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GEORGE NICHOLAS GIBSON

University of Connecticut, Department of Physics
196A Auditorium Road, U-3046
Storrs, CT 06269
Tel: (860) 486-3857 Fax: (860) 486-3346
E-mail: gibson@phys.uconn.edu

EDUCATION:

Ph.D., Physics, University of Illinois at Chicago, Chicago, Illinois, 1990.
"Fluorescence and Coherent Radiation Generated by Atoms and Molecules in Strong Laser Fields,"
C. K. Rhodes, Advisor.

Graduate work in Physics, Harvard University, Sep. 1983 - Jan. 1984.

B.A., Physics, University of California at Berkeley, Berkeley, California, 1983.

EMPLOYMENT:

July 2023 – Present, Department Head, Physics, University of Connecticut
January 2014 – September 2014, Associate Department Head for Administration, Physics, UConn
September 2013 – January 2014, Interim Department Head, Physics, University of Connecticut
September 2010 – August 2013, Associate Department Head for Administration, Physics, UConn
January 2008 – June 2008, Visiting Professor, ICFO – Institut de Ciències Fotòniques, Spain.
September 2007 – December 2007, Research Associate, Ciencia, Inc., East Hartford, CT.
September 2004 - Present, Professor, Physics, University of Connecticut.
September 1999 - August 2004, Associate Professor, Physics, University of Connecticut.
September 1993 - August 1999, Assistant Professor, Physics, University of Connecticut.

September 1990 - August 1993
Research Associate, T. J. McIlrath, Supervisor,
Institute for Physical Science and Technology, University of Maryland at College Park, and
Visiting Scientist, R. R. Freeman, Supervisor, AT&T Bell Laboratories, Holmdel, NJ.

July 1986 - August 1990, Research Assistant, C. K. Rhodes, Advisor,
Laboratory for Atomic, Molecular, and Radiation Physics, University of Illinois, Chicago.

September 1984 - May 1985 and April 1983 - September 1983
Research Specialist, C. H. Townes, Supervisor,
Space Science Laboratories, University of California at Berkeley.

May 1980 - September 1982, Research Specialist, S. Boywer, Supervisor,
Space Science Laboratories, University of California at Berkeley.

June 1978 - September 1979
Scientific Programmer, J. Billingham, Supervisor, Search for Extraterrestrial Intelligence,
NASA Ames Research Center, Mountain View, California.

PROFESSIONAL MEMBERSHIPS:

American Physical Society (APS).
Optical Society of America (OSA).
American Association for the Advancement of Science (AAAS).

HONORS:
Bell Laboratories Ph.D. Fellowship (1983).
ARCS Foundation Scholarship (1983).
NSF Early Career Development Award (1994).
Cottrell Scholars Award (1996).
APS Outstanding Referee (2008).
CLAS Excellence in Teaching Award in Physical Science (2016).
Fellow of the American Physical Society (2016).

TEACHING INTERESTS:
I have designed and taught a new course at the University of Connecticut called "The Physics of Music", and which satisfies the university requirement for a science or technology course. The purpose of the course is to introduce physics concepts and more generally scientific reasoning to non-science students with a broad range of backgrounds. This can be a difficult task to accomplish in an engaging way. I use music as a common and non-threatening medium to introduce scientific principles in a way that the students not only learn about science but learn to enjoy science, as well.

In Summer 2015, I delivered an online version of the course. This is the first online course at the University of Connecticut to satisfy the Lab requirement within the Group 3 Science and Technology requirement.

PROFESSIONAL ACTIVITIES (partial list)**:**
Program Committee, DAMOP, 1995-1997.
Program Committee, OSA Topical Meeting - High-Intensity Laser Physics, 1996.
Local Organizing Committee, DAMOP 2000, Storrs, CT, 2000.
Program Committee, OSA/ILS Annual Meeting, Providence, RI, 2000.
Executive Committee, APS-NES, 2000 - 2003.
DAMOP Thesis Prize Committee, 2002-2003.
DAMOP Thesis Prize Committee, Chair, 2003-2004.
Co-Subcommittee Chair, Program Committee, CLEO-QELS, 2005.
Program Sub-Committee, CLEO-QELS, 2006.
Organizer, Cross Border Workshop, Storrs, CT, 2006.
Local Organizing Committee, ICAP 2008, Storrs, CT, 2008.
Scientific Advisory Board, Nebraska-Kansas EPSCoR Center, 2014-2017.
Program Committee, DAMOP, 2018-2020.

REVIEW PANELS (partial list)**:**
UCRF Equipment Competition, 1994-1995
UCRF Large Faculty Grants, 1995-1997
NSF - Academic Research Infrastructure - Panel member, 5/7/1996.
NSF - AMO Panel Review, 1997.
University of Connecticut, Internal member of the external review of the Music Dept., Fall 1999.
NSF - AMO "Cluster" review, 2001, 2002, 2004, 2005, 2007, 2008.
UCRF Guest Professorship Competition, 2002.
UConn Pilot Program Graduate Recruitment Proposals, Panel Review, January 20, 2006.
NSF "Extreme UV" Engineering Research Center Site Visit, Berkeley, CA, 5/17-20/2011.
NSF – AMO Review Panel, 2/7-10/2012.
GEOC Provost Competition Review Panel, 2014.
NE-KS EPSCoR RII Track 2 External Advisory Panel, 2015-2016.

UNIVERSITY SERVICE AND OUTREACH (partial list)**:**
Research Advisory Council, 1997-2000.
General Education Oversight Committee, 2002-2004.
Ninjitsu Club, Faculty Advisor, 1995-2000.
UConn Mentor Connection. Physics of Music, Toby Jacobson, 7/10-28/2000.
Electronic Collective (Student club), Faculty Advisor, 2001-2002.
Ballroom Dance Club and Team, Faculty Advisor, 2003-Present.
UConn Tap Club, Faculty Advisor, 2004-Present.
UConn Student Life Awards Selection Committee, 2004.
Q-Forum Panelist, General Education Month, September 30, 2005.
AAUP Executive Committee, University of Connecticut Chapter, 2005-2006.
Personal Response System Sub-committee, University of Connecticut, IT Planning Comm., 2006.
Chair, Search Committee for Financial Specialist, Physics, UConn, 2012.
Chair, Physics PTR Committee, 2015-2016.
Chair, UConn Laser Safety Committee, 2015-2018. Member 2018-2021.
Chair, Physics Department Space Committee, 2015 – present
Panel member, "Designing, Developing, and Teaching an Online Course: Faculty Open Panel Discussion " 11/9/2015.
Search Committee for Program Assistant, Physics, UConn, 2016.
Search Committee for AMO Experimentalists, UConn, 2016.
Search Committee for Finacial Assistant, UConn, 2016.
Search Committee for Assistant Professor in Residence, UConn, 2016.
University Senate, Spring 2017.
Lab tour for MacDuffie High School Seniors, January 12, 2018.
Research Excellence Program Review Panel Co-chair, UConn, 2017-2018.
University Senate, UConn, Fall 2018 – Spring 2021.
GEOC CA3 Subcommittee Chair, UConn, 2018-2021.
Panel discussion on "What is Science," Stafford High School, Stafford Spring, CT, Dec. 17, 2018.
Chair, Physics PTR Committee, 2018-2019.
AMO Theory Search Committee, Chair, 2020-2021.

MEDIA:
A Trumpet, Fire, and Physics
Video and article, UConn Today, October 24, 2023.
https://today.uconn.edu/2023/10/a-trumpet-fire-and-physics/

BOOKS:
The Music of Physics: An Introduction to the Harmonies of Nature**,** G. N. Gibson**,** Jenny Stanford Publishing Pte. Ltd., ISBN 978-981-4968-99-7, published 8/9/2024.

GRANTS:
Development of an Ultrashort-Pulse High-Power High-Repetition-Rate Laser System
UConn, Research Foundation, Summer Faculty Fellowship, 6/1/95 - 5/31/96 ($2,750)

Spectroscopy and Control of Molecular Dissociation Using Strong Laser Fields
NSF Early Career Development Grant, 7/1/95-1/31/99 ($204,468)

Applications of a Short-Pulse High-Intensity Laser System,
REU Supplement to NSF Early Career Development Grant, 1/1/96 - 8/31/96 ($4,446).

Ultrafast Time-Resolved Measurements of the Ionization and Dissociation of Molecules by Strong Laser Fields, Research Corporation, Cottrell Scholars Award, 7/1/96-6/30/01 ($50,000).

Measurement Of Ultrashort High-Power Laser Pulses,
UConn, Research Foundation, Small Faculty Grant, 5/1/96 - 6/30/96 ($750).

