

Curriculum Vitae

Robert J. Levis
Department of Chemistry
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EDUCATION

Ph.D., Chemistry, 1988, The Pennsylvania State University
B.A., Chemistry, 1984, La Salle College
Postdoctoral Associate, 1988-1990, The Joint Institute for Laboratory Astrophysics,
University of Colorado, Boulder

ACADEMIC POSITIONS

Temple University, Philadelphia Pennsylvania	
<i>Professor</i> , Department of Chemistry	2002-present
<i>Director</i> , Center for Advanced Photonics Research	2002-present
<i>Chairman</i> , Department of Chemistry	2004-2015
<i>Senior Associate Dean</i> , College of Science and Technology	2015-present
Wayne State University, Detroit, Michigan	2000
<i>Professor</i> , Department of Chemistry	
Cambridge University, Cambridge, England	1998
<i>Visiting Scholar</i> , Department of Chemistry	
Wayne State University, Detroit, Michigan	1995
<i>Associate Professor</i> , Department of Chemistry	
Wayne State University, Detroit, Michigan	1990
<i>Assistant Professor</i> , Department of Chemistry	

AWARDS

1991 National Science Foundation Young Investigator Award
1992 National Institutes of Health Research Career Development Award
1993 American Society for Mass Spectrometry Research Award
1995 Camille Dreyfus Teacher-Scholar Award
1996 Alfred P. Sloan Research Fellow
2002 Wayne State University Teaching Award
2005 Fellow American Physical Society
2007 ACS Philadelphia Section Award

PROFESSIONAL SOCIETY MEMBERSHIPS

American Chemical Society
American Physical Society
Society Committee on Education (SOCED) for the American Chemical Society

COURSES TAUGHT

Chemical Kinetics
Quantum Chemistry
Molecular Spectroscopy
Modern Methods of Experimental Chemistry
Reactions at Surfaces
Physical Chemistry
Physical Chemistry Laboratory

Biological Physical Chemistry
Honors General Chemistry II
Chemistry of Wine
Undergraduate Research Program
Modern Methods of Experimental Chemistry

LEVIS RESEARCH GROUP

Graduate Students:

1. Champagne, Mark (M.S. 1994)
2. DeWitt, Merrick (Ph.D. 1996)
3. Rajan, Jannavi (Ph. D. 1995)
4. Szulczewski, Gregory (Ph.D. 1995)
5. Velic, Dusan (Ph.D. 1996)
6. Okike, Uchechuku
7. Richard Billotto (Ph.D. 1999)
8. Gowri Narayanaswami (Ph.D. 1999)
9. Ravi Amungama (Ph.D. 2001)
10. William Faber (M.S. 2001)
11. Noel Moore (Ph.D. 2001)
12. Alexei Markevitch (Ph.D. 2002)
13. Getahun Menkir (Ph.D. 2005)
14. Lalinda Palliyaguru (Ph.D. 2008)
15. Matt Coughlan (Ph.D. 2012)
16. Ryan Compton (Ph.D. 2010)
17. George Heck
18. John Brady (Ph.D. 2011)
19. Johanan Odhner (Ph.D. 2012)
20. Elizabeth Judge (Ph.D. 2011)
21. Paul Flanigan (Ph.D. 2014)
22. Erin McCole (Ph.D. 2016)
23. Maryam Tarazkar (Ph.D. 2015)
24. Qiong Feng (M.S. 2011)
25. Timothy Bohinski (Ph.D. 2015)
26. Santosh Karki
27. Johnny Perez (Ph.D. 2016)
28. Jieutonne Archer
29. Fengjian Shi
30. Reginald Fisher
31. Habiballah Sistani
32. Gerald Barney
33. Colin Fitzpatrick
34. Samuel Markson
35. Juehuan Liu
36. Rachel Parise
37. Yu Wang

Undergraduate Students:

1. Richard Billotto
2. Iscaro, Curtis
3. Kakos, Harrison
4. Perez, Aureliano
5. Wooley, Lillian
6. Lovy, Jonathan
7. Peters, David
8. Okike, Uchechuku
9. Haber, Jeffrey
10. Kate Plass
11. Brad Pall
12. Karmisha Jackson
13. Huyen Tran
14. Max Sloss
15. Ruth Elliot
16. Ben Bui
17. Josh Meyer
18. Matt Falcone
19. Johanan Odhner
20. William Henry
21. Nathaniel Roeckel
22. Julie Anderson
23. Christina Forbes
24. Elizabeth Cerkez
25. Rocky Fnu
26. Donita Lozada
27. Wilson Ellis
28. Simon Kuriakos
29. Laine Radell
30. Dan Evenson
31. Derek Burton
32. Steven Consevage
33. Kyle Johnston
34. Alex Confer
35. Mark Gleason
36. David Watson
37. Tyler Gieson
38. Brian Gander
39. Jason (Alex) Lewis
40. David Watson

SITE REVIEWS

- FOCUS: Frontiers in Optical Coherent and Ultrafast Science Site visit, University of Michigan, Ann Arbor, Michigan, April 2005

- NSF-Colorado State University, Engineering Research Center for Extreme Ultraviolet Science and Technology, University of Berkeley, CA, May 2008
- NSF-Colorado State University, Engineering Research Center for Extreme Ultraviolet Science and Technology, University of Colorado, Fort Collins, CO, May 2009

COMMITTEES AND OFFICES

- Director, Center for Advanced Photonics Research, 2002 - Present
- Chair, Graduate Student Recruiting Committee; 2003 - 2004
- University Tenure & Promotion Committee; 2003 - 2004, 2004 - 2005
- Interim Department Chairman; 2003 - 2005
- Chairman Department of Chemistry 2005-Present
- VP Research, Research Postdoctoral Fellows Committee
- VP Research, Incentive Grant Review Committee; 2003 - Present
- Faculty Search Committee; 2002 - 2005
- American Chemical Society Executive Committee, Physical Chemistry Division 2004 - 2007
- U.S. Representative on the Ultrafast Intense Laser Science COAST Program 2004-Present
- Organizer, 2005 PacifiChem Symposium on "Chemistry with Ultra Short Intense Laser Pulses: The Next Frontier"
- Organizer, Ultrafast, Ultraintense Laser Chemistry, American Physical Society March Meeting 2006
- Organizer, "Ultrafast Laser Chemistry and Physics" Temple University, March 2006
- Reviewer for Science Magazine
- Reviewer for the Journal of Energetic Materials
- Reviewer for the National Science Foundation
- Reviewer for Science
- Reviewer for Nature
- Reviewer for Physical Review Letters
- Reviewer for the Journal Surface Science
- Reviewer for Journal of Chemical Physics
- Reviewer for Optics Communications
- Reviewer for Chemical Physics
- Reviewer for Chemical Physics Letters
- Reviewer for International Journal of Mass Spectroscopy
- Reviewer for Surface Science
- Reviewer for Journal of Physical Chemistry Letters
- Reviewer for Analytical Chemistry
- Reviewer for Journal of Mass Spectroscopy and Ion Processes
- American Chemical Society Councilor
- Reviewer for Optics Express
- Reviewer for Optics Letters
- Reviewer for Journal of Energetic Materials
- Journal Reviewer for ACS Applied Materials & Interfaces
- Reviewer for Rapid Communications in Mass Spectrometry
- Reviewer for Proceedings of the National Academy of Sciences of the United States of America
- Reviewer for The Journal of Physical Chemistry Letters

Current Funding

PA Commonwealth

“Nanoplasmonic Imaging Agents, Biosensors, and Therapeutics”
10/01/2015-09/30/2017 Total=\$200,000 PI: Robert J. Levis

Office of Naval Research

“Detection of Explosive Signature Molecules Using Rotational Raman Spectroscopy”
07/01/2015 06/30/2017 Total = \$500,000 PI: Robert J. Levis

National Science Foundation

“Strong Field Chemistry: Control Using the Radical Cation Launch State”
02/15/2015-09/18/2018 Total = \$430,221.00 PI: Robert J. Levis

Defense Threat Reduction Agency

“Filament-Based Raman Detection of Radioactive Materials”
09/19/2014-01/31/2018 Total = \$797,887 PI: Robert J. Levis

Past Funding

Army Research Laboratory

“Nano Materials by Design”
02/06/2014- 02/05/2015 Total = \$900,000.00 PI: Robert J. Levis

Army Research Laboratory

“Center for Thermo-mechanical Processing of Materials by Design”
09/19/2014-09/18/2015 Total = \$500,000.00 PI: Robert J. Levis

Lockheed Martin

“PISA IRAD”
03/01/2015– 11/30/2015 Total=\$48,000 PI: Robert J. Levis

Air Force Office of Scientific Research

“Mathematical Modeling and Experimental Validation of Ultrafast Nonlinear Light-Matter Coupling Associated with Filamentation in Transparent Media”
08/01/10-08/01/2015 Total = \$399,991 PI: Robert J. Levis

Lockheed Martin

“Shaped Pulse Control”
06/01/2014 – 10/28/2015 Total=\$47,501 PI: Robert J. Levis

Lockheed Martin

“Polymer Interface Structure Advancement”
06/01/2014 – 11/30/2014 Total=\$40,000 PI: Robert J. Levis

DARPA

“DARPA LoCo FOUR-C: Local Control of Materials Syntheses - Fundamental Optimal Dynamic Discrimination for User-defined Reaction-Control”

