

John Cooper Phone: (303)492-7813 (Office) (303)447-9169 (Home)

Personal:

Born November 30, 1937; Norwich, England (U.S. Citizen; #10295042 June 17, 1977)
Married: Ann C. Cooper (nee Dawson)
Children: Catharine Jane (1964)
 Michael John (1966)
 Patrick Bill (1968)

Degrees:

B.A. 1959, First Class, Cambridge University
M.A. 1963, Cambridge University
D.I.C. 1961, Imperial College
Ph.D. 1962, London

Professional Associations:

Member, American Physical Society, 1965-1970
Fellow, American Physical Society, 1971-present
Fellow, American Association for the Advancement of Science, 1984-present

Appointments:

Academic:

Research Assistant (Assistant Lecturer), Imperial College 1962-63
Lecturer, Imperial College, 1963-65
Assistant Professor, University of Colorado, 1965-67
Associate Professor, University of Colorado, 1967-70
Professor, University of Colorado, 1970-present
Chairman, Department of Physics, University of Colorado, June 1982-May 1984

Research Institute:

Member, Joint Institute for Laboratory Astrophysics, 1965-67
Fellow, Joint Institute for Laboratory Astrophysics, 1967-present
Chairman, Joint Institute for Laboratory Astrophysics, January 1975-December 1976

Fellowships & Visiting Positions:

Visiting Professor, University of British Columbia, Canada, September 1972-February 1973
S.R.C. Senior Visiting Fellow, Oxford University and University of Newcastle, England, March-June 1973
John Simon Guggenheim Memorial Foundation Fellow, August 1977-June 1978
Visiting Professor, University of Otago, New Zealand, August 1977-May 1978
Faculty Fellowship, University of Colorado, 1977-1978
William Evans Visiting Professor, University of Otago, New Zealand, January-December 1987
Faculty Fellowship, University of Colorado, January-December 1987
1992 University of Colorado Distinguished Research Lectureship and Faculty Fellowship, September 1992-June 1993

J. Cooper

Visiting: (continued)

Visiting Professor, University of Oregon, Eugene, September 1992-March 1993
Visiting Professor and S.R.C. Senior Visiting Fellow, University of Oxford, England, April
1993-June 1993

Consulting:

United Kingdom Atomic Energy Authority, 1963-1968
National Institute of Standards and Technology, 1968-1997
Lawrence Livermore Laboratory, Livermore, California, 1978-1988
Los Alamos National Laboratory, Los Alamos, New Mexico, 1983-1986
Department of Energy, Washington, DC, 1983-1984

Editorial:

Associate Editor, Journal of Quantitative Spectroscopy and Radiative Transfer, 1970-1999
Editorial Board, Physical Review A, January 1985 - December 1987

J. Cooper

Publications:

1. "A fast response total radiation detector," J. Cooper, *Nature* 194, 269-271 (1962).
2. "Minimum detectable power of a pyroelectric thermal receiver," J. Cooper, *Rev. Sci. Instr.* 33, 92-95 (1962).
3. "An ultra-rapid scanning Fabry-Perot interferometer," J. Cooper and J. R. Greig, *Nature* 195, 371-372 (1962).
4. "A fast response pyroelectric thermal detector," J. Cooper, *J. Sci. Instr.* 39, 467-472 (1962).
5. "The photoelectric recording of spectral line profiles on a microsecond timescale," J. Cooper and J. R. Greig, in *Comptes Rendus de la Vie Conference Internationale sur les Phenomenes d'Ionisation dans les Gaz* (P. Hubert and E. Cremieu-Alcan, Eds., S.E.R.M.A., Paris, 1963), pp. 1-6.
6. "The conduction of electricity between electrodes in shockheated argon," D. G. Fearn, J. Cooper and H. J. Pain, in *Comptes Rendus de la Vie Conference Internationale sur les Phenomenes d'Ionisation dans les Gaz* (P. Hubert and E. Cremieu-Alcan Eds., S.E.R.M.A., Paris, 1963), pp. 347-352.
7. "Rapid scanning of spectral line profiles using an oscillating Fabry-Perot interferometer," J. Cooper and J. R. Greig, *J. Sci. Instr.* 40, 433-437 (1963).
8. "On the high frequency response of a Rogowski coil," J. Cooper, *J. Nucl. Energy Pt. C* 5, 285-289 (1963).
9. "Emission-line profile measurement in transient plasmas, using a scanning Fabry-Perot interferometer," N. Peacock, J. Cooper and J. R. Greig, *Proc. Phys. Soc.* 83, 803-810 (1964).
10. "The radiative transfer of impact broadened spectral lines emitted by an argon plasma described by the local thermodynamic equilibrium approximation," D. D. Burgess and J. Cooper, *Proc. Phys. Soc.* 85, 1261-1268 (1965).
11. "A new method of measuring electron temperatures in plasmas in the absence of local thermodynamic equilibrium," D. D. Burgess and J. Cooper, *Proc. Phys. Soc.* 86, 1333-1341 (1965).
12. "An interferometer designed for the detection of small shifts of wavelength of spectral lines emitted by plasmas, and for measuring the ratio of of such shifts to the line width," D. D. Burgess and J. Cooper, *J. Sci. Instr.* 42, 829-833 (1965).
13. "A method of measuring electron temperature using the Stark effect," D. D. Burgess and J. Cooper, in *Proceedings, 7th International Conference Ionisation Phenomena in Gases* (Belgrade 21-27 August 1965).
14. "Doppler shift measurements to investigate plasma rotation in the theta pinch," M. Keilhacker, H. Herold, J. Cooper and D. E. Roberts, in Plasma Physics and Controlled Nuclear Fusion Research, International Conference on Problems of Controlled Fusion, Culham, September 19, 1965, Vol. I, (I.A.E.A. Vienna, 1966), pp. 315-330.