Multi-media Net for Elementary Physics Laboratories,
(Co-PI) NSF DUE-ILI-IP, 6/15/96-5/31/98 ($85,792).

Development of a High-Energy Cavity-Dumped Ultrashort-Pulse Ti:Sapphire Oscillator,
UConn, Research Foundation, Large Faculty Grant, 6/1/97 - 5/30/98 ($12,346).

Correlated-Ion Spectroscopy of Atoms and Molecules in Strong Laser Fields,
UConn, Research Foundation, Large Faculty Grant, 1/1/99 - 5/31/99 ($9,877).

High-Energy Cavity-Dumped Ti:Sapphire Oscillator and Applications,
NSF - Electrical and Communication Systems, 8/15/99 - 1/31/01 ($57,595).

Raman Cell, Nonlinear Mixing Crystals,
UConn, Research Foundation, Equipment Grant, 1/1/00 - 12/31/00 ($10,131).

Studies of Molecules in Strong Laser Fields
NSF-AMO Grant, 5/1/00-4/30/03 ($280,314)

Extreme Multiphoton Coupling in Molecules
NSF-AMO Grant, 8/1/03-7/31/07 ($283,623+$12,162 supplement)

Acquisition of a Tunable Ultrafast Laser and a Femtosecond Time-Resolved Optical Spectrometer, PI (H. Frank and R. Birge, Co-PI's) NSF-MRI Grant (Chemistry), 8/1/03-7/31/06 ($318,600)

Cross Border Workshop 2006
UConn, Research Foundation, Interdisciplinary Workshop Grant, 6/1/06 - 6/3/06 ($2,000).

Strong field molecular spectroscopy and dynamics
NSF-AMO Grant, 8/1/07-7/31/10 ($340,633+$10,000 supplement)

Quantum Tomography of Excited Molecular States (Sabbatical grant)
Ministerio de Educación y Ciencia, Spain, 1/1/08-6/31/08 (~$24,000)

Coherent and incoherent control of electronic, vibrational, and rotational wavepackets with ultrashort laser pulses, NSF-AMO Grant, 8/1/10-7/31/14 ($370,000+$60,000 supplement)

Virtual Laboratories for the Physics of Music (PHYS 1075Q)
Provost's General Education Course Enhancement Grant, 7/1/11-6/30/13 ($10,000)

Ultrafast Imaging and Control of Non-Radiative Molecular Dynamics at the LCLS
UCRF Small Faculty Grant, 4/10/12 – 3/31/12 ($747)

Optimization of Third Harmonic Generation in the Semi-Infinite Limit
UCRF Large Faculty Grant, 1/11/13 – 12/31/13 ($8,000)

Studies of molecules in strong laser fields using harmonic generation and ion spectroscopy
NSF-AMO Grant, 8/1/13-7/31/16 ($300,000+$60,000 supplement).

Excitation of Molecules by Strong Laser Fields
NSF-AMO Grant, 8/1/17-7/31/21 ($348,561 + Supplement: $24,000 NSF and $24,000 UConn).

Generation of Intense, Carrier-envelope-phase-stable Few-cycle Pulses in the Long-wavelength-infrared, Co-PI (Trallero – PI), ONR-DURIP, 9/1/18-8/31/19 ($599,948)

PATENTS:

Surface Plasmon Resonance Based Instrument and Detection Method, M. Reilly, E. Guignon, and G. N. Gibson, U.S. Provisional Patent Application No. 61/269,371 (2009).

A Versatile Surface Plasmon Resonance Analyzer with an Integral Surface Plasmon Resonance Enhanced Fluorescence Mode, M. Reilly, E. Guignon, and G. N. Gibson, Patent No. 8,368,897 September 3, 2013.

Electro-Optic Grating-Coupled Surface Plasmon Resonance Platform, U.S. Patent No. 9,383,312, November 6, 2014.

COLLABORATIONS (partial list)**:**

Adiabatic Climbing of Vibrational Ladders Using Raman Transitions with a Chirped Pump Laser, with S. Chelkowski, Département de Chimie, Université de Sherbrooke, Sherbrooke, Québec, J1K 2R1 Canada (6/1/94 - 6/1/95).

Electro-Optically Cavity-Dumped Ultra-Short-Pulse Ti:Sapphire Oscillator, with B. E. Bouma, Research Laboratory of Electronics and Department of Electrical Engineering and Computer Science, MIT, Cambridge, MA 02139 (1/1/95 - 1/1/96).

Experimental investigation of the threshold fluence for ultrashort pulse interaction with hard and soft tissue, with F. Grasbon, F. H. Loesel, M. H. Niemz, Institut für Angewandte Physik, Universität Heidelberg, Albert-Überle-Str. 3-5, 69120 Heidelberg (1/11/97 - 31/1/97).

Ultrafast Dyanmics Studies Of Bacteriochlorophyll Excited States, with H. A. Frank, Seventeenth Eastern Regional Photosynthesis Conference, Woods Hole, Massachusetts, April 14-16 (2000).

Production and spectroscopy of triply charged diatomic ions with femtosecond laser pulses: Application to Cl_2^{3+}, with R. J. Verver, D. R. Matusek, J. S. Wright, R. Bhardwaj, S. Aseyev, D. M. Villeneuve, P. B. Corkum, and M. Yu. Ivanov, National Research Council of Canada, May, 2000.

The influence of orbital symmetry on high-harmonic generation and quantum tomography, with Jens Biegert, ICFO, Barcelona, Spain, Spring 2008.

Ultrafast Imaging and Control of Non-Radiative Molecular Dynamics at the LCLS, with J. M. Glownia, J. P. Cryan, L Fang, and R. N. Coffee, LCLS, Stanford University, March 29-April 2, 2012.

PH.D. THESES:

Design of an Ultrashort-pulse Multipass Amplifier and Investigations of Femtosecond Optical Breakdown, Ming Li, Ph.D. Thesis, University of Connecticut, 1999.

Multielectron Effects of Diatomic Molecules in Strong Laser Fields, Chunlei Guo, Ph.D. Thesis, University of Connecticut, 1999. Currently Associate Professor of Optics, University of Rochester. *Received the UConn 40 Under 40 Award (2008).*

Diatomic Molecules in Strong Ultrashort Pulse Laser Fields, John Paul Nibarger, Ph.D. Thesis, University of Connecticut, 2000.

A Framework for Understanding Molecular Dynamics in Strong Laser Fields, Saiprya V. Menon, Ph.D. Thesis, University of Connecticut, 2002.

Ion Time-of-Flight Spectroscopy and Vacuum Ultra-Violet Fluorescence Spectroscopy of Highly Ionized N_2, Ryan Neal Coffee, Ph.D. Thesis, University of Connecticut, 2006.

Development of Ultrafast Laser Systems with Applications to Carotenoids in Photosynthetic Energy Transfer, Hong Cong, Ph.D. Thesis, University of Connecticut, 2007.

Strong-Field Induced Vibrational Coherence in Hot Iodine Molecules, Li Fang, PhD. Thesis, University of Connecticut, 2009.

Controlled Excitation of the Hydrogen Molecular Ion via Intense Laser Pulses, Brad Moser, PhD. Thesis, University of Connecticut, 2010.

Molecular Ionization from the Ground and Excited States of I_2 by Intense Laser Fields, Hui Chen, PhD. Thesis, University of Connecticut, 2014.

Molecular Dynamics in Diatomic Molecules with One- and Two-Color Ultrafast Laser Pulses, Vincent Tagliamonti, PhD. Thesis, University of Connecticut, 2014.

Enhanced Harmonic Generation with Ultra-short Laser Pulses
Ekaterina Sergan, Ph.D. Thesis, University of Connecticut, 2018.

Velocity Map Imaging of the Single Ioniation of Molecular Iodine
Dale L. Smith, Ph.D. Thesis, University of Connecticut, 2018.

MASTER'S STUDENTS
Jorge Niera, 1997.
Lei Chen, 2005.

UNDERGRADUATE THESES:
Experimental and Theoretical Studies of Phase Matching for Third Harmonic Generation in Air, Karen Cydylo, Undergraduate Research Thesis, University of Connecticut, 2008.
Awarded the Katzenstein Prize for best undergraduate physics thesis at UConn.

Enhanced Third Harmonic Generation by Breaking the Phase Matching Symmetry
Nicholas Majtenyi, Undergraduate Research Thesis, University of Connecticut, 2012.
Awarded the Katzenstein Prize for best undergraduate physics thesis at UConn.

PRESENTATIONS:

Design of a 200A Recombination Laser Using Multiphoton Ionization
Lawrence Livermore National Laboratories, Seminar, Livermore, CA, August 8, 1988.

