

W I L L I A M C S T W A L L E Y

Board of Trustees Distinguished Professor of Physics,
Affiliate Professor of Chemistry and Director
of the University of Connecticut Laser Facility,
University of Connecticut

I. Professional Preparation:

B. S. California Institute of Technology, 1964 (Chemistry)

Ph.D. Harvard University, 1969 (Physical Chemistry)

II. Professional Appointments:

Assistant Professor of Chemistry, University of Iowa, 1968-72

Associate Professor of Chemistry, University of Iowa, 1972-75

Professor of Chemistry, University of Iowa, 1975-93

Associate Program Director (Quantum Chemistry), National Science Foundation, 1975-76 (leave of absence)

Affiliate Professor of Physics, University of Iowa, 1977-93

Director, Iowa Laser Facility, 1978-93

Director, Center for Laser Science and Engineering, University of Iowa, 1987-89

George Glockler Professor of Physical Sciences, University of Iowa, 1988-93

Professor, Department of Physics, Affiliate Professor of Chemistry and Director of the Connecticut Laser Facility, University of Connecticut, 1993-present

Head, Department of Physics, 1993-2011

Board of Trustees Distinguished Professor of Physics, 2002-present

III. Research Interests:

Studies of ultracold atoms and molecules, especially photoassociation and formation and trapping of alkali dimer molecules; laser spectroscopy, photophysics and photochemistry; laser ionization; long range molecules and potential curves; radiative transition probabilities; quantum degenerate gases.

IV. Professional Experience:

A. Honors and Awards:

Leeds and Northrup Foundation Fellow, Harvard University, 1964-65
National Science Foundation Fellow, Harvard University, 1965-68
Alfred P. Sloan Fellow, 1972-74
Fellow, Japan Society for Promotion of Science, 1982
Fellow, American Physical Society, 1982-present
Fellow, Optical Society of America, 1988-present
George Glockler Professor of the Physical Sciences, University of Iowa, 1988-93
Fellow, Connecticut Academy of Science and Engineering, 1994-present
Fellow, Connecticut Academy of Arts and Sciences, 1995-present
William F. Meggers Award of the Optical Society of America, 1998
Chancellor's Research Excellence Award, University of Connecticut, 1999
Board of Trustees Distinguished Professor, University of Connecticut, 2002-present
Connecticut Medal of Science, 2005
Fellow, American Association for Advancement of Science, 2005-present
American Physical Society Outstanding Referee, 2008

B. Professional Societies:

i. American Physical Society:

a. Division of Chemical Physics:

Fellowship Nomination Committee, 1982-83

Secretary/Treasurer, 1984-90

b. Division of Electron and Atomic Physics/of Atomic, Molecular and Optical Physics:

Program Committee, 1981-83

Fellowship Nomination Committee, 1984-85

Program Committee, 1990-92

Vice Chair, 2005-06 (Chair-Elect in 2006-07, Chair 2007-08)

Nominating Committee, 2009-10 (Chair)

c. Topical Group on Laser Science/Division of Laser Science:

Steering Committee, 1985-86, 1987-92

Joint Council on Quantum Electronics, 1988-90, 1993-96, 2000-03
International Council on Quantum Electronics, 1988-90, 1993-96, 2000-03 (Chair, 2000-02)
Vice Chair/Chair/Ex-Chair, 1989-92
Fellowship Nomination Committee, 1991-92
Chair, Committee on the Future of the Interdisciplinary Laser Science Conference, 1992-93
Schawlow Prize Committee, 1998-00 (Chair 1999-00)
By Laws Committee, 1999-00
Nominating Committee, 2001, 2003-05

d. General

E. K. Plyler Prize Committee, 1982
Co-Organizer, Congressional Reception and Exhibit, April 1997
H. P. Broida Prize Committee, Vice Chair/Chair 2000-02, Chair 2013-15
I. I. Rabi Prize Committee, 2010-14

ii. American Chemical Society, Division of Physical Chemistry:

Executive Committee Member and Alternate Councilor, 1981-83
Chairman, Graduate Student Fellowship Program Committee, 1982-83

iii. Optical Society of America:

W. F. Meggers Award Committee, 1987-88
Fellows and Honorary Members Committee, 1990-92
Frederic Ives Medal/Jarus W. Quinn Endowment Committee, 2000-02 (Chair 2001-02)
Optical Society of America Traveling Lecturer, 2009-2012

iv. Other:

Committee on Photochemistry, Laser Institute of America, 1978-80
Economic Development Technical Board, Connecticut Academy of Science and Engineering, 2005-2010
Nominating Committee, Connecticut Academy of Science and Engineering, 1996-99 (Chair 1998-99)
Chair, Connecticut Medal of Science Selection Committee, 2007-2009

C. Professional Journals:

Editorial Board, University of Iowa Press, 1980-85

Editorial Advisory Board, Journal of Molecular Spectroscopy, 1982-87

Editor (USA), Laser Chemistry, 1985-90

Editorial Advisory Board, Chemical Physics Letters, 1986-99

Editorial Advisory Board, Physical Review A, 2000-02

Book Review Advisor, Physics Today, 2000-2010

Editorial Board, Springer Tracts in Modern Physics, 2010-present

D. Professional Meetings:

Chairman, 1978-80, and Vice Chairman, 1976-78, Gordon Conference on Atomic and Molecular Interactions

Co-Chairman, Gordon Conference on Nonlinear Optics and Lasers, 1977-79

Organizer, Laser-Induced Chemistry Symposium, American Chemical Society National Meeting, 1978

Organizer, Velasco Memorial Symposium on Alkali Metal Spectroscopy, Molecular Spectroscopy Symposium, 1978

Program Committee, International Quantum Electronics Conference, 1979-80, 1985-86, 1986-87

Program Committee, Sanibel Symposium on Quantum Fluids and Solids, 1978-80

Workshop on Uses of Free-Electron Lasers, Riva del Garda, Italy, 1979

Co-Organizer, Symposium on High Temperature Chemistry, American Chemical Society National Meeting, Atlanta, 1981

Program Committee, Lasers '81 Conference, New Orleans, 1981

Organizer, Symposium on Laser Spectroscopy of Small Molecules and Clusters, Lasers '81 Conference, New Orleans, 1981

Organizer, Session on Spin-Polarized Atoms, American Physical Society National Meeting, Dallas, 1982

Program Committee, Lasers '82 Conference, New Orleans, 1982

Organizer, Session on Diatomic Optically Pumped Lasers, Lasers '82 Conference, New Orleans, 1982

Co-Organizer, Session on Laser-Induced Chemistry, International Conference on Lasers and Electro-Optics, Los Angeles, 1983

Associate Program Chairman, Lasers '83 Conference, San Francisco, 1983

Program Chairman, Lasers '84 Conference, San Francisco, 1984

Co-Founder and Program Chair, International Laser Science Conference, 1984-85

Co-Chair, International Laser Science Conference, 1985-86

Chair, International Laser Science Conference, 1986-87

Administrative Vice-Chair, International/Interdisciplinary Laser Science Conference, 1987-91

Program Committee, Quantum Electronics and Laser Science Conference, 1991-92, 1998-99

Organizer, Symposia on Molecular Spectroscopy at Very Low Temperatures (2), Interdisciplinary Laser Science Conference, 1996

International Program Committee, International Conference on Spectral Line Shapes, 1998-2010

International Scientific Committee, Workshop on Cold Collisions: Formation of Cold Molecules, Les Houches, France, 1998-1999

Local Organizing Committee, DAMOP 2000, Storrs, 2000

Co-Organizer, Symposium (four days) on Very Low Temperature Spectroscopy and Dynamics, American Chemical Society Meeting, 2000

International Scientific Committee, Workshops on Ultracold Molecules, 2000-02

Organizer, Symposium on Ultracold Molecules, Interdisciplinary Laser Science Conference, 2001, 2002, 2006

General Committee, Gaseous Electronics Conference, 2004-06

Local Committee, International Conference on Atomic Physics 2008, 2006-08

Local Committee, Fall Meeting of the New England Section of the American Physical Society, 2007

Scientific Committee, Faraday Discussion 142 (Cold and Ultracold Molecules), 2007-2009

E. Federal Agencies:

Associate Program Director for Quantum Chemistry, National Science Foundation, 1975-76 (leave of absence)

National Science Foundation Coordinator, Workshop on the Laser Revolution in Energy-Related Chemistry, 1976

Consultant to the National Science Foundation on Laser Development and Applications, 1976-78

Ad Hoc Panel on Cooperative Efforts and Facilities for Research in Chemistry and Biological Chemistry, National Academy of Sciences, 1976

National Science Foundation Workshop on Theoretical Aspects of Laser Radiation and Its Interaction with Atomic and Molecular Systems, 1977

Committee on Atomic and Molecular Science, National Academy of Sciences/National Research Council, 1979-82

Army Research Office Chemistry Advisory Committee, National Academy of Sciences/National Research Council, 1981-84

Air Force Office of Scientific Research Chemistry Evaluation Panel, 1983-86

Chairman, Air Force Evaluation Panel on High Energy Density Materials, National Academy of Sciences/National Research Council, 1985-92

Committee on Line Spectra of the Elements - Atomic Spectroscopy, National Academy of Sciences/National Research Council, 1988-91

Committee on Atomic, Molecular and Optical Science, National Academy of Sciences/National Research Council, 1990-91, 1992-96 (Chair 1993-95)

Air Force Steering Committee on High Energy Density Materials, 1992-96

Organizing Committee, National Research Council Workshop on Data Base Needs for Plasma Processing of Materials, 1993-96

U.S. Civilian Research and Development Foundation Physics Review Panel, 1996, 2000, 2001 (Chair, Subcommittee on Atomic, Molecular and Optical Physics)

Review Panel for Physics Research Experience for Undergraduates Proposals, National Science Foundation, 1996, 1999, 2001

Review Panel for Atomic, Molecular and Optical Physics, National Science Foundation, 2002

F. National Laboratories:

Consultant on National Resource for Computation in Chemistry proposal, Argonne National Laboratory, 1976

Consultant on National Resource for Computation in Chemistry proposal, Lawrence Berkeley Laboratory, 1976

Consultant and Chemistry Program Review Team Member, Chemistry and Material Science Department, Lawrence Livermore Laboratory, 1978-87

Participant, Workshop to Explore Uses of the Laser Irradiation System at the National Laser Users Facility, University of Rochester, 1979

Health Sciences Research Division Panel, Oak Ridge National Laboratory, 1993-97 (Chair 1994-97)

National Institute of Standards and Technology Physics Review Panel, National Academy of Sciences/National Research Council, 2004-2010

G. International Professional Activities:

Fellow, Japan Society for Promotion of Science, 1982

Visiting Lecturer, Chinese Academy of Sciences, 1986

National Science Foundation Sponsored Lecturer, India, 1988

Visiting Lecturer in Chemistry, National Science Council of Taiwan, 1989

Review Panel, Ontario Laser and Lightwave Research Centre, 1993-96

International Assessors Committee for Review of Canadian Physics Research (Chair, Subcommittee on General Physics), 1997

Review Panel for Reallocation for the Natural Sciences and Engineering Research Council of Canada, 1998

Visiting Professor, National Science Council of Taiwan, 1999

Scientific Program Team, European Community Research Training Network on Cold Molecules, 2002-07

Italian Research and University Evaluation Agency (ANVUR) 2004-present

Member, Physics Evaluation Group, National Science and Engineering Research Council of Canada, 2010-2011

Member, College of Reviewers of Canadian Research Chairs Program, 2010-12

C.N. Yang Visiting Professor of Physics, Chinese University of Hong Kong, 2013-14

H. Other Professional Activities:

Laser/Electro-Optics Technology Advisory Committee, Indian Hills Community College (Ottumwa, Iowa), 1985-91

President's Task Force on University Strategies for Future Development of the State, University of Iowa, 1986

Professional Advisory Board, Iowa City Area Science Center, 1990-93

Board of Directors, Iowa City Area Science Center, 1992-93

Institute of Materials Science Faculty Advisory Board, University of Connecticut, 1997-2011

Chair, University of Connecticut Organizing Committee for Hascoe Distinguished Lectures, 1997-2011

University of Connecticut University Senate, 2001-07, 2008-14

University of Connecticut Board of Trustees Distinguished Professor Selection Committee, 2003-06

University of Connecticut President's Research Administration Committee, 2003-06

University of Connecticut Master Plan Advisory Committee 2004-06

University of Connecticut Buildings and Grounds Committee, 2005-2013

University of Connecticut Foundation, Close-to-Home Committee, 2006-present (Co-Chair 2009-12)

School of Engineering Endowed Chair/Professor Review Committees 2006-2011

Chair, University of Connecticut Academic Program Subcommittee, and member, Steering Committee, NEASC Reaccreditation 2005-07

Major Centers and Institutes Review Committee, 2005-present

Chair, University of Connecticut Dean of Engineering Search Committee, 2006-07

Vice President for Research and Graduate Education Search Committee, 2007-08

Provost's Commission on the Status of Women, 2008-11; Provost's Commission on Institutional Diversity, 2011-12(disbanded)

University of Connecticut Provost's Review Committee for the Institute of Materials Sciences Director, 2008

Board of Trustees Financial Affairs Committee, 2008-2012

University of Connecticut Space Committee, 2009-11

University of Connecticut Board of Trustees Buildings, Grounds, and Environment Committee, 2012-14