J. Cooper

Publications: (continued)

15. "A review of plasma spectroscopy," J. Cooper, Rep. Prog. Phys. 29, 35-130 (1966).
16. "Proceedings of Workshop Conference on the Lowering of the Ionization Potential and Related Problems of the Equilibrium Plasma," J. Cooper (Editor), JILA Report No. 79, July 1966, 225 pp.
17. "Broadening of isolated lines in the impact approximation using a density matrix formulation," J. Cooper, Rev. Mod. Phys. 39, 167-177 (1967).
18. "Line profile in the one-electron approximation," J. Cooper, Phys. Rev. Lett. 17, 991-995 (1967).
19. "Stark broadening of isolated ion lines in a plasma," J. Cooper and G. K. Oertel, Phys. Rev. Lett. 18, 985-988 (1967).
20. "Program for the Evaluation of Reduced Matrix Elements," J. Cooper and U. Palmer, JILA Report No. 91, November 1967, 31 pp.
21. "Photo-electron angular distributions," J. Cooper and R. N. Zare, Bull. Am. Phys. Soc. 12, 1147 (1967).
22. "On the angular distribution of photo-electrons," J. Cooper and R. N. Zare, J. Chem. Phys. 48, 942-943 (1968).
23. "Rapid scanning with the Fabry-Perot etalon," J. R. Greig and J. Cooper, Appl. Optics 7, 2166-2170 (1968).
24. "Astrophysical applications of line shapes," (invited paper given at the Gordon Conference on Spectral Line Shapes - July 1968), J. Cooper, JILA Report No. 98, September 1968, 15 pp.
25. "Plasma kinetic theory and Stark broadening," W. R. Chappell, J. Cooper and E. W. Smith, Bull. Am. Phys. Soc. 13, 1546 (1968).
26. "The broadening of He I 4471 Å and its forbidden components," A. J. Barnard, J. Cooper and L. Shamey, Mem. Soc. Roy. Sci. Liege V, 17, 89-97 (1969) (Proc. XVth Astrophysical Symposium, Liege 1968).
27. "On strong collisions in hydrogenic line broadening," K. Y. Shen and J. Cooper, Astrophys. J. 155, 37-45 (1969).
28. "Electron correlations in Stark broadening," W. R. Chappell, J. Cooper and E. W. Smith, J. Quant. Spectrosc. Radiat. Transfer 9, 149-151 (1969).
29. "Calculated profiles of He I 4471 and 4922 Å and their forbidden components," A. J. Barnard, J. Cooper and L. Shamey, European J. Astron. Astrophys. 1, 28-36 (1969).
30. "Electron impact broadening of isolated lines of neutral atoms in a plasma," J. Cooper and G. K. Oertel, Phys. Rev. 180, 286-298 (1969).
31. "Line broadening," J. Cooper, in Lectures in Theoretical Physics, Vol. XIC (Gordon and Breach, New York, 1969), pp. 241-271.

J. Cooper

Publications: (continued)

32. "Photoelectron angular distributions," J. Cooper and R. N. Zare, in Lectures in Theoretical Physics, Vol. XIC (Gordon and Breach, New York, 1969), pp. 317-337.
33. "Stark broadening of Na I 5682-88 and 4978-82 Å lines," P. E. Oettinger and J. Cooper, J. Quant. Spectrosc. Radiat. Transfer 9, 591-596 (1969).
34. "Classical path methods in line broadening. I. The classical path approximation," E. W. Smith, C. R. Vidal and J. Cooper, J. Res. Natl. Bur. Std. 73A, 389-404 (1969).
35. "Classical path methods in line broadening. II. Application to the Lyman series of hydrogen," E. W. Smith, C. R. Vidal and J. Cooper, J. Res. Natl. Bur. Std. 73A, 405-420 (1969).
36. "The heat pipe oven: A new well defined metal vapor device for spectroscopic measurements," C. R. Vidal and J. Cooper, J. Appl. Phys. 40, 3370-3374 (1969).
37. "New classical path calculations of the Stark broadening of hydrogen," E. W. Smith, C. R. Vidal and J. Cooper, in Proceedings IXth Conference on Ionization Phenomena in Gases (Bucharest 1969), p. 592.
38. "A Unified Classical Path treatment of Stark broadening in plasmas," E. W. Smith, J. Cooper and C. R. Vidal, in Proceedings IXth Conference on Ionization Phenomena in Gases (Bucharest 1969), p. 591.
39. "Stark broadening of isolated lines of neutral atoms," J. Cooper and G. K. Oertel, JILA Report No. 99, June 1969, 47 pp.
40. "The heat pipe oven," J. Cooper, in Proceedings International Conference on Atomic Absorption Spectroscopy (Sheffield, England, July 1969).
41. "Unified Classical Path treatment of Stark broadening in plasmas," E. W. Smith, J. Cooper and C. R. Vidal, Phys. Rev. 185, 140-151 (1969).
42. "A classical path calculation of the S-matrices for Stark broadening of the Lyman- α line," M. E. Bacon, K. Y. Shen and J. Cooper, Phys. Rev. 188, 50-56 (1969).
43. "Impact theory of resonance broadening in spectral lines of the alkali metals," D. N. Stacey and J. Cooper, Phys. Rev. Lett. 30A, 49-50 (1969).
44. "Effect of collective modes on spectral line shapes," W. R. Chappell, J. Cooper and E. W. Smith, Bull. Am. Phys. Soc. 14, 1071 (1969).
45. "Computed profiles of He I 5016 Å at high electron densities," A. J. Barnard and J. Cooper, J. Quant. Spectrosc. Radiat. Transfer 10, 695-702 (1970).
46. "Hydrogen Stark broadening calculations with the Unified Classical-Path Theory," C. R. Vidal, J. Cooper and E. W. Smith, J. Quant. Spectrosc. Radiat. Transfer 10, 1011-1063 (1970).
47. "Hydrogen Stark broadening calculations with the Unified Classical-Path Theory," C. R. Vidal, J. Cooper and E. W. Smith, NBS Monograph #116, May 1970, 140 pp.