Review of Current Research on High-Intensity Laser Physics (Invited)
University of Illinois at Chicago, Physics Colloquium, Chicago, Illinois, April 18, 1990.

Review of Current Research on High-Intensity Laser Physics (Invited)
Argonne National Laboratories, Seminar, Argonne, IL, April 19, 1990.

Molecular Multiphoton Ionization
OSA Conference on Short Wavelength Coherent Radiation, Monterey, CA, April 8, 1991.

Dynamics of Short-Pulse Molecular Multiphoton Ionization (Invited)
Atomic Physics Gordon Conference, Brewster Academy, July 1, 1991.

Atoms and Molecules in Strong Laser Fields (Invited)
Ontario Laser and Lightwave Research Center, Seminar, Toronto, Canada, December 3, 1991.

Photoelectron Spectroscopy of Atoms in Strong Laser Fields (Invited)
University of Illinois at Chicago, Physics Colloquium, Chicago, Illinois, Feb. 12, 1992.

Photoelectron Spectroscopy of Atoms in Strong Laser Fields (Invited)
New York University, Physics Colloquium, New York, NY, April 16, 1992.

Observation of Non-Ponderomotively Shifted States of Argon in High-Intensity UV Laser Fields Interdisciplinary Laser Science Conference, Albuquerque, NM, September 22, 1992.

Photoelectron Spectroscopy of Atoms in Strong Laser Fields (Invited)
Penn State University, Physics Colloquium, University Park, Pennsylvania, February 24, 1993.

Resonant Enhancement versus Real Population Transfer in Multiphoton Ionization
OSA Short Wavelength V: Physics with Intense Laser Pulses, San Diego, CA, March 31, 1993.

Overview of Current Research on High Intensity Laser Physics (Invited)
ARCO Power Technologies, Inc., Seminar, Washington, D. C., April 6, 1993.

Photoelectron Spectroscopy of Atoms in Strong Laser Fields (Invited)
University of Florida, Physics Colloquium, Gainesville, Florida, April 16, 1993.

Photoelectron Spectroscopy of Atoms in Strong Laser Fields (Invited)
University of Connecticut, Physics Colloquium, Storrs, Connecticut, April 30, 1993.

Two Level Model of Short-Pulse Multiphoton Ionization
Eleventh International Conference on Laser Spectroscopy, Hot Springs, VA, June 13-18, 1993.

Excitation and Ionization Dynamics in Short-Pulse Multiphoton Ionization (Poster)
Multiphoton Processes Gordon Conference, New London, NH, June 12-17, 1994.

Excitation and Ionization Dynamics in Short-Pulse Multiphoton Ionization (Poster)
OSA Topical Meeting: High Field Interactions and Short Wavelength Generation
St. Malo, France, August 21-25, 1994.

Adiabatic Climbing Of Vibrational Ladders Using Raman Chirped Adiabatic Passage (Invited)
Canadian Association of Physicists/CAM, Quebec, Canada, June 12-17, 1995

Electro-Optically Cavity-Dumped Ultra-Short-Pulse Ti:Sapphire Oscillator (Poster)
Atomic Physics Gordon Conference, Brewster Academy, Wolfeboro, NH, July 2-7, 1995.

Molecules in Strong Laser Fields
University of Connecticut, Physics Colloquium, Storrs, Connecticut, November 3, 1995.

Short Pulse Laser Technology and Applications (Invited)
American Association of Physics Teachers, New England Section, Bates College, Lewiston, Maine, November 10, 1995.

Molecules in Strong Laser Fields (Invited)
University of Maryland, Physics Seminar, College Park, Maryland, February 7, 1996.

Molecules in Strong Laser Fields (Invited)
Auburn University, Physics Colloquium, Auburn, Alabama, February 16, 1996.

Electro-Optically Cavity-Dumped Ultra-Short-Pulse Ti:Sapphire Oscillator
CLEO-QELS '96, Anaheim, CA, June 3, 1996.

Short Pulse Laser Technology and Applications (Invited)
Frontiers in Physics Colloquium for the NSF-REU Program
University of Connecticut, Storrs, Connecticut, July 26, 1996.

Short Pulse Laser Technology and Applications (Invited)
Sigma Xi and the American Chemical Society
Central Connecticut State University, New Britain, Connecticut, September 5, 1996.

The Physics of Music (Invited)
Journal Club, University of Connecticut, Storrs, Connecticut, February 28, 1997.

Strong Field Ionization at 35 fsec (Poster)
OSA Applications of High Fields and Short Wavelength Generation,
Santa Fe, New Mexico, March 20, 1997.

Non-Sequential Double Ionization of Nitrogen (Post-deadline)
OSA Applications of High Fields and Short Wavelength Generation,
Santa Fe, New Mexico, March 22, 1997.

Atoms and Molecules in Strong Laser Fields (Invited)
Wesleyan University, Physics Colloquium, Middletown, Connecticut, April 10, 1997.

Non-Sequential Double Ionization of Molecules (Post-deadline)
CLEO/QELS ’97, Baltimore, Maryland, May 22, 1997.

Experimental investigation of the threshold fluence for ultrashort pulse interaction with hard and soft tissue, F. Grasbon, F. H. Loesel, M. H. Niemz, M. Li, G. N. Gibson, Laser Radiation Tissue Interaction: International Congress Laser Medicine, Munich, Germany, June 18, 1997.

Cottrell Scholars Conference (Participant)
Research Corporation, Tucson, Arizona, July 11-12, 1997.

Anomalous Strong-Field Ionization of Oxygen
CLEO/IQEC ’98, San Francisco, California, May 5, 1998.

Strong Field Charge Asymmetric Dissociation of Highly Ionized Iodine Molecules
DAMOP, Santa Fe, New Mexico, May 21-31, 1998.

Tunneling Ionization Rates from Arbitrary 1-D Potential Wells (Poster)
DAMOP, Santa Fe, New Mexico, May 21-31, 1998.

Multi-Electronic Effects and Coherent Control in Molecules in Strong Laser Fields (Invited)
DOE-BES AMO Research Meeting, Washington, D. C., October 25-28, 1998.

Probing the Behavior of Molecules in Strong Laser Fields with Ultrashort Laser Pulses
(Invited) SUNY, Stony Brook, New York, November 19, 1998.

Physics of Music: The Method to the Madness
Journal Club, University of Connecticut, Storrs, Connecticut, January 29, 1999.

Charge-Asymmetric Dissociation of Molecules, Ionization Inside of R_c (Invited)
APS Centennial Meeting, Atlanta, Georgia, March 21-25, 1999.

Direct Excitation of Molecules and Molecular Fragments by Strong Laser Fields (Invited)
International Conference on Multiphoton Processes, Monterey, California, October 3-8, 1999.

Excitation of Molecules by Intense Short-Pulse Lasers (Invited)
Southeast Meeting of the APS, Chapel Hill, North Carolina, November 7-9, 1999.

Ultrafast Electron Dynamics in Femtosecond Optical Breakdown (Invited)
University of Sherbrooke, Sherbrooke, Canada, December 20, 1999.

New Themes and Audiences for the Physics of Music (Invited)
NE-APS and AAPT, Providence, Rhodes Island, April 14-17, 2000.

Ultrafast Dyanmics Studies Of Bacteriochlorophyll Excited States (Poster)
H. A. Frank, J. A. Baustista, J. Nibarger, S. Menon, and G. N. Gibson, Seventeenth Eastern Regional Photosynthesis Conference, Woods Hole, Massachusetts, April 14-16, 2000.

Self-Consistent Analysis of the Strong-Field Dissociation of Nitrogen (Invited)
National Research Council, Ottawa, Canada April 26, 2000.

Direct Excitation of Molecules by Strong Laser Fields (Invited)
DAMOP, APS, Storrs, Connecticut, June 15, 2000.

Just What is the Connection Between Physics and Music? (Invited)
Public Lecture, DAMOP, APS, Storrs, Connecticut, June 15, 2000.

New Themes and Audiences for the Physics of Music (Invited)
Cottrell Scholars Conference, Tucson, Arizona, July 7, 2000.

Influence Of Spatial Symmetry On The Dynamics Of Strong-Field Ionization
OSA/ILS Annual Meeting, Providence, RI, October 23, 2000.

Why All Physics Courses Should Be Online and How This Can Be Achieved
Physics Colloquium, University of Connecticut, Storrs, CT, November 17, 2000.

Ionization and Dissociation Pathways of Diatomic Molecules in Strong Laser Fields (Invited)
American Chemical Society Annual Meeting, San Diego, California, April 4, 2001.

The Physics of Music: Part II (Invited)
Cottrell Scholars Conference, Tucson, Arizona, July 14, 2001.

