95 (2007).
48. S.-H. Shim, D. B. Strasfeld, M. T. Zanni, "Generation and characterization of phase and amplitude shaped femtosecond mid-IR pulses," *Optics Express*, 14, 13120 (2006).
47. P. Mukherjee, I. Kass, I. Arkin, and M. T. Zanni, "Structural disorder of the CD3 ζ transmembrane domain studied with 2D IR spectroscopy and molecular dynamics simulations," *J. Phys. Chem. B*, 110, 24740 (2006) PMC2722928.
46. F. Ding and M. T. Zanni, "Passively correcting phase drift in 2D IR spectroscopy," *Optics Lett*, 31, 2918 (2006).
45. A. T. Krummel and M. T. Zanni, "Interpreting DNA VCD Spectra Using a Coupling Model from 2D IR Spectroscopy," *J. Phys. Chem. B*, 110, 24720 (2006).
44. A. T. Krummel and M. T. Zanni, "DNA vibrational coupling revealed with two-dimensional infrared spectroscopy : Why vibrational spectroscopy is sensitive to DNA structure," *J. Phys. Chem. B*, 110, 13991 (2006).
43. S.-H. Shim, D. B. Strasfeld, E. C. Fulmer, M. T. Zanni, "Femtosecond pulse shaping directly in the mid-IR using acousto-optic modulation," *Optics Lett.*, 31, 838-840 (2006).
42. P. Mukherjee, I. Kass, I. Arkin, and M. T. Zanni, "Picosecond dynamics of membrane protein revealed by 2D IR," *PNAS*, 103, 3528-3533 (2006) PMC1383493.
41. E. C. Fulmer, F. Ding, P. Mukherjee, and M. T. Zanni, "Vibrational dynamics of ions in glass from fifth-order two-dimensional infrared spectroscopy," *Phys. Rev. Lett.*, 94, 067402 (2005).
40. F. Ding, E. C. Fulmer, and M. T. Zanni, "Heterodyned fifth-order 2D-IR spectroscopy: Third-quantum states and polarization selectivity," *J. Chem. Phys*, 123, 094502 (2005).

39. E. C. Fulmer, F. Ding, and M. T. Zanni, "Heterodyned fifth-order 2D IR spectroscopy of the azide ion in an ionic glass," *J. Chem. Phys.*, **121**, 034302 (2005).
38. P. Mukherjee, A. T. Krummel, E. C. Fulmer, I. Kass, I. T. Arkin, and M. T. Zanni, "Site-specific vibrational dynamics of the CD3zeta membrane peptide using heterodyned 2D IR photon echo spectroscopy," *J. Chem. Phys.* **120**, 10215 (2004).
37. E. C. Fulmer, P. Mukherjee, A. T. Krummel, and M. T. Zanni, "A pulse sequence for directly measuring the anharmonicities of coupled vibrations: two-quantum 2D IR spectroscopy," *J. Chem. Phys.* **120**, 8067 (2004).
36. A. T. Krummel, P. Mukherjee, and M. T. Zanni, "Inter- and intra-strand vibrational coupling in DNA studied with heterodyned 2D-IR spectroscopy," *J. Phys. Chem. B*, **107**, 9165 (2003)
35. N.-H. Ge, M. T. Zanni, R. M. Hochstrasser, "Local Structure and Dynamics of Liquid Acetone by Heterodyned 2D IR Spectroscopy." in *Ultrafast Phenomena XIII*, (eds.: MM Murnane, NF Scherer, RJD Miller, AM Weiner), Springer-Verlag, (2002).
34. R. M. Hochstrasser, N. H. Ge, S. Gnanakaran, and M. T. Zanni, "Two Dimensional Infrared Spectroscopy: Studies of the dynamics of structures with femtosecond pulse Fourier transform correlation spectroscopy," *Bulletin of the Chemical Society of Japan* **75**, 1 (2002).
33. N.-H. Ge, M. T. Zanni, and R. M. Hochstrasser, "Effects of vibrational frequency correlations on two-dimensional infrared spectra," *J. Phys. Chem. B*, **106**, 962 (2002).
32. A. V. Davis, M. T. Zanni, R. Weinkauf, and D. M. Neumark, "Comment on 'Iodine effect on the relaxation pathway of photoexcited $I^-(H_2O)_n$ clusters'," *Chem. Phys. Lett.*, **353**, 455 (2002).