J. Cooper

Publications: (continued)

48. "Non-thermal effects in Stark broadening," W. R. Chappell, J. Cooper and E. W. Smith, J. Quant. Spectrosc. Radiat. Transfer 10, 1195-1209 (1970).
49. "Kinetic theory of spectral line shapes," W. R. Chappell, J. Cooper and E. W. Smith, Bull. Am. Phys. Soc. 15, 514 (1970).
50. "Semi-classical treatment of strong collisions in pressure broadening," T. Dillon, E. W. Smith, J. Cooper and M. Mizushima, Phys. Rev. A 2, 1839-1846 (1970).
51. "Classical path A and B functions for line broadening of positive ions," J. Cooper, U. Palmer and G. K. Oertel, JILA Report No. 105, October 1970, 43 pp.
52. "The role of plasma kinetic theory in spectral line shapes," W. R. Chappell, J. Cooper and E. W. Smith, in Proceedings Cornell Symposium on Kinetic Theory, published in Kinetic Equations (R. L. Liboff and N. Rostoker, Eds., Gordon and Breach, New York, 1971), pp. 99-109.
53. "Unified theory calculations of Stark broadened hydrogen lines including lower state interactions," C. R. Vidal, J. Cooper and E. W. Smith, J. Quant. Spectrosc. Radiat. Transfer 11, 263-281 (1971).
54. "A kinetic theory of spectral line shapes," W. R. Chappell, J. Cooper, E. W. Smith and T. Dillon, J. Stat. Phys. 3, 401-410 (1971).
55. "Effect of time ordering in the Unified theory," T. Godfrey, C. R. Vidal, E. W. Smith and J. Cooper, Phys. Rev. A 3, 1543-1546 (1971).
56. "An impact theory for Doppler and pressure broadening. I. General theory," E. W. Smith, J. Cooper, C. R. Vidal, W. R. Chappell and T. Dillon, J. Quant. Spectrosc. Radiat. Transfer 11, 1547-1565 (1971).
57. "An impact theory for Doppler and pressure broadening. II. Atomic and molecular systems," E. W. Smith, J. Cooper, C. R. Vidal, W. R. Chappell and T. Dillon, J. Quant. Spectrosc. Radiat. Transfer 11, 1567-1576 (1971).
58. "Non-adiabatic effects in Van der Waals broadening," D. N. Stacey and J. Cooper, J. Quant. Spectrosc. Radiat. Transfer 11, 1271-1274 (1971).
59. "Classical path broadening functions for a Debye-shielded interaction," J. Cooper, S. Klarsfeld and G. K. Oertel, JILA Report No. 107, March 1971, 46 pp.
60. "Unified theory calculations of Stark broadened hydrogen lines including lower state interactions," C. R. Vidal, J. Cooper and E. W. Smith, NBS Monograph #120 (Jan. 1971), 42 pp.
61. "Effect of time ordering on the Lyman- α profile," T. Godfrey, C. R. Vidal, E. W. Smith and J. Cooper, NBS Monograph #121 (June 1971), 12 pp.
62. "An adiabatic treatment of ion dynamics for forbidden line profiles," J. Cooper, E. W. Smith and W. R. Chappell, Phys. Letters 34A, 363-365 (1971).

J. Cooper

Publications: (continued)

63. "Stark broadening of calcium ion resonance lines," J. S. Hildum and J. Cooper, Phys. Letters 36A, 153-155 (1971).
64. "Overlap of argon ion spectra with satellites to Lyman- α lines of carbon and nitrogen," N. W. Jalufka and J. Cooper, Astrophys. J. 171, 647-649 (1972).
65. "Determination of Van der Waals broadening at temperatures of astrophysical interest," J. M. Evans and J. Cooper, J. Quant. Spectrosc. Radiat. Transfer 12, 259-265 (1972).
66. "A symmetry relation for radiating particles in attractive versus repulsive Coulomb fields," L. C. Biedenharn, P. J. Brussaard, C. V. Sheth, N. V. Swamy and J. Cooper, Phys. Rev. D 5, 1288-1296 (1972).
67. "Redistribution of resonance radiation. I. The effect of collisions," A. Omont, E. W. Smith and J. Cooper, Astrophys. J. 175, 185-199 (1972).
68. "Comments on the validity of the Unified Classical Path Theory of Stark broadening," E. W. Smith, J. Cooper and C. R. Vidal, J. Phys. B 5, L33-35 (1972).
69. "A bright continuum source for the vacuum ultraviolet," J. S. Hildum and J. Cooper, Rev. Sci. Instr. 43, 699-701 (1972).
70. "Vacuum ultraviolet absorption measurements on ionized species," J. S. Hildum and J. Cooper, J. Quant. Spectrosc. Radiat. Transfer 12, 1453-1455 (1972).
71. "Redistribution of resonance radiation. II. The effect of magnetic field," A. Omont, E. W. Smith and J. Cooper, Astrophys. J. 182, 283-300 (1973).
72. "Satellites to Lyman alpha due to protons," J. C. Stewart, J. M. Peek and J. Cooper, Astrophys. J. 179, 983-986 (1973).
73. "Hydrogen Stark broadening tables," C. R. Vidal, J. Cooper and E. W. Smith, Astrophys. J. Suppl. 25, 37-136 (1973).
74. "Multipole relaxation and transfer rates in the impact approximation. Application to the resonance interaction," C. G. Carrington, D. N. Stacey and J. Cooper, J. Phys. B 6, 417-432 (1973).
75. "Stark shifts of He I 3889, He I 4713 and He I 5016," R. N. Morris and J. Cooper, Can. J. Phys. 51, 1746-1751 (1973).
76. "An analysis of the unified and scalar additivity theories of spectral line broadening," E. W. Smith, J. Cooper and L. J. Roszman, J. Quant. Spectrosc. Radiat. Transfer 13, 1523-1538 (1973).
77. "Comments on the theory of satellite bands," J. Cooper, JILA Report No. 111, November 1973, 27 pp.
78. "Effect of transfer of excitation on resonance broadening," J. Cooper and D. N. Stacey, Phys. Letters A46, 299-300 (1973).

