

NEVIN DANIEL GIBSON, Ph.D.

EDUCATION

Ph.D. in Physics, University of Virginia, Charlottesville, Virginia, September 1992.

Thesis - "*Photodetachment of Negative Ions in a Static Electric Field*"

B.S. in Physics with High Distinction, University of Virginia, Charlottesville, Virginia, May 1987.

Honors Thesis - "*Two-tone Frequency Modulation Spectroscopy of Rubidium Vapor*"

SUMMARY OF QUALIFICATIONS

Teaching experience includes seventeen years of teaching, supervising and mentoring physics and mathematics students of a wide range of abilities in both the classroom and the laboratory.

- Love of teaching, use of demonstrations and hands-on interactions with students have led to consistent recognition for excellence in instruction.

Experimental atomic physics experience spans twenty-four years with concentrations in the areas of lasers, negative ions, electron-atom and ion-atom collisions, plasma physics, x-ray, visible, uv and ir spectroscopy.

GRANTS AND AWARDS

- *Valence and Inner Shell Negative Ion Spectroscopy* - National Science Foundation (NSF) Physics-Atomic and Molecular Structure 2008, N. Daniel Gibson and C. W. Walter, \$283,000.
- *Oscillator Strengths for Ultraviolet Atomic and Molecular Transitions* - NASA 2005, S. R. Federman, N. D. Gibson, R. M. Schectman, S. Chen and D. G. Ellis, \$25,584.
- *Structure and Spectroscopy of Negative Ions* - National Science Foundation (NSF) Physics-Atomic and Molecular Structure 2005, C. W. Walter and N. Daniel Gibson, \$279,477.
- *Spectroscopy and Structure of Negative Ions* - National Science Foundation (NSF) Physics-Atomic and Molecular Structure 2002, C. W. Walter and N. Daniel Gibson, \$224,527.
- *Experimental Measurements of the Branching Fractions of Nickel and Cobalt* - DURF 2002, N. Daniel Gibson, \$1,275.
- *Oscillator Strengths for Ultraviolet Atomic and Molecular Transitions* - NASA 2001, S. R. Federman, S. Chen, N. D. Gibson, and R. M. Schectman, \$32,900.
- *Laser Spectroscopy of Negative Ions* - National Science Foundation (NSF) AMO Physics 1998, C. W. Walter and N. Daniel Gibson, \$254,460.
- *Optical and Laser Spectroscopy Instrumentation for Research and Education* - NSF MRI 1998, C. W. Walter, K. A. Coplin, N. Daniel Gibson and M. E. Mickelson, \$298,723.
- *Oscillator Strengths for Ultraviolet Atomic and Molecular Transitions* - NASA 1998, S. R. Federman, S. Chen, N. D. Gibson, K. L. Menningen, and R. M. Schectman, \$24,038.
- *Absolute Measurements of the Optical Oscillator strengths of Xenon resonance Lines* - DURF 1998, N. Daniel Gibson, \$4,249.
- *Oscillator Strengths and Branching Fractions in the UV* - NIST Equipment grant - 1998, N. D. Gibson, \$27,770.
- *Oscillator Strengths for Ultraviolet Atomic and Molecular Transitions* - NASA 1997, S. R. Federman, S. Chen, N. D. Gibson, K. L. Menningen, and R. M. Schectman, \$14,800.
- *Branching Fractions in the UV and VUV* - High Precision atomic and ionic data for high priority atomic physics and astrophysics needs - Research Corporation 1997, N. Daniel Gibson, \$39,995.
- *Branching Fractions in the UV and VUV - High Precision atomic and ionic data for high priority atomic physics and astrophysics needs* - DURF 1997, N. Daniel Gibson, \$1,970.

NEVIN DANIEL GIBSON, Ph.D.

TEACHING EXPERIENCE

Professor, Denison University, Granville, Ohio, September 2008 - on.

- Sigma Xi, President, Denison Kenyon Chapter, 2000 - on.

John and Christine Warner Professor, Denison University, Granville, Ohio, July 2004-August 2007.

- Faculty Representative, Board of Trustees Student Affairs Committee, 2004-May 2006.
- Dean of Students Search Committee, 2006-07.
- Selections and Elections Committee, 2005 on.
- Finance Committee, 2006 on, Chair 2007-08.
- Physical Chemist search, 2006-07.

Associate Professor, Denison University, Granville, Ohio, September 2002-2008.

- Develop liberal arts Quantum Mechanics course connecting quantum world views with practical quantum mechanics.
- Direct Oak Ridge Science Semester Program, July 2004 on.
- International and Off-campus Education Committee of the GLCA, 2003 on.
- Chair, Finance Committee of the University Council, 2002-04.
- Teach advanced experimental physics course and develop new, modern experiments.
- University Council, 2001-02.
- President, Denison-Kenyon chapter of Sigma Xi, the Interdisciplinary Scientific Research Society, 1999-2008.

Assistant Professor, Denison University, Granville, Ohio, August 1996-August 2002.

- Taught calculus based introductory physics, modern physics and quantum mechanics using interactive teaching methods and peer instruction techniques.
- Created new Denison course – “The Way Things Work,” primarily for non-science majors.
- Taught optics and thermodynamics courses for majors; develop integrated laboratories.
- Directed nine semester-long and seven summer-long student research projects culminating in state and national level presentations as well as three Honors Theses.
- Presented “Build Your Own Hologram” for recruitment of prospective science students.
- Instructed undergraduate laboratory classes, including development of new experiments.
- Instituted use of Interactive Physics III and other educational software.
- Directed *Investigations in the Sciences* “Lasers and Holography” program session for high school students.

Visiting Professor, University of Wisconsin, Madison, Wisconsin, June 1996-August 1996.

Postdoctoral Associate, University of Wisconsin, Madison, Wisconsin, July 1994-June 1996.

Physics Lecturer, North Carolina State University, Raleigh, NC, October 1992-July 1994.