Record of Publications of William C. Stwalley

1. W.C. Stwalley, A. Niehaus and D.R. Herschbach, "Velocity Dependence of Total Cross Section for Scattering of Hydrogen Atoms from Mercury," Proceedings of the Vth International Conference on Physics of Electronic and Atomic Collisions (Nauka Press, Leningrad, 1967), p. 639-641.
2. W.C. Stwalley and H.L. Kramer, "Long-Range Interactions of Mercury Atoms," *J. Chem. Phys.* **49**, 5555-5556(1968).
3. W.C. Stwalley, A. Niehaus and D.R. Herschbach, "Hydrogen-Atom Scattering: Velocity Dependence of Total Collision Cross Sections for Rare Gases and Molecular Hydrogen," *J. Chem. Phys.* **51**, 2287-2288 (1969).
4. W.C. Stwalley, "The Observability of Orbiting Resonances," Proceedings of the VIth International Conference on Physics of Electronic and Atomic Collisions (MIT Press, Cambridge, Massachusetts, 1969), p. 51-54.
5. W.C. Stwalley, "The Dissociation Energy of the Hydrogen Molecule Using Long-Range Forces," *Chem. Phys. Lett.* **6**, 241-244(1970).
6. W.C. Stwalley, "Long-Range Analysis of the Internuclear Potential of Mg₂," *Chem. Phys. Lett.* **7**, 600-602(1970).
7. W.C. Stwalley, "Polarizability and Long-Range Interactions of Magnesium Atoms," *J. Chem. Phys.* **54**, 4517-4518(1971).
8. W.C. Stwalley, "Semiempirical Correlation of Potential Parameters," *J. Chem. Phys.* **55**, 170-175(1971).
9. W.C. Stwalley, "On LeRoy's Assignment of a O_g⁺ State in Molecular Iodine," *J. Chem. Phys.* **56**, 680-681(1972).
10. W.C. Stwalley, "RKR Potential Curves Directly from a Single Resonance Fluorescence Doublet Series," *J. Chem. Phys.* **56**, 2485-2486(1972).
11. W.C. Stwalley, "Potential Energy Curve of the B¹Σ_u⁺ State of H₂," *J. Chem. Phys.* **58**, 536-540 (1973).
12. W.C. Stwalley, "A Semiclassical Inversion Procedure for the Internuclear Distance Dependence of Diatomic Properties," *Chem. Phys. Lett.* **19**, 337-339(1973).
13. W.C. Stwalley, "Expectation Values of the Kinetic and Potential Energy of a Diatomic Molecule," *J. Chem. Phys.* **58**, 3867-3870(1973).
14. A.C. Allison and W.C. Stwalley, "Comment on Continuity at the Dissociation Threshold in Molecular Absorption," *J. Chem. Phys.* **58**, 5187-5188(1973).
15. W.C. Stwalley, "A Potential Inversion Procedure for Orbiting Resonances," Proceedings of the VIIIth International Conference on Physics of Electronic and Atomic Collisions (Belgrade, Yugoslavia, 1973), p. 40-41.

16. K.C. Li and W.C. Stwalley, "Vibrational Levels Near Dissociation in Mg₂ and Long-Range Forces," J. Chem. Phys. **59**, 4423-4427(1973).
17. K.R. Way and W.C. Stwalley, "Accurate Dissociation Energies from Rotational Predissociation and Long-Range Forces," J. Chem. Phys. **59**, 5298-5303(1973).
18. W.C. Stwalley, "Atom-Atom Interactions from Spectroscopy," in D.W. Smith and W.B. McRae, editors, Energy, Structure and Reactivity (Wiley, New York, 1973), p. 259-274.
19. W.C. Stwalley, K.R. Way and R. Velasco, "Dissociation Energies of ⁷LiD," J. Chem. Phys. **60**, 3611-3612(1974).
20. W.C. Stwalley, "Higher-Order Long-Range Interactions Between Rare Gas and Hydrogen Atoms," J. Chem. Phys. **61**, 3840-3841(1974).
21. K.R. Way, S.C. Yang and W.C. Stwalley, "A High-Intensity Superthermal Source of Hydrogen Atoms," Proceedings of the IXth International Conference on the Physics of Electronic and Atomic Collisions (University of Washington Press, Seattle, 1975), p. 957-958.
22. W.C. Stwalley, J.B. Togeas, K.R. Way, K.C. Li, T.R. Proctor and W.T. Zemke, "Total Scattering Cross Sections Calculated from Nonscattering Information," Proceedings of the IXth International Conference on the Physics of Electronic and Atomic Collisions (University of Washington Press, Seattle, 1975), p. 1005-1006.
23. W.C. Stwalley, "Mass-Reduced Quantum Numbers: Application to the Isotopic Mercury Hydrides," J. Chem. Phys. **63**, 3062-3080(1975).
24. W.C. Stwalley, A. Niehaus and D.R. Herschbach, "Hydrogen-Atom Scattering: Energy Dependence of the Total Cross Section for Mercury," J. Chem. Phys. **63**, 3081-3084(1975).
25. W.C. Stwalley and L.H. Nosanow, "Possible "New" Quantum Systems," Phys. Rev. Lett. **36**, 910-913(1976).
26. W.C. Stwalley and W.T. Zemke, "The Radiative Properties of Long-Range Molecules," Intl. J. Quantum Chem. **S10**, 223-225(1976).
27. W.C. Stwalley, "The Dissociation Energy of ⁷Li₂," J. Chem. Phys. **65**, 2038-2040(1976).
28. K.R. Way, S.C. Yang and W.C. Stwalley, "An Arc-Heated, High Intensity Source of Hydrogen Atoms," Rev. Sci. Instrum. **47**, 1049-1055(1976).
29. W.C. Stwalley, "Stability of Spin Aligned Hydrogen at Low Temperatures and High Magnetic Fields: New Field Dependent Scattering Resonances and Predissociations," Phys. Rev. Lett. **37**, 1628-1631(1976).
30. T.R. Proctor and W.C. Stwalley, "The Long-Range Interaction of S-State Alkali Atoms with Rare Gas and Hydrogen Atoms," J. Chem. Phys. **66**, 2063-2073(1977).

31. W.C. Stwalley, W.T. Zemke, K.R. Way, K.C. Li and T.R. Proctor, "The Potential Energy Curves of the $X^1\Sigma^+$ and $A^1\Sigma^+$ States of LiH," J. Chem. Phys. **66**, 5412-5415(1977); Erratum **67**, 4785(1977).
32. W.C. Stwalley, "Predicted Stability Conditions for Gaseous Spin-Aligned Atoms," in S.B. Trickey, E.D. Adams and J.W. Dufty, editors, Quantum Fluids and Solids (Plenum, New York, 1977), p. 293-298.
33. W.C. Stwalley, "Observations on State-Resolved Cross Sections for Long-Range Molecules," P.R. Brooks and E.F. Hayes, editors, ACS Symposium Series **56**, 247-249(1977).
34. K.C. Li and W.C. Stwalley, "The $A^1\Sigma^+ \rightarrow X^1\Sigma^+$ Bands of the Isotopic Lithium Hydrides," J. Mol. Spectrosc. **69**, 294-318(1978).
35. W.C. Stwalley, "Long-Range Molecules," Contemp. Phys. **19**, 65-80(1978).
36. C.Y.R. Wu, J.B. Crooks, S.C. Yang, K.R. Way and W.C. Stwalley, "A Li/Li₂ Supersonic Nozzle Beam," Rev. Sci. Instrum. **49**, 380-382(1978).
37. Y.K. Hsieh, S.C. Yang, A.C. Tam and W.C. Stwalley, "The Potential Energy Curves of the $X^1\Sigma^+$ and $A^1\Sigma^+$ States of CsH," J. Chem. Phys. **68**, 1448-1452(1978).
38. G. Das, A.C. Wahl, W.T. Zemke and W.C. Stwalley, "Accurate Ab Initio Potential Curves for the $X^2\Sigma^+$, $A^2\Pi_u$, $a^4\Sigma_u^-$ and $^2\Sigma_u^-$ States of the O₂⁻ Ion," J. Chem. Phys. **68**, 4252-4259(1978).
39. W.T. Zemke and W.C. Stwalley, "Radiative Transition Probabilities for the $A^1\Sigma^+ - X^1\Sigma^+$ Bands of ⁷LiH," J. Chem. Phys. **68**, 4619-4627(1978).
40. W.T. Zemke, J.B. Crooks and W.C. Stwalley, "Radiative and Nonradiative Lifetimes for Vibrational Levels of the $A^1\Sigma^+$ State of ⁷LiH," J. Chem. Phys. **68**, 4628-4630(1978).
41. T.R. Proctor and W.C. Stwalley, "The Long-Range Interactions of Metastable Helium Atoms (2^1S , 2^3S) with Rare Gas and Hydrogen Atoms," J. Chem. Phys. **68**, 5292(1978).
42. W.T. Zemke, K.R. Way and W.C. Stwalley, "Radiative Transition Probabilities for the $B^1\Pi - X^1\Sigma^+$ and $B^1\Pi - A^1\Sigma^+$ Bands of ⁷LiH," J. Chem. Phys. **69**, 402-408(1978).
43. W.T. Zemke and W.C. Stwalley, "Radiative Lifetimes for Vibrational Levels of the $B^1\Pi$ State of ⁷LiH," J. Chem. Phys. **69**, 409-410(1978).
44. J.B. Crooks, K.R. Way, S.C. Yang, C.Y.R. Wu and W.C. Stwalley, "Photon and Positive Ion Production from Collisions of Superthermal Hydrogen Atoms with Lithium Atoms and Molecules," J. Chem. Phys. **69**, 490-491(1978).
45. W.C. Stwalley, S.C. Yang, Y.K. Hsieh, F.B. Orth and K.C. Li, "The Dissociation Energy of CsH," J. Chem. Phys. **69**, 1791-1792(1978).
46. C.Y.R. Wu, W.C. Stwalley and T.R. Proctor, "Long-Range Interactions of the Thallium $7^2S_{1/2}$ State and Broadening and Shift of the Thallium Violet and Green Lines by Rare Gases," J. Chem. Phys. **69**, 4238-4240(1978).

47. C.Y.R. Wu and W.C. Stwalley, "Calculated Pressure Broadening and Shift for Alkali Atoms Perturbed by Rare Gases: Two Photon S-S Transitions," *Phys. Rev. A* **18**, 1066-1071(1978).
48. C.Y.R. Wu and W.C. Stwalley, "Calculated Pressure Effects on Spectral Lines for Long-Range Interatomic Potentials: Rb and Cs with Heavy Rare Gases," *J. Quant. Spectrosc. Radiat. Transfer* **20**, 211-215(1978).
49. W.C. Stwalley, "A Proposed Production Method for Spin-Aligned Hydrogen," *J. de Physique* **39**, C6-108 - C6-109(1978).
50. W.C. Stwalley, "Spin-Aligned Hydrogen," in T.N. Veziroglu and W. Seifritz, editors, Hydrogen Energy System (Pergamon Press, Oxford, 1978), Volume 3, p. 1209-1213.
51. W.C. Stwalley, "Laser Manipulation of Metallic Vapors," in Radiation Energy Conversion in Space, K.W. Billman, editor, Volume 61 of *Progress in Astronautics and Aeronautics* (1978), p. 593-601.
52. W.C. Stwalley, Y.H. Uang and G. Pichler, "Pure Long-Range Molecules," *Phys. Rev. Lett.* **41**, 1164-1167(1978).
53. K.C. Li and W.C. Stwalley, "Mass-Reduced Quantum Numbers: Application to the Isotopic Lithium Hydrides ($X^1\Sigma^+$)," *J. Chem. Phys.* **70**, 1736-1744(1979).
54. F.B. Orth and W.C. Stwalley, "New Spectroscopic Analyses of the $A^1\Sigma^+ - X^1\Sigma^+$ Bands of ^7LiH ," *J. Mol. Spectrosc.* **76**, 17-38(1979).
55. T.R. Proctor and W.C. Stwalley, "Simple Approximations for the Long-Range Interactions of S-State Alkali Atoms with Rare Gas and Hydrogen Atoms," *Molec. Phys.* **37**, 1969-1974(1979).
56. M.E. Koch, W.C. Stwalley and C.B. Collins, "The Observation of Bound-Free-Bound Triplet Absorption Bands in Li_2 ," *Phys. Rev. Lett.* **42**, 1052-1054(1979).
57. F.B. Orth, W.C. Stwalley, S.C. Yang and Y.K. Hsieh, "New Spectroscopic Analyses and Potential Energy Curves for the $X^1\Sigma^+$ and $A^1\Sigma^+$ States of NaH ," *J. Mol. Spectrosc.* **79**, 314-322(1980).
58. W.C. Stwalley and M.E. Koch, "Alkali Metal Vapors: Laser Spectroscopy and Applications," *Optical Engineering* **19**, 71-84(1980).
59. G. Das, W.T. Zemke and W.C. Stwalley, "The Unusual Behavior of the $A^2\Pi_u$ State of the O_2^- Ion," *J. Chem. Phys.* **72**, 2327-2331(1980).
60. S.C. Yang, Y.K. Hsieh, K.K. Verma and W.C. Stwalley, "The RKR Potential Energy Curves for the $X^1\Sigma^+$ and $A^1\Sigma^+$ States of KH ," *J. Mol. Spectrosc.* **83**, 304-310(1980).
61. Y.K. Hsieh, S.C. Yang, A.C. Tam, K.K. Verma and W.C. Stwalley, "The RKR Potential Energy Curves for the $X^1\Sigma^+$ and $A^1\Sigma^+$ States of RbH ," *J. Mol. Spectrosc.* **83**, 311-316(1980).
62. R.W.H. Webeler, R.F. Ferrante and W.C. Stwalley, "The University of Iowa Apparatus for Production of Stabilized Atomic Hydrogen," *J. de Physique* **41**, C7-161 - C7-162(1980).