J. Cooper

Publications: (continued)

79. "Correlation effects in the theory of combined Doppler and pressure broadening. I. Classical theory," J. Ward, J. Cooper and E. W. Smith, *J. Quant. Spectrosc. Radiat. Transfer* 14, 555-590 (1974).
80. "The broadening of He I lines including ion dynamic corrections, with application to $\lambda 4471 \text{ \AA}$," A. J. Barnard, J. Cooper and E. W. Smith, *J. Quant. Spectrosc. Radiat. Transfer* 14, 1025-1077 (1974).
81. "Influence of ion dynamics on H β and H α at low densities," J. Cooper, E. W. Smith and C. R. Vidal, *J. Phys. B* 7, L101-105 (1974).
82. "The role of the Doppler effect in the radiative interaction of atoms," J. Cooper and D. N. Stacey, *J. Phys. B* 7, 2143-2148 (1974).
83. "He I $\lambda 4471$ profiles in B-stars: Calculations with an improved line broadening theory," D. Mihalas, A. J. Barnard, J. Cooper and E. W. Smith, *Astrophys. J.* 190, 315-318 (1974).
84. "Comment on the classical limit of spectral line broadening theory and Kirchhoff's Law," J. Ward, J. Cooper and E. W. Smith, *Physica* 77, 372-378 (1974).
85. "Stark broadening tables for He I $\lambda 4922 \text{ \AA}$," A. J. Barnard, J. Cooper and E. W. Smith, *J. Quant. Spectrosc. Radiat. Transfer* 15, 429-437 (1975).
86. "He I $\lambda 4922$ profiles in B-stars: Calculations with an improved line broadening theory," D. Mihalas, A. J. Barnard, J. Cooper and E. W. Smith, *Astrophys. J.* 197, 139-142 (1975).
87. "On the effect of time-ordering for Lyman- α ," R. L. Greene and J. Cooper, *J. Quant. Spectrosc. Radiat. Transfer* 15, 991-993 (Nov. 1975).
88. "A unified theory of Stark broadening for hydrogenic ions. I. A general theory including time ordering," R. L. Greene, J. Cooper and E. W. Smith, *J. Quant. Spectrosc. Radiat. Transfer* 15, 1025-1036 (1975).
89. "A unified theory of Stark broadening for hydrogenic ions. II. Line wings," R. L. Greene and J. Cooper, *J. Quant. Spectrosc. Radiat. Transfer* 15, 1037-1044 (1975).
90. "A unified theory of Stark broadening for hydrogenic ions. III. Results for He II Lyman alpha," R. L. Greene and J. Cooper, *J. Quant. Spectrosc. Radiat. Transfer* 15, 1045-1053 (1975).
91. "H shape resonance studies in an arc plasma," W. R. Ott, J. Slater, J. Cooper and G. Gieres, *Phys. Rev. A* 12, 2009-2016 (1975).
92. "Correlations between Doppler and pressure broadening for the resonance interaction," J. Cooper and D. N. Stacey, *Phys. Rev. A* 12, 2438-2443 (1975).
93. "A measurement at low temperature of the Stark broadened 3968 \AA line of ionized calcium," J. F. Baur and J. Cooper, *Phys. Lett.* 54A, 457-459 (1975).
94. "A semiclassical theory for spectral line broadening in molecules," E. W. Smith, M. Giraud and J. Cooper, *J. Chem. Phys.* 65, 1256-1267 (1976).

J. Cooper

Publications: (continued)

95. "Demonstration of possible excitation in liquids," W. Tantilla, D. Toms and J. Cooper, *Am. J. Phys.* 45, 395-396 (1977).
96. "A shock tube study of line broadening in a temperature range of 6100 K to 8300 K," J. F. Baur and J. Cooper, *J. Quant. Spectrosc. Radiat. Transfer* 17, 311-322 (1977).
97. "The angular dependence of partially redistributed resonance radiation," R. J. Ballagh and J. Cooper, *Astrophys. J.* 213, 479-591 (1977).
98. "Stark broadening of Fe I 5383 Å," S. Freudenstein and J. Cooper, *Astron. Astrophys.* 71, 283-288 (1979).
99. "A theoretical analysis of mercury molecules," E. W. Smith, R. E. Drullinger, M. M. Hessel and J. Cooper, *J. Chem. Phys.* 66, 5667-5681 (1977).
100. "A simple formula for estimating Stark width of neutral lines," S. Freudenstein and J. Cooper, *Astrophys. J.* 224, 1079-1084 (1978).
101. "Role of collisional repopulation of atomic levels on coherent and redistributed components in resonance light scattering," J. Cooper and R. J. Ballagh, *Phys. Rev. A* 18, 1302-1306 (1978).
102. "Collisional redistribution of radiation in the non-impact region of spectral lines," J. Cooper, R. J. Ballagh and E. W. Smith, *Acta Phys. Polon.* A54, 729-733 (1978).
103. "Redistribution of scattered radiation by collisions in the non-impact region of the spectral line profile," J. Cooper, *Astrophys. J.* 228, 339-356 (1979).
104. "Collisional redistribution," J. Cooper, in *Proceedings of Fourth International Conference on Spectral Line Shapes 1978* (Windsor, Ontario), pp. 97-116 (January 1979).
105. "Resonance fluorescence in a weak radiation field with arbitrary spectral distribution," M. G. Raymer and J. Cooper, *Phys. Rev. A* 20, 2238-2240 (1979).
106. "Time- and frequency-resolved light scattering by collisionally perturbed atoms," M. G. Raymer and J. Cooper, *Bull. Am. Phys. Soc.* 24, 1185 (1979).
107. "A multiphoton treatment of resonance light scattering in intense fields," R. J. Ballagh and J. Cooper, *J. Quant. Spectrosc. Radiat. Transfer* 23, 535-552 (1980).
108. "Collisional redistribution of laser radiation," (Lectures presented at 1980 New Zealand Laser Physics Summer School, Waikato, New Zealand 21-26 January 1980). J. Cooper, in *Laser Physics* (D. F. Walls and J. D. Harvey, Eds., Academic Press, Sydney, 1980), pp. 241-278.
109. "Zeeman degeneracy effects in collisional intense field resonance fluorescence," J. Cooper, R. J. Ballagh and K. Burnett, *Phys. Rev. A* 22, 535-544 (1980).
110. "Observation of dynamic correlations in collisional redistribution and depolarization of light," P. Thomann, K. Burnett and J. Cooper, *Phys. Rev. Lett.* 45, 1325-1328 (1980).