Strong Field Ionization of Atoms and Molecules: Laser Fields vs. Coulomb Fields (Invited)
International Symposium on Ion-Atom Collisions (ISIAC XVII), Ensenada, Mexico, July 27, 2001.

Multi-Electron Effects In Molecules In Strong Laser Fields (Invited)
International Symposium on Ultrafast Intense Laser Science, Quebec, Canada, October 5, 2001.

Atomic and Molecular Physics with High-Intensity Lasers (Invited)
Physics Seminar, University of Massachusetts, Dartmouth, MA, November 28, 2001.

Just What is the Connection Between Physics and Music? (Invited)
Physics Seminar, Trinity College, Hartford, Connecticut, March 8, 2002.

Just What is the Connection Between Physics and Music? (Invited)
Physics Seminar, Colgate University, Hamilton, New York, March 26, 2002.

Strong laser field excitation of atoms and molecules through quadratic Landau-Zener crossings
AMO Seminar, University of Connecticut, Storrs, Connecticut, April, 15, 2002.

The Realization of n-Photon Pi-Pulses Through Extreme Multiphoton Coupling (Invited)
Cross Border Workshop, University of Rochester, Rochester, New York, May 24, 2002.

Population Inversions in the VUV Produced by Strong Laser Fields
DAMOP, Williamsburg, Virginia, May 30, 2002.

Extreme Multiphoton Coupling: Nonlinear Optics in the VUV (Invited)
Physics Seminar, University of Toronto, Toronto, Canada, October 16, 2002.

Just What is the Connection Between Physics and Music? (Invited)
Physics Colloquium, University of Toronto, Toronto, Canada, October 17, 2002.

Just What is the Connection Between Physics and Music? (Invited)
Physics Colloquium, Union College, Schenectady, New York, January 16, 2003.

Extreme Multiphoton Coupling in Molecular Systems
DAMOP, Boulder, Colorado, May 22, 2003.

Just What is the Connection Between Physics and Music?
Physics Colloquium, University of Connecticut, Storrs, Connecticut, October 31, 2003.

Selective Excitation of Highly Excited States Using Extreme Multiphoton Coupling
Physics Seminar, The University of Ohio, Columbus, Ohio, February 17, 2004.

Just What is the Connection Between Physics and Music? (Invited)
Physics Colloquium, The University of Ohio, Columbus, Ohio, February 17, 2004.

Femtosecond Time-Resolved Absorption Spectroscopic Studies Of Excitation Energy Transfer From The Carotenoid To The Primary Donor In Bacterial Reaction Centers
Robielyn P. Ilagan, Su Lin, Evaldas Katilius, George Gibson and Harry A. Frank
Eastern Photosynthesis Meeting, Woods Hole, MA, May 2004.

Selective Excitation of Highly Excited States in Nitrogen Using Extreme Multiphoton Coupling (Invited) Cross Border Workshop, Ottawa, CA, May 8, 2004.

Selective Excitation of Highly Excited States in Nitrogen Using Strong-Field Multiphoton Coupling (Invited) DAMOP, Tucson, Arizona, May 27, 2004.

Floquet Ladders and Coherent Control: Making Many Photons Act As One (Invited)
Multiphoton Processes Gordon Conference, Tilton, NH, June 14, 2004.

Just What is the Connection Between Physics and Music? (Invited)
Physics Colloquium, University of Rochester, Rochester, NY, October 20, 2004.

Floquet Ladders and Coherent Control: Making Many Photons Act As One (Invited)
Optics Seminar, University of Rochester, Rochester, NY, October 20, 2004.

New Teaching Technologies: Tablet PC's and Personal Response Systems (Invited)
Statistics Seminar, University of Connecticut, Storrs, CT, January 26, 2005.

Strong Field Excitation of Molecules (Invited)
Physics Seminar, SUNY, Stony Brook, NY, February 7, 2005.

Strong Field Excitation of Molecules (Invited)
Physics Seminar, University of New Mexico, Albuquerque, NM, April 1, 2005.

Just What is the Connection Between Physics and Music? (Invited)
Physics Colloquium, University of New Mexico, Albuquerque, NM, April 1, 2005.

Extreme AMO Physics: Laser-matter interactions at high intensities (Invited)
Physics Colloquium, Union College, Schenectady, NY, April 7, 2005.

Just What is the Connection Between Physics and Music? (Invited)
Electrical Engineering Colloquium, Union College, Schenectady, NY, April 8, 2005.

Femtosecond laser-induced reduction in Eu-doped sodium borate glasses
K.-S. Lima, S. Lee, T.-M. Tuan , J-R. Nam, M. Lee, D. S. Hamilton, G. N. Gibson,
14th International Conference on Luminescence (ICL' 05), Beijing, China, July 25 to 29, 2005.

Spectroscopic Properties of Carotenoids In and Out of Proteins
H. A. Frank, M. G. I. Galinato, R. P. Ilagan, E. F. Chu, T. W. Chapp, G. N. Gibson and R. L. Christensen. 18th Japanese Carotenoid Society Conference on Carotenoids, Kobe, Japan (2005)

Femtosecond time-resolved absorption spectroscopy of astaxanthin in solution and in α-crustacyanin, H. A. Frank, R. P. Ilagan, R. L. Christensen, T. W. Chapp, G. N. Gibson, T. Pascher, and T. Polívka, 14th International Symposium on Carotenoid, Edinburgh, Scotland July 17-22 (2005).

Direct evidence for multiphoton excitation in ionized diatomic molecules (Invited)
Cross Boarder Workshop, The Ohio State University, Columbus, Ohio, June 23-25, 2005.

Direct evidence for multiphoton excitation in ionized diatomic molecules (Poster)
G. N. Gibson, R. Coffee, L. Fang, Cross Border Workshop, The Ohio State University, Columbus, Ohio, June 23-25, 2005.

Adiabatic passage and coherent interactions on high-order multiphoton transitions (Invited)
Physics of Quantum Electronics, Snowbird, Utah, January 6, 2006.

High-order multiphoton processes in molecules (Poster)
Physics of Quantum Electronics, Snowbird, Utah, January 6, 2006.

Extreme multiphoton physics: Are 20-photon transitions really possible? (Invited)
Physics Colloquium, Kansas State University, Manhattan, Kansas, March 7, 2006.

Observation of Enhanced Excitation of I_2^{2+} by Strong Laser Fields,
DAMOP, Nashville, Tennessee, May 19, 2006.

Direct femtosecond laser excitation of the 2p state of H by a resonant 7-photon transition in H_2^+ (Post deadline poster), DAMOP, Nashville, Tennessee, May 19, 2006.

Direct femtosecond laser excitation of the 2p state of H by a resonant 7-photon transition in H_2^+ SILAP, Salamanca, Spain, June 21, 2006.

Excitation processes during strong-field ionization and dissociation of molecules (Invited)
ISUILS 5, Lijiang, China, November 29, 2006.

Direct femtosecond laser excitation of the 2p state of H by a resonant 7-photon transition in H_2^+ (Poster), ISUILS 5, Lijiang, China, November 29, 2006.

Direct Dissociation and Laser Modulated Predissociation of N_2^+ (Poster)
Ryan N. Coffee, Phil H. Bucksbaum, Li Fang, George N. Gibson,
CLEO/QELS 2007 Baltimore, Maryland, May 10, 2007

Just What is the Connection Between Physics and Music? (Invited)
Fellows Lecture Series, Pratt&Whitney, East Hartford, CT, March 23, 2007.

Vibrational spectroscopy of molecular in strong laser fields (Invited)
AMO Seminar, Universidad de Salamanca, Salamanca, Spain, May 15, 2007.

Investigating excited electronic states of I_2^+ and I_2^{2+} produced by strong-field ionization using vibrational wave packets, L. Fang and G. N. Gibson, DAMOP, Calgary, Canada, June 7, 2007.

Just What is the Connection Between Physics and Music? (Invited)
Sigma Xi Distinguished Public Lecture, University of New Mexico Chapter, Albuquerque, NM, October 18, 2007.

Strong-field induced vibrational coherence in the ground electronic state of hot iodine molecules (Invited), AMO Seminar, University of New Mexico, Albuquerque, NM, October 19, 2007.

The Physics of Music: A hands on approach to teaching spectroscopy (Invited)
New England AAPT Meeting, University of Connecticut, Storrs, CT, October 20, 2007.

Just What is the Connection Between Physics and Music? (Invited)
Colloquium, ICFO – Institut de Ciències Fotòniques, Castelldefels, Spain, February 13, 2008.

Quantum Tomography Using High-Harmonic Generation
AMO Seminar, ICFO – Institut de Ciències Fotòniques, Castelldefels, Spain, March 11, 2008.