Mathematics Instructor, Center for the Advancement of Academically Talented Youth, The Johns Hopkins University, September 1990-May 1991.

RESEARCH EXPERIENCE

Professor, Denison University, Granville, Ohio, September 2008-present.

Associate Professor, Denison University, Granville, Ohio, September 2002-August 2008.

- Measure H^- electron impact detachment cross sections at the CRYRING ion storage ring in Stockholm, Sweden.
- Build high mass-resolution negative ion beam apparatus for on-campus ion resonance experiments.
- Investigate innovative C- photodetachment methods for carbon isotope separation applications.
- Grant proposal reviewer: NASA, U.S. Department of Energy and National Science Foundation.

Assistant Professor, Denison University, Granville, Ohio, August 1996-August 2002.

- Performed negative ion photodetachment research on-campus using tunable, high-power pulsed laser system and computer-controlled data collection.
- Measured Li^- photodetachment cross sections at the Advanced Light Source synchrotron.
- Developed high-vacuum spectrometer apparatus to make high-precision measurements of optical oscillator strengths using state-of-the-art UV detectors.
- Built 2-meter high resolution spectrometer system for collaborative student-faculty branching fraction experiments on elements of astrophysical interest.
- Submitted successful proposals to external sources of research funding, including successful applications to NSF, Research Corporation, NASA and NIST.

Postdoctoral Associate, University of Wisconsin, Madison, Wisconsin, July 1994-August 1996.

- Investigated innovative S_2 discharges for lighting and broadband near UV source applications.
- Measured Re II branching fractions and radiative lifetimes to determine oscillator strengths in conjunction with analysis of Hubble Space Telescope data.
- Performed absolute radiometric calibrations using multichannel photodiode array detection.
- Designed, constructed and tested inductively coupled lamps operating at 500 kHz - 13 MHz.
- Analyzed Fourier Transform Spectrometer data to determine absolute emission oscillator strengths.

Postdoctoral Associate, North Carolina State University, Raleigh, NC, October 1992-July 1994.

- Conducted accelerator-based, 100 keV, H^+ -Ar, H^+ -Kr, and H^+ -He collision experiments to measure the H atom density matrix using a state-of-the-art photoelastic modulator.
- Performed high precision measurements of optical oscillator strengths of the noble gas atoms.
- Upgraded a novel EUV spectrometer calibrated at the SURF II synchrotron at NIST.

Graduate Research Assistant, University of Virginia, Charlottesville, VA, May 1988-October 1992.

Federal Junior Fellow, Naval Research Laboratory, Washington, DC, May 1983 - August 1987.

NEVIN DANIEL GIBSON, Ph.D.

AWARDS, HONORS, AND PROFESSIONAL MEMBERSHIPS

- Governor's Fellowship, University of Virginia, 1989-1991.
- President's Fellowship, University of Virginia, 1987-1989.
- Phi Beta Kappa Honor Society, 1987 - present.
- Graduated with High Distinction, University of Virginia, 1987.
- Federal Junior Fellowship, Naval Research Laboratory, 1983-1987.
- Dean's Alumni Scholarship, University of Virginia, 1986-1987.
- ΣΠΣ, Physics Honor Society, 1985-present; Denison Chapter Advisor 1999-2002.
- Echol's Scholar, University of Virginia, 1983-1987.
- President of Denison-Kenyon Chapter of Sigma Xi, Scientific Research Society, 1999-present.
- Society of Physics Students; Denison Chapter Advisor, 1999-2002.
- John and Christine Warner Professorship, 2004-2007.
- American Association of Physics Teachers
- American Physical Society:
 - Division of Atomic, Molecular and Optical Physics
 - Division of Astrophysics
 - Forum on Education
 - Laser Science Topical Group
 - Forum on Industrial and Applied Physics
 - Physics in Society Forum

REFERENCES

Dr. C. Wesley Walter

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REFEREED JOURNAL ARTICLES

34. “Promoting a core electron to fill a d shell: A threshold law and shape and Feshbach resonances,” R.C. Bilodeau, I. Dumitriu, N.D. Gibson, C.W. Walter, and N. Berrah, **Physical Review A**, **80**, 031403, (2009).
33. “Electron affinity of arsenic and the fine structure of As- measured using infrared photodetachment threshold spectroscopy” C.W. Walter, N.D. Gibson, R.L. Field III, A.P. Snedden, J.P. Shapiro, C.M. Janczak, and D. Hanstorp, **Physical Review A**, **80**, 014501, (2009).
32. “Selective detection of ^{13}C by laser photodetachment mass spectrometry” P. Andersson, J. Sandström, D. Hanstorp, N.D. Gibson, K. Wendt, D.J. Pegg and R. D. Thomas, **Nuclear Instruments and Methods in Physics Research B**, **266**, 3667 (2008).
31. “Experimental Investigation of electron impact on Si_2^- ,” A. O. Lindahl, P. Andersson, G. F. Collins, D. Hanstorp, D. J. Pegg, M. Danielsson, W. D. Geppert, M. Hamberg, R. D. Thomas, V. Zhaunerchyk, C. Diehl, N. D. Gibson and A. Källberg, **Physical Review A**, **77**, 022710, 2008.
30. “Infrared Photodetachment of Ce^- : Threshold Spectroscopy and Resonance Structure,” C.W. Walter, N.D. Gibson, C.M. Janczak, K.A. Starr, A.P. Snedden, R.L. Field III and P. Andersson, **Physical Review A**, **76**, 052702, (2007).
29. “Shape Resonances in the absolute K -shell Photodetachment of B^- ,” N. Berrah, R.C. Bilodeau, I. Dumitriu, J. D. Bozek, N. D. Gibson, C. W. Walter, G. Ackerman, O. Zatsarinny and T. W. Gorczyca, **Physical Review A**, **76**, 032713 (2007).
28. “Double Auger decay, Feshbach and shape resonances in negative ions,” N. Berrah, R.C. Bilodeau, J. D. Bozek, C. W. Walter, N. D. Gibson, and G. D. Ackerman, **Radiation Physics and Chemistry**, **75**, 1447-1450, 2006.
27. “Photo Double Detachment of CN^- : Electronic Decay from an Inner-valence Hole in Molecular Anions,” R.C. Bilodeau, C.W. Walter, I. Dumitriu, N.D. Gibson, G.D. Ackerman, J.D. Bozek, B.S. Rude, R. Santra, L.S. Cederbaum, and N. Berrah, **Chemical Physics Letters**, **426**, 237-241, 2006.
26. “Shape Resonance in K -shell Photodetachment from C^- ,” C. W. Walter, N. D. Gibson, R.C. Bilodeau, N. Berrah, J. D. Bozek, G. Ackerman, and A. Aguilar, **Physical Review A**, **73**, 062702, 2006.
25. “Radiative Lifetimes of metastable states of negative ions,” P. Andersson, K. Fritioff, J. Sandström, G. F. Collins, D. Hanstorp, A. Ellman, P. Schef, P. Lundin, S. Mannervik, P. Royen, C. Froese Fischer, F. Österdahl, D. Rostohar, D. J. Pegg, N. D. Gibson, H. Danared, and A. Källberg, **Physical Review A**, **73**, 032705, 2006.
24. “High Charge State Formation in Inner-shell Photodetachment of S^- ,” R.C. Bilodeau, N. D. Gibson, J. D. Bozek, C. W. Walter, G. Ackerman, P. Andersson, J. G. Heredia, M. Perri and N. Berrah, **Physical Review A**, **72**, 050701(R), 2005.