J. Cooper

Publications: (continued)

111. "Collisional redistribution of radiation. I. The density matrix," K. Burnett, J. Cooper, R. J. Ballagh and E. W. Smith, Phys. Rev. A 22, 2005-2026 (1980).
112. "Collisional redistribution of radiation. II. The effects of degeneracy on the equations of motion of the density matrix," K. Burnett and J. Cooper, Phys. Rev. A 22, 2027-2043 (1980).
113. "Collisional redistribution of radiation. III. The equation of motion for the correlation function and the scattered spectrum," K. Burnett and J. Cooper, Phys. Rev. A 22, 2044-2060 (1980).
114. "Far wing depolarization of light: Generalized absorption profiles," P. Thomann, K. Burnett and J. Cooper, in Spectral Line Shapes, Proc. 5th International Conference 1980, Berlin, W. Germany, (B. Wende, Ed., de Gruyter, Berlin, New York, 1981), pp. 926-936.
115. "Effect of laser bandwidth on intense field stimulated Raman scattering," J. Cooper and A. Szoke, Phys. Rev. A 23, 378-383 (1981).
116. "Optical bistability in a Gaussian cavity mode," R. J. Ballagh, J. Cooper, M. W. Hamilton, W. J. Sandle and D. M. Warrington, Optics Commun. 37, 143-148 (1981).
117. "Observation of Zeeman degeneracy effects in collisional intense field resonance fluorescence," P. Kleiber, K. Burnett and J. Cooper, Phys. Letts. 84A, 182-184 (1981).
118. "An analysis of Markovian model microfield methods for Stark broadening," E. W. Smith, B. Talin and J. Cooper, J. Quant. Spectrosc. Radiat. Transfer 26, 229-242 (1981).
119. "Redistribution of radiation for the wings of Lyman-alpha," J.-B. Yelnik, K. Burnett, J. Cooper, R. J. Ballagh and D. Voslamber, Astrophys. J. 248, 705-716 (1981).
120. "Effective two-state behaviour of collisionally perturbed Zeeman degenerate atomic transition and its application to optical bistability," R. J. Ballagh, J. Cooper and W. J. Sandle, J. Phys. B 14, 3881-3890 (1981).
121. "Observation of the modification of "optical" collision dynamics in intense laser fields," P. D. Kleiber, K. Burnett and J. Cooper, Phys. Rev. Lett. 47, 1595-1598 (1981).
122. "Observation of the effect of stimulated processes on dressed state collisional kinetics," P. D. Kleiber, K. Burnett and J. Cooper, Phys. Rev. A 25, 1188-1191 (1982).
123. "Collisional redistribution of radiation in strong fields; Modification of the collision dynamics," K. Burnett, J. Cooper, P. D. Kleiber and A. Ben Reuven, Phys. Rev. A 25, 1345-1357 (1982).
124. "Influence of spontaneous emission on laser induced autoionization," G. S. Agarwal, S. L. Haan, K. Burnett and J. Cooper, Phys. Rev. Lett. 48, 1164-1167 (1982).
125. "Comment on the use of an exponential approximation for the Stark broadening of hydrogen lines," J. Cooper and E. W. Smith, J. Quant. Spectrosc. Radiat. Transfer 27, 665-666 (1982).

J. Cooper

Publications: (continued)

126. "On redistribution and the equations for radiative transfer," J. Cooper, R. J. Ballagh, K. Burnett and D. G. Hummer, *Astrophys. J.* 260, 299-316 (1982).
127. "Photoemission spectra in intense laser field induced autoionization," G. S. Agarwal, S. L. Haan, K. Burnett and J. Cooper, *Phys. Rev. A* 26, 2277-2280 (1982).
128. "Effective two-level description of pressure induced extra resonances in four wave mixing," G. S. Agarwal and J. Cooper, *Phys. Rev. A* 26, 2761-2767 (1982).
129. "Theory of time-dependent intense field collisional resonance fluorescence," P. D. Kleiber, J. Cooper, K. Burnett, C. V. Kunasz and M. G. Raymer, *Phys. Rev. A* 27, 291-301 (1983).
130. "Redistribution -- why half a collision is better than a whole one," (Invited paper), J. Cooper, in Spectral Line Shapes, Volume 2: Proceedings, Sixth International Conference, Boulder, Colorado, July 12-16, 1982 (K. Burnett, Ed., de Gruyter, Berlin, New York, 1983), pp. 737-753.
131. "Experimental aspects of studying the polarization of collisionally redistributed light in strontium-rare gas systems," J. Alford, K. Burnett and J. Cooper, in Spectral Line Shapes, Volume 2: Proceedings, Sixth International Conference, Boulder, Colorado, July 12-16, 1982 (K. Burnett, Ed., de Gruyter, Berlin, New York, 1983), pp. 805-812.
132. "Observation of the modification of optical collision dynamics in intense laser fields," P. D. Kleiber, K. Burnett and J. Cooper, in Spectral Line Shapes, Volume 2: Proceedings, Sixth International Conference, Boulder, Colorado, July 12-16, 1982 (K. Burnett, Ed., de Gruyter, Berlin, New York, 1983), pp. 827-834.
133. "The polarisation of collisionally redistributed atomic fluorescence," E. L. Lewis, M. Harris, J. Alford, J. Cooper and K. Burnett, *J. Phys. B* 16, 553-562 (1983).
134. "Polarization of collisionally redistributed light from the far wings of strontium-rare gas systems," J. Alford, K. Burnett and J. Cooper, *Phys. Rev. A* 27, 1310-1313 (1983).
135. "Photoemission spectra from autoionizing states under recycling conditions," G. S. Agarwal, S. L. Haan and J. Cooper, *Phys. Rev. A* 28, 1154-1156 (1983).
136. "Nonlinear noise fields and strongly driven atomic transitions," P. Zoller and J. Cooper, *Phys. Rev. A* 28, 2310-2317 (1983).
137. "On the line profile coefficient for stimulated emission," J. Oxenius, I. Hubeny and J. Cooper, *Astron. Astrophys.* 127, 224-226 (1983).
138. "Unitarity, the pole approximation, and interference between radiative emission and autoionization," S. L. Haan and J. Cooper, *Phys. Rev. A* 28, 3349-3354 (1983).
139. "Collisional redistribution by two-atom coherence in weak fields," A. Ben Reuven, K. Burnett and J. Cooper, in Collisions and Half Collisions with Lasers (N. K. Rahman and C. Guidotti, Eds., Harwood Academic Publications, London, 1984), pp. 267-284.
140. "Radiative transfer equations in broadband, time-varying fields," J. Cooper and P. Zoller, *Astrophys. J.* 277, 813-819 (1984).