63. W.C. Stwalley, Y.H. Uang, R.F. Ferrante and R.W.H. Webeler, "Theoretical Issues Concerning the Stability of Electron Spin-Polarized Hydrogen," *J. de Physique* **41**, C7-27 - C7-31(1980).
64. Y.H. Uang and W.C. Stwalley, "Effective Range Theory and Many-Body Perturbation Theory Applied to Electron Spin-Polarized Atomic Hydrogen ($H\uparrow$)," *J. de Physique* **41**, C7-33 - C7-38(1980).
65. Y.H. Uang and W.C. Stwalley, "Close-Coupling Calculations of Spin-Polarized Hydrogen-Deuterium Collisions," *Phys. Rev. Lett.* **45**, 627-630(1980).
66. W.T. Zemke and W.C. Stwalley, "Radiative Transition Probabilities, Lifetimes and Dipole Moments for All Vibrational Levels in the $X^1\Sigma^+$ State of ^7LiH ," *J. Chem. Phys.* **73**, 5584-5590(1980).
67. S.C. Yang, Y.K. Hsieh, A.C. Tam, W.T. Zemke, K.K. Verma and W.C. Stwalley, "An Investigation of the Transition Moment of the $A^1\Sigma^+ - X^1\Sigma^+$ Bands of CsH ," *J. Chem. Phys.* **75**, 3679-3683(1981).
68. Y.H. Uang, R.F. Ferrante and W.C. Stwalley, "Hyperfine Potential Energy Curves of the Heteronuclear Diatomics HD, DT and HT in an External Magnetic Field," *J. Chem. Phys.* **74**, 6256-6266(1981).
69. K.K. Verma, T.H. Vu and W.C. Stwalley, "New Observations and Analyses of the Laser-Excited Fluorescence of the $A^1\Sigma_u^+ - X^1\Sigma_g^+$ Bands of the Na_2 Molecule," *J. Mol. Spectrosc.* **85**, 131-149(1981).
70. W.T. Zemke, K.K. Verma, T.H. Vu and W.C. Stwalley, "An Investigation of the Radiative Transition Probabilities of the $A^1\Sigma_u^+ - X^1\Sigma_g^+$ Bands of Na_2 ," *J. Mol. Spectrosc.* **85**, 150-176(1981).
71. Y.H. Uang, R.F. Ferrante and W.C. Stwalley, "Model Calculation of Magnetic-Field-Induced Perturbations and Predissociations in $^6\text{Li}^7\text{Li}$ Near Dissociation," *J. Chem. Phys.* **74**, 6267-6270(1981).
72. K.K. Verma, W.C. Stwalley and W.T. Zemke, "Assignment of the Li_2 Optically Pumped Laser Transitions Pumped by the Ar^+ and Kr^+ Laser Lines," *J. Appl. Phys.* **52**, 3821-3826(1981).
73. K.K. Verma, W.C. Stwalley and W.T. Zemke, "Optically Pumped Laser Lines of Na_2 Pumped by Kr^+ (6471 Å) and HeNe (6328 Å) Lasers: Identification of Old Lines and Prediction of Possible New Lines," *J. Appl. Phys.* **52**, 5419-5425(1981).
74. C.Y.R. Wu and W.C. Stwalley, "Calculated Pressure Broadening and Shift for the Sodium Atom Perturbed by Rare Gases: II. Two-Photon $3S-nS$ Transitions ($n = 6-9$)," *Phys. Rev. A* **24**, 1117-1119(1981).
75. K.K. Verma, M.E. Koch and W.C. Stwalley, "New Observations and Mass-Reduced Analyses of the Laser Excited Fluorescence of the $B^1\Pi_u - X^1\Sigma_g^+$ Bands of the $^6\text{Li}^7\text{Li}$ Molecule," *J. Mol. Spectrosc.* **87**, 548-559(1981).
76. G. Ennen, Ch. Ottinger, K.K. Verma and W.C. Stwalley, "The $C^1\Pi_u - X^1\Sigma_g^+$ Fluorescence of Li_2 Excited by Ultraviolet Lines of an Argon Ion Laser," *J. Mol. Spectrosc.* **89**, 413-420(1981).

77. H. Partridge, S.R. Langhoff, W.C. Stwalley and W.T. Zemke, "Theoretical Study of the Dipole Moment Function of the $A^1\Sigma^+$ State of LiH," J. Chem. Phys. **75**, 2299-2305(1981).
78. K.K. Verma, J.T. Bahns and W.C. Stwalley, "Laser Induced Fluorescence in Na_2 to Bound Vibrational Levels of the Entire Potential Well and to the Continuum," J. Phys. Chem. **85**, 2884-2886(1981).
79. K.K. Verma, T.H. Vu and W.C. Stwalley, "Reanalysis of the $C^1\Pi_u$ State of Na_2 Based on UV Argon Ion Laser Fluorescence," J. Mol. Spectrosc. **91**, 325-347(1982).
80. W.C. Stwalley, M.E. Koch and K.K. Verma, "An Overview of Alkali Metal Vapor Applications," J.L. Gole and W.C. Stwalley, editors, ACS Symposium Series **179**, 397-405(1982).
81. S.C. Yang and W.C. Stwalley, "Ionic-Covalent Interactions in the Alkali Hydrides," J.L. Gole and W.C. Stwalley, editors, ACS Symposium Series **179**, 241-254(1982).
82. C.R. Vidal and W.C. Stwalley, "The $A^1\Sigma^+ - X^1\Sigma^+$ System of the Isotopic Lithium Hydrides: The Molecular Constants, Potential Energy Curves, and Their Adiabatic Corrections," J. Chem. Phys. **77**, 883-898(1982).
83. W.C. Stwalley, "Simple Long-Range Model and Scaling Relations for the Binding of Isotopic Hydrogen Atoms to Isotopic Helium Surfaces," Chem. Phys. Lett. **88**, 404-408(1982).
84. Y.H. Uang and W.C. Stwalley, "The Possibility of a $^4\text{He}_2$ Bound State, Effective Range Theory, and Very Low Energy He-He Scattering," J. Chem. Phys. **76**, 5069-5072(1982).
85. A. Rajaei-Rizi, J.T. Bahns, K.K. Verma and W.C. Stwalley, "Optically Pumped Ring Laser Oscillation in the $^6\text{Li}_2$ Molecule," Appl. Phys. Lett. **40**, 869-871(1982).
86. G.A. Baker, M. de Llano, J. Pineda and W.C. Stwalley, "Redetermination of Hard Core Square Well Potential Parameters for Helium using New Constructive Methods for the Ground State of Liquid Helium," Phys. Rev. B **25**, 481-482(1982).
87. K.K. Verma and W.C. Stwalley, "Determination of the Ground State Potential Energy Curve of ^6LiH up to Dissociation," J. Chem. Phys. **77**, 2350-2354(1982).
88. A. Rajaei-Rizi, J.T. Bahns, K.K. Verma and W.C. Stwalley, "New Optically Pumped Alkali Metal Dimer Lasers," Proceedings of the Lasers '81 Conference, p. 447-449(1982).
89. W.T. Zemke, K.K. Verma and W.C. Stwalley, "Calculation of Radiative Transition Probabilities and Lifetimes," Proceedings of the Lasers '81 Conference, p. 216-231(1982).
90. W.C. Stwalley, K.K. Verma, A. Rajaei-Rizi, J.T. Bahns and D.R. Harding, "Determination of Accurate Dissociation Limits and Interatomic Interactions at Large Internuclear Distances," Proceedings of the Lasers '81 Conf., p. 205-215(1982).
91. K.K. Verma and W.C. Stwalley, "Coupled Laser-Induced Fluorescence Series (CLIFS) in $^7\text{Li}_2$," Optics Commun. **43**, 185-188(1982).

92. T.H. Vu, M.E. Koch and W.C. Stwalley, "Determination of the Absolute Concentration of Na₂ by Laser-Induced Fluorescence with Photon Counting," *High Temperature Science* **15**, 311-319(1982).
93. K.K. Verma, M.E. Koch and W.C. Stwalley, "Observation of Levels Near Dissociation in the X¹Σ_g⁺ State of ⁷Li₂," *J. Chem. Phys.* **78**, 3614-3622(1983).
94. K.K. Verma, J.T. Bahns, A.R. Rajaei-Rizi, W.C. Stwalley and W.T. Zemke, "First Observation of Bound-Continuum Transitions in the Laser-Induced A-X Fluorescence of Na₂," *J. Chem. Phys.* **78**, 3599-3613(1983).
95. J.T. Bahns, K.K. Verma, A.R. Rajaei-Rizi and W.C. Stwalley, "Optically Pumped Ring Laser Oscillation to Vibrational Levels Near Dissociation and to the Continuum in Na₂," *Appl. Phys. Lett.* **42**, 336-338(1983).
96. R.F. Ferrante and W.C. Stwalley, "Spin-Polarized Atomic Nitrogen and the ⁷Σ_u⁺ State of N₂," *J. Chem. Phys.* **78**, 3107-3111(1983).
97. S.C. Yang, D.D. Nelson and W.C. Stwalley, "The Dissociation Energies of the Diatomic Alkali Hydrides," *J. Chem. Phys.* **78**, 4541-4543(1983).
98. W.C. Stwalley, "A Hybrid Laser-Magnet Trap for Spin-Polarized Atoms," in Laser-Cooled and Trapped Atoms (Proceedings of the Workshop on Spectroscopic Applications of Slow Atom Beams, held at NBS, Gaithersburg, Maryland, April 14-15, 1983), W.C. Phillips, National Bureau of Standards, editor (U.S.) Spec. Publ. 653 (1983), p. 95-102.
99. T.H. Vu, K.K. Verma and W.C. Stwalley, "Laser-Induced Fluorescence of Na₂ at the Na (3s → 5s) Two Photon Transition," *J. Mol. Spectrosc.* **100**, 429-436(1983).
100. M.E. Koch, K.K. Verma, J.T. Bahns and W.C. Stwalley, "Laser-Induced Plasmas in Alkali Metal Vapors," *Proceedings of the Lasers '82 Conference*, p. 119-123(1983).
101. J.T. Bahns, A.R. Rajaei-Rizi, K.K. Verma, F.B. Orth and W.C. Stwalley, "New Alkali Metal Dimer Optically Pumped Lasers," *Proceedings of the Lasers '82 Conference*, p. 713-720(1983).
102. Y.C. Chan and W.C. Stwalley, "Gas Phase Equilibria of Isotopic Lithium Systems. I. Pure Lithium," *J. Chem. Thermodynamics* **15**, 989-993(1983).
103. Y.C. Chan and W.C. Stwalley, "Gas Phase Equilibria of Isotopic Lithium Systems. II. Lithium and Hydrogen," *J. Chem. Thermodynamics* **15**, 995-1000(1983).
104. D.R. Harding and W.C. Stwalley, "Analysis of the B¹Π_u ← X¹Σ_g⁺ Band System of ⁷Li₂ Molecule Excited by the 4545 and 5287 Å Visible Lines of the Argon Ion Laser," *J. Mol. Spectrosc.* **102**, 67-78(1983).
105. W.T. Luh and W.C. Stwalley, "The X¹Σ⁺, A¹Π and B¹Σ⁺ Potential Energy Curves and Spectroscopy of BH," *J. Mol. Spectrosc.* **102**, 212-223(1983).

106. F.R. Ornellas, W.C. Stwalley and W.T. Zemke, "Radiative Transition Probabilities, Lifetimes and Dipole Moments for All Vibrational Levels in the $X^1\Sigma^+$ State of the Beryllium Hydride Ion," *J. Chem. Phys.* **79**, 5311-5315(1983).
107. C.R. Vidal and W.C. Stwalley, "Potential Energy Curves and Adiabatic Corrections of Weakly Bound States: Application to the LiH $B^1\Pi$ State," *J. Chem. Phys.* **80**, 2697-2703(1984).
108. W.T. Zemke, R.E. Olson, K.K. Verma, W.C. Stwalley and B. Liu, "Dipole Moment and Potential Energy Functions of the $X^1\Sigma^+$ and $A^1\Sigma^+$ States of NaH," *J. Chem. Phys.* **80**, 356-364(1984).
109. J.T. Bahns and W.C. Stwalley, "Observation of Gain in the Violet Bands of Sodium Vapor," *Appl. Phys. Lett.* **44**, 826-828(1984).
110. W.C. Stwalley, "A Hybrid Laser-Magnet Trap for Spin-Polarized Atoms," *Prog. Quant. Electr.* **8**, 203-208(1984).
111. W.T. Zemke and W.C. Stwalley, "Program Intensity," *Bulletin Quantum Chemistry Program Exchange* **4**, 79(1984).
112. G. Gutierrez, M. de Llano and W.C. Stwalley, "Accurate Direct Determination of Effective Range Expansion Parameters for Several Central Potentials," *Phys. Rev. B* **29**, 5211-5212(1984).
113. A.R. Rajaei-Rizi, F.B. Orth, J.T. Bahns and W.C. Stwalley, " $A^1\Sigma_u^+$ - $X^1\Sigma_g^+$ and $B^1\Pi_u$ - $X^1\Sigma_g^+$ Fluorescence of $^6\text{Li}_2$ and $^6\text{Li}^7\text{Li}$," *J. Mol. Spectrosc.* **109**, 123-133(1985).
114. P.D. Kleiber, A.M. Lyyra, S.P. Heneghan and W.C. Stwalley, "Stimulated Emission in Laser Pumped Magnesium Vapor," *J. Opt. Soc. Am. B* **2**, 522-526(1985).
115. W.T. Luh, V. Zafirooulos, P.D. Kleiber, W.C. Stwalley and S.P. Heneghan, "Fluorescence of Na_2 and K_2 Excited by a Gold Vapor Laser," *J. Mol. Spectrosc.* **111**, 327-343(1985).
116. P.D. Kleiber, A.M. Lyyra, K.M. Sando, S.P. Heneghan and W.C. Stwalley, "Far-Wing Absorption Profiles of a Reactive Collision: $\text{Mg} + \text{H}_2$," *Phys. Rev. Lett.* **54**, 2003-2006(1985).
117. G. Pichler, J.T. Bahns and W.C. Stwalley, "Study of the Shape of the Lithium Diffuse Band by Single and Double Photon Excitation," in Spectral Line Shapes, Volume 3, F. Rostas, editor (de Gruyter, Berlin, 1985), p. 659-660.
118. G. Pichler, J.T. Bahns, K.M. Sando, W.C. Stwalley, D.D. Konowalow, L. Li, R.W. Field and W. Müller, "Electronic Assignment of the Violet Bands of Sodium," *Chem. Phys. Lett.* **129**, 425-428(1986).
119. W.C. Stwalley and M. de Llano, "Connection Between Few-Body Systems and the Bulk Limit," *Z. Physik D.* **2**, 153-156(1986).
120. G. Pichler, J.T. Bahns, K.M. Sando, W.C. Stwalley, W. Müller, D.D. Konowalow, L. Li and R.W. Field, "Electronic Assignments of the Violet Bands of Sodium," in Advances in Laser Science - I, W.C. Stwalley and M. Lapp, editors (American Institute of Physics, New York, 1986), p. 160-161.