Study of vibrational wavepackets in hot iodine molecules with ultrashort laser pulses
L. Fang and G. N. Gibson, "Ultrafast and Ultrasmall; New Frontiers and AMO Physics" PASI, Búzios, Brazil, April 4, 2008.

Strong-field induced vibrational coherence in hot I_2
L. Fang and G. N. Gibson, QELS, San Jose, CA, May 7, 2008.

Novel ultrafast spectroscopy of iodine molecules
AMO Seminar, FORTH Institute, Heraklion, Crete, May 16, 2008.

Quantum Dynamics and Control of Molecular Vibrations (Invited)
Physics Club presentation, University of Connecticut, Storrs, CT, November 20, 2008.

Strong-field physics revealed through time-domain spectroscopy (Invited)
DAMOP, Charlottesville, VA, May 20, 2009.

Strong-field physics revealed through time-domain spectroscopy (Invited)
Cross Border Workshop XI, Ottawa, Canada, May 30, 2009.

Theoretical and experimental progress towards HHG and quantum tomography of excited states of molecules (Invited)
18th International Laser Physics Workshop, Barcelona, Spain, July 14, 2009.

Strong-field physics revealed through time-domain spectroscopy (Invited)
AMO Seminar, Stevens Institute of Technology, Hoboken, NJ, November 18, 2009.

Angle- and internuclear separation- resolved strong field processes in molecules
DAMOP, Houston, TX, May 26, 2010.

Ultraslow Dissociation of H_2^+ Via Intense Laser Pulses
DAMOP, Houston, TX, May 27, 2010.

Just What is the Connection Between Physics and Music? (Invited)
Electrical Engineering Colloquium, Union College, Schenectady, NY, October 20, 2010.

Just What is the Connection Between Physics and Music? (Invited)
Math Department Seminar, University of Connecticut, November 19, 2010.

Just What is the Connection Between Physics and Music? (Invited)
Physics Department Colloquium, Kansas State University, April 11, 2011.

Strong-field physics revealed through time-domain spectroscopy (Invited)
AMO Seminar, Kansas State University, April 12, 2011.

Strong-field physics revealed through time-domain spectroscopy (Invited)
PULSE/LCLS Seminar, Stanford University, May 20, 2011.

Angle- and internuclear separation- resolved strong field processes in molecules (Invited)
Cross Border Workshop, Rochester, NY, June 10, 2011.

Strong-field physics revealed through time-domain spectroscopy (Invited)
AMO Seminar, SUNY Stony Brook, November 7, 2011.

Strong-field physics revealed through time-domain spectroscopy (Invited)
AMO Seminar, Wayne State University, Detriot, MI, November 16, 2011.

The Physics of Charge-Asymmetric Molecular States (Invited)
Charles Rhodes Retirement Symposium, University of Illinois, Chicago, IL, March 28, 2012.

R-dependent strong field ionization from a neutral ground state diatomic molecule
DAMOP, Anaheim, CA, June 6, 2012.

Just What is the Connection Between Physics and Music? (Invited)
Applied Math Seminar, Wentworth Institute of Technology, Boston, MA, October 25, 2012.

Enhanced ionization of an inner orbital of I_2 by strong laser fields
DAMOP, Quebec, Canada, June 6, 2013.

Just What is the Connection Between Physics and Music? (Invited)
Physics Department Colloquium, University of Rhode Island, March 28, 2014.

Studies of inner-orbital ionization though velocity map imaging and Fourier transform spectroscopy, DAMOP, Madison, WI, June 3, 2014.

Multiphoton and Strong Field Processes in Molecular or Excited State Systems, Discussion Leader, Multiphoton Processes Gordon Conference, Waltham, MA, June 16, 2014.

Just What is the Connection Between Physics and Music? (Invited)
Math Club Seminar, University of New England, Biddeford, ME, October 8, 2014.

Opportunities in Physics (Invited)
Career Symposium, CREC Academy, Hartford, CT, February 5, 2015.

Enhanced harmonic generation in double-well potentials,
DAMOP, Columbus, OH, June 12, 2015.

Inner-orbital ionization of Iodine,
DAMOP, Providence, RI, May 25, 2016.

How to make the world's fastest camera (Invited)
Science Club, EO Smith High School, Storrs, CT, May 27, 2016.

Direction excitation of diatomic molecules by strong laser fields (Invited)
Physics of Quantum Electronics, Snowbird, UT, January 12, 2017.

Deep inner-orbital ionization of diatomic molecules by strong laser fields (Invited)
KSU AMO Symposium, Manhattan, KS, March 31, 2017.

Just What is the Connection Between Physics and Music? (Invited)
Science Club, EO Smith High School, Storrs, CT, May 26, 2017.

Exploring Extreme Nonlinear Physics With High-Intensity Lasers
Physics Graduate Student Seminar, University of Connecticut, Storrs, CT, January 26, 2018.

Resonant Enhancement of Strong Field Inner Orbital Ionization of Molecular Iodine
DAMOP, Fort Lauderdale, FL, June 1, 2018.

Deep inner-orbital ionization of diatomic molecules by strong laser fields (Invited)
Super-Intense Atom-Laser Physics, Toronto, Canada, December 12, 2018.

Exploring Extreme Nonlinear Physics With High-Intensity Lasers
Physics Graduate Student Seminar, University of Connecticut, Storrs, CT, April 19, 2019.

Critical Points in the Strong Field Ionization of Small Molecules
DAMOP, Virtual Meeting, June 3, 2020.

The influence of molecular structure on strong-field interactions
AMO Seminar, University of Connecticut, Storrs, CT, September 18, 2023.

PUBLICATIONS: [Google scholar (10/10/2023): 6828 citations, h-index = 36]

1) "Observation of Period Doubling and Chaos in Spin-Wave Instabilities in Yttrium Iron Garnet," G. Gibson and C. Jeffries, Phys. Rev. A **29**, 811 (1984).

2) "Optical Path Length Fluctuations in the Atmosphere," G. N. Gibson, J. Heyman, J. Lugten, W. Fitleson, and C. H. Townes, Applied Optics **23**, 4383 (1986).

3) "Studies of Multiphoton Production of Vacuum Ultraviolet Radiation in the Rare Gases," A. McPherson, G. Gibson, H. Jara, U. Johann, T. S. Luk, I. A. McIntyre, K. Boyer, and C. K. Rhodes, J. Opt. Soc. Am. B **4**, 595 (1987). Referenced in the Scientific Summary of the 2023 Nobel Prize in Physics.

4) "Measurement of 248 nm Subpicosecond Pulse Durations by Two-Photon Fluorescence of Xenon Excimers," M. H. R. Hutchinson, I. A. McIntyre, G. N. Gibson, and C. K. Rhodes, Opt. Lett. **12**, 102 (1987).

5) "Fifth-Harmonic Production in Neon and Argon with Picosecond 248-nm Radiation," R. Rosman, G. Gibson, K. Boyer, H. Jara, T. S. Luk, I. A. McIntyre, A. McPherson, J. C. Solem, and C. K. Rhodes, J. Opt. Soc. Am. B **5**, 1237 (1988).

6) "Corresponding Aspects of Strong-Field Multiquantum Processes and Ion-Atom Collisions," K. Boyer, G. Gibson, H. Jara, T. S. Luk, I. A. McIntyre, A. McPherson, R. Rosman, J. C. Solem, and C. K. Rhodes, IEEE Transactions on Plasma Science **16**, 541 (1988).

7) "XUV Spectroscopy of Ions Produced by Multiphoton Absorption," K. Boyer, G. Gibson, H. Jara, T. S. Luk, I. A. McIntyre, A. McPherson, R. Rosman, J. C. Solem, and C. K. Rhodes, Inst. of Phys. Conf. Ser. No. 94: Section 6 (IOP Publishing Ltd., 1989), p. 241.

8) "Strong-Field Processes in the Ultraviolet Region," K. Boyer, G Gibson, H. Jara, T. S. Luk, I. A. McIntyre, A. McPherson, R. Rosman, C. K. Rhodes, and J. C. Solem, **OSA Proceedings on Short Wavelength Coherent Radiation: Generation and Applications**, R. W. Falcone and J. Kirz, editors, (Optical Society of America, Washington, D.C., 1988), p. 220.

9) "Characteristics of a Non-Equilibrium Picosecond Laser Plasma," G. Gibson, R. Rosman, T. S. Luk, I. A. McIntyre, A. McPherson, G. Wendin, K. Boyer and C. K. Rhodes, **OSA Proceedings on Short Wavelength Coherent Radiation: Generation and Application**, R. W. Falcone and J. Kirz, editors, (Optical Society of America, Washington, D. C., 1988) p. 246.