J. Cooper

Publications: (continued)

141. "Radiative decay of autoionizing states in laser fields. I. General theory," G. S. Agarwal, S. Haan and J. Cooper, Phys. Rev. A 29, 2552-2564 (1984).
142. "Radiative decay of autoionizing states in laser fields. II. Photoemission spectra," G. S. Agarwal, S. Haan and J. Cooper, Phys. Rev. A 29, 2565-2577 (1984).
143. "Steady-state spectrum of radiation from autoionizing states," G. S. Agarwal, S. Haan and J. Cooper, Phys. Rev. Lett. 52, 1480-1483 (1984).
144. "Depolarization of collisionally redistributed light," A. J. Alford, N. Andersen, K. Burnett and J. Cooper, Bull. Am. Phys. Soc. 29, 807 (1984).
145. "Threshold shifts in negative-ion photodetachment," S. Haan and J. Cooper, J. Phys. B 17, 3481-3492 (1984).
146. "Discussion of the conditional probability-function for electric fields in a plasma," E. W. Smith, R. Stamm and J. Cooper, Phys. Rev. A 30, 454-467 (1984).
147. "Collisional redistribution of light: Far-wing line shapes and polarizations for the Ba-Ar, Xe systems," W. J. Alford, N. Andersen, K. Burnett and J. Cooper, Phys. Rev. A 30, 2366-2380 (1984).
148. "Unified treatment of radiative and dielectronic recombination," G. Alber, J. Cooper and A. R. P. Rau, Phys. Rev. A (Rapid Communication) 30, 2845-2848 (1984).
149. "Modifications to population rate equations resulting from correlations between collisional and radiative processes," R. J. Ballagh and J. Cooper, J. Phys. B 17, 4411-4427 (1984).
150. "Redistribution of radiation in the absence of collisions," G. Lombardi, D. Kelleher and J. Cooper, Astrophys. J. 288, 820-823 (1985).
151. "Theory of resonant degenerate four-wave mixing with broad bandwidth lasers," G. Alber, J. Cooper and P. Ewart, Phys. Rev. A 31, 2344-2352 (1985).
152. "Collisional redistribution of circularly polarized light in barium perturbed by argon," W. J. Alford, N. Andersen, M. Belsley, J. Cooper, D. M. Warrington and K. Burnett, Phys. Rev. A 31, 3012-3016 (1985).
153. "Two photon collision redistribution of radiation," G. Alber and J. Cooper, Phys. Rev. A 31, 3644-3671 (1985).
154. "Multiphoton effects during collisions," K. Burnett and J. Cooper, in Multiphoton Processes, Proceedings of the 3rd International Conference, Iraklion, Crete, September 5-12, 1984 (P. Lambropoulos and S. J. Smith, Eds., Springer-Verlag, Berlin, 1984), pp. 91-97.
155. "Shifts of ion lines in plasmas," D. E. Kelleher and J. Cooper, in Spectral Line Shapes, Volume 3: Proceedings, Seventh International Conference, Aussois, France, June 11-15, 1984 (F. Rostas, Ed., de Gruyter, Berlin, New York, 1985), pp. 85-120.
156. "Radiative damping effects in redistribution," G. G. Lombardi, D. E. Kelleher and J. Cooper, in Spectral Line Shapes, Volume 3: Proceedings, Seventh International Conference, Aussois,

J. Cooper

Publications: (continued)

France, June 11-15, 1984 (F. Rostas, Ed., de Gruyter, Berlin, New York, 1985), pp. 553-554.