05/05/2013 - 05/13/2014 Total= \$570,207.50 PI: Robert J. Levis

Army Research Laboratory

“Center for Thermo-mechanical Processing of Materials by Design”

07/01/2012-12/31/2014 Total = \$3,100,000.00 PI: Robert J. Levis

National Science Foundation

“Strong Field Control of Molecular Processes”

07/01/10-03/31/2014 Total = \$445,000 PI: Robert J. Levis

Lockheed Martin

“PISA IRAD: Polymer Interface Structure Advancement”

06/01/2014-11/30/2014 Total= \$40,000 PI: Robert J. Levis

Office of Naval Research

“Multidimensional Detection of Explosive Devices”

12/01/09-06/30/2014 Total = \$1,100,000.00 PI: Robert J. Levis

U.S. Army Research Office/ JIEDDO

“Shaped Intense Laser Detection and Surveillance”

12/01/07-11/30/2012 Total = \$2,000,000 PI: Robert J. Levis

Air Force Office of Naval Research

“Picosecond Laser for Stand off Detection of Explosives”

07/01/10-03/14/2011 Total = \$150,000 PI: Robert J. Levis

National Science Foundation

“Strong Field Chemistry”

09/01/05-12/31/08 Total = \$405,000 PI: Robert J. Levis

STTR – Department of Defense-Proteus Optics

“Fast Laser Pulse Shaping for Molecular Control”

10/05/05 – 10/04/08 Total = \$331,775 PI: Robert J. Levis

U.S. Army Research Office

“Laser Pulse Shaping for Remote Detection of Explosives”

12/15/06-03/31/08 Total = \$1,000,000 PI: Robert J. Levis
Levis = \$300,000

DARPA (Air Force Office for Scientific Research)

“Photonic Reagents: The Production of Cyclic Ozone”

12/01/04-12/31/07 Total = \$2,500,000 PI: Robert J. Levis
Levis = \$850,000

Army Research Office, MURI Program

“Quantum Dynamic Discrimination of Chemical and Biological Agents”

02/01/03-11/30/07 Total = \$3,375,000 PI: Herschel Rabitz (Princeton)
Levis = \$977,083 CO-PI: Robert J. Levis

Army Research Office, MURI Program

“Optimal Quantum Dynamic Discrimination of Chemical and Biological Agents”
05/12/03-05/11/2004 Total= \$256,600 PI: Robert J. Levis

National Science Foundation

“Strong Field Chemistry”
08/01/02-07/31/05 Total = \$364,500 PI: Robert J. Levis

Department of Defense DURIP Program

“Laser System for Strong Field Control of Chemical Reactivity”
040/01/01-03/31/02 Total = \$243,000 PI: Robert J. Levis

National Science Foundation

“Dynamics of Polyatomic Molecules in Intense Laser Fields”
08/15/99-05/31/02 Total = \$341,000 PI: Robert J. Levis

Office of Naval Research

“Optimal Control of Chemical Reactivity in the Strong Field Regime”
07/01/00-09/30/02 Total = \$400,000 PI: Robert J. Levis (50%)
CO-PI: Herschel Rabitz

National Science Foundation Young Investigator Award

01/01/92-12/31/97 Total = \$312,500 PI: Robert J. Levis

Dreyfus Foundation

Camille Dreyfus Teacher-Scholar Award
09/01/95-8/31/99 Total = \$60,000 PI: Robert J. Levis

Sloan Foundation

Alfred P. Sloan Research Fellow
1996-1998 Total = \$35,000 PI: Robert J. Levis

National Institutes of Health

“Laser-Based DNA Sequencing”
09/01/94-08/31/96 Total = \$320,000 PI: Robert J. Levis

National Institutes of Health

“Rapid, Low Cost DNA Sequencing by Mass Spectrometry”
09/16/91-09/16/94 Total = \$683,000 PI: Robert J. Levis

National Institutes of Health Research Career Development Award

“DNA Sequencing by Laser-Based, Mass Spectral Methods”
06/01/92-05/31/97 Total = \$262,440 PI: Robert J. Levis

American Society for Mass Spectrometry Young Mass Spectrometrists Award

“Femtosecond Ionization for TOF-MS of Large Biological Molecules”
07/01/93-06/31/94 Total = \$25,000 PI: Robert J. Levis

PUBLICATION LIST:

1. Levis, R.J., Jiang, Z.C. Winograd, N., “An Ultrahigh-Vacuum Investigation of the Production of Methanol on Pd {111},” *Proceedings of the VIth International Conference on Secondary Ion Mass Spectrometry*, edited by A. Benninghoven, 1987.

2. Levis, R.J., DeLouise, L.A., Winograd, N., "[Influence of Surface Atomic Steps on Site-Selective Adsorption Processes. Ethynidyne Formation on Rh {111} and Rh {331}](#)," *Journal American Chemical Society*, 1987, 109(22), 6873-6875.
3. Levis, R.J., Jiang, Z., Winograd, N., "[Evidence for Activation of the C-O Bond of Methanol on Pd {111} after Low Temperature Adsorption](#)," *Journal of the American Chemical Society*, 1988, 110(13), 4431-4432.
4. Levis, R.J., Jiang, Z.C., Akhter, S., White, J. M., Winograd, N., "[Methyl Formation from Methanol Decomposition on Pd{111} and Pt{111}](#)," *Catalysis Letters*, 1988, 1, 385.
5. Levis, R.J., Jiang, Z.C., Winograd, N. "[The Thermal Decomposition of CH₃OH adsorbed on Pd {111}: a New Reaction Pathway Involving CH₃ Formation](#)," *Journal of the American Chemical Society*, 1989, 111(13), 4605-4612.
6. Cousins, L.M., Levis, R.J., Leone, S.R., "[Observation of Translationally Hot, Rotationally Cold NO Molecules Produced by 193 nm Laser Vaporization of Multilayer NO Films](#)," *Journal of Physical Chemistry*, 1989, 93(14), 5325-5328.
7. Cousins, L.M., Levis, R.J., Leone, S.R., "[Translation and Internal State Distributions of NO Molecules Produced in the 193 nm Explosive Vaporization of Cryogenic NO films: Rotationally Cold, Translationally Fast NO Molecules](#)," *Journal of Chemical Physics* 1989, 91(9), 5731-5328.
8. Levis, R.J., DeLouise, L.A., White, E.J., Winograd, N., "[Defect-Induced Surface Chemistry: A Comparison of the Adsorption and Thermal Decomposition of C₂H₄ on Rh{111} and Rh{331}](#)," *Surface Science*, 1990, 230(1-3), 35-46.
9. Levis, R.J., Waltman, C.J., Cousins, L.M., Copeland, R.G., Leone, S.R., "[A Hyperthermal \(0.1-4 eV\) F Atom Beam Source Suitable for Surface Etching Investigations](#)," *Journal of Vacuum Science & Technology A*, 1990, 8(4), 3118-3122.
10. Levis, R.J., Romano, L.J., "[Laser Vaporization of Single-Stranded DNA. A Study of Photoinduced Phosphodiester Bond Scission](#)," *Journal of the American Chemical Society* 1991, 113(20), 7802-7803.
11. Romano, L.J., Levis, R.J., "[Nondestructive Laser Vaporization of High Molecular Weight, Single-Stranded DNA](#)," *Journal of the American Chemical Society* 1991 113(25) 9665-9667.
12. Levis, R.J., Romano, L.J., Rajan, J., Schilke, D., DeWitt, M., "Laser Vaporization and REMPI TOF Detection for DNA Sequencing," *Proceedings of the 1992 Conference on Instrumentation for Time-of-Flight Mass Spectrometry*, Chestnut Ridge, NY, Nov. 1992.
13. Levis, R.J., Romano, L.J., Rajan, J., Schilke, D., DeWitt, M., "[High Speed DNA Sequencing in the Gas Phase](#)," *Proceedings of the SPIE Biomedical Optics Society Meeting on Advances in DNA Sequencing*, 1992, 1891, 102.
14. Levis, R.J., "Laser Vaporization and REMPI TOF Detection for DNA Sequencing," *Proceedings of the 41st ASMS Conference on Mass Spectrometry*, San Francisco, CA June 1993, 786.
15. Szulczewski, G., Levis, R.J., "[A Theory for Determining Surface-Adsorbate Bond Energies from Desorption Threshold Measurements](#)," *Journal of Chemical Physics*, 1993, 98(7), 5974-5977.
16. Szulczewski, G, Levis, R.J., "[Nonthermal Surface Chemistry: Collision-Induced Reactions of NH₃ on Pt {111}](#)," *Proceedings of the OE/LASE '94 SPIE Laser Techniques for Surface Science*, 1994, 2125 252.