10) "Studies of Strong-Field Effects in Multiphoton Subpicosecond Excited Plasmas: Soft X-Ray Fluorescence and Propagation," A. McPherson, T. S. Luk, G. Gibson, J. C. Solem, K. Boyer and C. K. Rhodes, Proceedings of the **Seminar on Fundamentals of Laser Interactions II**, February 26 - March 4, 1989, Bundessportheim Obergurgl, Austria, (Springer Verlag, 1989), p.93.

11) "Ultrahigh Intensity KrF* Laser System," T. S. Luk, A. McPherson, G. Gibson, K. Boyer, and C. K. Rhodes, Optics Letters **14**, 1113 (1989).

12) "Observation of a New Inner-Orbital Molecular Transition at 55.8 nm in N_2^{2+} Produced by Multiphoton Coupling," G. Gibson, T. S. Luk, A. McPherson, K. Boyer, and C. K. Rhodes, Phys. Rev. A **40**, 2378 (1989).

13) "Ion Production and Molecular Excitation Occurring in Multiphoton Processes," A. McPherson, T. S. Luk, G. Gibson, K. Boyer and C. K. Rhodes, Proceedings of the Workshop on Highly Charged Ions: New Physics and Advanced Techniques, Lawrence Berkeley Laboratory, 13-15 March 1989, Nuclear Instruments and Methods in Physics Research - Section B - **Beam Interactions with Materials and Atoms,** p. 468.

14) "Tunneling Ionization in the Multiphoton Regime," G. Gibson, T. S. Luk, and C. K. Rhodes, Phys. Rev. A **41**, 5049 (1990).

15) "Generation of Coherent Extreme-Ultraviolet and Infrared Radiation Using Six-Wave Mixing in Argon," G. Gibson, T. S. Luk, A. McPherson, and C. K. Rhodes, Phys. Rev. A **43**, 371 (1991).

16) "Molecular X-Ray Laser Research," T. S. Luk, A. McPherson, G. N. Gibson, K. Boyer, and C. K. Rhodes, Izvestia Academia Nauk, Seria Fizicheskaya, T. **55**, 768 (1991) (in Russian); English Translation in **Short Wavelength Lasers and Their Applications**, edited by V. V. Korobkin and M. Yu. Romanovsky (Nova Science Publishers, Inc., Commack, NY, 1992), p. 1.

17) "Measurement of Energy Penetration Depth of Subpicosecond Laser Energy into Solid Density Matter," A. Zigler, P. G. Burkhalter, D. J. Nagel, M. D. Rosen, K. Boyer, G. Gibson, T. S. Luk, A. McPherson, and C. K. Rhodes, Appl. Phys. Lett. **59**, 534 (1991).

18) "Molecular Multiphoton Ionization," G. N. Gibson, R. R. Freeman, and T. J. McIlrath, **OSA Proceedings on Short Wavelength Coherent Radiation: Generation and Applications**, ed. P. H. Bucksbaum and N. M. Ceglio, **11**, 209 (1991).

19) "High-Intensity Molecular Multiphoton Ionization," G. N. Gibson, R. R. Freeman, and T. J. McIlrath, **NATO Proceedings on Coherence Phenomena in Atoms and Molecules in Laser Fields**, ed. A. D. Bandrauk, (Plenum, 1991), p. 125.

20) "Photoionization of Atoms with Ultra-short Laser Pulses," R. R. Freeman, P. H. Bucksbaum, W. E. Cooke, G. Gibson, T. J. McIlrath, and L. D. Van Woerkom, Chapter in **Advances in Atomic, Molecular and Optical Physics**, ed. M. Gavrila, (Academic Press, 1991), p. 43.

21) "Dynamics of the High-Intensity Multiphoton Ionization of N_2," G. N. Gibson, R. R. Freeman, and T. J. McIlrath, Phys. Rev. Lett. **67**, 1230 (1991).

22) "Verification of the Dominant Role of Resonant Enhancement in Short-Pulse Multiphoton Ionization," G. N. Gibson, T. J. McIlrath, and R. R. Freeman, Phys. Rev. Lett. **69**, 1904 (1992).

23) "New Questions in the Multiphoton Ionization of Atoms," G. N. Gibson, R. R. Freeman, T. J. McIlrath, Optics and Photonics News, December (1992), p. 22.

24) "Dynamics of Short-Pulse Multiphoton Ionization," G. N. Gibson, R. R. Freeman, and T. J. McIlrath, **Proceedings of Short Wavelength V: Physics with Intense Laser Pulses**, ed. P. Corkum and M. Perry (1993), p. 95.

25) "Excitation and Ionization Dynamics in Short-Pulse Multiphoton Ionization," G. N. Gibson, R. R. Freeman, T. J. McIlrath, and H. G. Muller, Phys. Rev. A **49**, 3870 (1994).

26) "Adiabatic Climbing of Vibrational Ladders Using Raman Transitions with a Chirped Pump Laser," S. Chelkowski and G. N. Gibson, Phys. Rev. A, RapidComm, **52**, R3417 (1995).

27) "Electro-Optically Cavity-Dumped Ultra-Short-Pulse Ti:Sapphire Oscillator," G. N. Gibson, R. Klank, F. Grasbon, and B. E. Bouma, Optics Letters **21**, 1055 (1996).

28) "Strong-Field Dissociation and Ionization of H_2^+ Using Ultrashort Laser Pulses," G. N. Gibson, M. Li, C. Guo, and J. Neira, Phys. Rev. Lett. **79**, 2022 (1997).

29) "Tunneling Ionization Rates from Arbitrary Potential Wells," G. N. Gibson, G. Dunne, and K. J. Bergquist, Phys. Rev. Lett. **81**, 2663 (1998).

30) "Flexible aberration-free multipass amplifier and compressor for ultrashort pulse amplification," M. Li and G. N. Gibson, JOSA B **15**, 2404 (1998).

31) "Direct Evidence of the Generality of Charge Asymmetric Dissociation of Molecular Iodine Ionized by Strong Laser Fields," G. N. Gibson, M. Li, C. Guo, and J. P. Nibarger, Phys. Rev. A. **58**, 4723 (1998).

32) "Single- and Double-Ionization of Molecules," C. Guo, M. Li, J. P. Nibarger and G. N. Gibson, Phys. Rev. A, Rapid Comm. **58**, R4271 (1998).

33) "Ultrafast Electron Dynamics in Femtosecond Optical Breakdown of Dielectrics," M. Li, S. Menon, J. P. Nibarger, G. N. Gibson, Phys. Rev. Lett. **82**, 2394 (1999).

34) "Charge Asymmetric Dissociation Induced by Sequential and Non-sequential Strong Field Ionization," C. Guo, M. Li, and G. N. Gibson, Phys. Rev. Lett. **82**, 2492 (1999).

35) "Static Field Tunneling Ionization of H_2^+," R. Barnett and G. N. Gibson, Phys. Rev. A. **59**, 4843 (1999).

36) "A Dispersion-Free TG-FROG," M. Li, J. P. Nibarger, C. Guo, and G. N. Gibson, Applied Optics **38**, 5250 (1999).

37) "Direct Observation of Excited State Fragments Following Molecular Ionization and Dissociation in Strong Fields," J. P. Nibarger, M. Li, S. Menon, and G. N. Gibson, Phys. Rev. Lett. **83**, 4975 (1999).

38) "Non-sequential Double Ionization of Molecular Fragments," C. Guo, M. Li, J. P Nibarger, and G. N. Gibson, Phys. Rev. A **61**, 033413 (2000).

39) "Influence of spatial symmetry on the dynamics of strong-field ionization," C. Guo, R. T. Jones, and G. N. Gibson, Phys. Rev. A **62**, 015402 (2000).

40) "Excited State Fragments Following Molecular Ionization and Dissociation in Strong Laser Fields," J. P. Nibarger, M. Li, S. Menon, and G. N. Gibson, **Proceedings of the 8th International Conference on Multiphoton Processes**, ed. L. F. DiMauro, R. R. Freeman, and K. C. Kulander, (American Institute of Physics, 2000) p. 483.

41) "Ellipticity Effects on Single and Double Ionization of Diatomic Molecules in Strong Laser Fields," C. Guo and G. N. Gibson, Phys. Rev. A **63**, 040701 (2001).

42) "Comprehensive analysis of strong field ionization and dissociation of diatomic nitrogen," J. P. Nibarger, S. V. Menon, and G. N. Gibson, Phys. Rev. A **63**, 053406 (2001).

43) "Production and study of triply charged diatomic ions with femtosecond pulses: application to Cl_2^{3+}," R. J. Verver, D. R. Matusek, J. S. Wright, G. N. Gibson, R. Bhardwaj, S. Aseyev, D. M. Villeneuve, P. B. Corkum, and M. Yu. Ivanov, J. Phys. Chem. A **105**, 2435 (2001).