121. G. Chawla, H.S. Schweda, H.J. Vedder, R.W. Field, S. Churassy, A.M. Lyyra, W.T. Luh and W.C. Stwalley, "Long Range Potential of the $A^1\Sigma_u^+$ State of Na_2 Using Modulated Gain Spectroscopy," in Advances in Laser Science - I, W.C. Stwalley and M. Lapp, editors (American Institute of Physics, New York, 1986), p. 466-467.
122. P.D. Kleiber, A.M. Lyyra, K.M. Sando, V. Zafirooulos and W.C. Stwalley, "Dynamics of Reactive Collisions by Far Wing Laser Light Scattering," in Advances in Laser Science - I, W.C. Stwalley and M. Lapp, editors (American Institute of Physics, New York, 1986), p. 535-536.
123. M.A. DeFaccio, S.J. Davis, D.I. Rosen, W.C. Stwalley and D.O. Ham, "New Heat Pipe Oven Devices for Broadband Excitation Laser Studies," in Advances in Laser Science - I, W.C. Stwalley and M. Lapp, editors (American Institute of Physics, New York, 1986), p. 165-166.
124. K.-H. Yang, W.C. Stwalley, S.P. Heneghan, J.T. Bahns, K.-K. Wang and T.R. Hess, "Examination of Effects of TEM_{01}^* -Mode Laser Radiation in the Trapping of Neutral Potassium Atoms," *Phys. Rev. A* **34**, 2962-2967(1986).
125. G.W. Kentwell, H. Hora, J.P. Sheerin, W.C. Stwalley and J.C. Wang, "A Laser Amplifier Based on Conversion of Particle Beam Kinetic Energy into Optical Energy," in Laser Interaction and Related Plasma Phenomena, Volume 7, H. Hora and G.H. Miley, editors (Plenum, New York, 1986), p. 109-117.
126. H. Hora, W.C. Stwalley, P.D. Kleiber, J.T. Bahns and J.S. Sheerin, "Laser Resonance Induced Plasma with Extreme Properties of Collective Coupling and Possibilities of Quasi-Superconductivity," in Laser Interaction and Related Plasma Phenomena, Volume 7, H. Hora and G.H. Miley, editors (Plenum, New York, 1986), p. 271-277.
127. R.F. Ferrante and W.C. Stwalley, "Improved Predictions of Equilibrium Properties for Spin-Polarized Atomic Nitrogen," *J. Chem. Phys.* **85**, 1201-1202(1986).
128. W.C. Stwalley, "Spectroscopy of Alkali Metal Vapors under Conditions of Interest for Solar Plasma Propulsion," in Proceedings of the Workshop on Solar Plasma Propulsion, C. William Larson, editor, (Dayton, January 1986), p. 109-165.
129. P.D. Kleiber, A.M. Lyyra, K.M. Sando, V. Zafirooulos and W.C. Stwalley, "Reactive Collision Dynamics by Far Wing Laser Scattering: $Mg + H_2$," *J. Chem. Phys.* **85**, 5493-5504(1986).
130. Y.C. Chan, D.R. Harding, W.C. Stwalley and C.R. Vidal, "Inverted Perturbation Approach (IPA) Potentials and Adiabatic Corrections of the $X^1\Sigma^+$ State of the Lithium Hydrides to Near the Dissociation Limits," *J. Chem. Phys.* **85**, 2436-2444(1986).
131. W.T. Luh, J.T. Bahns, K.M. Sando, W.C. Stwalley, S.P. Heneghan, K.P. Chakravorty, G. Pichler and D.D. Konowalow, "Interference Continuum Fluorescences of K_2 ," *Chem. Phys. Lett.* **131**, 335-338 (1986).
132. W.T. Zemke, R.E. Olson, K.K. Verma, W.C. Stwalley and B. Liu, "Erratum: Dipole Moment and Potential Energy Functions of the $X^1\Sigma^+$ and $A^1\Sigma^+$ States of NaH [*J. Chem. Phys.* **80**, 356(1984)]," *J. Chem. Phys.* **85**, 4209-4210(1986).

133. G.W. Kentwell, H. Hora, J.P. Sheerin, W.C. Stwalley and J.C. Wang, "A New X-Ray Amplifier Pumped by the Kinetic Energy of Clusters," *J. de Physique* **47**, C6-165-170(1986).
134. H. Hora, P.J. Clark, J.C. Kelly, G.W. Kentwell, J.P. Sheerin, R.J. Stening, W.C. Stwalley and J.-C. Wang, "Free Electron Lasers without Magnetic Wiggler Field and Laser Amplifier with Pumping by the Kinetic Energy of Clusters for the Visible, Ultraviolet and X-Ray Range," in Proceedings of the 6th International Conference on High-Power Particle Beams, C. Yamanaka, editor, (ILE, Osaka University, Japan, 1986), p. 490-494.
135. W.T. Luh, J.T. Bahns, K.M. Sando, A.M. Lyyra, P.D. Kleiber and W.C. Stwalley, "Studies of the Diffuse Bands of K_2 , Rb_2 and Cs_2 ," Advances in Laser Science - II, M. Lapp, W.C. Stwalley and G. Kenney-Wallace, editors, (American Institute of Physics, New York, 1987), p. 381-385.
136. K.-H. Yang, X. Zeng and W.C. Stwalley, "Progress Toward an Alexandrite Laser Trap for Potassium Atoms," Advances in Laser Science - II, M. Lapp, W.C. Stwalley and G. Kenney-Wallace, editors, (American Institute of Physics, New York, 1987), p. 335-336.
137. W.C. Stwalley, "Large Hydrogen Cluster Ions," in Proceedings of the Workshop on Cooling, Condensation and Storage of Hydrogen Cluster Ions, J.T. Bahns, editor, (University of Dayton Research Institute, Dayton, Ohio, 1987), p. 39-43.
138. W.C. Stwalley, "Bibliography of Hydrogen Cluster Ions," in Proceedings of the Workshop on Cooling, Condensation and Storage of Hydrogen Cluster Ions, J.T. Bahns, editor, (University of Dayton Research Institute, Dayton, Ohio, 1987), p. 393-433.
139. A.M. Lyyra, P.D. Kleiber, K.M. Sando and W.C. Stwalley, "Reactive Collision Dynamics of the Collision System $Mg + H_2$ Using Far Wing Laser Scattering," in Photons and Continuum States of Atoms and Molecules, N.K. Rahman, C. Guidotti and M. Allegrini, editors (Springer-Verlag, Berlin, 1987), p. 158-165.
140. W.T. Luh, K.M. Sando, A.M. Lyyra and W.C. Stwalley, "Free-Bound-Free Resonance Fluorescence in the K_2 Yellow Diffuse Band: Theory and Experiment," *Chem. Phys. Lett.* **144**, 221-225(1988).
141. W.T. Luh, J.T. Bahns, A.M. Lyyra, K.M. Sando, P.D. Kleiber and W.C. Stwalley, "Direct Excitation Studies of the Diffuse Bands of Alkali Metal Dimers," *J. Chem. Phys.* **88**, 2235-2241(1988).
142. W.T. Luh, J.T. Bahns and W.C. Stwalley, "New Optically Pumped Lasers in the $B^1\Pi_u - X^1\Sigma_g^+$ and $A^1\Sigma_u^+ - X^1\Sigma_g^+$ Bands of Li_2 ," *J. Mol. Spectrosc.* **128**, 82-87(1988).
143. W.T. Zemke and W.C. Stwalley, "Accurate Dissociation Energies for the $X^1\Sigma^+$ States of KH and CsH," *Chem. Phys. Lett.* **143**, 84-90(1988).
144. W.T. Luh, P.D. Kleiber, A.M. Lyyra, W.C. Stwalley and K.C. Lin, "Laser-Induced Fluorescence of the $B^1\Pi - X^1\Sigma^+$ Band System of the Isotopic Lithium Hydrides," *J. Mol. Spectrosc.* **129**, 388-394(1988).
145. P.D. Kleiber, A.M. Lyyra, K.M. Sando, A.K. Fletcher, V. Zafirooulos, and W.C. Stwalley, "Far Wing Laser Absorption as a Probe of Reactive Collision Dynamics," in Advances in Laser Science

- III, A. Tam., J. Gole and W.C. Stwalley, editors, (American Institute of Physics, New York, 1988), p. 378-381.
146. W.C. Stwalley, "The Synthesis of Large Cluster Ions from Elementary Constituents: A Possible Route to Bulk Antimatter," in Proceedings of the Rand Corporation Workshop on Antiproton Science and Technology, B.W. Augenstein, B.E. Bonner, F.E. Mills and M.M. Nieto, editors (World Scientific, Singapore, 1988), p. 373-392.
 147. V. Zafirooulos, P.D. Kleiber, K.M. Sando, X. Zeng, A.M. Lyyra, and W.C. Stwalley, "Energy Dependent Photodissociation Dynamics Probed by Fluorescence Polarization," *Phys. Rev. Lett.* **61**, 1485-1488(1988).
 148. K.C. Lin, P.D. Kleiber, J.X. Wang, W.C. Stwalley and S.R. Leone, "Alignment Effects in Ca-He ($5^1P_1 - 5^3P_1$) Energy Transfer Collisions by Far Wing Laser Scattering," *J. Chem. Phys.* **89**, 4771-4776(1988).
 149. L. Li, A.M. Lyyra and W.C. Stwalley, "Absolute Vibrational Numbering and Molecular Constants of the Na_2 $1^3\Delta_g$ State," *J. Mol. Spectrosc.* **134**, 113-118(1989).
 150. J.T. Bahns, W.C. Stwalley and G. Pichler, "The 458 nm Diffuse Band of the Lithium Dimer," *J. Chem. Phys.* **90**, 2841-2847(1989).
 151. X. Xie, R.W. Field, L. Li, A.M. Lyyra, J.T. Bahns and W.C. Stwalley, "The Absolute Vibrational Numbering and Molecular Constants of the Na_2 $2^3\Pi_g$ State," *J. Mol. Spectrosc.* **134**, 119-128(1989).
 152. J.T. Bahns and W.C. Stwalley, "Possible Synthesis of Large Cluster Ions of Antimatter and the Role of Dissociative Recombination," in Dissociative Recombination: Theory, Experiment and Applications, J.B.A. Mitchell and S. Guberman, editors (World Scientific, Singapore, 1988), p. 222-245.
 153. J.T. Bahns, M.E. Koch and W.C. Stwalley, "Laser-Induced Plasmas in Alkali Metal Vapors," in L. Tanovic, N. Konjevic and N. Tanovic, editors, The Physics of Ionized Gases (Nova Science Publishers, New York, 1989), p. 503-515.
 154. J.T. Bahns, M.E. Koch and W.C. Stwalley, "Laser-Induced Plasmas in Metal Vapors," *Laser and Particle Beams* **7**, 545-550(1989).
 155. V. Zafirooulos, P.D. Kleiber, K.M. Sando, X.Z. Zeng, A.M. Lyyra and W.C. Stwalley, "Polarization Studies as a Probe of Photodissociation Dynamics," in Advances in Laser Science - IV, J. Gole, D. Heller and W.C. Stwalley, editors, (American Institute of Physics, New York, 1989), p. 602-606.
 156. K.C. Lin, S. Ananthamurthy, P.D. Kleiber, J.X. Wang, W.C. Stwalley and S.R. Leone, "Alignment Effects in Ca - He($5^1P_1 - 5^3P_1$) Energy Transfer Half-Collisions," in Advances in Laser Science - IV, J. Gole, D. Heller and W.C. Stwalley, editors, (American Institute of Physics, New York, 1989), p. 630-633.