17. Schilke, D. and Levis, R.J., "[A Laser Desorption, Laser Ionization Time-of-Flight Mass Spectrometer for the Interrogation of Fragile Biomolecules](#)," *Review of Scientific Instruments*, 1994, 65(6), 1903-1911.
18. Levis, R.J. "[Laser Desorption and Ejection of Biomolecules from the Condensed Phase into the Gas Phase](#)," *Annual Review of Physical Chemistry* 1994, 45, 483-518.
19. Szulczewski, G., Levis, R.J., "[Determination of a Chemisorption Bond Strength by Direct Measurement of the Threshold Desorption Energy; NH₃ on Pt {111}](#)," *Journal of Chemical Physics*, 1994, 101(12), 11070-11073.
20. DeWitt, M., Levis, R.J., "[Near-Infrared Femtosecond Photoionization of Cyclic Aromatic Hydrocarbons](#)," *Journal of Chemical Physics*, 1995, 102(21), 8670-8673.
21. Srinivasan, J., Romano, L., Levis R.J., "[Velocity Distributions for a Laser-Vaporized, Anthracene-Labeled Nucleotide](#)," *Journal of Physical Chemistry*, 1995, 99(23), 13272-13279.
22. Szulczewski, G., Levis, R.J., "[Collision-Induced Desorption of Ammonia on Pt {111}: From Direct Measurement of the Threshold Energy to Determination of the Surface-Adsorbate Bond Strength](#)," *Journal of Chemical Physics*, 1995, 103(23), 10238-10251.
23. Velic, D. and Levis R.J., "[Selective Collision-Induced Desorption: Measurement of the \$\pi\$ -C₂H₄ Binding Energy on Pt {111} Precovered with Atomic Oxygen](#)," *Journal of Chemical Physics*, 1996, 104(23), 9629-3639.
24. Szulczewski, G., Levis, R.J., "[Measurement of the Binding Energy for Di-Sigma C₂H₄/Pt {111}: Does a Radical Intermediate Form During Thermal Desorption?](#)" *Journal of the American Chemical Society*, 1996, 118(14), 3521-3522.
25. DeWitt, M., Levis, R.J., "[High-Field Ionization of Molecules Using Ultrafast Radiation](#)," *Femtochemistry, Ultrafast Chemical and Physical Processes in Molecular Systems*, M. Chergui, Ed. World Scientific, 1996 pgs. 129-134.
26. Levis, R.J., "Laser Ejection of Oligonucleotides in Large Ions, Their Vaporization, Detection and Structural Analysis," Tomas Baer ed. Wiley, London, 1996, pgs. 104-125.
27. Levis, R.J., DeWitt, M.J., "[Photoionization of Polyatomic Molecules Using Intense, Near-Infrared Radiation of Femtosecond Duration](#)," in *Resonance Ionization Spectroscopy*, N. Winograd, ed. AIP Press, NY, 1997, pgs. 45-50.
28. Velic, D., Levis, R.J., "[A Model for Estimating the Surface Effective Mass During Collision-Induced Processes on Pt{111}](#)," *Chemical Physics Letters*, 1997, 269(1-2), 59-64.
29. DeWitt, M.J., Peters, D.W., Levis, R.J., "[The Photoionization/Dissociation of Alkyl Substituted Benzene Molecules Using Intense Near-Infrared Radiation](#)," *Chemical Physics*, 1997, 218(1-2), 211-223.
30. Narayanaswami, G., Levis, R.J., "[Detection of Oligonucleotides Hybridized to a Planar Surface Using Matrix-assisted Laser-Desorption Mass Spectroscopy](#)," *Journal of the American Chemical Society*, 1997, 119(29), 6888-6890.
31. Velic, D. Levis, R.J., "[Collision Induced Desorption of NO from Pt{111}, a Comparison of Activation Energies for Desorption and CID Binding Energies](#)," *Surface Science*, 1998, 396(1-3), 327-339.
32. DeWitt, M.J. and Levis R.J., "[Calculating the Keldysh Adiabaticity Parameter for Atoms, Molecules and Polyatomic Molecules](#)," *Journal of Chemical Physics*, 1998, 108(18), 7739-7742.

33. DeWitt, M.J. and Levis R.J., "[The Role of Electron Delocalization in the Ionization of C6 Hydrocarbons using Intense 780nm laser Pulses of Femtosecond Duration](#)," *Journal of Chemical Physics*, 1998, 108(17), 7045-7048.
34. DeWitt, M.J. and Levis R.J., "[Observing the Transition From Multiphoton to Field Ionization for Molecules in Intense Laser Fields](#)," *Physical Review Letters*, 1998, 81(23) 5101-5104.
35. DeWitt, M.J. and Levis R.J., "[Concerning the Ionization of Polyatomic Molecules in Intense Laser Fields](#)," *Journal of Chemical Physics*, 1999, 110(23), 11368-11375.
36. Levis, R.J. and DeWitt, M.J., "[Photoexcitation, Ionization and Dissociation of Molecules Using Intense Near-Infrared Radiation of Femtosecond Duration](#)," Feature Article in *Journal of Physical Chemistry*, 1999, 103(33), 6493-6507.
37. Prall, B.S., DeWitt, M.J., and Levis R.J., "[Predicting Intense Field Laser Ionization Probabilities: The Application to C₂H_n Species](#)," *Journal of Chemical Physics*, 1999, 111(7), 2865-2868.
38. Billotto, R. and Levis, R.J., "[On the Coupling Mechanism of a 780 nm Femtosecond Laser with Biphenyl, Diphenylmethane and Diphenylethane](#)," *Journal of Physical Chemistry A*, 1999, 103(41), 8160-8168.
39. Moore, N.P., and Levis, R.J., "[The Strong Field Photoelectron Spectroscopy of Acetylene: Evidence for Short-lived 4p Gerade States via Electric Field-induced REMPI](#)," *Journal of Chemical Physics*, 2000, 112(3), 1316-1320.
40. Arnolds, H., Rehbein, C., Roberts, G., Levis, R.J., King, D.A., "[Femtosecond Near-infrared Laser Desorption of Multilayer Benzene on Pt{111}: Spatial Origin of Hyperthermal Desorption](#)," *Chemical Physics Letters*, 1999, 314(5-6), 389-395.
41. Moore, N.P., Levis R.J., "[The Strong Field Photoelectron Spectroscopy of Acetylene: Evidence for Short-Lived 4p Gerade States Via Electric field-Induced Resonance-Enhanced Multiphoton Ionization](#)," *Journal of Chemical Physics*, 2000, 112(3), 1316-1320.
42. Arnolds, H., Rehbein, C., Roberts, G., Levis, R.J., King, D.A., "[Femtosecond Near-infrared Laser Desorption of Multilayer Benzene on Pt{111}: A Molecular Newton's Cradle?](#)" *Journal of Physical Chemistry B*, 2000, 104(14), 3375-3382.
43. DeWitt, M.J., Prall, B.P., Levis, R.J., "[Orientational Averaging in the Intense Field Tunnel Ionization of Molecules](#)," *Journal of Chemical Physics*, 2000, 113(4), 1553-1558.
44. Moore, N.P. and Levis R.J., "Strong Field Photoelectron Spectroscopy of Polyatomic Molecules: Acetylene," in *Multiphoton Processes*, L.F. DiMauro, R.R. Freeman and K.C. Kulander, Eds. AIP Press, NY, 2000.
45. Levis, R.J., Menkir, G., Rabitz, H., "[Selective Bond Dissociation and Rearrangement with Optimally Tailored, Strong-Field Laser Pulses](#)," *Science*, 2001, 292(5517), 709-713.
46. Markevitch A.N., Moore, N.P., and Levis, R.J., "[The Influence of Molecular Structure on Strong Field Energy Coupling and Partitioning](#)," *Chemical Physics*, 2001, 267(1-3), 131-140.
47. Levis, R.J., "Strong Field Ionization and Dissociation of Polyatomic Molecules," *Abstracts of Papers of the American Chemical Society*, 2001, 221, U264-U264.
48. Moore, N.P. Levis, R.J., "[Strong Field Molecular Photoelectron Spectroscopy](#)," *Abstracts of Papers of the American Chemical Society*, 2001, 221, U247-U247.