44) "Music brings new audiences to physics," G. N. Gibson, Guest Commentary, Research Corporation Report, Fall 2001, pg. 4.

45) "New themes and audiences for the physics of music," G. N. Gibson and I. D. Johnston, Physics Today, January 2002, pg. 42. (Also selected for the Japanese edition of Physics Today, Vol. 11, 2002 and selected for the journal cover.)

46) "A framework for understanding molecular ionization in strong laser fields," S. V. Menon, J. P. Nibarger, and G. N. Gibson, J. Phys. B: At. Mol. Opt. Phys. **35**, 2961 (2002).

47) "Multiphoton π pulses," G. N. Gibson, Phys. Rev. Lett. **89**, 263001 (2002).

48) "Extreme multiphoton coupling in molecular systems," G. N. Gibson, Phys. Rev. A **67**, 043401 (2003).

49) "VUV fluorescence from selective high order multiphoton excitation of N_2," R. N. Coffee and G. N. Gibson, Phys. Rev. A **69**, 053407 (2004).

50) "Femtosecond time-resolved absorption spectroscopy of astaxanthin in solution and in α-crustacyanin," R. P. Ilagan, R. L. Christensen, T. W. Chapp, G. N. Gibson, T. Pascher, T. Polivka, and H. A. Frank, J. Phys. Chem. A **109**, 3120 (2005).

51) "Identifying ion fragment states with dissociation channels in strong-field ionization of N_2" R. N. Coffee and G. N. Gibson, Phys. Rev. A **72**, 011401(R) (2005).

52) "Effect of geometric isomerization on the steady state absorption spectra and femtosecond time-resolved dynamics of carotenoids," Z. D. Pendon, G. N. Gibson, I. van der Hoef, J. Lugtenburg, and H. A. Frank, J. Phys. Chem. B **109**, 21172 (2005).

53) "Adiabatic passage on high-order multiphoton transitions," G. N. Gibson, Phys. Rev. A **72**, 041404(R) (2005).

54) "Observation of Enhanced Excitation of I_2^{2+} by Strong Laser Fields" G. N. Gibson, R. N. Coffee, and L. Fang, Phys. Rev. A **73**, 023418 (2006).

55) "Light-induced potentials ignite dissociation of N_2^{2+}," R. N. Coffee, L. Fang, and G. N. Gibson, Phys. Rev. A **73**, 043417 (2006).

56) "Bichromatic, phase compensating interferometer based on prism pair compressors," D. Flickinger, T. Weinacht, R. Coffee, and G. N. Gibson, Appl. Opt. **45**, 6187 (2006).

57) "Mechanism of carotenoid singlet excited state energy transfer in modified bacterial reaction centers," S. Lin, E. Katilius, R. P. Ilagan, G. N. Gibson, H. A. Frank, N. W. Woodbury, J. Phys. Chem. B, **110**, 15556 (2006).

58) "Direct femtosecond laser excitation of the 2p state of H by a resonant 7-photon transition in H_2^+," G. N. Gibson, L. Fang, and B. Moser, Phys. Rev. A, Rapid Comm. **74**, 041401(R) (2006).

59) "Femtosecond time-resolved absorption spectroscopy of main-form and high-salt peridinin-chlorophyll a-proteins at low temperature," R. P. Ilagan, J. Koscielecki, R. G. Hiller, F. P. Sharples, G. N. Gibson, R. R. Birge, and H. A. Frank, Biochemistry **45**, 14052 (2006).

60) "Femtosecond laser-induced reduction in Eu-doped sodium borate glasses," K.-S. Lim, S. Lee, M.-T. Trinh, S.-H. Kim, M. Lee, D. S. Hamilton, G. N. Gibson, Journal of Luminescence **122-123**, 14 (2007).

61) "Ultrafast Dynamics and Excited State Spectra of Open-chain Carotenoids at Room and Low Temperatures," D. Niedzwiedzki, J. F. Koscielecki, H. Cong, J. O. Sullivan, G. N. Gibson, R. R. Birge, and H. A. Frank, J. Phys. Chem. B **111**, 5984 (2007).

62) "Investigating Excited Electronic States of I_2^+ and I_2^{2+} Produced by Strong Field Ionization Using Vibrational Wave Packets," L. Fang and G. N. Gibson, Phys. Rev. A **75**, 063410 (2007).

63) "Strong-field induced vibrational coherence in the ground electronic state of hot I_2," L. Fang and G. N. Gibson, Phys. Rev. Lett. **100**, 103003 (2008).

64) "Ultrafast Time-Resolved Spectroscopy of Xanthophylls at Low Temperature," H. Cong, D. Niedzwiedzki, G. N. Gibson, H. Frank, J. Phys. Chem. B **112**, 3558 (2008).

65) "Ultrafast time-resolved spectroscopy of LH2 complexes from photosynthetic bacteria," H. Cong, D. Niedzwiedzki, G. Gibson, A. LaFountain, R. Kelsh, A. Gardiner, R. Cogdell, and H. Frank, J. Phys. Chem. B **112**, 10689 (2008).

66) "The influence of orbital symmetry on high-harmonic generation and quantum tomography," G. N. Gibson and J. Biegert, Phys. Rev. A **78**, 033423 (2008).

67) "Comparison of R-dependent ionization and bondsoftening as mechanisms for creating vibrational coherence in hot molecules," L. Fang and G. N. Gibson, Phys. Rev. A, Rapid Comm. **78**, 051402(R) (2008).

68) "Ultrafast time-resolved absorption spectroscopy of geometric isomers of carotenoids," D. M. Niedzwiedzki, D. J. Sandberg, H. Cong, M. N. Sandberg, G. N. Gibson, R. R. Birge, and H. A. Frank, Chem. Phys. **357**, 4 (2009).

69) "Dissipative control in thermal ensembles using tunneling ionization," G. N. Gibson and L. Fang, Laser Physics **19**, 1544 (2009).

70) "Ultraslow dissociation of H_2^+ molecular ions via two-color ultrafast laser pulses," B. Moser and G. N. Gibson, Phys. Rev. A, Rapid Comm. **80**, 041402(R) (2009).

71) "Vibrational and Electronic Excitation of Molecules by Short-Pulse Strong Laser Fields," G. N. Gibson, L. Fang, and B. Moser, *Progress in Ultrafast Intense Laser Science V*, K. Yamanouchi (Ed.) (Springer, Berlin, 2010), pg. 1.

72) "Wavelength-dependent study of trapping molecules in an excited electronic state of I_2^{2+} with strong laser fields," L. Fang and G. N. Gibson, Phys. Rev. A **81**, 033410 (2010).

73) "Orbital geometry determined by orthogonal high harmonic polarization components," E. Hijano, C. Serrat, G. N. Gibson and J. Biegert, Phys. Rev. A **81**, 041401(R) (2010).

74) "Study of vibrational wavepackets in hot I_2 molecules with ultrafast laser pulses," L. Fang and G. N. Gibson, Revista Mexicana de Física **S 56(2)**, 79-80 (2010).

75) "Direct determination of the excited state energies of the xanthophylls diadinoxanthin and diatoxanthin from *Phaeodactylum tricornutum*," M. M. Enriquez, A. M. LaFountain, J. Budarz, M. Fuciman, G. N. Gibson, and H. A. Frank, Chem. Phys. Lett. **493**, 353 (2010).

76) "Optimal pulse for orbital reconstruction from ionization maps in aligned molecules," E. Hijano, C. Serrat, G. N. Gibson, C. Figueira de Morisson Faria, and J. Biegert, Journal of Modern Optics **58**, 1166 (2011).

77) "Angle-resolved and internuclear-separation-resolved measurements of the ionization rate of the B state of I_2 by strong laser fields," H. Chen, L. Fang, V. Tagliamonti, and G. N. Gibson, PRA **84**, 043427 (2011).

78) "Internuclear Separation Resolved Asymmetric Dissociation of I_2 in a Two-Color Laser Field," V. Tagliamonti, H. Chen, and G. N. Gibson, PRA **84,** 043424 (2011).

79) "Analysis of immunoarrays using a gold grating-based dual mode surface plasmoncoupled emission (SPCE) sensor chip," J. S. Yuk, G. N. Gibson, J. M Rice, E. Guignon, and M. A. Lynes, Analyst **137**, 2574 (2012).

80) "Enhanced Harmonic Generation by Breaking the Phase Matching Symmetry," G. N. Gibson, N. Majtenyi, and E. Sergan, Optics Letters **37,** 3279 (2012).