31. M. T. Zanni, N.-H. Ge, Y. S. Kim, and R. M. Hochstrasser, "2D IR spectroscopy can be designed to eliminate the diagonal peaks and exhibit only the cross peaks needed for structure determination," *Proc. Nat. Acad. Sci. USA* **98**, 11265 (2001) PMC58718.
30. M. T. Zanni and R. M. Hochstrasser, "Two-dimensional-infrared spectroscopy (2D-IR): a promising new method for the time resolution of structures," *Curr. Opin. Struct. Biol.*, **11**, 516 (2001).
29. M. T. Zanni and D. M. Neumark, "Nobel Laureate Signature Award for Graduate Education in Chemistry," *Chem. Eng. News*, **79**, 60 (2001).
28. M. T. Zanni, S. Gnanakaran, J. Stenger, and R. M. Hochstrasser, "Two-dimensional infrared spectroscopy of solvent dependent conformations of acetylproline-NH₂," *J. Phys. Chem. B.*, **105**, 6520 (2001).
27. M. T. Zanni, M. C. Asplund, and R. M. Hochstrasser, "Two-dimensional and stimulated infrared photon echoes of N-methylacetamide-D," *J. Chem. Phys.* **114**, 4579 (2001).
26. M. T. Zanni, M. C. Asplund, S. M. Decatur, and R. M. Hochstrasser, "Frequency resolved and heterodyned femtosecond infrared echoes of peptides; multiple pulse coherent vibrational analogues of NMR," *Ultrafast Phenomena XII*, edited by T. Elsaesser *et al.*, Springer Series Chem. Phys. **66**, 504 (2000).
25. M. C. Asplund, M. T. Zanni, and R. M. Hochstrasser, "Two-dimensional infrared spectroscopy of peptides by phase-controlled femtosecond vibrational photon echoes," *Proc. Nat. Acad. Sci. USA* **97**, 8219 (2000) PMC26927.
24. A. V. Davis, M. T. Zanni, C. Frischkorn, M. Elhanine, and Daniel M. Neumark, "Femtosecond Stimulated Emission Pumping : dynamics of vibrational energy loss in excited $I_2^-(CO_2)_4$ clusters," *J. Elec. Spec. Relat. Phenom.* **112**, 221 (2000).

23. A. V. Davis, M. T. Zanni, C. Frischkorn, and Daniel M. Neumark, "Time-resolved dynamics of charge transfer to solvent states in solvated iodide clusters," *J. Elec. Spec. Relat. Phenom.* **108**, 203 (2000).
22. M. T. Zanni, A. V. Davis, C. Frischkorn, Mohammed Elhanine, and Daniel M. Neumark, "Femtosecond stimulated emission pumping: characterization of the I_2^- ground state," *J. Chem. Phys.* **112**, 8847 (2000).
21. C. Frischkorn, M. T. Zanni, A. V. Davis, and Daniel M. Neumark, "Electron solvation dynamics in $I^-(NH_3)_n$ clusters," *Faraday Discuss.* **115**, 49 (2000).
20. M. T. Zanni, C. Frischkorn, A. V. Davis, and D. M. Neumark, "Dynamics of the charge-transfer-to-solvent states in $I^-(Xe)_n$ clusters," *J. Phys. Chem. A* **104**, 2527 (2000).
19. B. J. Greenblatt, M. T. Zanni, and D. M. Neumark, "Femtosecond photoelectron spectroscopy of $I_2^-(CO_2)_n$ photodissociation dynamics ($n = 4, 6, 9, 12, 14, 16$)," *J. Chem. Phys.* **112**, 601 (2000).
18. B. J. Greenblatt, M. T. Zanni, and D. M. Neumark, "Femtosecond photoelectron spectroscopy of $I_2^-(Ar)_n$ photodissociation dynamics ($n = 6, 9, 12, 16, 20$)," *J. Chem. Phys.* **111**, 10566 (1999).
17. M. T. Zanni, B. J. Greenblatt, A. V. Davis, and D. M. Neumark, "Photodissociation of gas phase I_3^- using femtosecond photoelectron spectroscopy," *J. Chem. Phys.* **111**, 2991 (1999).
16. T. R. Taylor, K. R. Asmis, M. T. Zanni, and D. M. Neumark, "Characterization of the I_3 radical by anion photoelectron spectroscopy," *J. Chem. Phys.* **110**, 7607 (1999).