49. Markevitch, A.N., Moore, N.P., Levis, R.J., "[The Effects of Molecular Structure on Strong Field Energy Coupling of Anthracene and Anthraquinone](#)," *Abstracts of Papers of the American Chemical Society*, 2001, 221, U294-U294.
50. Moore, N.P., Markevitch A.N., Menkir G.M., Levis, R.J., "[The Mechanisms of Strong Field Control of Chemical Reactivity using Tailored Laser Pulses](#)," a peer reviewed book chapter in *Laser Control and Manipulation of Molecules*, A.D. Bandrauk and R.J. Gordon eds. American Chemical Society Symposium Series, 2002, 821, 207-220.
51. Levis, R.J., Rabitz, H.A., "[Closing the Loop on Bond Selective Chemistry Using Tailored Strong Field Laser Pulses](#)," *Journal of Physical Chemistry A*, 2002, 106(27), 6427-6444.
52. Moore, N.P., Markevitch, A.N., Levis, R.J., "[Influencing Strong Field Excitation Dynamics through Molecular Structure](#)," *Journal of Physical Chemistry A*, 2002, 106(7), 1107-1112.
53. Graham, P., Menkir, G., Levis, R.J., "[An Investigation of the Effects of Experimental Parameters on the Closed-Loop Control of Photoionization/Dissociation Processes in Acetophenone](#)," *Spectrochimica Acta Part B-Atomic Spectroscopy*, 2003 58, 1097-1108.
54. Arnolds, H., Levis, R.J., King, D.A., "[Vibrationally Assisted DIET Through Transient Temperature Rise: The Case of Benzene on Pt{111}](#)," *Chemical Physics Letters*, 2003, 380(3-4), 444-450.
55. Markevitch, A.N., Romanov, D.M., Smith, S.M., Schlegel, H.B., Ivanov, M.Y., Levis, R.J., "[Nonadiabatic Dynamics of Polyatomic Molecules and Ions in Strong Laser Fields](#)," *Physical Review A*, 2003, 68(1), 011402(R).
56. Smith, S.M., Markevitch, A.N., Romanov, D.A., Li, X., Levis, R.J., Schlegel, H.B., "[Static and Dynamic Polarizabilities of Conjugated Molecules and Their Cations](#)," *Journal of Physical Chemistry A*, 2004, 108(50), 11063-11072.
57. Anand, S., Zamari, M.M., Menkir, G., Levis, R.J., Schlegel, H.B., "[Fragmentation Pathways in a Series of CH₃COX Molecules in the Strong Field Regime](#)," *Journal of Physical Chemistry A*, 2004, 108(15), 3162-3165.
58. Markevitch, A., Romanov, D., Smith, S., Schlegel, H.B., Ivanov, M., Levis, R.J., "[Sequential Nonadiabatic Excitation of Large Molecules and Ions Driven by Strong Laser Fields](#)," *Physical Review A*, 2004, 69(1), Art. No. 013401.
59. Markevitch, A., Romanov, D., Smith, S., Levis, R.J., "[Coulomb Explosion of Large Polyatomic Molecules Assisted by Nonadiabatic Charge Localization](#)," *Physical Review Letters*, 2004, 92(6), Art. No. 063001.
60. R.J. Levis, "[Coherent Control](#)," *Encyclopedia of Modern Optics*, Ed. Bob D. Guenther, Elsevier, 2005, 133-137.
61. Li, X., Smith, S.M., Markevitch, A.N., Romanov, D.A., Levis, R.J., Schlegel, H.B., "[A Time-dependent Hartree-Fock Approach for Studying the Electronic Optical Response of Molecules in Intense Fields](#)," *Physical Chemistry*, 2005, 7(2), 233-239.
62. Elliott, R., Compton, R., Levis, R.J., Matsika, S., "[Excited Electronic States of the Cyclic Isomers of O₃ and SO₂](#)," *Journal of Physical Chemistry A*, 2005, 109(49), 11304-11311.
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Patents:

1. Robert J. Levis and Louis J. Romano, “A Method for Analyzing an Organic Sample,” US Patent # 5210412.
2. Robert J. Levis and Louis J. Romano, “Vaporization and Sequencing of Nucleic Acids,” US Patent # 5580733.
3. Robert J. Levis and Johanan Odhner, “Filamentation-Based Stimulated Raman Detection,” US Patent # 20130321801.
4. Robert J. Levis, John Brady, Elizabeth Judge, “Vaporization Device and Method for Mass Spectroscopy,” US Patent # 8598521.
5. Robert J. Levis, and Nicholas V. Coppa, “Control of Particle Formation at the Nanoscale,” US Patent # 8685293.
6. Robert J. Levis and Andrew Mills, “Pulse-Burst Assisted Electrospray Ionization Mass Spectrometer,” US Patent # 8487244.
7. Herschel Rabtiz, E. Schreiber and Robert J. Levis, “Quantum Dynamic Discriminator for Analyzing a Composition, Comprises Tunable Field Pulse Generator, Signal Detector, Closed Loop Quantum Controller with an Optimal Identification Algorithm to Change Field Pulse Applied to the Composition” US Patent # 2004128081-A1.

8. Andrew A. Mills, Martin E. Fermann, Jiahui PENG, Robert J. Levis, " Pulse-Burst Assisted Electrospray Ionization Mass Spectrometer" US Patent # 20150187558

PAPERS PRESENTED AND INVITED TALKS:

1. "Ethyldiyne Formation and Decomposition on Rh{111} and Rh{331}," Central Regional American Chemical Society Meeting, Ohio State University, Columbus, OH, June 1987.
2. "An Ultrahigh Vacuum investigation of the Production of Methanol on Pd{111}," VIth International Conference on secondary Ion Mass Spectrometry, Versailles, France, September 1987.
3. "Evidence for Activation of the Methanolic C-O Bond on Pd{111}," Regional Meeting of the American Chemical Society, Millersville State University, Millersville, PA, May 1988.
4. "Hyperthermal Molecular Beams via Laser Vaporization," University of Illinois, Chicago, IL, November 1989.
5. "Hyperthermal Molecular Beams via Laser Vaporization," Washington University, St. Louis, MS, November 1989.
6. "Hyperthermal Molecular Beams via Laser Vaporization," University of Pittsburgh, Pittsburgh, PA, November 1989.
7. "Hyperthermal Molecular Beams via Laser Vaporization," Wayne State University, Detroit, MI, November 1989.
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10. "Hyperthermal Molecular Beams via Laser Vaporization," University of Maryland, College Park, MD, December 1989.
11. "Hyperthermal Molecular Beams via Laser Vaporization," Cornell University, NY, December 1989.
12. "Hyperthermal Molecular Beams via Laser Vaporization," University of Nebraska, Lincoln, NE, January 1990.
13. "Hyperthermal Molecular Beams via Laser Vaporization," University of Rochester, Rochester, NY, January 1990.
14. "Hyperthermal Molecular Beams via Laser Vaporization," University of Wisconsin, Madison, WI, January 1990.
15. "Laser Vaporization, from Hyperthermal Molecular Beams to Ultrasensitive Surface Analysis," Kalamazoo College, Kalamazoo, MI, October 1990.
16. "Laser Vaporization of Biological Molecules: Gas Phase Chemistry of High Molecular Weight Single-Stranded DNA," La Salle University, Philadelphia, PA, April 1991.
17. "Developing Surface Sensitive Experiments for Complex Molecules," Scientific Research Laboratories, Ford Motor Company, MI, February 1991.
18. "High Speed DNA Sequencing," LeCroy Corp., Chestnut Ridge, NY, August 1991.
19. "Laser Vaporization of High Molecular Weight, Single Stranded DNA," American Chemical Society Meeting, New York, August 1991.

20. "Laser Vaporization and Ionization of Single-Stranded DNA," The University of Pennsylvania, Philadelphia, PA, November 1991.
21. "Laser Vaporization of Single-Stranded DNA and REMPI -TOF Detection," American Society for Mass Spectrometry Meeting on Lasers in Mass Spectrometry, Sanibel Island, FL, January 1992.
22. "Laser Vaporization and REMPI-TOF Detection of Biological Molecules," Anachem Meeting, Detroit, MI, February 1992.
23. "Laser Vaporization of Biological Molecules: Gas Phase Chemistry of High Molecular Weight Single-Stranded DNA," Saginaw Valley State University, Kalamazoo, MI, February 1992.
24. "New Laser-Based Methods for Probing Biological Materials: The Impact on High Speed DNA Sequencing," Wayne State University, Detroit, MI, March 1992.
25. "High Speed DNA Sequencing using Laser Based Methods," Boehringer Mannheim Corp., May 1992.
26. "Laser Vaporization and REMPI-TOF Detection of Single-Stranded DNA," Michigan Mass Spectroscopy Discussion Group Meeting, Ann Arbor, MI, May 1992.
27. "Determining Surface-Adsorbate Bond Energies From Collision-Induced Desorption Threshold Measurements," AVS Meeting, Ann Arbor, MI, June 1992.
28. "Laser Vaporization and REMPI-TOF Detection of Large Biological Molecules; Toward high Speed DNA Sequencing," North East Regional American Chemical Society Meeting, The University of Syracuse, Syracuse, NY, June 1992.
29. "DNA Sequencing in the Gas Phase," Human Genome '92, The Human Genome Project International Conference, Nice, France, October 1992.
30. "DNA Sequencing in the Gas Phase," Department of Chemistry Seminar, The Pennsylvania State University, University Park, PA, November 1992.
31. "DNA Sequencing Using Laser Vaporization and REMPI-TOF Mass Spectroscopy," Instrumentation for Time-of-Flight Mass Spectrometry Meeting, New York, November 1992.
32. "Laser Vaporization and Laser Ionization Techniques for DNA Sequencing," Department of Physics Colloquium, Wayne State University, Detroit, MI, November 1992.
33. "High Speed DNA Sequencing in the Gas Phase," SPIE Biomedical Optics Society Meeting, Los Angeles, CA, January 1993.
34. "The Spectroscopy of Single Stranded DNA in the Gas Phase," Department of Chemistry Seminar, The University of Waterloo, Canada, February 1993.
35. "Nonthermal Chemistry, from Diatomic Desorption to DNA Sequencing," Frontiers in Chemistry Lecture, Department of Chemistry, Wayne State University, Detroit, MI, February 1993.
36. "Chemistry at 20,000 K, from Nanoscale Surface Reactions to High Speed DNA Sequencing," Wayne State University Academy of Scholars Lecture, Detroit, MI, April 1993.
37. "Laser Vaporization and REMPI TOF Detection for DNA Sequencing," 41st ASMS Conference on Mass Spectrometry, San Francisco, CA, June 1993.
38. "Determining Surface-Adsorbate Bond Energies using Collision-Induced Desorption," Department of Chemistry, Oakland University, Rochester, MI, September 1993.