81) "Internuclear separation dependent ionization of the valence orbitals of I_2 by strong laser fields," H. Chen, V. Tagliamonti, and G. N. Gibson, Phys. Rev. Lett. **109,** 193002 (2012).

82) "Enhanced ionization of an inner orbital of I_2 by strong laser fields," H. Chen, V. Tagliamonti, and G. N. Gibson, Phys. Rev. A **86,** 051403(R) (2012).

83) "Multi-Electron Effects in Charge Asymmetric Molecules Induced by Asymmetric Laser Fields," V. Tagliamonti, H. Chen, and G. N. Gibson, Phys. Rev. Lett. **110,** 073002 (2012).

84) "High efficiency light-harvesting by carotenoids in the LH2 complex from photosynthetic bacteria: Unique adaptation to growth under low-light conditions," N. M. Magdaong, A. M. LaFountain, J. A. Greco, A. T. Gardiner, A-M. Carey, R. J. Cogdell, G. N. Gibson, R. R. Birge, and H. A. Frank, J. Phys. Chem. B **118**, 11172 (2014).

85) "Enhanced harmonic generation in double-well potentials," G. N. Gibson, Phys. Rev. A **91**, 033411 (2015).

86) "Spectral heterogeneity and carotenoid-to-bacteriochlorophyll energy transfer in LH2 light-harvesting complexes from Allochromatium vinosum," N. M. Magdaong, A. M. LaFountain, K. Hacking, D. M. Niedzwiedzki, G. N. Gibson, R. J. Cogdell and H. A. Frank, Photosyn. Res. **20**, 171 (2015). DOI: 10.1007/s11120-015-0165-2.

87) "Fullerene-Assisted Photoinduced Charge Transfer of Single-Walled Carbon Nanotubes through a Flavin-Helix," M. Mollahosseini, E. Karunaratne, G. Gibson, J. Gascón, F. Papadimitrakopoulos, JACS, **DOI**: 10.1021/jacs.5b13496 (2016).

88) "Single Ionization of Molecular Iodine," D. L. Smith, V. Tagliamonti, J. Dragan, and G. N. Gibson, Phys. Rev. A **95**, 013410 (2017).

89) "Third Harmonic Generation in the Semi-Infinite Phase-Matching Limit," E. Sergan and G. N. Gibson, JOSA B **34**, 1865 (2017).

90) "Plasmon Resonant Amplification of a Hot Electron-Driven Photodiode," L. Shen, N. Poudel, G. N. Gibson, B. Hou, J. Chen, H. Shi, E. F. Guignon, W. D. Page, A. Pilar, S. B. Cronin, Nano Research **11** 2310 (2017). DOI: 10.1007/s12274-017-1854-2.

91) "Resonantly Enhanced Inner Orbital Ionization in Molecular Iodine," D. L. Smith and G. N. Gibson, Phys. Rev. A **97**, 021401(R) (2018).

92) "Addition of a Carbonyl End Group Increases the Rate of Excited State Decay in a Carotenoid via Conjugation Extension and Symmetry Breaking," S. D. Khosravi, M. M. Bishop, A. M. LaFountain, D. B. Turner, G. N. Gibson, H. A. Frank, and N. Berrah, J. of Phys. Chem. B **122**, 10872 (2018).

93) "Plasmon Resonant Amplification of Hot Electron-Driven Photocatalysis," L. Shen, G. Gibson, N. Poudel, B. Hou, J. Chen, H. Shi, E. Guignon, W. Page, A. Pilar, and S. Cronin, Applied Physics Letters **113**, 113104 (2018). DOI: 10.1063/1.5048582

94) "Hot Electron-driven Photocatalysis and Transient Absorption Spectroscopy in Plasmon Resonant Grating Structures," Y. Wang, L. Shen, Y. Wang, B. Hou, G. N. Gibson, N. Poudel, J. Chen, H. Shi, E. Guignon, N. C. Cady, W. D. Page, A. Pilar, J. Dawlaty, and S. B. Cronin. Faraday Discussions **214**, 325 (2019). DOI:10.1039/C8FD00141C

95) "Resonances and Critical Points in the Strong Field Ionization of Diatomic Molecules," G. N. Gibson, H. Chen, and D. Smith, Phys. Rev. A **100**, 023412 (2019). DOI: 10.1103/PhysRevA.100.023412

96) "Hot Electron Driven Photocatalysis on Plasmon-resonant Grating Nanostructures," Y. Wang, I. Aravind, Z. Cai, L. Shen, G. Gibson, J. Chen, B. Wang, H. Shi, B. Song, E. Guignon, N. Cady, W. Page, A. Pilar, S. Cronin, ACS Applied Materials & Interfaces (2020); https://dx.doi.org/10.1021/acsami.0c00066.

97) "Toward an Ultrafast Double-Pulse Stretcher-Compressor," S. D. Khosravi, M. Scipioni, and G. N. Gibson, Journal of Modern Optics (2020), https://doi.org/10.1080/09500340.2020.1862330.

98) "Multiplexed Detection and Quantification of Human Antibody Response to COVID-19 Infection Using a Plasmon Enhanced Biosensor Platform," N. Cady; N. Tokranova; A. Minor; N. Nikvand; K. Strle; W. T. Lee; W. Page, MD; E. Guignon, A. Pilar; G. N. Gibson, Biosensors and Bioelectronics, **171**, 112679 (2021). https://doi.org/10.1016/j.bios.2020.112679.

99) "Hot Electron Plasmon-resonant Grating Structures for Enhanced Photochemistry," I. Aravind, Y. Wang, Z. Cai, L. Shen, B. Zhao, S. Yang, Y. Wang, J. Dawlaty, G. Gibson, E. Guignon, N. Cady, W. Page, A. Pilar, S. Cronin, Crystals (2021), https://doi.org/10.3390/cryst11020118.

100) "Characterization of two color ultrashort laser pulses using polarization-gating- and transient-grating frequency-resolved optical gating," S. D. Khosravi, R. Jafari, M. Schittenhelm, S. Suresh, G. N. Gibson, and R. Trebino, JOSA B **39**, 683 (2022). https://doi.org/10.1364/JOSAB.445056.

101)"A plano-convex thick-lens velocity map imaging apparatus for direct, high resolution 3D momentum measurements of photoelectrons with ion time-of-flight coincidence," M. Davino, E. McManus, N.G. Helming, C. Cheng, G. Mogol, Z. Rodnova, G. Harrison, K. Watson, T. Weinacht, G. N. Gibson, T. Saule, and C. Trallero-Herrero, Rev. Sci. Instr. **94**, 013303 (2023). https://doi.org/10.1063/5.0129900.

102) "Generation and control of non-local quantum equivalent extreme ultraviolet photons," G. R Harrison, T. Saule, R. E. Goetz, G. N. Gibson, A.-T. Le, C. A. Trallero-Herrero, Frontiers in Optics, FTu6D, 4 (2023).

103) "Molecular alignment-assisted spectral broadening and shifting in the near-infrared with a recycled depleted pump from an optical parametric amplifier," Z. Rodnova, T. Saule, G. N. Gibson, C. A. Trallero-Herrero, Optics Express **31**, 42327 (2023).

104) "Voltage-induced Modulation of Interfacial Water and Ionic Liquids measured Using Surface Plasmon Resonant Grating Nanostructures," I. Aravind, Y. Wang, Z. Cai, R. Li, R. Shahriar, G. N. Gibson, E. Guignon, N. C. Cady, W. D. Page, A. Pilar, and S. B. Cronin, J. Chem. Phys. **161** 034702 (2024). https://doi.org/10.1063/5.0202642

105) "A rapid fluorescent plasmonic biosensor platform to diagnose Lyme disease from serum antibodies," B. Taubner, J. Pelton, D. K. Das, A. Pilar, W. Page, E. F. Guignon, G. Gibson, N. C. Cady, Proc. SPIE 12861, Frontiers in Biological Detection: From Nanosensors to Systems XVI, 128610C (2024); https://doi.org/10.1117/12.3002668

106) "High-power femtosecond molecular broadening and the effects of ro-vibrational coupling," C Trallero, K. Watson, T. Saule, M. Ivanov, B. Schmidt, Z. Rodnova, G. Gibson, N. Berrah, Optica **12**, 5 (2025). https://doi.org/10.1364/OPTICA.529193

107) "Symmetries in 3D photoelectron momentum spectroscopy as precursory methods for dichroic and enantiosensitive measurements," M. Davino, E. McManus, T. Saule, P.-H. Tran,A. F. Ordonez, G. N. Gibson, A.-T. Le, C. A. Trallero-Herrero, Phys. Rev. Applied **23**, 014022 (2025). https://doi.org/10.1103/PhysRevApplied.23.014022.