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23. “*Inner-shell Photodetachment Thresholds: Unexpected Long-range Validity of the Wigner Law*,” R.C. Bilodeau, J. D. Bozek, N. D. Gibson, C. W. Walter, G. Ackerman, I. Dumitriu and N. Berrah, **Physical Review Letters**, **95**, 083001, 2005.
22. “*Oscillator Strengths for Ultraviolet Transitions in Cl II and III*,” R. M. Schectman, S. R. Federman, M. Brown, S. Cheng, M. C. Fritts, R. E. Irving and N. D. Gibson, **Astrophysical Journal**, **621**, 1159 March 2005.
21. “*The observation of an excited C_4^{2-} ion*,” K. Fritioff, J. Sandström, P. Andersson, D. Hanstorp, F. Hellberg, R. Thomas, M. Larsson, F. Österdahl, G. F. Collins, A. Le Padellec, D. J. Pegg, N. D. Gibson, H. Danared, and A. Källberg, **Journal of Physics B**, **37**, 2241-2246, 2004.
20. “*The radiative lifetime of a bound excited state of Te^-* ,” A. Ellmann, P. Schef, P. Lundin, K. Fritioff, P. Andersson, D. Hanstorp, C. Froese Fischer, F. Österdahl, D. J. Pegg, N. D. Gibson, H. Danared, and A. Källberg, **Physical Review Letters**, **92**, 253002-1, 2004.
19. “*Single and double detachment from H^-* ,” K. Fritioff, J. Sandström, P. Andersson, D. Hanstorp, F. Hellberg, R. Thomas, W. Geppert, M. Larsson, F. Österdahl, G. F. Collins, D. J. Pegg, H. Danared, A. Källberg, and N. D. Gibson, **Physical Review A**, **69**, 042707, 2004.
18. “*K-Shell Photodetachment from C^- : Experimental Results and Theory*,” N. D. Gibson, C. W. Walter, O. Zatsarinny, T. W. Gorczyca, G. Ackerman, J. D. Bozek, M. Martins, B. M. McLaughlin and N. Berrah, **Physical Review A**, **67**, 030703(R), 2003.
17. “*s-wave Photodetachment from S^- ions in a static electric field*,” N. D. Gibson, M. D. Gasda, K. A. Moore, D. A. Zawistowski, and C. W. Walter, Rapid Communication, **Physical Review A**, **64**, 061403(R), 2001.
16. “*K-Shell Photodetachment of Li^- Negative Ions: Experiment and Theory*,” N. Berrah, J. D. Bozek, A. A.Wills, G. Turri, H. L. Zhou, S. T. Manson, G. Ackerman, B. Rude, N. D. Gibson, C. W. Walter, L. VoKy, A. Hibbert and S. Fergusson, **Physical Review Letters**, **87**, 253002, 2001.
15. “*Branching ratio measurement of N^+ inter-system lines, $2s2p^3\ ^5S_2-2s^22p^2\ ^3P_{2,1}$* ” J.J. Curry, N. D. Gibson, and J. E. Lawler, **Astronomy and Astrophysics**, **321**, pp. 1021-1023, 1997.
14. “*Investigation of the 147 nm radiative efficiency of Xe surface wave discharges*,” N. D. Gibson, U. Kortshagen and J.E. Lawler, **Journal of Applied Physics**, **81**, No. 3, pp. 1087-1092, 1997.
13. “*Radiative lifetimes in Cr I by laser-induced fluorescence*,” J.C. Cooper, N. D. Gibson and J.E. Lawler, **Journal of Quantitative Spectroscopy and Radiative Transfer**, **58**, No. 1, pp. 85-92, 1997.
12. “*Atomic Data for the Re II Resonance Multiplet and its Application to Astrophysics*,” G.M. Wahlgren, S.G. Johansson, U. Litzén, N. D. Gibson, J.C. Cooper, J.E. Lawler, D.S. Leckrone and R. Engleman, Jr, **Astrophysical Journal**, **475**, pp. 380-386, 1997.
11. “*A Radiometric Investigation of low pressure rf sulfur discharges*,” N. D. Gibson, U. Kortshagen and J.E. Lawler, **Journal of Applied Physics**, **79**, No. 10, pp. 7523-7528, 1996.