39. "532nm Laser Vaporization and Resonant Photoionization for Fragile Biomolecules," 10th Asilomar Conference on Mass Spectrometry, Estes Park, CO, October 1993.
40. "Laser-Based, Time-of-Flight Methods for DNA Sequencing," FACSS 20, Detroit, MI, October 1993.
41. "Laser Ionization for Gas Phase Biomolecules," FACSS 20, Detroit, MI, October 1993.
42. "Towards High Speed DNA Sequencing via Laser-Based, Mass Spectrometry," Genome Sequencing and Analysis Conference, Hilton Head, SC, October 1993.
43. "Chemistry at 20,000 F, from Nanotechnology to Gas Phase DNA Sequencing," University of Maryland, College Park, MD, January 1994.
44. "Chemistry at 20,000 F, from Nanoscale Surface Reactions to Gas Phase DNA Sequencing," Bowling Green University, Bowling Green, OH, January 1994.
45. "Chemistry at 20,000 F, from Nanotechnology to Gas Phase DNA Sequencing," Arizona State University, Tempe, AZ, January 1994.
46. "Laser Vaporization and Spectroscopy of Biomolecules in the Gas Phase," SPIE Meeting on Laser Techniques for Surface Science, Los Angeles, CA, January 1994.
47. "Determination of the NH₃/Pt{111} Bond Energy from the Collision-Induced Desorption Threshold," SPIE Meeting on Laser Techniques for Surface Science, Los Angeles, CA, January 1994.
48. "Chemistry at 10,000 C, from Nanoscale Surface Chemistry to Gas Phase DNA Sequencing," The Pennsylvania State University, University Park, PA, February 1994.
49. "Experimental Observables and Theoretical Considerations for the Laser Ejection of Biomolecules," American Society for Mass Spectrometry Meeting, Chicago, IL, May 1994.
50. "Laser-Based Mass Spectroscopy for DNA Analysis and Sequencing," Genome Sequencing and Analysis Meeting, Hilton Head, SC, September 1994.
51. "Laser-Based Mass Spectroscopy, from DNA Analysis to Femtosecond Photoionization," Bay Area Mass Spectrometry Meeting, San Francisco, CA, September 1994.
52. "Laser-Based Mass Spectroscopy, from DNA Analysis to Femtosecond Photoionization," University of British Columbia, Vancouver, Canada, September 1994.
53. "Laser-Based Mass Spectroscopy, from Oligonucleotide Analysis to Femtosecond Photoionization," Department of Chemistry, Hope College, Holland, MI, January 1995.
54. "Laser-Based Mass Spectroscopy, from Oligonucleotide Analysis to Femtosecond Photoionization," Calvin College Departmental Seminar, Grand Rapids, MI, January 1995.
55. "Femtosecond Laser Ionization," Chemistry Department Colloquium, The University of Notre Dame, South Bend, IN, February 1995.
56. "Impulsive Ejection of Adsorbates," The American Physical Society Meeting, San Jose, CA, March 1995.
57. "Laser Ejection and Ionization of Biological Molecules," SPIE Meeting on Laser Surface Interactions, San Diego, CA, July 1995.
58. "The Interaction of Ultrafast Light Pulses with Polyatomic Molecules," Femtochemistry, The Lausanne Conference, Lausanne, Switzerland, September 1995.
59. "The Near Infrared Femtosecond Photoionization of Polyatomic Molecules," Interdisciplinary Laser Science Meeting, Optical Society of America, Portland, OR, September 1995.

60. "Laser Ejection and Femtosecond Photoionization of Biomolecules," Department of Chemistry, University of California, Berkeley, CA, September 1995.
61. "Laser Ejection and Femtosecond Photoionization of Biomolecules," Department of Chemistry, Ohio State University, Columbus, OH, October 1995.
62. "Laser Ejection and Femtosecond Photoionization of Biomolecules," Department of Chemistry, University of Illinois, Chicago, IL, February 1996.
63. "Biomolecular Mass Spectrometry," The Waksman Institute, Rutgers University, Piscataway, NJ, March 1996.
64. "Photoionization of Polyatomic Molecules Using Intense, Near-Infrared Radiation of Femtosecond Duration," RIS-96, The Pennsylvania State University, University Park, PA, July 1996.
65. "Photoionization of Molecules using Intense Radiation Fields," PITSA Meeting, Argonne National Laboratories, Argonne, IL, 1996.
66. "Ultrafast Chemistry in High Electric Fields," University of Akron, Akron, OH, November 1996.
67. "Ultrafast Photoionization of Polyatomic Molecules Using Intense Laser Fields" University of Toledo, Toledo, OH, February 1997.
68. "Experiment and Theory of Collision-Induced Desorption of NO from Pt{111} Using Supersonic Beams of Xe and Kr," Ultrafast Surface Dynamics, Ascona, Switzerland, 1997.
69. "Molecules in Strong Laser Fields: On the Mechanism of Photoionization Using Near-Infrared Pulses of Femtosecond Duration," Molecular Electronic Spectroscopy and Dynamics Gordon Conference, Oxford, UK, September 1997.
70. "Impulsive Ejection: From Measurement of the Surface-Adsorbate Bond Energy via Collision-Induced Desorption to DNA Diagnostics," Cambridge University, Cambridge, UK, September 1997.
71. "Impulsive Chemistry: From Measuring Surface-Adsorbate Binding Energies to DNA Diagnostics," Northwestern University, Evanston, IL, October 1997.
72. "Observing the Transition From Multiphoton to Field-Mediated Coupling in Intense Laser-Molecule Interactions" Gordon Research Conference, Tilton School, NH, June 1998.
73. "Coupling High Intensity Near-IR Femtosecond Pulses Into Phenylalkanes," 1998 Summer Gordon Conference on Multiphoton Processes, Tilton School, Tilton, NH, June 1998.
74. "Polyatomic Molecules in Intense Near-Infrared Laser fields in Femtosecond Duration," French Atomic Energy Commission SACLAY, France, October 1998.
75. "The Interaction of Polyatomic Molecules with Intense Near-Infrared Radiation of Femtosecond Duration," University of Cambridge, Cambridge, UK, October 1998.
76. "The Interaction of Polyatomic Molecules with Intense Near-Infrared Radiation of Femtosecond Duration," Imperial College, London, UK, November 1998.
77. "Molecules in Intense Laser Fields: Observing the Transition from Multiphoton to Field-Mediated Processes," University of Toronto, Toronto, ON, Canada, February 1999.
78. "Molecules in Intense Laser Fields: Observing the Transition from Multiphoton to Field-Mediated Processes," Central Michigan University, Mount Pleasant, MI, February 1999.

79. "Molecular Ionization Using Intense Near-Infrared Radiation," Gaseous Ions, Structure and Reactivity, Gordon Research Conference, Venture Beach, CA, February 1999.
80. "Perturbing the Molecular Hamiltonian With 1-10 V/Å Laser Fields," Michigan State University, Lansing, MI, March 1999.
81. "Energetic Mechanisms in the High Field Ionization of Polyatomic Systems," American Physical Society Meeting, Atlanta, GA, March 1999.
82. "Observing the Transfer from Multiphoton to Field Ionization for Molecules in Intense Laser Fields," American Physical Society Meeting, Atlanta, GA, March 1999.
83. "Photoionization of Molecules in Intense Laser Fields," 1st Cross-Border Workshop on Laser Science: Coherent Dynamics in Quantum Complex Systems, National Research Council of Canada, Ottawa, Canada, May 1999.
84. "Photoionization of Molecules in Intense Laser Fields," Canadian Society for Chemistry Meeting, Toronto, Canada, June 1999.
85. "Photochemistry of Polyatomic Molecules in Intense Ultrafast Laser Pulses," American Chemical Society Meeting, Columbus, OH, June 1999.
86. "Strong Field Chemistry: Molecules in Intense Ultrafast Laser Pulses," International Conference on Multiphoton Processes, Monterey, CA, September 1999.
87. "Strong Field Chemistry: Molecules in Intense Laser Fields," Physical Chemistry Seminar, Princeton University, Princeton, NJ, October 1999.
88. "Perturbing the Molecular Hamiltonian Using Intense Laser Fields," Chemistry Department Colloquium, Hillsdale College, Hillsdale, MI, November 1999.
89. "Strong Field Chemistry: Polyatomic Molecules in Intense Near-IR Laser Fields," Chemical Physics Colloquium, University of Colorado, Boulder, CO, February 2000.
90. "The Role of Molecular Structure in Strong Field Photochemistry," The Second Annual Cross Border Workshop on Laser Science, Ann Arbor, MI, May, 2000.
91. "The Strong Field Photoelectron Spectroscopy of Naphthalene," 2000 Gordon Research Conference on Multiphoton Processes, Tilton, NH, June 2000.
92. "Strong Field Chemistry," PacifiChem, Hawaii, December 2000.
93. "Strong Field Photoelectron Spectroscopy," ACS National Meeting, San Diego, CA, April 2001.
94. "The Effects of Molecular Structure on the Strong-Field Coupling of Anthracene and Anthraquinone," ACS National Meeting, San Diego, CA, April 2001.
95. "The Strong Field Photoelectron Spectroscopy of Benzene; Channel Switching In Polyatomic Molecules," ACS National Meeting, San Diego, CA, April 2001.
96. "Strong Field Photochemistry," American Physical Society, DAMOP Meeting, London, Ontario, May 2001.
97. "The Role of Molecular Structure in Strong Field Photochemistry," Gordon Research Conference, Nonlinear Optics, NH, July 2001.
98. "The Role of Molecular Structure in Strong Field Photochemistry," Gordon Research Conference, Quantum Control, NH, July 2001.
99. "Tailoring Hamiltonians for Reaction Control Using Strong Field Combinatorial Photochemistry," Massachusetts Institute of Technology, Cambridge, MA, September 2001.