157. W.C. Stwalley, "Bound-Continuum Transitions in Diatomic Molecules," in Advances in Laser Science - IV, J. Gole, D. Heller and W.C. Stwalley, editors, (American Institute of Physics, New York, 1989), p. 536-547.
158. A.M. Lyyra, H. Wang, L. Li, W.T. Luh, V. Zafirooulos and W.C. Stwalley, "OODR Fluorescence and Polarization Spectroscopy of K_2 : Rydberg States and the $A^1\Sigma_u^+$ State," in Advances in Laser Science - IV, J. Gole, D. Heller and W.C. Stwalley, editors, (American Institute of Physics, New York, 1989), p. 572-577.
159. X. Xie, R.W. Field, L. Li, A.M. Lyyra, J.T. Bahns and W.C. Stwalley, "The Absolute Vibrational Numbering and Molecular Constants of the Na_2 $2^3\Pi_g$ and $1^3\Delta_g$ States," in Advances in Laser Science - IV, J. Gole, D. Heller and W.C. Stwalley, editors, (American Institute of Physics, New York, 1989), p. 569-571.
160. S. Ananthamurthy, P.D. Kleiber, W.C. Stwalley and K.C. Lin, "Alignment Effects in Ca-He ($5^1P_1 - 5^3P_1$) Energy Transfer Half-Collisions," *J. Chem. Phys.* **90**, 7605-7606(1989).
161. G. Pichler, A.M. Lyyra, P.D. Kleiber, W.C. Stwalley, R. Hammer, K.M. Sando and H.H. Michels, "Laser Induced Chemiluminescence of the LiMg Excimer," *Chem. Phys. Lett.* **156**, 467-471(1989).
162. H. Wang, L. Li, A.M. Lyyra and W.C. Stwalley, "CW Optical-Optical Double Resonance Excitations of $^{39}K_2$ Rydberg States," *J. Mol. Spectrosc.* **137**, 304-311(1989).
163. K.-Y. Hsu, L.-D. Chen, M. Lyyra and W.C. Stwalley, "Development of Li_2 LIF Thermometry for Liquid-Metal Combustion Studies," in Proceedings of the 1990 Spring Technical Meeting of the Central States Section of the Combustion Institute (The Combustion Institute, 1990), p. 241-246.
164. A.M. Lyyra, W.T. Luh, L. Li, H. Wang and W.C. Stwalley, "The $A^1\Sigma_u^+$ State of the Potassium Dimer," *J. Chem. Phys.* **92**, 43-50(1990).
165. M. Masters, J. Huennekens, W.-T. Luh, L. Li, A.M. Lyyra, K. Sando, V. Zafirooulos and W.C. Stwalley, "Bound-Free $1^3\Pi \rightarrow 1^3\Sigma^+$ Emission from the NaK Molecule: Determination of the $1^3\Sigma^+$ Repulsive Wall Above the Dissociation Limit," *J. Chem. Phys.* **92**, 5801-5813(1990).
166. L. Li, A.M. Lyyra, W.T. Luh and W.C. Stwalley, "Observation of the $^{39}K_2$ $a^3\Sigma_u^+$ State by Perturbation Facilitated Optical-Optical Double Resonance (PFOODR) Resolved Fluorescence Spectroscopy," *J. Chem. Phys.* **93**, 8452-8463(1990).
167. M.A. Solis, M. Fortes, E. Buendia, R. Guardiola, C.S. Ho, M. de Llano and W.C. Stwalley, "Zero-Temperature Properties of a Spin-Polarized Atomic Hydrogen Fluid," *Rev. Mex. Fis.* **36**, 294-309(1990).
168. G. Jong, W.C. Stwalley and W.T. Zemke, "The RKR Potential Energy Curve for the $2^3\Pi_1$ State of CsH," *J. Mol. Spectrosc.* **143**, 336-345(1990).
169. J.X. Wang, P.D. Kleiber, K.M. Sando and W.C. Stwalley, "Fine Structure Branching in the Near Threshold Photodissociation of $NaK(X^1\Sigma^+ - B^1\Pi)$," *Phys. Rev. A* **42**, 5352-5356(1990).
170. W.-T. Luh and W.C. Stwalley, "Radiative Lifetimes of Ro-Vibrational Levels of the BH $A^1\Pi$ State," *J. Mol. Spectrosc.* **145**, 200-209(1991).

171. T.-J. Whang, H. Wang, A.M. Lyyra, L. Li and W.C. Stwalley, "Optical-Optical Double Resonance Spectroscopy of the Na₂ 2¹Π_g State," J. Mol. Spectrosc. **145**, 112-122(1991).
172. L. Li, A.M. Lyyra, W.C. Stwalley, M. Li and R.W. Field, "The Na₂ 4¹Σ_g⁺ ~ 2³Π_g ~ 1³Δ_g Triple Perturbation: Deperturbation of the (v_Σ, v_Π, v_Δ) = (6, 2, 7) and (7, 3, 8) Interactions," J. Mol. Spectrosc. **147**, 215-228(1991).
173. W.C. Stwalley, W.T. Zemke and S.C. Yang, "Spectroscopy and Structure of the Alkali Hydride Diatomic Molecules and Their Ions," J. Phys. Chem. Ref. Data **20**, 153-187(1991).
174. W.T. Zemke, W.C. Stwalley, J.A. Coxon and P.G. Hajigeorgiou, "Improved Potential Energy Curves and Dissociation Energies for HF, DF and TF," Chem. Phys. Lett. **177**, 412-418(1991).
175. L. Li, H. Wang, A.M. Lyyra and W.C. Stwalley, "Highly State-Selective Collisional Energy Transfer between ¹Δ_g and ¹Σ_g⁺ Rydberg States in K₂," Chem. Phys. Lett. **179**, 417-421(1991).
176. W.C. Stwalley, "The Future of Lasers and Laser Applications," Jour. Iowa Acad. Sci. **98**, 79-81(1991).
177. W.C. Stwalley, "Review of Laser Development and Physical Principles," Seminars in Interventional Radiology **8**, 89-93(1991).
178. H. Wang, T.-J. Whang, A.M. Lyyra, L. Li and W.C. Stwalley, "Study of the 4¹Σ_g⁺ "Shelf" State of Na₂ by Optical-Optical Double Resonance (OODR) Spectroscopy," J. Chem. Phys. **94**, 4756-4764(1991).
179. A.M. Lyyra, H. Wang, T.-J. Whang, L. Li and W.C. Stwalley, "CW All-Optical Triple Resonance (AOTR) Spectroscopy," Phys. Rev. Lett. **66**, 2724-2727(1991).
180. W.C. Stwalley, P.D. Kleiber, K.M. Sando, A.M. Lyyra, L. Li, S. Ananthamurthy, S. Bililign, H. Wang, J.-X. Wang and V. Zafirooulos, "Metal-Metal and Metal-Hydrogen Reactive Transition States," Faraday Disc. Chem. Soc. **91**, 97-110(1991).
181. J.-X. Wang, H. Wang, P.D. Kleiber, A.M. Lyyra and W.C. Stwalley, "State-Selected Photodissociation of the B¹Π_u State of K₂ by All-Optical Triple Resonance Spectroscopy," J. Phys. Chem. **95**, 8040-8044(1991).
182. P.D. Kleiber, J.-X. Wang, K.M. Sando, V. Zafirooulos and W.C. Stwalley, "Photodissociation of K₂ (X¹Σ_g⁺ - B¹Π_u)," J. Chem. Phys. **95**, 4168-4176(1991).
183. T.B. Colin, K.-H. Yang and W.C. Stwalley, "The Effect of Mode Distribution on Evanescent Field Intensity: Applications in Optical Fiber Sensors," Applied Spectroscopy **45**, 1291-1295(1991).
184. T.-J. Whang, A.M. Lyyra, W.C. Stwalley and L. Li, "The Na₂ 2³Δ_g State: CW Perturbation-Facilitated Optical-Optical Double Resonance Spectroscopy," J. Mol. Spectrosc. **149**, 505-511(1991).
185. W.T. Zemke, W.C. Stwalley, S.R. Langhoff, G.L. Valderrama and M.J. Berry, "Radiative Transition Probabilities Among Vibrational-Rotational Levels of the X¹Σ⁺ State of HF," J. Chem. Phys. **95**, 7846-7853(1991).

186. W.C. Stwalley, "Nonlinear Optical Processes in Alkali Metal Vapors," in Proceedings of the Xth International Vavilov Conference on Nonlinear Optics (Novosibirsk, USSR, June 1991).
187. W.C. Stwalley, "An Introduction to Bound-Continuum Transition Probabilities in Diatomic Molecules," in Advances in Atomic and Molecular Physics (Proceedings of the Seventh Indian National Workshop on Atomic and Molecular Physics), M.S.Z. Chaghtai, editor (Today and Tomorrow's Printers and Publishers, New Delhi, 1992), p. 213-218.
188. K.H. Strobl, T.L. Bahns, L. Willham, S.E. Bishara and W.C. Stwalley, "Laser-Aided Debonding of Orthodontic Ceramic Brackets," *American J. of Orthodontics and Dentofacial Orthodontics* **101**, 152-158(1992).
189. L. Li, T. An, T.-J. Whang, A.M. Lyyra, W.C. Stwalley, R.W. Field and R.A. Bernheim, "Hyperfine Splitting of the Triplet Rydberg States of Li_2 ," *J. Chem. Phys.* **96**, 3342-3343(1992).
190. T.-J. Whang, W.C. Stwalley, A.M. Lyyra and L. Li, "Perturbation-Facilitated All-Optical Triple Resonance Spectroscopy of the Na_2 $b^3\Pi_u$ State," *J. Chem. Phys.* **97**, 7211-7219(1992).
191. L. Li, Q. Zhu, A.M. Lyyra, T.-J. Whang, W.C. Stwalley, R.W. Field and M.H. Alexander, "Collision-Induced Transitions Between the $A^1\Sigma_u^+$ and $b^3\Pi_u$ States of Na_2 : The "Gateway" Effect of Perturbed Levels," *J. Chem. Phys.* **97**, 8835-8841(1992).
192. H. Wang, W.C. Stwalley and A.M. Lyyra, "Assignment of the Diabatic and Adiabatic Atomic Asymptotic Limits of the K_2 Rydberg States," *J. Chem. Phys.* **96**, 7965-7972(1992).
193. X. Li, S. Milosevic, G. Pichler, J.T. Bahns and W.C. Stwalley, "Quantum Simulation of Bound-Free Spectra: Lithium Dimer $2^3\Pi_g - 1^3\Sigma_u^+$ Transition," *Z. Phys. D.* **23**, 165-170(1992).
194. G. Jong, H. Wang, C.C. Tsai, W.C. Stwalley and A.M. Lyyra, "The Study of the $^{39}\text{K}_2$ Rydberg $^1\Delta_g$ States by CW Optical-Optical Double Resonance Spectroscopy," *J. Mol. Spectrosc.* **154**, 324-344(1992).
195. G. Jong, L. Li, T.J. Whang, W.C. Stwalley, M. Li, J. Coxon and A.M. Lyyra "CW All Optical Triple Resonance Spectroscopy of K_2 : Deperturbation Analysis of the $A^1\Sigma_u^+$ State ($v \leq 12$) and $b^3\Pi_u$ ($13 \leq v \leq 24$) States," *J. Mol. Spectrosc.* **155**, 115-135(1992).
196. K. Habib, G. Carmichael, R. Lakes and W.C. Stwalley, "Technique for Measuring Stress Corrosion Cracking of Metallic Electrodes in Aqueous Solutions: Theory and Applications," Paper 202, Proceedings of the National Association of Corrosion Engineers (NACE) Corrosion '92 Meeting (Nashville, April 1992), p. 354-362.
197. T.B. Colin, K.H. Yang, M.A. Arnold, G.W. Small and W.C. Stwalley, "The Effect of Length and Diameter on the Signal to Noise Ratio of Evanescent Field Absorption Fiber Optic Sensors," *Appl. Spectrosc.* **46**, 1129-1133(1992).
198. G. Jong and W.C. Stwalley, "Investigation of the $v \leq 12$ Levels of the K_2 (5d) $^1\Pi_g$ State by CW Optical-Optical Double Resonance Spectroscopy," *J. Mol. Spectrosc.* **154**, 229-232(1992).
199. T.-J. Whang, W.C. Stwalley, L. Li and A.M. Lyyra, "Observations of the $3(3d)^3\Sigma_g^+$ State of Na_2 ," *J. Mol. Spectrosc.* **155**, 184-194(1992).

200. C.-C. Tsai, J.T. Bahns and W.C. Stwalley, "Shielded Cylindrical Space-Charge-Limited Diode Ionization Detector," *Rev. Sci. Instrum.* **63**, 5576-5581(1992).
201. T.-J. Whang, W.C. Stwalley, L. Li and A.M. Lyyra, "The Na₂ 4³Σ_g⁺ State," *J. Mol. Spectrosc.* **157**, 544-547(1993).
202. W.C. Stwalley and W.T. Zemke, "Spectroscopy and Structure of the Lithium Hydride Diatomic Molecules and Ions," *J. Phys. Chem. Ref. Data.* **22**, 87-112(1993).
203. W.C. Stwalley and J.T. Bahns, "Atomic, Molecular and Photonic Processes in Metal Vapor Laser-Induced Plasmas," in *Physics of High Power Laser Matter Interactions*, S. Nakai and G.H. Miley, editors, (World Scientific, Singapore, 1992), p. 185-191.
204. W.C. Stwalley and J.T. Bahns, "Atomic, Molecular and Photonic Processes in Laser-Induced Plasmas in Alkali Metal Vapors," *Laser and Particle Beams* **11**, 185-204(1993).
205. L.N. Ding, M.A. Young, P.D. Kleiber, W.C. Stwalley and A.M. Lyyra, "Photofragmentation Spectroscopy of MgD₂⁺," *J. Phys. Chem.* **97**, 2181-2185(1993).
206. W.T. Zemke and W.C. Stwalley, "Analysis of Long-Range Dispersion and Exchange Interactions of Two Li Atoms," *J. Phys. Chem.* **97**, 2053-2058(1993).
207. M.A. Solis, R. Guardiola, M. de Llano, M. Fortes and W.C. Stwalley, "Quantum Thermodynamic Perturbation Study of Spin-Polarized Boson Fluids," *J. Phys.: Condens. Matter* **5**, 5783-5794(1993).
208. L. Li, Q. Zhu, A.M. Lyyra, T.-J. Whang, W.C. Stwalley, R.W. Field and M.H. Alexander, "Rotational Energy Transfer in the Na₂ b³Π_u State: Propensity Rules for Rotation, Spin-Orbit Component, and e/f-Parity Changing Collisions," *J. Chem. Phys.* **98**, 8406-8412(1993).
209. L. Li, Q. Zhu, A.M. Lyyra, T.-J. Whang, W.C. Stwalley, R.W. Field and M.H. Alexander, "Rotational Energy Transfer in the Na₂ b³Π_u State: Propensity Rules for Transitions Between Hyperfine Components," *J. Chem. Phys.* **98**, 8413-8418(1993).
210. C.-C. Tsai, J.T. Bahns, H. Wang, W.C. Stwalley and A.M. Lyyra, "Optical-Optical Double Resonance Spectroscopy of the ¹Σ_g⁺ "Shelf" States and ¹Π_g States of Na₂ Using an Ultrasensitive Ionization Detector," *Phys. Rev. Lett.* **71**, 1152-1155(1993).
211. C.-C. Tsai, T.-J. Whang, J.T. Bahns and W.C. Stwalley, "The 3¹Σ_g⁺ "Shelf" State of Na₂," *J. Chem. Phys.* **99**, 8480-8488(1993).
212. T.-J. Whang, C.-C. Tsai, W.C. Stwalley, A.M. Lyyra and L. Li, "Spectroscopic Study of the Na₂ 2³Σ_g⁺ State by CW Perturbation-Facilitated Optical-Optical Double Resonance Spectroscopy," *J. Mol. Spectrosc.* **160**, 411-421(1993).
213. L.N. Ding, P.D. Kleiber, M.A. Young, W.C. Stwalley and A.M. Lyyra, "Photodissociation Spectroscopy of Mg₂⁺ (X²Σ_u⁺ → A²Σ_g⁺)," *Phys. Rev. A* **48**, 2024-2030(1993).
214. P.D. Kleiber, W.C. Stwalley and K.M. Sando, "Scattering-State Spectroscopy as a Probe of Molecular Dynamics," *Ann. Rev. Phys. Chem.* **44**, 13-35(1993).