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10. "On the E-H-mode transition in RF inductive discharges," U. Kortshagen, N. D. Gibson, and J.E. Lawler, **Journal of Physics D**, **29**, pp. 1224-1236, 1996.
9. "A Radiometric and Electrical Characterization of low pressure dc positive column sulfur discharges," N. D. Gibson and J.E. Lawler, **Journal of Applied Physics**, **79**, No. 1, p. 86-92, 1996.
8. "Absolute measurements of optical oscillator strengths of noble gas resonance lines," N. D. Gibson and J.S. Risley, **Physical Review A**, **52**, No. 6, pp. 4451-6, 1995.
7. "On the formation of H(n=3) dipole moments in collisions of protons on rare gas atoms," N. Seifert, N. D. Gibson, S.P. Renwick, and J.S. Risley, **Zeitschrift für Physik**, **35**, No. 4, p. 231.
6. "Experimental determination of the real elements of the density matrix of H(n=3) atoms produced in 20-100 keV collisions of H⁺ on Kr atoms," N. Seifert, N. D. Gibson, and J.S. Risley, **Physical Review A**, **52**, p. 3816, 1995.
5. "P-wave Photodetachment in a Static Electric Field," N. D. Gibson, B. J. Davies, and D. J. Larson, **Physical Review A**, **48**, No. 1, pp. 310-320, 1993.
4. "The Electron Affinity of Platinum," N. D. Gibson, B. J. Davies, and D. J. Larson, **Journal of Chemical Physics**, **98**, No. 6, pp. 5104-5105, 1993.
3. "S-wave Photodetachment in a Static Electric Field," N. D. Gibson, B. J. Davies, and D. J. Larson, **Physical Review A**, **47**, No. 3, pp. 1946-1952, 1993.
2. "Electric Field Effects in Photodetachment from Cl⁻ and S⁻ ions in a Microwave Field," M.C. Baruch, W.G. Sturru, N. D. Gibson, and D. J. Larson, **Physical Review A**, **45**, No. 5, pp. 2825-2832, 1992.
1. "Stimulated Brillouin scattering of multiline hydrogen fluoride laser radiation," M. T. Duignan, B.J. Feldman, N. D. Gibson, and W. T. Whitney, **SPIE**, **874**, pp. 25-38, 1988

NON-REFEREED ARTICLES

3. "Atomic Data for the Re II Resonance Multiplet and its Application to Astrophysics," J.C. Cooper, N. D. Gibson, R. Engleman, S. Johansson, J.E. Lawler, D. Leckrone, U. Litzen, and G. Spekk. 5th International Colloquium on Atomic Spectra and Oscillator Strengths for Astrophysical and Laboratory Plasmas, 1995.
2. "Spectroscopic Diagnostics of Glow Discharges," J.E. Lawler and N.D. Gibson. Seventh International Symposium on the Science and Technology of Light Sources, 1995.
1. "Photodetachment from negative ions in a Static Electric Field," N.D. Gibson, B.J. Davies, and D.J. Larson. *Electronic and Atomic Collisions, Proceedings of the XVIII ICPEAC*, T. Anderson, B. Fastrup, F. Folkmann, and H. Knudsen, eds., Vol. 1, p. 38, 1993.

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HONORS AND SENIOR THESES DIRECTED

7. *"Laser Photodetachment of Negative Ions,"* Richard Field III, 2008-09.
6. *"Construction and Characterization of a Near-Infrared Diode Laser Source,"* Corey Janczak, 2007. Graduate Student in Physics, Northeastern University 2007.
5. *"Laser Spectroscopy of Ce^- ,"* Keith Starr, 2006. Teach for America- Physics Durham, NC 2007.
4. *"A Causal Approach to Teaching Introductory Physics: Thought and Defense,"* Matthew Bowers, 2006. High School Physics Teacher 2007.
3. *"Elemental Spectra in the UV: Ni II and Co I Branching Fractions,"* Brian David Hosterman, 2001. Graduate Student in Physics, University of Nevada - Las Vegas
2. *"Negative Ion Sputter Source: DUNIBA get a SNICS II"* Cuyler Anthes Smith, 2001. Masters in Civil Engineering (structural), University of Texas 2004.
1. *"Branching Fractions of Ni II in the UV region,"* Carrie Jean Barnes, 1999. Medical School, W. VA University, Head Resident, Children's Hospital Columbus, OH 2007.

INVITED TALKS

15. *"Photodetachment from Atomic Negative Ions"* N.D. Gibson, Advanced Light Source User's Meeting, Berkeley, CA, 14 October 2008.
14. *"Stock Market Forecasters or Electron Interferometers-the Story of Negative Ions"* N.D. Gibson, Wooster College, 26 April 2007.
13. *"Negative Ions: Stock Market Forecasters or Electron Interferometers?"* N.D. Gibson. Miami University, Oxford, OH, 3 November 2004.
12. *"Negative Ions: Stock Market Forecasters or Electron Interferometers?"* N.D. Gibson. University of Toledo, Toledo, OH, 17 January 2002.
11. *"Negative Ions: Market Forecasters or Electron Interferometers?"* N.D. Gibson. Kenyon College, Gambier, OH, 7 December 2001.
10. *"Low pressure molecular discharges for lighting,"* N.D. Gibson. Division of Atomic, Molecular, and Optical Physics, Ann Arbor, MI, 15-18 May 1996.
9. *"The Physics of Lighting - New molecular discharges for light sources,"* N.D. Gibson. Denison University, Granville, OH, 2 April 1996.
8. *"The Physics of Lighting - New molecular discharges for light sources,"* N.D. Gibson. Goucher College, Baltimore, MD, 7 February 1996.
7. *"A Radiometric and Electrical Characterization of low pressure dc positive column sulfur discharges,"* N.D. Gibson. General Electric Corporate Research and Development, Schenectady, NY, 17 March 1995.
6. *"Absolute measurements of optical oscillator strengths of noble gas resonance lines,"* N.D. Gibson. The Joint Institute for Laboratory Astrophysics, Boulder, CO, 30 May 1994.