100. "Strong Field Chemistry: Teaching Lasers to Selectively Make and Break Bonds," University of Virginia, Charlottesville, VA, October 2001.
101. "Tailoring Hamiltonians for Reaction Control using Shaped Strong Field Laser Pulses," University of Illinois, IL, November 2001.
102. "Tailoring Hamiltonians for Reaction Control Using Strong Fields," Physics Colloquium, Temple University, Philadelphia, PA, November 2001.
103. "Tailoring Hamiltonians for Reaction Control Using Shaped Strong Field Laser Pulses," Max Planck Gesellschaft Conference on Optimal Control of Quantum Dynamics, Ringberg Castle, Rottach-Egern, Germany, December 2001.
104. "Chemical Control Using Tailored Strong Field Laser Pulses," 2002 Physics of Quantum Electronics Conference, Snowbird, UT, January 2002.
105. "Chemical Control Using Tailored Strong Field Laser Pulses," Temple University Department of Chemistry, Philadelphia, PA, January 2002.
106. "Chemical Control Using Tailored Strong Field Laser Pulses," Eastern Michigan University, Department of Chemistry, Ypsilanti, MI, March 2002.
107. "Controlling Chemistry with Tailored Strong Field Laser Pulses," University of Alabama, Tuscaloosa, AL, April 2002.
108. "Controlling Chemistry with Tailored Strong Field Laser Pulses," Ultrafast Phenomena, Vancouver, Canada, May 2002.
109. "Controlling Chemistry with Tailored Strong Field Laser Pulses," LAP 2002, Leuven, Netherlands, July 2002.
110. "Coulomb Explosion of Polyatomic Molecules in Saturation Regime," Gordon Research Conference, August 2002.
111. "Controlling Chemistry with Tailored Strong Field Laser Pulses," OSA/Laser Science XVIII, Orlando, FL, October 2002.
112. "Adaptive Strong Field Control of Chemistry: Exciting the Quasi-continuum," 2003 Physics of Quantum Electronics Conference, Snowbird, UT, January 2003.
113. "Controlling Chemistry with Tailored, Strong Field Laser Pulses," La Salle University, Department of Chemistry, Philadelphia, PA, March 2003.
114. "Controlling Chemistry with Tailored, Strong Field Laser Pulses," University of Wisconsin, Madison, WI, April 2003.
115. "Engineering Shaped Laser Pulses for Advanced Technologies," San Diego, CA, July 2003.
116. "Controlling Chemistry with Tailored Strong Field Laser Pulses," Femtochemistry VI, Paris, France, July 2003.
117. "Control in the Strong Field Regime: Manipulating Chemical Reactivity with Tailored Laser Pulses," SPIE Annual Meeting, San Diego, CA, August 2003.
118. "Probing Strong Field Electron-Nuclear Dynamics of Polyatomic Molecules using Proton Motion," Gordon Research Conference, Mt. Holyoke College, South Hadley, MA, August 2003.
119. "Combinatorial Photonics, Controlling Chemistry with Tailored Strong Field Laser Pulses," Physcon 2003, St. Petersburg, Russia, August 2003.
120. "Combinatorial Chemistry with Adaptively-Tailored Strong Field Laser Pulses," University of the Sciences, Philadelphia, PA, September 2003.

121. "Combinatorial Chemistry with Adaptively-Tailored Strong Field Laser Pulses," Laval University International Symposium, Quebec City, Quebec, Canada, September 2003.
122. "Controlling Chemistry with Tailored, Strong Field Laser Pulses," Laser Science XIX, Tucson, AZ, October 2003.
123. "Strong Field, Closed Loop Control of Chemistry," The Pennsylvania State University, University Park, PA, October 2003.
124. "Combinatorial Chemistry with Adaptively-Tailored Strong Field Laser Pulses," Binghamton University, Binghamton, NY, November 2003.
125. "Controlling Chemistry with Tailored Strong Field Laser Pulses," International Workshop on Optimal Control of Quantum Dynamics, Max-Planck- Institute, Tegernsee, Germany, December 2003.
126. "Combinatorial Chemistry with Ultrafast Laser Pulses," St. Joseph's University, Philadelphia, PA, March 2004.
127. "Adaptive Control in the Strong Field Regime," Institute for Molecular Sciences, Okazaki, Japan, July 2004.
128. "Molecules in Intense Laser Fields," Department of Chemistry, University of Tokyo, July 2004.
129. "Strong Field Chemistry and Control," Physics and Physical Chemistry, Sendai, Japan, August 2004.
130. "Control of Molecules and Clusters," Session Leader, International Symposium on Ultrafast Intense Laser Science III, Sicily, Italy, September 2004.
131. "Combinatorial Chemistry with Ultrafast Laser Pulses," SUNY at Stony Brook, Stony Brook, NY, December 2004.
132. "Strong Field Optimal Detection of Chemical Warfare Agents," DARPA/ARO Workshop on Metrics and Standards for Evaluation and Comparison of CW Detectors, Aberdeen, MD, December 2004.
133. "Strong Field Optimal Control," Quantum Control Workshop, Princeton University, Princeton, NJ, March 2005.
134. "Rapid Proton Transfer Mediated by a Strong Laser Field," Femtochemistry 2005, Washington DC, July 2005.
135. "Nonadiabatic Dynamics of Polyatomic Molecules in Strong Laser Fields," International Conference on Photonic, Electronic and Atomic Collisions (ICPEAC), Rosario, Argentina, July 2005.
136. "Control of Chemistry," Quantum Control of Light and Matter, Gordon Research Conference, Colby College, Waterville, ME, August 2005.
137. "Strong Field Chemistry," A Graduate Student Recruiting Talk for the ACS Student Affiliate Chapter at the University of Delaware, Newark, DE, September 2005.
138. "Strong Field Chemistry," Department of Chemistry, Rowan University, Glassboro, NJ, October 2005.
139. "Adaptive Manipulation of Objects in Hilbert Space via Strong Field Lasers," Institute for Mathematics and Applications, University of Minnesota, Minneapolis, MN, November 2005.
140. "Active Manipulation of Objects in Hilbert Space via Strong Field Lasers" 4th International Workshop on "Optimal Control of Quantum Dynamics: Theory and Experiment," Ringberg Castle, Tegernsee, Germany, December 2005.

141. "Dynamics of Molecular Fragmentation mediated by Charge Transfer States Chemistry with Ultrashort Intense Laser Pulses: The Next Frontier," PacificChem Meeting, Honolulu, HI, December 2005.
142. "Evolving Laser Pulses for Chemistry: From Reaction Control to Weapons Detection," American Chemical Society, Temple University, Philadelphia, PA, February 2006.
143. "Adaptive Control of the Spatial Position of White Light Filaments in an Aqueous Solution," American Physical Society, Baltimore, MD, March 2006.
144. "Nonadiabatic Dynamics during Strong Field Excitation of Molecules," Max Born Institute, Berlin, Germany, March 2006.
145. "Controlling Complex Chemical Systems Using Adaptively Shaped Strong Field Laser Pulses," Sfb 450: Analysis & Control of Ultrafast Photoinduced Reactions, Free University of Berlin, Germany, March 2006.
146. "Nonadiabatic Dynamics during Strong Field Excitation of Molecules," 5th Photo-Molecular Science Forum "Frontiers in Photo-Molecular Science 1", Okazaki, Japan, May 2006.
147. "Control of Complex Molecular Processes Using Adaptively-shaped, Intense Laser Field," Ultrafast Surface Dynamics Conference, Abashiri, Japan, May 2006.
148. "Strong Field, Optimal Laser Mass Spectrometry for Chemical Warfare Agent Detection," International Symposium on Spectral Sensing Research (ISSSR 2006), Bar Harbor, ME, May-June 2006.
149. "Applications of Strong Field Quantum Control: Spinning Straw into Gold," Gordon Research Conference on Multiphoton Processes, Tilton School, NH, June 2006.
150. "Adaptive Control of the Spatial Position of White Light Filaments in an Aqueous Solution," International Conference CCFP 2006 "Coherent Control of the Fundamental Processes in Optics and X-ray-Optics", Nizhny Novgorod, Russia, June-July 2006.
151. "Photonic Reagents: Shaped, Strong Field Laser Pulses for Controlling Chemistry," 2006 Monday Morning Seminar Series, Chemistry Division Argonne National Laboratory, Argonne, IL, October 2006.
152. "Photonic Reagents: Shaped, Strong Field Laser Pulses for Controlling Chemistry," Physical Chemistry Seminar, University of Washington, Seattle, WA, October 2006.
153. "Photonic Reagents: Shaped, Strong Field Laser Pulses for Controlling Chemistry," Rutgers State University, Newark, NJ, November 2006.
154. "Control of Multi-component Systems with Strong Laser Fields: A New Paradigm for Sensing," 37th Winter Colloquium on The Physics of Quantum Electronics, Snowbird, UT, January 2007.
155. "Atomic and Molecular Dynamics Observation and Control," Université Paul Sabatier, Toulouse, France, March 2007.
156. "Control of Complex Molecular Processes Using Adaptively-Shaped, Intense Laser Fields," Stevens Institute of Technology, Hoboken, NJ, April 2007.
157. "Molecules in Strong Optical Fields," Division of Atomic, Molecular, and Optical Physics (DAMOP) Conference, Calgary, Canada, June 2007.
158. "DARPA Tech 2007 Conference," Anaheim, CA, August 2007.
159. "Molecules in Strong Laser Fields, from Stand off Detection to Photonic Reagents," Drexel University, Philadelphia, PA, October 2007.