215. C.-C. Tsai, J.T. Bahns and W.C. Stwalley, "First Observation of the Quasibound Levels and Tunneling Line Broadening in the $3^1\Pi_g$ State of Na_2 Using an Ultrasensitive Ionization Detector," *J. Chem. Phys.* **99**, 7417-7423(1993).
216. L.N. Ding, M.A. Young, P.D. Kleiber, and W.C. Stwalley, "Photofragmentation Spectroscopy of Mg_2CO_2^+ ," *Chem. Phys. Lett.* **212**, 499-504(1993).
217. B. Ji, A. Yiannopoulou, P.D. Kleiber, A.M. Lyyra and W.C. Stwalley, "Final State Alignment from the Quantum-State-Selected Photodissociation of K_2 by All-Optical Triple Resonance Spectroscopy," *Phys. Rev. A* **49**, R1535-R1538(1994).
218. W.T. Zemke and W.C. Stwalley, "Analysis of Long Range Dispersion and Exchange Interactions Between Two Na Atoms," *J. Chem. Phys.* **100**, 2661-2670(1994).
219. A.J. Moerdijk, W.C. Stwalley, R.G. Hulet and B.J. Verhaar, "Negative Scattering Length of Ultracold ^7Li Gas," *Phys. Rev. Lett.* **72**, 40-43 (1994).
220. C.-C. Tsai, J.T. Bahns and W.C. Stwalley, "Optical-Optical Double Resonance Spectroscopy of the $5^1\Sigma_g^+$ "Shelf" State of Na_2 Using an Ultrasensitive Ionization Detector," *J. Chem. Phys.* **100**, 768-774(1994).
221. C.-C. Tsai, J.T. Bahns, T.-J. Whang and W.C. Stwalley, "Optical-Optical Double Resonance Spectroscopy of the $2^1\Pi_g$ State of Na_2 Using an Ultrasensitive Ionization Detector," *J. Mol. Spectrosc.* **167**, 437-449(1994).
222. C.-C. Tsai, J.T. Bahns and W.C. Stwalley, "Optical-Optical Double Resonance Spectroscopy of the $6^1\Sigma_g^+$ "Shelf" State of Na_2 Using an Ultrasensitive Ionization Detector," *J. Mol. Spectrosc.*, **167**, 429-436(1994).
223. C.-C. Tsai, J.T. Bahns, H. Wang, T.-J. Whang and W.C. Stwalley, "Optical-Optical Double Resonance Spectroscopy of the $4^1\Sigma_g^+$ "Shelf" State of Na_2 Using an Ultrasensitive Ionization Detector," *J. Chem. Phys.* **101**, 25-30(1994).
224. W.T. Zemke, C.-C. Tsai and W.C. Stwalley, "Analysis of Long Range Dispersion and Exchange Interactions Between Two K Atoms," *J. Chem. Phys.* **101**, 10382-10387(1994).
225. A. Yiannopoulou, B. Ji, Li Li, M. Li, K. Urbanski, A.M. Lyyra, W.C. Stwalley and G.-H. Jeung, "The Doubly Excited $1^3\Sigma_g^-$ State of $^7\text{Li}_2$," *J. Chem. Phys.* **101**, 3581-3587(1994).
226. L.-T.S. Lin, M.A. Prelas, Z. He, J.T. Bahns, W.C. Stwalley, G.H. Miley, E.G. Batyrbekov, V.R. Shaban and M. Petra, "Design of an ICF Plant Using a Nuclear-Driven Solid State Laser," in 11th International Workshop on Laser Interaction and Related Plasma Phenomena, (AIP Conference Proceedings #318, 1994), p. 446-447.
227. A.M. Lyyra, P.D. Kleiber and W.C. Stwalley, "All-Optical Triple Resonance: Spectroscopy and State-Selected Photodissociation Dynamics," in Molecular Dynamics and Spectroscopy by Stimulated Emission Pumping, H.L. Dai and R.W. Field, editors (World Scientific, Singapore, 1995), p. 459-490.

228. B. Ji, P.D. Kleiber, W.C. Stwalley, A. Yiannopoulou, A.M. Lyyra and P.S. Julienne, "Quantum State-Selected Photodissociation of K_2 ($B^1\Pi_u \leftarrow X^1\Sigma_g^+$): A Case Study of Final State Alignment in All-Optical Multiple Resonance Photodissociation," *J. Chem. Phys.* **102**, 2440-2451(1995).
229. A. Yiannopoulou, K. Urbanski, A.M. Lyyra, Li Li, B. Ji, J. Bahns and W.C. Stwalley, "Perturbation Facilitated Optical-Optical Double Resonance Spectroscopy of the $2^3\Sigma_g^+$, $3^3\Sigma_g^+$ and $4^3\Sigma_g^+$ Rydberg States of 7Li_2 ," *J. Chem. Phys.* **102**, 3024-3031(1995).
230. C.-C. Tsai, J.T. Bahns and W.C. Stwalley, "Observation of Na_2 Rydberg States and Autoionization Resonances by High Resolution All-Optical Triple Resonance Spectroscopy," *Chem. Phys. Lett.* **236**, 553-557(1995).
231. J.T. Kim, H. Wang, J.T. Bahns and W.C. Stwalley, "The $3^1\Pi_g$ and $3^1\Delta_g$ States of $^{39}K_2$ Studied by Optical-Optical Double Resonance Spectroscopy," *J. Chem. Phys.* **102**, 6966-6974(1995).
232. J.T. Kim, C.C. Tsai and W.C. Stwalley, "The $5^1\Sigma_g^+$ and $6^1\Sigma_g^+$ States of $^{39}K_2$ Studied by Optical-Optical Double Resonance Spectroscopy," *J. Mol. Spectrosc.* **171**, 200-209(1995).
233. B. Ji, C.C. Tsai and W.C. Stwalley, "Proposed Modification of the Criterion for the Region of Validity of the Inverse-Power Expansion in Diatomic Long-Range Potentials," *Chem. Phys. Lett.* **236**, 242-246(1995).
234. J.T. Kim, C.C. Tsai, H. Wang, J.T. Bahns and W.C. Stwalley, "The $nd^1\Delta_g$ ($n=11-15$) Rydberg States of K_2 Studied by Optical-Optical Double Resonance Spectroscopy and Space Charge Limited Diode Ionization Detector," *J. Mol. Spectrosc.* **172**, 183-193(1995).
235. J.T. Kim, H. Wang, C.C. Tsai, J.T. Bahns, W.C. Stwalley, G. Jong and A.M. Lyyra, "Observation of the $4^3\Sigma_g^+$, $3^3\Pi_g$, $2^3\Delta_g$ and $b^3\Pi_u$ States of $^{39}K_2$ Studied by Perturbation-Facilitated Optical-Optical Double Resonance Spectroscopy," *J. Chem. Phys.* **102**, 6646-6652(1995) [Erratum: **103**, 9891(1995)].
236. L.N. Ding, P.D. Kleiber, Y.C. Cheng, M.A. Young, S.V. O'Neil and W.C. Stwalley, "Photofragmentation Spectroscopy of Mg_2 (CO_2) $_{1,2}^+$," *J. Chem. Phys.* **102**, 5235-5245(1995).
237. A. Yiannopoulou, K. Urbanski, S. Antonova, A.M. Lyyra, L. Li, T. An, T.-J. Whang, B. Ji and W.C. Stwalley, "The $1^3\Delta_g$ State of 7Li_2 ," *J. Mol. Spectrosc.* **172**, 567-572(1995).
238. A. Yiannopoulou, K. Urbanski, S. Antonova, A.M. Lyyra, L. Li, T. An, T.-J. Whang, B. Ji, X.T. Wang, W.C. Stwalley, T. Leininger and G.-H. Jeung, "The $2^3\Pi_g$ and $3^3\Pi_g$ States of 7Li_2 : Optical-Optical Double Resonance Spectroscopy and ab initio Calculations," *J. Chem. Phys.* **103**, 1-6(1995).
239. B. Ji, C.-C. Tsai, L. Li, T.-J. Whang, A.M. Lyyra, H. Wang, J.T. Bahns, W.C. Stwalley and R.J. LeRoy, "Determination of the Long-Range Potentials and Dissociation Energy of the $1^3\Delta_g$ State of Na_2 ," *J. Chem. Phys.* **103**, 7240-7254(1995).
240. L.-T.S. Lin, M.A. Prelas, Z. He, J.T. Bahns, W.C. Stwalley, G.H. Miley, E.G. Batyrbekov, V.R. Shaban and M. Petra, "Design of an ICF Plant Using a Nuclear-Driven Solid State Laser," *Laser and Particle Beams* **13**, 95-109 (1995).

241. T.-J. Whang, G. Zhao, W.C. Stwalley and C.Y. Robert Wu, "Franck-Condon Factors of the $b' \ ^1\Sigma_u^+$ - $X \ ^1\Sigma_g^+$, $c_3 \ ^1\Pi_u - X \ ^1\Sigma_g^+$, $c_4' \ ^1\Sigma_u^+$, - $X \ ^1\Sigma_g^+$, $c_4' \ ^1\Sigma_u^+$, - $a \ ^1\Pi_g$, and $o_3 \ ^1\Pi_g - X \ ^1\Sigma_g^+$, Transitions of N_2 ," J. Quant. Spectrosc. Radiat. Transfer **55**, 335-344(1996).
242. K. Urbanski, S. Antonova, A.M. Lyyra, A. Yiannopoulou and W.C. Stwalley, "All Optical Triple Resonance Spectroscopy of the $A \ ^1\Sigma_u^+$ State of 7Li_2 ," J. Chem. Phys. **104**, 2813-2817(1996).
243. H. Wang, P.L. Gould and W.C. Stwalley, "Photoassociative Spectroscopy of Ultracold ^{39}K Atoms in a Vapor Cell Magneto-Optical Trap," Phys. Rev. A. **53**, R1216-R1219(1996).
244. J.T. Bahns, W.C. Stwalley and P.L. Gould, "Laser Cooling of Molecules: A Sequential Scheme for Rotation, Translation and Vibration," J. Chem. Phys., **104**, 9689-9697(1996).
245. J.T. Kim, C.-C. Tsai and W.C. Stwalley, "The $7-9 \ ^1\Sigma_g^+$ and $4 \ ^1\Pi_g$ States of K_2 by Optical-Optical Double Resonance Spectroscopy," J. Mol. Spectrosc., **177**, 194-202(1996).
246. H. Wang, P.L. Gould and W.C. Stwalley, "Photoassociative Spectroscopy of Pure Long-Range Molecules," Z. Phys. D **36**, 317-323(1996).
247. K.M. Jones, S. Maleki, S. Bize, P.D. Lett, C.J. Williams, H. Richling, H. Knöckel, E. Tiemann, H. Wang, P.L. Gould and W.C. Stwalley, "Direct Measurement of the Ground State Dissociation Energy of Na_2 ," Phys. Rev. A **54**, R1006-1009(1996).
248. P.S. Erdman, K.M. Sando, W.C. Stwalley, C.W. Larson and M.E. Fajardo, "High Temperature, High Density Observation and Modeling of the Lithium $1^3\Sigma_u^+ - 1^3\Pi_g$ Transition," Chem. Phys. Lett. **252**, 248-252(1996).
249. L. Li, A. Yiannopoulou, K. Urbanski, A.M. Lyyra, B. Ji, W.C. Stwalley and T. An, "Hyperfine Structures of the $^7Li_2 \ b^3\Pi_u$, $2^3\Pi_g$ and $3^3\Pi_g$ States: CW PFOODR Spectroscopy," J. Chem. Phys. **105**, 6192-6199(1996).
250. G. Zhao, W.T. Zemke, J.T. Kim, B. Ji, H. Wang, J.T. Bahns, W.C. Stwalley, L. Li, A.M. Lyyra and C. Amiot, "New Measurements of the $a^3\Sigma_u^+$ State of K_2 and Improved Analysis of Long Range Dispersion and Exchange Interactions between Two K Atoms," J. Chem. Phys. **105**, 7976-7985(1996).
251. J.T. Kim, H. Wang, J.T. Bahns and W.C. Stwalley, "The Exotic Potential Curve of $3^1\Pi_g$ State of K_2 by Optical-Optical Double Resonance Spectroscopy," J. Mol. Spectrosc., **181**, 389-393(1997).
252. J.T. Bahns, C.-C. Tsai, B. Ji, J.T. Kim, G. Zhao, W.C. Stwalley, J.C. Bloch and R.W. Field, "Laser Frequency Modulated Spectroscopy of a Laser-Guided Plasma in Sodium Vapor: Line Positions for NaH ($A \ ^1\Sigma^+ - X \ ^1\Sigma^+$), Na (9-13 d and 11-14 s), and Ar (5p-4s)," J. Mol. Spectrosc. **186**, 222-229(1997).
253. H. Wang, J. Li, X.T. Wang, C.J. Williams, P.L. Gould and W.C. Stwalley, "Precise Determination of the Dipole Matrix Element and Radiative Lifetime of the ^{39}K 4p State by Photoassociative Spectroscopy," Phys. Rev. A **55**, R1569-1572(1997).