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5. “*Absolute measurements of optical oscillator strengths of noble gas resonance lines*,” N.D. Gibson. University of Wisconsin, Madison, WI, 27 May 1994.
4. “*Measuring absolute optical oscillator strengths of noble gas resonance lines: Watching atoms catch photons*,” N.D. Gibson. Rose-Hulman Institute of Technology, Terre Haute, IN, 12 May 1994.
3. “*Static Electric Field Effects on Photodetachment from negative ions*,” N.D. Gibson. North Carolina State University, Raleigh, NC, 23 September 1992.
2. “*Comparison of Electric Field Effects on Photodetachment from Cl⁻ and S⁻ in a Static Electric Field*,” N.D. Gibson. The Joint Institute for Laboratory Astrophysics, Boulder, CO, 31 July 1992.
1. “*Electric Field Effects on Photodetachment from negative ions in a Static Field*,” N.D. Gibson. Duke University, Durham, NC, 23 April 1992.

PROFESSIONAL PRESENTATIONS

59. “Inner-Shell Ion-Photon Studies with the New Movable Ion-Photon Beamline”, R.C. Bilodeau, J.D. Bozek, I. Dumitriu, A. Aguilar, C.W. Walter, N.D. Gibson, D. Rolles, M. Hoener and N. Berrah, Advanced Light Source User’s Meeting, Berkeley, CA 2008.
58. “K-Shell Photodetachment of small size-selected Negative Ions Clusters: Experiment and Theory”, R.C. Bilodeau, N. Berrah, I. Dumitriu, O. Zatsarinni, T. Gorczyca, J.D. Bozek, N.D. Gibson, C.W. Walter, D. Toffoli, and R.R. Lucchese, 39th Meeting of the Division of Atomic, Molecular and Optical Physics, State College, PA 2008.
58. “Inner Shell Photodetachment of Iron and Ruthenium Negative Ions”, I. Dumitriu, R.C. Bilodeau, T. Gorczyca, C.W. Walter, N.D. Gibson, A. Aguilar, Z.D. Pesic, D. Rolles and N. Berrah 39th Meeting of the Division of Atomic, Molecular and Optical Physics, State College, PA 2008.
57. “Infrared Photodetachment spectroscopy of As⁻”, N.D. Gibson, C.W. Walter, A.P. Snedden, R.L. Field III, J.Z. Shapiro, C.M. Janczak, and D. Hanstorp, 39th Meeting of the Division of Atomic, Molecular and Optical Physics, State College, PA 2008.
56. “Inner Shell Studies in Transition Metal Negative Ions: d-shell Photoexcitation and Detachment”, R.C. Bilodeau, I. Dumitriu, N.D. Gibson, C.W. Walter, J.D. Bozek, Z.D. Pesic, D. Rolles and N. Berrah 38th Meeting of the Division of Atomic, Molecular and Optical Physics, Calgary, Alberta, Canada 2007.
55. “Photo double detachment of CN⁻: Electronic decay from an inner-valence hole in molecular anions”, R.C. Bilodeau, C.W. Walter, I. Dumitriu, N.D. Gibson, G.D. Ackerman, J.D. Bozek, B.S. Rude, R. Santra, L.S. Cederbaum and N. Berrah, 38th Meeting of the Division of Atomic, Molecular and Optical Physics, Calgary, Alberta, Canada 2007.
54. “Tunable Laser Photodetachment spectroscopy of Ce⁻”, N.D. Gibson, C.W. Walter, K.A. Starr, C.M. Janczak, D.A. Richardson, and P. Andersson, 38th Meeting of the Division of Atomic, Molecular and Optical Physics, Calgary, Alberta, Canada 2007.
53. “Photodetachment spectroscopy of Ce⁻”, N.D. Gibson, C.W. Walter, K.A. Starr, C.M. Janczak, D.A. Richardson, and P. Andersson, Gaseous Electronics Conference, Columbus, Ohio 10-13 October 2006.
52. “Near Threshold Inner-shell Photodetachment of Atomic Negative Ions: Post-collision Interactions and the validity of the Wigner Law,” R.C. Bilodeau, N. Berrah, I. Dumitriu, J.D. Bozek, G.D. Ackerman, C.W. Walter, N.D. Gibson and A. Aguilar, 37th Meeting of the Division of Atomic, Molecular and Optical Physics, Knoxville, TN 2006.