160. "Complexity Management in Strong Field-Molecule Interactions: Lessons from Evolution and Dimensionality Reduction," Center for Ultracold Atoms, MIT/Harvard University, Boston, MA, November 2007.
161. "High Speed Detection of Chemical Warfare Agents," Bloomsburg University, Bloomsburg, PA, November 2007.
162. "Complexity Management in Strong Field Molecule Interactions: Lessons from Evolution and Dimensionality Reduction," 5th International Workshop on Optimal Control of Quantum Dynamics: Theory and Experiment, Ringberg Castle, Tegernsee, Germany, November 2007.
163. "Ultrafast, Laser-Generated Filament Plasma-Dynamics as Probed by Femtosecond Box-CARS," 38th Winter Colloquium on The Physics of Quantum Electronics, Snowbird, UT, January 2008.
164. "Complexity Management in Strong Field Molecule Interactions: Lessons from Evolution and Dimensionality Reduction," COAST/CORAL Winter School on Advanced Laser Science, University of Tokyo & Nاسpa New Otani, Yuzawa, Japan, January 2008.
165. "Adaptive Control of Laser Filamentation," Photonics West 2008 LASE Conference and Exhibition, San Jose, CA, January 2008.
166. "Beyond ISP: Intense Laser Hamiltonian Control for Selective Sensing," Pittsburgh Conference (PittCon 2008), New Orleans, LA, March 2008.
167. "Controlling and Understanding Laser Filamentation in the Solution and Gas Phase Molecular Systems," APS 2008 March Meeting, New Orleans, LA, March 2008.
168. "Impact Ionization Cooling in Laser-Induced Plasma Filaments," Gordon Research Conference on Multiphoton Processes, Tilton, NH, June 2008.
169. "Manipulating Molecular Plasma and Filament Dynamics Using Strong Laser Fields," Gordon Research Conference on Atomic & Molecular Interactions, New London, NH, July 2008.
170. "Nonadiabatic Excitation and Electron Impact Cooling During Gas Phase Laser Filamentation," Sixth Congress of the International Society for Theoretical Chemical Physics (ISTCP-VI), Vancouver, BC, Canada, July 2008.
171. "Adaptive Control of Filamentation and Ultrafast Plasma Dynamics," 2nd International Symposium on Filamentation 2008, Paris, France, September 2008.
172. "Nonadiabatic Attosecond Electron Dynamics during Strong Field Control of Molecules," International Symposium on Ultrafast Intense Laser Science (ISUILS7), Tokyo & Kyoto, Japan, November 2008.
173. "Filament-Induced Breakdown Spectroscopy for Remote Detection," NATO Advanced Study Institute 2008, Laser Control & Monitoring in New Materials, Biomedicine, Environment, Security and Defense, Ottawa, Canada, December 2008.
174. "Femtosecond Stimulated Raman Spectroscopy using a Filament-Based Continuum Source," NATO Advanced Study Institute 2008, Laser Control & Monitoring in New Materials, Biomedicine, Environment, Security and Defense, Ottawa, Canada, December 2008.
175. "Remote Sensing via Femtosecond Filament-Based Technologies," GOMACTech 2009 Conference, Orlando, FL, March 2009.
176. "Simulation of Attosecond Electron Dynamics in CO₂," 237th ACS National Meeting, Salt Lake City, UT, March 2009.

177. "Enhancing Nonlinear Signatures via Femtosecond Lasers," Gordon Research Conference on Detecting Illicit Substances: Explosives & Drugs, Les Diablerets, Switzerland, June 2009.
178. "Filament-Molecule Interactions," International Symposium on Ultrafast Intense Laser Science (ISUILS8), Crete, Greece, October 2009.
179. "Laser Filament-based Control of Vibrational, Rotational, and Translational Degrees of Freedom in Molecules: Applications in Sensing Biology," University of Sherbrooke, Canada, October 2009.
180. Controlling of Electronic to Translational Modes of Molecules: From Remote Sensing to Biology," Universite de Sherbrooke, Canada, October 2009.
181. "Controlling Electric to translational Modes of Molecules with Strong Laser Fields: From Remote Sensing to Biology," University of Colorado and Colorado State University and Engineering Research Center for Extreme Ultraviolet Science and Technology, CO, November 2009.
182. "New tools for Quantum Mechanics: Filament-Based Control of Electronic, Vibrational and Translational Degrees of Freedom," University of Colorado, and Colorado State University and Engineering Research Center for Extreme Ultraviolet Science and Technology, CO, November 2009.
183. "Controlling Electric to Translational Modes of Molecules with Strong Laser Fields: From Remote Sensing to Biology," California State University of Pennsylvania, California, PA, November 2009.
184. "The Time Dependent Generalized Rabi Oscillation: Using Molecules to Control Light and Light to Control Molecules for New Linear Sources," Symposium on Physics and Chemistry of Coherently Controlled Quantum Systems, Nagoya, Japan, March 2010.
185. "Probing Laser Filamentation using Impulsive Raman Spectroscopy," 6th International Workshop on Optimal Control of Quantum Dynamics: Theory and Experiment, Munich, Germany, May 2010.
186. "Probing Laser Filamentation using Impulsive Raman Spectroscopy," 3rd International Symposium on Filamentation (COFIL), Crete, Greece, June 2010 "Strong Field Chemistry: Light Bullets, Flying Proteins, and Biological Tissue-Typing," University of Notre Dame, Notre Dame, IN, 2010.
187. "Spatio-Temporal Dynamics of Laser Filamentation Measured via Impulsive Raman Scattering," 17th International Conference on Ultrafast Phenomena (UP), Optical Society Conference, Snowmass Village, CO, July 2010.
188. "Nonlinear Processes Occurring in Molecules in Strong Fields," Scientific Research (AFOSR) Nonlinear Optics Meeting, Albuquerque, MN, September 2010.
189. "Multi-Dimensional Detection of Explosives: Filament-Based Impulsive Raman Spectroscopy and Femtosecond Vaporization of Explosives," ONR Sciences Addressing Asymmetric Explosive Threats Fall Technical Review, SAEET Review, Atlanta, GA, October 2010.
190. "High-order Harmonic Generation and its Applications," 6th International Symposium on Ultrafast Intense Laser Science, Maui, HI, December 2010.
191. "Probing Laser Filamentation Using Impulsive Raman Spectroscopy," PacifiChem Meeting, December 2010, Honolulu, HI.

192. "Mathematical Modeling and Experimental Validation of Ultrafast Nonlinear light-Matter Coupling associated with Filamentation in Transparent Media," University of Arizona, Tucson, AZ, March 2011.
193. "Multi-Dimensional Detection of Explosives: Filament-Based Impulsive Raman Spectroscopy and Femtosecond Vaporization of Explosives and Signatures," Trace Explosives Detection Conference, Portland, OR, April 2011.
194. "Nonresonant Femtosecond Laser Vaporization and Mass Analysis of Solid State Biomolecules at Atmospheric Pressure, Measuring Protein Conformation," SIMS XXIII, Baltimore, MD, May 2011.
195. "Non-Resonant Vaporization," Lincoln Labs, Hanscom Air Force Base, Lexington, MA, June 2011.
196. "On the Consequences of Phase: Controlling Light, Atoms, Molecules, and Proteins," Controlling Light and Matter Gordon Research Conference, Mount Holyoke College, July 2011.
197. "Laser Control, from Quantum Systems to Real Life: the Dynamic Rabi Oscillation and Laser Vaporization of Proteins," Center for Ultracold Atoms (CUA), Harvard University, Boston, MA, November 2011.
198. "Femtosecond Laser Electrospray Mass Spectrometry for Protein Analysis and Tissue Typing," 2011 East Analytical Symposium, Somerset, NJ, November 2011.
199. "Strong Field Chemistry in Complex Systems: From Filament-Based Raman Spectroscopy to Measuring Protein Structure With Laser Vaporization," Hebrew University, Jerusalem, Israel, 23 January 2012.
200. "Spectrally-Resolved Filament Transient Birefringence Measurements at 400nm," 15th Annual Meeting Isranalytica Conference, Tel Aviv, Israel, January 2012.
201. "Mathematical Modeling and Experimental Validation of Ultrafast Nonlinear Light-Matter Coupling associated with Filamentation in Transparent Media," MURI Semi-Annual Review, Phoenix, AZ, March 21-22, 2012.
202. 243rd American Chemical Society Spring National Meeting & Exposition & SOCED, San Diego, CA March 25, 2012.
203. "Filament-Based, Impulsive Raman Spectroscopy for Remote Detection of Gas Phase Molecules in Air," Coherently-enhanced Raman One-beam Standoff Spectroscopic Tracing of Airborne Pollutants; Symposium on Femtosecond Filamentation and Standoff Laser Sensing," University of Technology, Vienna, Austria, March 28, 2012.
204. "Imaging Molecules Using Ultra Intense Laser Pulses," Naval Research Laboratories, Optical Sciences Division Seminar, Washington, DC, 11 April 2012.
205. "Classification of Organic and Inorganic Explosives using Laser Electrospray Mass Spectrometry," The 4th Annual Trace Explosives Detection Conference Workshop, Boston, MA, April 16, 2012.
206. "Ion Suppression and Partitioning Effects of Electrospray Ionization Mass Spectrometry (ESI-MS) Compared to Laser Electrospray Mass Spectrometry (LEMS)," 24th Annual: Workshop on Secondary Ion Mass Spectrometry (SIMS), Philadelphia, PA, May 14, 2012.
207. "Imaging Gas Phase and Biological Molecules Using Ultra-Intense Laser Filamentation and Ultra-Short Laser Vaporization," Directed Energy Professional Society (DEPS), Bromfield, CO, June 10, 2012.