157. "Far wing redistribution line shapes," W. J. Alford, N. Andersen, K. Burnett and J. Cooper, in Spectral Line Shapes, Volume 3: Proceedings, Seventh International Conference, Aussois, France, June 11-15, 1984 (F. Rostas, Ed., de Gruyter, Berlin, New York, 1985), pp. 523-524.
158. "On the plasma polarization shift," J. Cooper, D. Kelleher and R. Lee, in Radiative Properties of Hot Dense Matter, Proceedings of the 2nd International Conference, Sarasota, Florida Oct. 31-Nov.4, 1983 (J. Davis, C. Hooper, R. Lee, A. Merts, and B. Rozsnyai, Eds., World Scientific, Singapore, 1985), pp. 350-384.
159. "Intensity effects in two-photon collisional redistribution of radiation," G. Alber and J. Cooper, Phys. Rev. A 32, 2186-2195 (1985).
160. "Threshold shift and above threshold multiphoton ionization of atomic hydrogen in intense laser fields," S.-I Chu and J. Cooper, Phys. Rev. A 32, 2769-2775 (1985).
161. "Redistribution of near-resonant light as a probe of collision dynamics" W. J. Alford, N. Andersen, K. Burnett and J. Cooper, Bull. Am. Phys. Soc. 30, 1839 (1985).
162. "Effect of quasi-bound states on collisional redistribution," M. Belsley, W. J. Alford, K. Burnett and J. Cooper, J. Quant. Spectrosc. Radiat. Transfer 35, 53-65 (1986).
163. "Redistribution of radiation in the presence of velocity-changing collisions," I. Hubeny and J. Cooper, Astrophys. J. 305, 852-862 (1986).
164. "Autoionization in a fluctuating electric field," K. Rzazewski and J. Cooper, J. Opt. Soc. Am. B 3, 891-894 (1986).
165. "Master-equation approach to collisionally induced absorption and emission," G. Alber and J. Cooper, Phys. Rev. A 33, 3084-3112 (1986).
166. "On radiative modifications of electron-ion cross sections in the vicinity of an excitation threshold," J. Cooper, J. Phys. B 19, L285-289 (1986).
167. "Isomorphism of dc-field-induced interferences and laser-induced effects in autoionization," G. S. Agarwal, J. Cooper, S. L. Haan and P. L. Knight, Phys. Rev. Lett. 56, 2586-2589 (1986).
168. "On radiative modifications of inelastic electron-ion cross sections in the vicinity of threshold," J. Cooper, Bull. Am. Phys. Soc. 31, 958 (1986).
169. "Time dependent radiative transfer in magnesium," A. Streater and J. Cooper, Bull. Am. Phys. Soc. 31, 967 (1986).
170. "Unified description of radiative and dielectronic recombination," V. L. Jacobs, J. Cooper and S. L. Haan, Bull. Am. Phys. Soc. 31, 989 (1986).
171. "Observation of radiative transfer of polarized light," M. Belsley, A. Streater, K. Burnett, P. Ewart and J. Cooper, J. Quant. Spectrosc. Radiat. Transfer 36, 163-173 (1986).

J. Cooper

Publications: (continued)

172. "Measurement of tagged-particle diffusion using delayed two-photon absorption," A. Streater, G. Kintz, J. Cooper, A. Santos, K. Burnett and J. W. Duffy, *Phys. Rev. A* 34, 1584-1586 (1986).
173. "On time-dependent radiative transfer," A. Streater, J. Cooper and W. J. Sandle, *J. Quant. Spectrosc. Radiat. Transfer* 37, 151-156 (1987).
174. "Collisional redistribution by laser-induced fluorescence in the Ba-Ar system," M. Belsley and J. Cooper, *Phys. Rev. A* 35, 1013-1021 (1987).
175. "Pump-probe cross-correlation-induced resonances in four-wave mixing," G. S. Agarwal, C. V. Kunasz and J. Cooper, *Phys. Rev. A* 36, 143-146 (1987).
176. "Unified description of radiative and dielectronic recombination, including the coupling between autoionization and radiation continua," V. L. Jacobs, J. Cooper and S. L. Haan, *Phys. Rev. A* 36, 1093-1113 (1987).
177. "Asymmetric line shapes for weak transitions in strong standing wave fields," C. E. Wieman, M. C. Noecker, B. P. Masterson and J. Cooper, *Phys. Rev. Lett.* 58, 1738-1741 (1987).
178. "Pump-noise-induced Hanle effect in forward four-wave mixing," G. S. Agarwal, C. V. Kunasz and J. Cooper, *Phys. Rev. A* 36, 5439-5440 (1987).
179. "Effect of collisions on forbidden lines," J. Coutts, S. K. Peck, R. Stoner and J. Cooper, *J. Appl. Phys.* 62, 3514-3521 (1987).
180. "Intensity effects in two photon collisional redistribution," M. Belsley, G. Alber and J. Cooper, in Spectral Line Shapes, Volume 4: Proceedings, Eight International Conference, Williamsburg, VA, June 9-13, 1986 (de Gruyter, Berlin, 1987), pp. 469-470.
181. "Fluctuation-induced Hanle resonances in phase conjugation," G. S. Agarwal, C. V. Kunasz and J. Cooper, *Phys. Rev. A* 36, 5654-5657 (1987).
182. "Direct probing of the radiation field in optically thick environments," A. Streater and J. Cooper, *J. Quant. Spectrosc. Radiat. Transfer* 39, 49-55 (1988).
183. "Modifying excitation transfer cross sections with an ac Stark effect," J. Coutts, J. Cooper and K. Burnett, *Opt. Lett.* 13, 354-356 (1988).
184. "Dispersive self-focusing in atomic media," A. W. McCord, R. J. Ballagh and J. Cooper, *J. Opt. Soc. Am. B* 5, 1323-1334 (1988).
185. "Experiments on time-dependent radiative transfer in a spectral line," A. Streater, W. Molander and J. Cooper, *J. Quant. Spectrosc. Radiat. Transfer* 40, 101-121 (1988).
186. "Collisional-induced absorption in calcium rare-gas collisions," J. Coutts, S. K. Peck and J. Cooper, *J. Appl. Phys.* 64, 977-981 (1988).
187. "Temperature effects in the collisional redistribution of resonance radiation in the Ba-Ar and Ba-Xe system," M. S. Belsley, J. Coutts and J. Cooper, *Phys. Rev. A* 38, 3781-3784 (1988).

J. Cooper

Publications: (continued)