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51. "Photodetachment spectroscopy of Ce⁻", C.W. Walter, N.D. Gibson, K.A. Starr, C.M. Janczak, D.A. Richardson, and P. Andersson, 37th Meeting of the Division of Atomic, Molecular and Optical Physics, Knoxville, TN 2006.
50. "Inner-shell Photodetachment of Atomic Negative Ions," R.C. Bilodeau, N. Berrah, I. Dumitriu, N.D. Gibson, C.W. Walter, J.D. Bozek and G.D. Ackerman, 37th Meeting of the Division of Atomic, Molecular and Optical Physics, Knoxville, TN 2006.
49. "Absolute cross section measurements and high-resolution spectroscopy in double photodetachment," N.D. Gibson, C.W. Walter, R.C. Bilodeau, N. Berrah, G.D. Ackerman and J.D. Bozek. Advanced Light Source Users' Meeting, Berkeley, CA 20-22 October 2005.
48. "Photodetachment of Ce⁻", K.A. Starr, C.M. Janczak, D.A. Richardson, C.H. Mosier, C.W. Walter, N.D. Gibson and P. Andersson, Ohio Sectional Meeting of the American Physical Society, Columbus, Ohio, 14-15 October 2005. [Student presentation]
47. "Development of a negative ion beam apparatus", C.M. Janczak, K.A. Starr, D.A. Richardson, C.H. Mosier, C.W. Walter, N.D. Gibson and P. Andersson, Ohio Sectional Meeting of the American Physical Society, Columbus, Ohio, 14-15 October 2005. [Student presentation]
46. "Inner-shell Photodetachment from Li⁻ and C⁻", C. W. Walter, N.D. Gibson, R.C. Bilodeau, N. Berrah, J.D. Bozek, G. D. Ackerman, 36th Meeting of the Division of Atomic, Molecular and Optical Physics, Lincoln, Nebraska 17-21 May 2005.
45. "Absolute cross section measurements and high-resolution spectroscopy in double photodetachment from Li⁻," N.D. Gibson, C.W. Walter, R.C. Bilodeau, N. Berrah, G.D. Ackerman and J.D. Bozek. Advanced Light Source Users' Meeting, Berkeley, CA 18-20 October 2004.
44. "High-resolution spectroscopy and absolute cross section measurements in double photodetachment from Li⁻," N.D. Gibson, C.W. Walter, R.C. Bilodeau, N. Berrah, G.D. Ackerman and J.D. Bozek. International Conference on Atomic Physics Rio De Janero, Brazil 21-28 July 2004.
43. "Photodetachment of S⁻ and He⁻: Inner-shell Threshold Studies and High Charge State Formation," R.C. Bilodeau, N. Berrah, N.D. Gibson, C.W. Walter, G.D. Ackerman and J.D. Bozek. 35th Meeting of the Division of Atomic, Molecular and Optical Physics, Tucson, AZ 25-29 May 2004.
42. "High-resolution spectroscopy and absolute cross section measurements in double photodetachment from Li⁻," N.D. Gibson, C.W. Walter, R.C. Bilodeau, N. Berrah, G.D. Ackerman and J.D. Bozek. 35th Meeting of the Division of Atomic, Molecular and Optical Physics, Tucson, AZ 25-29 May 2004.
41. "Probing dynamics from within: K-shell photodetachment of atomic and cluster negative ions," N. Berrah, R.C. Bilodeau, J.D. Bozek, G. D. Ackerman, G. Turri, A. Aguilar, N.D. Gibson, W. Walter. XXIII International Conference on Photonic Electronic and Atomic Collisions. Stockholm, Sweden, 23-29 July 2003.
40. "K-Shell photodetachment from C⁻," N.D. Gibson, C.W. Walter, R.C. Bilodeau, A. Aquilar, G.D. Ackerman, J.D. Bozek, N. Berrah. XXIII International Conference on Photonic Electronic and Atomic Collisions. Stockholm, Sweden, 23-29 July 2003.
39. "Effects of static electric fields on negative ion resonances," C. W. Walter, K. A. Moore, J.M. Pyles, N.W. Chandler, N.D. Gibson. XXIII International Conference on Photonic Electronic and Atomic Collisions. Stockholm, Sweden, 23-29 July 2003.
38. "Effects of Electric Fields on Negatives Ion Resonances of He⁻, RB⁻, and Cs⁻," C.W. Walter, J.M. Pyles, N.W. Chandler, K.A. Moore, N.D. Gibson. 34th Meeting of the Division of Atomic, Molecular and Optical Physics, Boulder, Colorado, 20-24 May 2003.

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37. "K-Shell Photodetachment of Negatives Ions: C⁻," N.D. Gibson, C.W. Walter, R.C Bilodeau, N. Berrah, A. Aguilar, J.D. Bozek, G.D. Ackerman. 34th Meeting of the Division of Atomic, Molecular and Optical Physics, Boulder, Colorado, 20-24 May 2003.
36. Branching Fractions of Ionized Nickel," A. J. Abraham, C. P. Dangler and N. D. Gibson, Ohio Sectional Meeting of the American Physical Society, Columbus, Ohio, 18-19 October 2002. [Student presentation]
35. Branching Fractions of Neutral Cobalt," C. P. Dangler, A. J. Abraham and N. D. Gibson, Ohio Sectional Meeting of the American Physical Society, Columbus, Ohio, 18-19 October 2002. [Student presentation]
34. "K-Shell Photodetachment of Negatives Ions: C⁻," N. D. Gibson, C. W. Walter, J. D. Bozek, G. Akerman, B. Rude, M. Martins, G. Turri and N. Berrah, ALS Users Meeting, Berkeley, CA 10 - 12 October 2002.
33. "K-Shell Photodetachment of Negatives Ions: C⁻" N. D. Gibson, C. W. Walter, J. D. Bozek, G. Akerman, B. Rude, M. Martins, G. Turri and N. Berrah, Division of Atomic, Molecular and Optical Physics, Williamsburg, VA 28 May - 1 June 2002.
32. "Negative Ion Resonances in Electric Fields," C.W. Walter, K.A. Moore and N.D. Gibson, Division of Atomic, Molecular and Optical Physics, Williamsburg, VA 28 May - 1 June 2002.
31. "Negative Ion Resonances in Electric Fields," C.W. Walter, J.P. McClure, K.A. Moore, D.M. Phillips, N.D. Gibson, Ohio Sectional Meeting of the American Physical Society, Columbus, Ohio, 19-20 October 2001. [Student presentation]
30. "Determination of Branching Fractions of Co I Excited States," C. P. Dangler, A. J. Abraham and N. D. Gibson, Ohio Sectional Meeting of the American Physical Society, Columbus, Ohio, 19-20 October 2001. [Student presentation]
29. "K-Shell Double Photodetachment of Li⁻: Experiment and Theory," N. Berrah, J. D. Bozek, A. A. Wills, G. Turri, H. - L. Zhou, S. T. Manson, G. Akerman, B. Rude, N. D. Gibson, W. Walter, L. VoKy, A. Hibbert and S. Fergusson, ICPEAC, Santa Fe, New Mexico, 18-24 July 2001.
28. "Inner-Shell Photodetachment of Negatives Ions: Li⁻,J." D. Bozek, G. Akerman, B. Rude, G. Turri, N. D. Gibson, S. Fergusson, R. Phaneuf, A. A. Wills, W. Walter and N. Berrah, Division of Atomic, Molecular and Optical Physics, London, Ontario Canada 15-19 May 2001.
27. "Photodetachment Spectroscopy from negative ions in an electric field," N. D. Gibson, M. D. Gasda, K. A. Moore, D. A. Zawistowski and C. W. Walter, Division of Atomic, Molecular and Optical Physics, London, Ontario Canada 15-19 May 2001.
26. "Elemental Spectra: Ni II Branching Fractions," B. Hosterman and N. D. Gibson, Ohio Sectional Meeting of the American Physical Society, Toledo, Ohio, 13-14 October 2000. [Student presentation]
25. "Photodetachment Spectroscopy from negative ions in an electric field," N. D. Gibson, M. D. Gasda, K. A. Moore, D. A. Zawistowski and C. W. Walter, Ohio Sectional Meeting of the American Physical Society, Toledo, Ohio, 13-14 October 2000.
24. "Photodetachment from Negative Ions," Mike Gasda, N. D. Gibson and C. W. Walter. Ohio Sectional Meeting of the American Physical Society, Dayton, Ohio, 8-9 October 1999. [Student presentation]
23. "Branching Fractions of Ni II in the UV Region," Carrie Barnes and N. D. Gibson. Centennial Meeting of the American Physical Society, Atlanta, GA, 24 March 1999. [Student presentation]
22. "Self-Absorption Measurements of Optical Oscillator Strengths of Xenon Resonance Lines," N. D. Gibson, 6th International Colloquium on Atomic Spectra and Oscillator Strengths, Victoria, Canada 9-13 August 1998.
21. "Absolute Measurements of Optical Oscillator Strengths of Xe," N. D. Gibson, Division of Atomic, Molecular, and Optical Physics, Santa Fe, NM, 27-30 May 1998.
20. "Branching Fractions and Oscillator Strengths for Astrophysical Modeling," F. S. Sultan and N. D. Gibson, Ohio Sectional Meeting of the American Physical Society, Oxford, Ohio, 10-11 October 1997. [Student presentation]
19. "Experimental measurements of branching fractions - problems and potential solutions for forbidden spectral lines," N. D. Gibson, International Astronomical Union General Assembly, Kyoto, Japan, 18-30 August 1997.