15. L. Lehr, M. T. Zanni, C. Frischkorn, R. Weinkauf, and D. M. Neumark, "Electron solvation dynamics in finite systems: A femtosecond study of iodide \cdot (water) $_n$ anion clusters," *Science* **284**, 635 (1999).
14. M. T. Zanni, V. S. Batista, B. J. Greenblatt, W. H. Miller, and D. M. Neumark, "Femtosecond photoelectron spectroscopy of the I_2^- anion: characterization of the $\tilde{A}^2\Pi_{g,1/2}$ excited state," *J. Chem. Phys.* **110**, 3748 (1999).
13. V. S. Batista, M. T. Zanni, B. J. Greenblatt, D. M. Neumark, and W. H. Miller, "Femtosecond photoelectron spectroscopy of the I_2^- anion: a semiclassical molecular dynamics simulation method," *J. Chem. Phys.* **110**, 3736 (1999).
12. M. T. Zanni, L. Lehr, B. J. Greenblatt, R. Weinkauf, and D. M. Neumark, "Dynamics of charge-transfer-to-solvent precursor states in $I^-(D_2O)_n$ clusters," *Ultrafast Phenomena XI*, edited by T. Elsaesser *et al.*, Springer Series Chem. Phys. **63**, 474 (1999).
11. M. T. Zanni, B. J. Greenblatt, and D. M. Neumark, "Solvent effects on the vibrational frequency of I_2^- in size-selected $I_2^-(Ar)_n$ and $I_2^-(CO_2)_n$ clusters," *J. Chem. Phys.* **109**, 9648 (1998).
10. M. T. Zanni, B. J. Greenblatt, A. V. Davis, and D. M. Neumark, "Photodissociation dynamics of I_3^- using femtosecond photoelectron spectroscopy," *Laser Techniques for State-Selected and State-to-State Chemistry IV*, Proc. SPIE **3271**, 196 (1998).
9. B. J. Greenblatt, M. T. Zanni, and D. M. Neumark, "Time-resolved studies of dynamics in molecular and cluster anions," *Faraday Discuss.* **108**, 101 (1997).
8. M. T. Zanni, T. R. Taylor, B. J. Greenblatt, B. Soep, and D. M. Neumark, "Characterization of the I_2^- anion ground state using conventional and femtosecond photoelectron spectroscopy," *J. Chem. Phys.* **107**, 7613 (1997).
7. B. J. Greenblatt, M. T. Zanni, and D. M. Neumark, "Photodissociation of $I_2^-(Ar)_n$ clusters studied with anion femtosecond photoelectron spectroscopy," *Science* **276**, 1675 (1997).

6. B. J. Greenblatt, M. T. Zanni, and D. M. Neumark, "Photodissociation dynamics of the I₂⁻ anion using femtosecond photoelectron spectroscopy," *Chem. Phys. Lett.* **258**, 523 (1996).
5. C. G. Freeman, D. M. Herrick, D. C. Bryan, K. L. Kurz, D. H. Mathews, P. A. A. Perera, F. L. H. Wolfs, and M. T. Zanni, "New focal plane detector system for the Rochester recoil mass spectrometer," *Nucl. Inst. and Meth. in Phys. Res. A* **357**, 450 (1995).
4. D. M. Herrick, F. L. H. Wolfs, D. C. Bryan, C. G. Freeman, K. L. Kurz, D. H. Mathews, P. A. A. Perera, and M. T. Zanni, "Elastic scattering and quasielastic transfer for ³²S + ^{96,100}Mo at Elab=180 MeV," *Phys. Rev. C* **52**, 744 (1995).
3. M. A. Carpenter, M. T. Zanni, and J. M. Farrar, "Product-state-resolved study of the O⁻ + D₂ reaction: anomalous vibrational-state distributions at low collision energies," *J. Phys. Chem.* **99**, 1380 (1995).
2. M. A. Carpenter, M. T. Zanni, D. J. Levandier, D. F. Varley, and J. M. Farrar, "Proton transfer dynamics on highly attractive potential energy surfaces: Induced repulsive energy release in O⁻ + HF at high collision energies," *Can. J. Chem.* **72**, 828 (1994).
1. F. L. H. Wolfs, C. A. White, D. C. Bryan, D. M. Herrick, D. H. Mathews, K. L. Kurz, P. A. A. Perera, and M. T. Zanni, "Breakup of 87 MeV ¹¹B," *Phys. Rev. C* **49**, 2538 (1994).