208. "Filament-Based Impulsive Remote Raman Spectroscopy for Chemical Detection," Imaging and Applied Optics, Sensors Meeting, Optical Society of America, Monterey, CA, June 25, 2012.
209. "Multi-Dimension Detection of Explosives," SAAET Review, Office of Naval Research, Arlington, VA, July 19, 2012.
210. "Probing the Propagation Dynamics in a Laser Filament using Nonlinear Spectroscopy" Annual International Laser Physics Workshop (LPHYS), University of Calgary, Calgary, Canada, July 23-27, 2012.
211. "Multidimensional Detection of Explosives Signatures," SAAET Review, Office of Naval Research, Arlington, VA, August 14-16, 2012.
212. "Laser Vaporization Mass Spectrometry for Universal Materials Analysis," ACS National Meeting, Philadelphia, PA, August 21, 2012.
213. "Strong Field Interactions with Molecules at Atmospheric Pressure, Quantum Wakes and Gas Phase Proteins," Batsheva de Rothschild Seminar Laser Control, Safed, Israel, September 2-7, 2012.
214. "Probing the Propagation Dynamics in a Laser Filament," MURI Review, Joint Technology Office University of New Mexico (JTO UNM), Albuquerque, NM, September 17-18, 2012.
215. "Ultra-Intense Laser Matter Interactions: Classifying Complex Materials from Explosives to Biotissue," Johns Hopkins University, Baltimore, MD, September 26, 2012.
216. "Femtosecond Laser Vaporization of Complex Molecules: Nonequilibrium Electrospray Ionization Preserves Noncovalent Interactions," Federation of Analytical Chemistry and Spectroscopy Societies (FACSS): The Great SCientific eXchange (SciX 2012) Conference, Kansas City, MO, September 30 - October 5, 2012.
217. "Transient Optical Measurements of the Filamentation Process as a Function of Propagation Distance, Pump and Probe Frequency, and Energy to Probe Mechanism," 4th International Symposium on Filamentation (COFIL 2012), Tucson, AZ, October 7-14, 2012.
218. "Ultrafast Laser Chemistry: Classifying Explosives, Biomarkers, and Protein Structure," Muhlenberg College, Bethlehem, PA, October 26, 2012.
219. "Ultra-Intense Laser Matter Interactions: Classifying Complex Materials from Explosives to Biotissue," Purdue University, West Lafayette, IN, January 8, 2013.
220. Army Research Lab, Aberdeen Proving Ground, Aberdeen, Maryland.
221. "Is there Chemistry at 10^{13} W cm⁻²?" Colloquium, Kansas State, Manhattan, KS, May 5, 2013.
222. CSAT (Cold Spray Action Team), CSAT Summer Meeting, Worcester Polytechnic Institute, Worcester, MA, June 18-19, 2013.
223. "Control of photo-dissociation in the strong field regime using a radical cation launch state," FEMTO11 Copenhagen, Denmark Technical University of Denmark, July 7-12, 2013.
224. Strong Field Control Discussion Leader, Gordon Research Conference on Quantum Control, Mount Holyoke College, South Hadley, MA, July 28-31, 2013.
225. "Filament-Based Raman Detection of Radioactive Materials," DTRA 2013 Basic Research Technical Review, Arlington, VA, August 1-2, 2013
226. DTRA Review, Arlington, VA, August 15, 2013

227. "Higher Order Nonlinearities in Laser Filamentation," NLO Review, Arlington VA Sept 4 – 5, 2013
228. ACS Fall SOCED Meeting Indianapolis, IN, September 5-6, 2013
229. "Dynamics of Laser Filamentation," ISUILS12- International Symposium on Ultrafast Intense Laser Science 12 will be held during October 6 (arrival/welcome reception) and 11th (departure), 2013, at Colegio Arzobispo Fonseca in Salamanca, Spain, October 6-11, 2013.
230. "Strong Field Control of Alkylphenones Using the Tunnel Ionization Launch State," Vancouver-Okazaki workshop on coherent and incoherent wave packet dynamics at the IMS-Okazaki Conference Center, Okazaki, Japan, October 28- November 3, 2013
231. "Nanomaterials by Design," Temple - NIMS Symposium on Advanced Materials and Nanotechnology, National Institute for Materials Science, Tsukuba, Japan, November 18-19, 2013
232. "Nanomaterials by Design" Temple - Yonsei Exchange Visit Symposium Lecture, Seoul, Korea, November 19-22, 2013
233. "Ultrafast Analytical Chemistry via Femtosecond Laser Mass Spectrometry," Saint Louis University, St Louis, MO, April 11, 2014
234. "High Repetition-Rate, Pulse-Burst Assisted Desorption, Electrospray Post-Ionization Mass Spectrometry," CLEO, San Jose Convention Center, San Jose, CA June 8-13, 2014
235. "Laser vaporization using ultra-fast, ultra-intense laser fields: From Newton's cradle to mouse brain analysis" ACS, San Francisco, CA, August 10-14, 2014
236. "Matrix-free, ambient pressure mass spectrometry via ultra-intense laser vaporization" ACS, San Francisco, CA, August 10-14, 2014
237. "Filament-based excitation of nuclear modes of molecules for rotational and vibrational sensing," COFIL, Conference Hall, SIOM, China, Shanghai, China, September 17-24, 2014
238. "Higher Order Nonlinearities in Laser Filamentation," MURI Annual Review of Theoretical Nonlinear Optics, Basic Research Innovation Collaboration Center (BRICC), Arlington, VA, October 1-2, 2014
239. "Nanomaterials by Design," ARL Materials R&D Review, Higgins House, Worcester Polytechnic Institute, Worcester, MA, October 23, 2014
240. "Nanomaterials by Design: Fs Laser Processing," Rare Earth Elements & Nanotechnology Review, Army Research Laboratory, Aberdeen Proving Grounds, Aberdeen, Maryland, November 12, 2014
241. "Control at a Conical Intersection through Adiabatic Ionization: Creating a Pure Wave Packet in the Strong Field Regime," Rehovot Meeting, Weizmann Institute of Science, Rehovot, Israel, December 15-18, 2014
242. "Impulsive Rotational and Vibrational Sensing using Femtosecond Laser Filamentation," PQE-2015-Winter Colloquium on the Physics of Quantum Electronics Snowbird, UT, January 5-8, 2015
243. IARPA Proposer's Day Meeting University of MD, Riverdale, MD, January 15, 2015
244. IARPA Proposer's Day Meeting University of MD, Riverdale, MD, January 20, 2015
245. MURI Semi-Annual Review Meeting Tucson, AZ, March 25, 2015

246. "Filament-Based Impulsive Raman Excitation of Vibrational and Rotational Modes of Polyatomic Molecules," CLEO: 2015, San Jose Convention Center, San Jose, CA, May 10-15, 2015
247. CSAT (Cold Spray Action Team) Meeting, Worcester Polytechnic Institute, Worcester, MA, June 23-24, 2015
248. "Filament-Based Spectroscopy: Theory, Implementation, and Applications to Remote Sensing," Cruising Optics Frontiers (CROF), Athens, Greece, July 13-17, 2015
249. DTRA Basic Research Technical Review (BRTR) Waterford in Springfield, Virginia, July 22-23, 2015
250. "Strong Field Photonics: Nanoplasmonics and Filament-Based Sensors," Quantum Control of Light and Matter Gordon Research Conference, Mount Holyoke College August 2-7, 2015
251. "Laser filamentation-based nonlinear optics for near-single-cycle spectroscopy," 11th International Conference on Super-Intense Laser Atom Physics SILAP2015, Bordeaux, France, September 8, 2015
252. Professional Development Course Seminar Speaker at Villanova University, Villanova, PA, December 1, 2015
253. "Molecules in intense laser fields II," ISUILS14, Kauai, Hawaii, December 11-14, 2015
254. Ultrafast Intense Laser Chemistry," PacifiChem 2015, The International Chemical Congress of Pacific Basin Societies, Honolulu, Hawaii, December 15-20, 2015
255. "Filament-based sensing of nuclear materials signatures," DTRA Applied Research Program Review: Nuclear Threat Detection, Lorton, VA, February 17, 2016
256. "Laser-filamentation-based near single cycle spectroscopy," Laser Physics 2016, Yerevan, Armenia, July 12, 2016
257. DTRA Basic Research Technical Review (BRTR) Waterford in Springfield, Virginia, July 18, 2016

Scheduled/Invited Talks:

2016

- Aug 24 Division of Colloid and Surface Chemistry: Shaped, Ultra-Fast Ultra-Intense Laser Processing of Nanomaterials, 252nd ACS National Meeting and Exposition, Philadelphia, PA