

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 X¹Σ⁺ and A¹Σ⁺ 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 $2^2\Sigma_u^-$ 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).
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Patents

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