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18. "The spatial profile and the 147 nm radiative efficiency of Xe Surface Wave Discharges," N.D. Gibson, U. Kortshagen, and J.E. Lawler. Division of Atomic, Molecular, and Optical Physics, Washington, DC, 17-21 April 1997.
17. "Radiative lifetimes of odd-parity levels in Cr I," J.C. Cooper, N. D. Gibson, and J.E. Lawler. Gaseous Electronics Conference, Argonne, IL, 21-24 October 1996.
16. "Investigations of the 147 nm radiative efficiency of Xe Surface Wave Discharges," N. D. Gibson, U. Kortshagen, and J.E. Lawler. Gaseous Electronics Conference, Argonne, IL, 21-24 October 1996.
15. "Radiative lifetimes of odd-parity levels in Cr I," J.C. Cooper, N. D. Gibson, and J.E. Lawler. Division of Atomic, Molecular, and Optical Physics, Ann Arbor, MI, 15-18 May 1996.
14. "Laboratory Observations of the $2s2p^3\ ^5S_2-2s^22p^2\ ^3P_{2,1}$ Forbidden Lines of N^+ ," J.J. Curry, N. D. Gibson, and J.E. Lawler. Division of Atomic, Molecular, and Optical Physics, Ann Arbor, MI, 15-18 May 1996.
13. "Characteristics of low pressure sulfur discharges." N. D. Gibson, U. Kortshagen, and J.E. Lawler. 10th APS Topical Conference on Atomic Processes in Plasmas, San Francisco, CA, 14-18 January 1996.
12. "On the E-H mode transition in Inductively Coupled rf discharges," U. Kortshagen, N. D. Gibson, and J.E. Lawler. Gaseous Electronics Conference, Berkeley, CA, 8-13 October 1995.
11. "Characteristics of low pressure sulfur discharges." N. D. Gibson, J.E. Lawler. International Conference On Plasma Science, Madison, WI, 8-10 June 1995.
10. "Absolute measurements of optical oscillator strengths of noble gas resonance lines," N. D. Gibson and J.S. Risley. Gaseous Electronics Conference, Gaithersburg, MD, 18-21 October 1994.
9. "Measurements of optical oscillator strengths of noble gas resonance lines," N. D. Gibson, N. Seifert, and J.S. Risley. Division of Atomic, Molecular, and Optical Physics, Crystal City, VA, 18-21 April 1994.
8. "Experimental determination of the $H(n=3)$ density matrices produced in electron-transfer collisions of protons on Kr atoms," N. Seifert, N. D. Gibson, and J.S. Risley. Division of Atomic, Molecular, and Optical Physics, Crystal City, VA, 18-21 April 1994.
7. "Photodetachment from negative ions in a Static Electric Field," N. D. Gibson, B.J. Davies, and D.J. Larson. ICPEAC XVIII, 21-27 July 1993, Aarhus, Denmark.
6. "P-wave photodetachment from Au^- in a Static Electric Field," N. D. Gibson, B.J. Davies, and D.J. Larson. Division of Atomic, Molecular, and Optical Physics, Reno, NV, 17-19 May 1993.
5. "Photodetachment from Cl^- and S^- in a Static Electric Field," N. D. Gibson, B.J. Davies, and D.J. Larson. Division of Atomic, Molecular, and Optical Physics, Chicago, IL, 20-22 May 1992.
4. "Stimulated Brillouin Scattering and Phase Conjugation of Hydrogen Fluoride Laser Radiation," W. T. Whitney, M. T. Duignan, K. J. Riley, D. J. Gerhardt, N. D. Gibson, and Barry J. Feldman. Conference on Lasers and Electro-Optics, 12-17 May 1991.
3. "Photodetachment in a Static Electric Field," N. D. Gibson, W.G. Sturru, and D.J. Larson, Bull. Am. Phys. Soc., 36, No. 4, 1376. Division of Atomic, Molecular, and Optical Physics, Washington, DC, 22-25 April 1991.
2. "Photodetachment in a Strong Microwave Field," N. D. Gibson, W.G. Sturru, D.J. Larson, "Abstracts of the Second International Conference on Laboratory Research for Planetary Atmospheres," Charlottesville, VA, 21-22 October 1990.
1. "Photodetachment in a Strong Microwave Field," M.C. Baruch, W.G. Sturru, N. D. Gibson, D.J. Larson, Bull. Am. Phys. Soc., 35, No. 5, 1151. Division of Atomic, Molecular, and Optical Physics, Monterey, CA, 21-23 May 1990.