254. G. Zhao, J.T. Kim, J.T. Bahns and W.C. Stwalley, "The $2^1\Pi_g$ State of $^{39}\text{K}_2$ Studied by CW Sub-Doppler Optical-Optical Double Resonance Spectroscopy," *J. Mol. Spectrosc.*, **184**, 209-214(1997).
255. H. Wang, P.L. Gould and W.C. Stwalley, "The Long-Range Interaction of $^{39}\text{K}(4s) + ^{39}\text{K}(4p)$ Asymptote by Photoassociative Spectroscopy: Part I: The 0_g^- Pure Long-Range State and the Long-Range Potential Constants," *J. Chem. Phys.*, **106**, 7899-7912(1997).
256. H. Wang, X.T. Wang, P.L. Gould and W.C. Stwalley, "Optical-Optical Double Resonance Photoassociative Spectroscopy of Ultracold ^{39}K Atoms near Highly-Excited Asymptotes," *Phys. Rev. Lett.*, **78**, 4173-4176(1997).
257. J.T. Bahns, L. Lynds, W.C. Stwalley, V. Simmons, T. Robinson and S. Bililign, "Airborne Mercury Detection by Resonant UV Laser Pumping," *Optics Letters* **22**, 727-729(1997).
258. H. Wang, P.L. Gould and W.C. Stwalley, "Fine Structure Predissociation of Ultracold Photoassociated $^{39}\text{K}_2$ Molecules Observed by Fragmentation Spectroscopy," *Phys. Rev. Lett.* **80**, 476-479(1998).
259. H. Wang and W.C. Stwalley, "Ultracold Photoassociative Spectroscopy of Heteronuclear Alkali-Metal Diatomic Molecules," *J. Chem. Phys.* **108**, 5767-5771(1998).
260. R. Côté, A. Dalgarno, H. Wang and W.C. Stwalley, "Potassium Scattering Lengths and Prospects for Bose-Einstein Condensation and Sympathetic Cooling," *Phys. Rev. A* **57**, R4118-4121(1998).
261. X.T. Wang, H. Wang, P.L. Gould, W.C. Stwalley, E. Tiesinga and P.S. Julienne, "Observation of the Pure Long-Range 1_u State of an Alkali Dimer by Photoassociative Spectroscopy," *Phys. Rev. A* **57**, 4600-4603(1998).
262. J. Li, J. Zhang, H. Wang, J.T. Kim and W.C. Stwalley, "Observation of the $5^1\Pi_u$, $6^1\Sigma_u^+$ and $7^1\Sigma_u^+$ States of Na_2 through a Franck-Condon Window by All-Optical Triple Resonance Spectroscopy," *J. Chem. Phys.* **109**, 102-107(1998).
263. P.S. Julienne, K. Burnett, Y. Band and W.C. Stwalley, "Stimulated Raman Molecule Production in Bose-Einstein Condensates," *Phys. Rev. A* **58**, R797-R800(1998).
264. L. Li, A. Yiannopoulou, K. Urbanski, A.M. Lyyra, B. Ji, W.C. Stwalley and T. An, "Hyperfine Structures of the Triplet States of $^7\text{Li}_2$: Continuous-Wave Perturbation-Facilitated Optical-Optical Double-Resonance Spectroscopy," *J. Korean Phys. Soc.*, **32**, 309-311(1998).
265. A.N. Nikolov, E. Eyler, X. Wang, H. Wang, J. Li, W.C. Stwalley and P.L. Gould, "Observation of Ultracold Ground-State Potassium Molecules," *Phys. Rev. Lett.* **82**, 703-706 (1999).
266. J.L. Bohn, J.P. Burke, Jr., C.H. Greene, H. Wang, P.L. Gould and W.C. Stwalley, "Collisional Properties of Ultracold Potassium: Consequences for Degenerate Bose and Fermi Gases," *Phys. Rev. A* **59**, 3660-3664(1999).
267. W.C. Stwalley, "Determination of Long-Range Interactions from Photoassociative Spectroscopy of Ultracold Atoms," in *Spectral Line Shapes* (AIP Conf. Proc. 467, Woodbury, NY 1999), p. 377-387.

268. W.T. Zemke and W.C. Stwalley, "Analysis of Long Range Dispersion and Exchange Interactions Between One Na Atom and One K Atom," *J. Chem. Phys.* **111**, 4956-4961(1999).
269. W.T. Zemke and W.C. Stwalley, "Analysis of Exchange Energy at Long Range for States of Alkali Diatomic Molecules Correlating to Two Ground State Atoms," *J. Chem. Phys.* **111**, 4962-4965(1999).
270. W.C. Stwalley and H. Wang, "Photoassociation of Ultracold Atoms: A New Spectroscopic Technique," *J. Mol. Spectrosc.* **195**, 194-228(1999).
271. J.T. Bahns, P.L. Gould and W.C. Stwalley, "Formation of Cold ($T \leq 1\text{K}$) Molecules," *Adv. At. Mol. Opt. Phys.* **42**, 171-224(2000).
272. E.S. Chang, J. Li, J. Zhang, C.-C. Tsai, J.T. Bahns and W.C. Stwalley, "Theory and Analysis of Sodium Dimer Rydberg States Observed by All-Optical Triple Resonance Spectroscopy," *J. Chem. Phys.* **111**, 6247-6252(1999).
273. J.P. Burke, Jr., C.H. Greene, J.L. Bohn, H. Wang, P.L. Gould and W.C. Stwalley, "Determination of ^{39}K Scattering Lengths using Photoassociation Spectroscopy of the 0_g^- State," *Phys. Rev. A* **60**, 4417-4426(1999).
274. C.J. Williams, E. Tiesinga, P.S. Julienne, H. Wang, W.C. Stwalley and P.L. Gould, "Determination of the Scattering Lengths of ^{39}K from 1_u Photoassociation Line Shapes," *Phys. Rev. A* **60**, 4427-4438(1999).
275. E.E. Eyler, A.N. Nikolov, J.R. Ensher, H. Wang, W.C. Stwalley and P.L. Gould, "Efficient Production of Ultracold Ground-State Potassium Molecules," Proceedings of the International Conference on Laser Spectroscopy (Innsbruck, June 1999), R. Blatt, J. Eschner, D. Liebfried and F. Schmidt-Kaler, editors (World Scientific, Singapore 1999) p. 326-327.
276. A.N. Nikolov, J.R. Ensher, E.E. Eyler, H. Wang, W.C. Stwalley and P.L. Gould, "Efficient Production of Ground-State Potassium Molecules at sub-mK Temperatures by Two-Step Photoassociation," *Phys. Rev. Lett.* **84**, 246-249(2000).
277. R. Ferber, E.Z. Pazyuk, A.V. Stolyarov, A. Zaitsevskii, P. Kowalczyk, H. Chen, H. Wang and W.C. Stwalley, "The $c^3\Sigma^+$, $b^3\Pi$ and $a^3\Sigma^+$ States of NaK Revisited," *J. Chem. Phys.* **112**, 5740-5750(2000).
278. J. Li, J.T. Bahns and W.C. Stwalley, "Scheme for State-Selective Formation of Highly Rotationally Excited Diatomic Molecules," *J. Chem. Phys.* **112**, 6255-6261(2000).
279. S. Antonova, G. Lazarov, K. Urbanski, A.M. Lyra, L. Li, G.H. Jeung and W.C. Stwalley, "Predissociation of the $F(4) \ ^1\Sigma_g^+$ State of Li_2 ," *J. Chem. Phys.* **112**, 7080-7088(2000).
280. W.C. Stwalley, "Making Molecules at MicroKelvin," in Atomic and Molecular Beams, The State of the Art 2000, R. Campargue, editor (Springer-Verlag, Berlin 2000), p. 105-112.
281. H. Wang, A. Nikolov, J.R. Ensher, P.L. Gould, E.E. Eyler, W.C. Stwalley, J.P. Burke, J.L. Bohn, C.H. Greene, E. Tiesinga, C.J. Williams and P.S. Julienne, "Ground State Scattering Lengths for

- Potassium Isotopes Determined by Double-Resonance Photoassociative Spectroscopy of Ultracold ^{39}K ,” *Phys. Rev. A* **62**, 052704 (4 pages)(2000).
282. W.C. Stwalley, “The Relationship of Photoassociative Spectroscopy of Ultracold Atoms to Atomic Line Broadening,” in Spectral Line Shapes (AIP Conf. Proc. 559, Woodbury, NY 2001), p.310-312.
283. W.T. Zemke and W.C. Stwalley, “Long Range Potential Energy Curves for the $X^1\Sigma^+$ and $a^3\Sigma^+$ States of NaRb,” *J. Chem. Phys.* **114**, 10811-10816(2001).
284. Y. Liu, B. Ji, A.S.-C. Cheung, W.C. Stwalley, R.W. Field, A.M. Lyyra and L. Li, “The Hyperfine Structure of the $1^3\Delta_g$ State of Na_2 ,” *J. Chem. Phys.* **115**, 3647-3656(2001).
285. W.C. Stwalley, “Production of Ultracold Ground State Potassium Molecules,” in Photonic, Electronic and Atomic Collisions (Proceedings of the XXII International Conference on Photonic, Electronic and Atomic Collisions), J. Burgdorfer, J.S. Cohen, S. Datz and C.R. Vane, editors (Rinton Press, Princeton, NJ 2002), p. 63-69.
286. B. Normand, W.T. Zemke, R. Côté, M. Pichler and W.C. Stwalley, “Calculations of Long Range Potential Wells for Cs_2 Molecules below the Cs (ns, $n \geq 8$) + Cs (6s) Asymptotes,” *J. Phys. Chem. A* **106**, 8450-8452(2002).
287. T. Bergeman, P.S. Julienne, C.J. Williams, E. Tiesinga, M. Riad Manaa, H. Wang, P.L. Gould and W.C. Stwalley, “Predissociations in 0_u^+ and 1_g States of K_2 ,” *J. Chem. Phys.* **117**, 7491-7505(2002).
288. M. Tamanis, R. Ferber, A. Zaitsevskii, E.A. Pazyuk, A.V. Stolyarov, H. Chen, J. Qi, H. Wang and W.C. Stwalley, “High Resolution Spectroscopy and Channel Coupling Treatment of the $A^1\Sigma^+ - b^3\Pi$ Complex of NaRb,” *J. Chem. Phys.* **117**, 7980-7988(2002).
289. M. Pichler, H.M. Chen, H. Wang, W.C. Stwalley, A.J. Ross, F. Martin, M. Aubert-Frecon and I. Russier-Antoine, “Photoassociation of Ultracold K Atoms: Observations of High-Lying Levels of the $1_g \sim 1^1\Pi_g$ Molecular State of K_2 ,” *J. Chem. Phys.* **118**, 7837-7845(2003).
290. W.C. Stwalley, “Formation of Translationally Ultracold Molecules by Photoassociation of Ultracold Atoms,” Proceedings of the CCP6 Workshop on Interactions of Cold Atoms and Molecules (Durham, Sept. 19-22, 2002), edited by Pavel Soldán, M.T. Cvitaš, J.M. Hutson and C.S. Adams, p.1-5(2003).
291. M. Pichler, W.C. Stwalley, R. Beuc and G. Pichler, “Formation of Ultracold Cs_2 Molecules Through the Double Minimum $\text{Cs}_2 3^1\Sigma_u^+$ State,” *Phys. Rev. A* **69**, 013403 (5 pages)(2004).
292. P.S. Erdman, C.W. Larson, M. Fajardo, K.M. Sando and W.C. Stwalley, “Optical Absorption of Lithium Metal Vapor at High Temperatures,” *J. Quantitative Spectroscopy and Radiative Transfer* **88**, 447-481(2004).
293. W.T. Zemke and W.C. Stwalley, “Radiative Transition Probabilities, Lifetimes and Dipole Moments for the Vibrational Levels of the $X^1\Sigma^+$ Ground State of $^{39}\text{K} \ ^{85}\text{Rb}$,” *J. Chem. Phys.* **120**, 88-92(2004).
294. M. Pichler, H. Chen and W.C. Stwalley, “Photoassociation Spectroscopy of Ultracold Cs Below the $6P_{1/2}$ Limit,” *J. Chem. Phys.* **121**, 1796-1801(2004).