STUDENT EVALUATION EXCERPTS

- “I think that Dr. Gibson really cares about his students.”
- “I’m not scared of physics anymore!”
- “You are a great teacher and I’ve learned from you both in and out of class.”
- “I think he’ll be an excellent addition to any physics department anywhere. He’s really help[ed] me to enjoy physics.”
- “Dr. Gibson is enthusiastic about teaching and has a genuine desire to help us learn.”
- “Dr. Gibson is clear in his teaching, clear in his expectations, and always willing to help out side of class. He’s always very well-prepared & ready to answer questions. Teaches in a clear & supportive fashion.”
- “What I liked best about your teaching is that it is informative, easy to understand, askable, and extremely patient.”
- “He seems very knowledgeable about Physics and interested in teaching the class.”
- “Dr. Gibson as an instructor was top-notch; he seemed to be communicating more with us on a peer-like basis.”
- “I feel that Dr. Gibson takes an interest in each of his students and tries to make physics interesting for everyone.”
- “Dr. Gibson takes great care to make sure everyone understands the material; offering optional class periods for further explanation, numerous examples of principles and access to additional study aids.”
- “I liked the closeness and discussion oriented classes.”
- “Change(d) my way of thinking not only in physics but also the view about the world.”

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DENISON STUDENT RESEARCH ADVISED

Student	Summer	Semesters	Culmination
Jacob Shapiro	2007 NSF		Ohio Five Research Symposium 2007 Poster: Infrared Photodetachment of Ce^- and As^-
Ali Sneddon	2006 Anderson 2007 Bowen Scholar		Trip to advanced light source to collect data Paper submitted to Physical Review A : “Infrared Photodetachment of Ce^- : Threshold Spectroscopy and Resonance Structure” Ohio Five Research Symposium 2007 Poster: Infrared Photodetachment of Ce^- and As^-
Richard Field	2006 NSF 2007 Anderson	2008-09 Fall and Spring Senior Thesis	Paper submitted to Physical Review A : “Infrared Photodetachment of Ce^- : Threshold Spectroscopy and Resonance Structure” Ohio Five Research Symposium 2007 Poster: Infrared Photodetachment of Ce^- and As^-
Corey Janczak	2004 NSF 2005 Anderson 2006 Anderson 2007 NSF	Summer 04 Fall 2004 Summer 05 Summer 06 Fall 06 Spring 07 Summer 07	Two trips to advanced light source to collect data Ohio Section American Physical Society Presentation, Fall 2005 Paper submitted to Physical Review A : “Infrared Photodetachment of Ce^- : Threshold Spectroscopy and Resonance Structure” <u>Invited Talk</u> : American Physical Society “ <i>Photodetachment Spectroscopy of Ce^-</i> ” June 2007
Mathew Bowers	2005 Anderson	Summer 05 Fall 05 Spring 2006	“A Causal Approach to Teaching Introductory Physics” American Association of Physics Teachers National meeting presentation, January 2006
Craig Moser	2004 NSF	Summer 04	Ohio Section American Physical Society Poster, Fall 2005
Keith Starr	2004 Anderson 2005 Anderson	Summer 04 Summer 05 Spring 2006	Trip to advanced light source to collect data Ohio Section American Physical Society Presentation, Fall 2005
David Richardson	2004 Anderson 2005 NSF	Summer 04 Summer 05	Ohio Section American Physical Society Presentation, Fall 2005
John Pyles	2002 Anderson		
Nate Chandler	2002 NSF 2003 NSF		Trip to advanced light source to collect data

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DENISON STUDENT RESEARCH CONTINUED

Akash Abraham	2001 Research Corp. 2002 Anderson	Fall 2001	Ohio Section American Physical Society Presentation, Fall 2001, Fall 2002
Chris Dangler	2001 Anderson 2002 Anderson	Fall 2001 Fall 2002	Ohio Section American Physical Society Presentation, Fall 2001, Fall 2002
Jason McClure	2001 NSF		
Demian Phillips	2001 NSF		
Cuyler Smith		Fall 2000 Spring 2001	<i>“Negative Ion Sputter Source: DUNIBA get a SNICS II,”</i> A-level Honors Project
David Zawistowski	2000 NSF		Ohio Sectional Meeting Fall 2000 DAMOP Presentation May 2001 Physical Review A paper 2001.
Kim Moore	2000 Anderson	Fall 2000	Ohio Sectional Meeting Fall 2000 DAMOP Presentation May 2001 <i>“The effects of electric fields on Negative Ion Photodetachment,”</i> A-level Honors Project Physical Review A paper 2001.
Mike Gasda	1999 Anderson 2000 NSF		Ohio Section American Physical Society Presentation, Fall 1999 Physical Review A paper 2001.
Brian Hosterman	1999 Anderson 2000 Anderson	Fall 1999 Fall 2000 Spring 2001	Ohio Sectional Meeting Presentation <i>“Elemental Spectra in the UV: Ni II and Co I Branching Fractions,”</i> A-level Honors Project
Carrie Barnes	1998 Anderson	Fall 1998 Spring 1999	American Physical Society Centennial Meeting presentation, competitive travel grant awarded, <i>“Branching Fractions of Ni II in the UV region,”</i> A-level Honors Project
Fahd Sultan	1997 Anderson 1998 DURF	Fall 1997	Ohio Section American Physical Society Presentation, Fall 1997