295. M. Pichler, H. Chen and W.C. Stwalley, "Photoassociation Spectroscopy of Ultracold Cs Below the $6P_{3/2}$ Limit," *J. Chem. Phys.* **121**, 6779-6784(2004).
296. B. Normand and W.C. Stwalley, "Calculations of Long Range Potential Wells for Highly Excited Homonuclear and Heteronuclear Alkali Dimers," *J. Chem. Phys.* **121**, 285-291(2004).
297. W.C. Stwalley, "Collisions and Reactions of Ultracold Molecules," *Can. J. Chem.* **82**, 709-712(2004).
298. D. Wang, J. Qi, M.F. Stone, O. Nikolayeva, H. Wang, B. Hattaway, S.D. Gensemer, P.L. Gould, E.E. Eyler and W.C. Stwalley, "Photoassociative Production and Trapping of Ultracold KRb Molecules," *Phys. Rev. Lett.* **93**, 243005 (4 pages)(2004).
299. W.C. Stwalley, "Efficient Conversion of Ultracold Feshbach-Resonant Polar Molecules into Ultracold Ground State ($X^1\Sigma_g^+ v = 0, J = 0$) Molecules," *Eur. Phys. J. D* **31**, 221-225(2004).
300. D. Wang, J. Qi, M.F. Stone, O. Nikolayeva, B. Hattaway, S.D. Gensemer, H. Wang, W.T. Zemke, P.L. Gould, E.E. Eyler and W.C. Stwalley, "The Photoassociative Spectroscopy, Photoassociative Molecule Formation, and Trapping of Ultracold $^{39}\text{K}^{85}\text{Rb}$," *Eur. Phys. J. D* **31**, 165-177(2004).
301. W.C. Stwalley, "Improved Dissociation Energy for the $^{39}\text{K}^{85}\text{Rb}$ Molecule," *J. Chem. Phys.* **122**, 084319 (3 pages)(2005).
302. W. Zemke, R. Côté and W.C. Stwalley, "Analysis of the $a^3\Sigma^+$ State of KRb," *Phys. Rev. A* **71**, 062706 (6 pages)(2005).
303. D. Wang, E.E. Eyler, P.L. Gould and W.C. Stwalley, "State-Selective Detection of Ultracold KRb $X^1\Sigma^+$ and $a^3\Sigma^+$ Molecules," *Phys. Rev. A* **72**, 032052 (6 pages)(2005).
304. M. Pichler, J. Qi, W.C. Stwalley, R. Beuc and G. Pichler, "Observation of Blue Satellite Bands and Photoassociation at Ultracold Temperatures," *Phys. Rev. A* **73**, 021403 (4 pages)(2006).
305. J. Lozeille, A. Fioretti, C. Gabbanini, Y. Huang, H.K. Pechkis, D. Wang, P.L. Gould, E.E. Eyler, W.C. Stwalley, M. Aymar and O. Dulieu, "Detection by Two-Photon Ionization and Magnetic Trapping of Cold Rb_2 Triplet State Molecules," *Eur. Phys. J. D* **39**, 261-269(2006).
306. D. Wang, E.E. Eyler, P.L. Gould and W.C. Stwalley, "Spectra of Ultracold KRb Molecules in Near-Dissociation Vibrational Levels," *J. Phys. B: At. Mol. Opt. Phys.* **39**, S849-S856(2006).
307. T. Bergeman, J. Qi, D. Wang, Y. Huang, H.K. Pechkis, E.E. Eyler, P.L. Gould, W.C. Stwalley, R.A. Cline, J.D. Miller and D.J. Heinzen, "Photoassociation of ^{85}Rb Atoms into 0_u^+ States near the $5S + 5P$ Atomic Limits," *J. Phys. B: At. Mol. Opt. Phys.* **39**, S813-S823(2006).
308. Y. Huang, J. Qi, H.K. Pechkis, D. Wang, E.E. Eyler, P.L. Gould and W.C. Stwalley, "Formation, Detection, and Spectroscopy of Ultracold Rb_2 in the Ground $X^1\Sigma_g^+$ State," *J. Phys. B: At. Mol. Opt. Phys.* **39**, S857-S869(2006).
309. M. Pichler, W.C. Stwalley and O. Dulieu, "Perturbation Effects in Photoassociation Spectra of Ultracold Cs_2 ," *J. Phys. B: At. Mol. Opt. Phys.* **39**, S981-S992(2006).

310. M. Pichler, J. Qi, W.C. Stwalley, R. Beuc and G. Pichler, "Blue Satellite Bands and Photoassociation Spectra of Ultracold Cesium," Spectral Line Shapes (AIP Conf. Proc. 874, 2006), E. Oks and M. Pindzola, editors, p. 179-190.
311. D. Wang, J.T. Kim, C. Ashbaugh, E.E. Eyler, P.L. Gould and W.C. Stwalley, "Rotationally-Resolved Depletion Spectroscopy of Ultracold KRb Molecules," *Phys. Rev. A* **75**, 032511 (5 pages)(2007).
312. P. Qi, J. Bai, E. Ahmed, A.M. Lyyra, S. Kotochigova, A.J. Ross, C. Effantin, P. Zalicki, J. Vigue, G. Chawla, R.W. Field, T.-J. Whang, W.C. Stwalley, H. Knöckel, E. Tiemann, J. Shang, L. Li, and T. Bergeman, "New Spectroscopic Data, Spin-Orbit Functions, and Global Analysis of Data on the $A^1\Sigma_u^+$ and $b^3\Pi_u$ States of Na_2 ," *J. Chem. Phys.* **127**, 044301 (15 pages)(2007).
313. H.K. Pechkis, D. Wang, Y. Huang, E.E. Eyler, P.L. Gould, W.C. Stwalley and C.P. Koch, "Enhancement of the Formation of Ultracold $^{85}\text{Rb}_2$ Molecules by Resonant Coupling," *Phys. Rev. A* **76**, 022504 (6 pages)(2007).
314. C.-Y. Wu, W.-T. Luh, F.X. Gadea and W.C. Stwalley, "The $D^1\Sigma^+$ State of ^7LiH : Comparison of Observations With Vibronic Theory," *J. Chem. Phys.* **128**, 064303 (7 pages)(2008).
315. H. Jelassi, B. Viaris de Lesegno, L. Pruvost, M. Pichler and W.C. Stwalley, "Spin Effects in $(6s_{1/2} + 6p_{1/2})0_u + ^{133}\text{Cs}_2$ Weakly Bound Molecules Analysed by Using the Lu-Fano Method Coupled to the Improved LeRoy-Bernstein Formula," *Phys. Rev. A* **78**, 022503 (8 pages)(2008).
316. W.C. Stwalley, P.L. Gould and E.E. Eyler, "Ultracold Molecule Formation by Photoassociation," in Cold Molecules: Theory, Experiment, Applications, R. Krems, W.C. Stwalley and B. Friedrich, editors (Taylor and Francis, NY, 2009), p.169-219.
317. J.T. Kim, D. Wang, E.E. Eyler, P.L. Gould and W.C. Stwalley, "Spectroscopy of $^{39}\text{K}^{85}\text{Rb}$ Triplet Excited States Using Ultracold $a^3\Sigma^+$ Molecules Formed by Photoassociation," *New J. Phys.* **11**, 055020 (20 pages)(2009).
318. W.C. Stwalley, "Spectroscopy of Ultracold KRb Molecules," in Proceedings of the XXI International Conference on Atomic Physics, R. Côté, P.L. Gould, M. Rozman and W.W. Smith, editors (World Scientific, Hackensack, NJ, 2009) p.315-321.
319. W.C. Stwalley, "Theory and Spectroscopy for Ultracold KRb Molecules," in Proceedings of the International Conference on Computational Methods in Sciences and Engineering (ICCMSE 2010), T.E. Simos and G. Maroulis, editors, AIP Conference Proceedings **1504**, 509-511 (2012).
320. W.C. Stwalley, J. Banerjee, M. Bellos, R. Carollo, M. Recore and M. Mastroianni, "Resonant Coupling in the Heteronuclear Alkali Dimers for Direct Photoassociative Formation of $X(0,0)$ Ultracold Molecules," *J. Phys. Chem. A* **114**, 81-86(2010).
321. W.T. Zemke, J. Byrd, H.H. Michels, J.A. Montgomery and W.C. Stwalley, "Long Range Intermolecular Interactions Between the Alkali Diatomics Na_2 , K_2 and NaK ," *J. Chem. Phys.* **112**, 244305 (5 pages)(2010).
322. M.A. Bellos, D. Rahlmow, R. Carollo, J. Banerjee, O. Dulieu, A. Gerdes, E.E. Eyler, P.L. Gould and W.C. Stwalley, "Formation of Ultracold Metastable Rb_2 Molecules in the $v''=0$ Level of the $a^3\Sigma_u^+$

- State by Blue-Detuned Photoassociation to the $1^3\Pi_g$ State,” *Physical Chemistry Chemical Physics* (special issue on Ultracold Molecules) **13**, 18880-18886(2011).
323. J.T. Kim, Y. Lee, B. Kim, D. Wang, W.C. Stwalley, P.L. Gould and E.E. Eyler, “Spectroscopic Analysis of the Coupled $1^1\Pi$, $2^3\Sigma^+$ ($\Omega=0,1$), and $b^3\Pi$ ($\Omega=0^\pm,1,2$) States of the KRb Molecule Using Both Ultracold Molecules and Molecular Beam Experiments,” *Physical Chemistry Chemical Physics* (special issue on Ultracold Molecules) **13**, 18755-18761(2011).
324. J.T. Kim, Y. Lee, B. Kim, D. Wang, W.C. Stwalley, P.L. Gould and E.E. Eyler, “Spectroscopic Prescription for Optimal Stimulated Raman Transfer in Ultracold Heteronuclear Molecules to the Lowest Rovibronic Level,” *Phys. Rev. A* **84**, 062511(7 pages)(2011).
325. J.N. Byrd, H.H. Michels, J.A. Montgomery, Jr., R. Côté, and W.C. Stwalley, “Structure, Energetics, and Reactions of Alkali Tetramers,” *J. Chem. Phys.* **136**, 014306(5 pages)(2012).
326. W.C. Stwalley, M. Bellos, R. Carollo, J. Banerjee, and M. Bermudez, “Shortcuts for Understanding Rovibronic Spectroscopy of Ultracold Alkali Metal Diatomic Molecules,” *Mol. Phys. (Special Issue – Festschrift for Chemistry Nobel Laureate Dudley Herschbach)* **110**, 1739-1755 (2012).
327. M.A. Bellos, R. Carollo, D. Rahmlow, J. Banerjee, E.E. Eyler, P.L. Gould, and W.C. Stwalley, “Photoassociation to the $2^1\Sigma_g^+$ State in Ultracold $^{85}\text{Rb}_2$ in the Presence of a Shape Resonance,” *Phys. Rev. A*, **86**, 033407 (2012).
328. J.T. Kim, Y. Lee, B. Kim, D. Wang, P.L. Gould, E.E. Eyler, and W.C. Stwalley, “Spectroscopic Investigation of the A and $3^1\Sigma^+$ States of $^{39}\text{K}^{85}\text{Rb}$,” *J. Chem. Phys.* **137**, 244301 (2012).
329. J. Banerjee, D. Rahmlow, R. Carollo, M. Bellos, E.E. Eyler, P.L. Gould, and W.C. Stwalley, “Direct Photoassociative Formation of Ultracold KRb Molecules in the Lowest Vibrational Levels of the Ground State,” *Phys. Rev. A*, **86**, 053428 (2012).
330. J. Banerjee, D. Rahmlow, R. Carollo, M. Bellos, E.E. Eyler, P.L. Gould, and W.C. Stwalley, “Spectroscopy of the Double Minimum $3^3\Pi_\Omega$ Electronic State of $^{39}\text{K}^{85}\text{Rb}$,” *J. Chem. Phys.* **138**, 164302 (2013).
331. R. Carollo, M.A. Bellos, D. Rahmlow, J. Banerjee, E.E. Eyler, P.L. Gould, and W.C. Stwalley, “Observation and Analysis of Resonant Coupling Between Near-degenerate Levels of the $2^1\Sigma_g^+$ and $1^1\Pi_g$ States of Ultracold $^{85}\text{Rb}_2$,” *Phys. Rev. A* **87**, 022505 (2013).
332. M.A. Bellos, R. Carollo, J. Banerjee, M. Ascoli, A.-R. Allouche, E.E. Eyler, P.L. Gould, and W.C. Stwalley, “Upper Bound to the Ionization energy of $^{85}\text{Rb}_2$,” *Phys. Rev. A* **87**, 012508 (2013).
333. M.A. Bellos, R. Carollo, J. Banerjee, E.E. Eyler, P.L. Gould, and W.C. Stwalley, “Excitation of Ultracold Molecules to Trilobite-Like Rydberg States,” *Phys. Rev. Lett.* **111**, 053001 (2013).
334. J. Banerjee, D. Rahmlow, R. Carollo, M. Bellos, E.E. Eyler, P.L. Gould, and W.C. Stwalley, “Spectroscopy and Applications of the $3^3\Sigma^+$ Electronic State of $^{39}\text{K}^{85}\text{Rb}$,” *J. Chem. Phys.* **139**, 174316(2013).

335. J.T. Kim, B. Kim, and W.C. Stwalley, "Spectroscopic Analysis of the Alkali Metal Diatomic Molecules Using Both Molecular Beam and Ultracold Molecule Experiments", submitted to R. Campargue, editor, *Molecular Beams: State of the Art 2014*(Springer Verlag, Heidelberg).

Books Edited

1. Metal Bonding and Interactions in High Temperature Systems, J.L. Gole and W.C. Stwalley, editors, (American Chemical Society, 1982).
2. Proceedings of the International Conference on Lasers '84, K.M. Corcoran, D.M. Sullivan and W.C. Stwalley, editors, (STS Press, McLean Virginia, 1985).
3. Advances in Laser Science - I, W.C. Stwalley and M. Lapp, editors, (American Institute of Physics, New York, 1986).
4. Advances in Laser Science - II, M. Lapp, W.C. Stwalley and G. Kenney-Wallace, editors, (American Institute of Physics, New York, 1987).
5. Advances in Laser Science - III, A. Tam, J. Gole and W.C. Stwalley, editors, (American Institute of Physics, New York, 1988).
6. Advances in Laser Science - IV, J. Gole, D. Heller, M. Lapp and W.C. Stwalley, editors, (American Institute of Physics, New York, 1989).
7. Cold Molecules: Theory, Experiment, Applications, R. Krems, W.C. Stwalley and B. Friedrich, editors, (Taylor and Francis, NY, 2009).

Patents

1. "Excimer Laser Pumped by Dissociative Recombination," U.S. Patent Number 4,627,066, W.C. Stwalley and M. E. Koch, December, 1986.
2. "Lasing Composition," U.S. Patent Number 4,777,638, E.J. Britt, B.C.F.M. Laskowski, J.L. Lawless and W.C. Stwalley, October, 1988.
3. "Method for the Production of Size, Structure and Composition of Specific-Cluster Ions," U.S. Patent Number 5,051,582, J.T. Bahns and W.C. Stwalley, September, 1991.
4. "Cluster Ion Synthesis and Confinement in Hybrid Ion Trap Arrays," U.S. Patent Number 5,118,950, J.T. Bahns and W.C. Stwalley, June, 1992.
5. "Multiple Single Frequency Laser System and Method of Optical Manipulation of Molecules," U.S. Patent Number 5,620,571, J.T. Bahns, W.C. Stwalley and P.L. Gould, April 15, 1997.
6. "Apparatus and Method for Producing an Ion Channel Microprobe," U.S. Patent Number 6,472,889 B1, J.T. Bahns and W.C. Stwalley, October 29, 2002.