188. "Effects of scattered radiation on nonlinear light propagation," A. W. McCord, R. J. Ballagh and J. Cooper, *Opt. Commun.* 68, 375-378 (1988).
189. "Transfer and redistribution of polarized light in resonance lines. I. Quantum formulation with collisions," A. Streater, J. Cooper and D. E. Rees, *Astrophys. J.* 335, 503-515 (1988).
190. "Laser noise induced population fluctuations in two- and three-level systems," Th. Haslwanter, H. Ritsch, J. Cooper and P. Zoller, *Phys. Rev. A* 38, 5652-5659 (1988).
191. "Collisionally induced absorption in the calcium-rare gas complex near 4575 Å," J. Coutts, S. K. Peck and J. Cooper, in Advances in Laser Science - III, Proceedings of the Third International Laser Science Conference, AIP Conf. Proc. No. 172 (A. C. Tam, J. L. Gole and W. C. Stwalley, Eds., Am. Instit. of Phys., New York, 1988), pp. 375-377.
192. "Destruction terms in non-Markovian collisional redistribution," J. Cooper, *Phys. Rev. A* 39, 409-412 (1989).
193. "Redistribution in astrophysically important hydrogen lines," J. Cooper, R. J. Ballagh and I. Hubeny, in Spectral Line Shapes, Volume 5, Proceedings, Ninth International Conference, Torun, Poland, July 25-29, 1988 (J. Szudy, Ed., Ossolineum, Wroclaw, Poland, 1989), pp. 275-304.
194. "Effect of plasma microfields on autoionizing states," K. Rzazewski, M. Wilkens and J. Cooper, in Spectral Line Shapes, Volume 5, Proceedings, Ninth International Conference, Torun, Poland, July 25-29, 1988 (J. Szudy, Ed., Ossolineum, Wroclaw, Poland, 1989), pp. 183-196.
195. "Theory of speed dependent, collision broadened, two step line shapes," M. J. O'Callaghan and J. Cooper, *Phys. Rev. A* 39, 6206-6223 (1989).
196. "Observation of population fluctuations in a two-level atom," M. H. Anderson, R. D. Jones, J. Cooper, S. J. Smith and D. S. Elliott, *Bull. Am. Phys. Soc.* 34, 1361 (1989).
197. "Approximate formulation of redistribution for the Ly α , Ly β , H α system," J. Cooper, R. J. Ballagh and I. Hubeny, *Astrophys. J.* 344, 949-965 (1989).
198. "Revised theory of resonant degenerate four wave mixing with broadband lasers," J. Cooper, A. Charlton, D. R. Meacher, P. Ewart and G. Alber, *Phys. Rev. A* 40, 5705-5715 (1989).
199. "An overview of the ion dynamic effect in line broadening and a generalization of the unified theory," D. E. Kelleher, D. H. Oza, J. Cooper and R. L. Greene, *J. Quant. Spectrosc. Radiat. Transfer* 44, 101-107 (1990).
200. "Low-frequency approximation for simultaneous electron-photon excitation of atoms," A. Maquet and J. Cooper, *Phys. Rev. A* 41, 1724-1727 (1990).
201. "Harmonic generation by a classical hydrogen atom in the presence of an intense radiation field," G. Bandarage, A. Maquet and J. Cooper, *Phys. Rev. A (Rapid Communication)* 41, 1744-1746 (1990).

J. Cooper

Publications: (continued)

202. "Threshold effects in photodetachment near an autodetaching or excited state resonance," S. L. Haan, M. S. Walhout and J. Cooper, Phys. Rev. A 41, 2598-2609 (1990).
203. "Power spectra and variance of laser-noise-induced population fluctuations in two-level atoms," H. Ritsch, P. Zoller and J. Cooper, Phys. Rev. A 41, 2653-2657 (1990).
204. "Observation of population fluctuations in two-level atoms driven by a phase diffusing field," M. H. Anderson, R. D. Jones, J. Cooper, S. J. Smith, D. S. Elliott, H. Ritsch and P. Zoller, Phys. Rev. Lett. 64, 1346-1349 (1990).
205. "dc-field-coupled autoionizing states for laser action without population inversion," G. S. Agarwal, S. Ravi and J. Cooper, Phys. Rev. A 41, 4721-4726 (1990).
206. "Lasers without inversion: Raman transitions using autoionizing resonances," G. S. Agarwal, S. Ravi and J. Cooper, Phys. Rev. A 41, 4727-4731 (1990).
207. "Population correlations in transient stimulated Raman scattering," S. Kilin, M. Trippenbach and J. Cooper, Optics Commun. 76, 157-163 (1990).
208. "Degenerate four wave mixing with broad bandwidth pulsed lasers," D. R. Meacher, A. Charleton, P. Ewart, J. Cooper and G. Alber, Phys. Rev. A 42, 3018-3026 (1990).
209. "Variance and spectra of fluorescence intensity fluctuations from two-level atoms in a phase diffusing field," M. H. Anderson, R. D. Jones, J. Cooper, S. J. Smith, D. S. Elliott, H. Ritsch and P. Zoller, Phys. Rev. A 42, 6690-6703 (1990).
210. "Collisional energy transfer between excited Sr atoms," H. G. C. Werij, M. Harris, J. Cooper, A. Gallagher and J. Kelly, Phys. Rev. A 43, 2237-2249 (1991).
211. "Alternative treatment for the initiation of superfluorescence," L. You, J. Cooper and M. Trippenbach, J. Opt. Soc. Am. B 8, 1139-1148 (1991).
212. "On conical emission from laser-pumped media," L. You, J. Mostowski and J. Cooper, Bull. Am. Phys. Soc. 36, 1372 (1991).
213. "Spectral line shape arising from collisional interference between dipole-allowed and collision induced transitions," B. Gao, G. C. Tabisz, M. Trippenbach and J. Cooper, Bull. Am. Phys. Soc. 36, 1379 (1991).
214. "Incorporation of relaxation processes in the unified description of radiative and dielectronic recombination," V. L. Jacobs, J. Cooper and S. L. Haan, Bull. Am. Phys. Soc. 36, 1287-1288 (1991).
215. "Scattering angle resolution in measurements of velocity changing collision kernels," K. Gibble and J. Cooper, Phys. Rev. Lett. 67, 1936 (1991).
216. "Interatomic potentials from velocity changing collision kernels," K. Gibble and J. Cooper, Phys. Rev. A 44, R5335-5338 (1991).

J. Cooper

Publications: (continued)

217. "Four wave mixing with time-delayed correlated fields of arbitrary bandwidths and pump intensities," G. Vemuri, G. S. Agarwal, R. Roy, M. H. Anderson, J. Cooper and S. J. Smith, *Phys. Rev. A* 44, 6009-6016 (1991).
218. "Errors in the measurement of non-Gaussian noise spectra using rf spectrum analyzers," M. H. Anderson, R. D. Jones, J. Cooper and S. J. Smith, *Rev. Sci. Instr.* 62, 2828-2830 (1991).
219. "Spectral line shape arising from collisional interferences between electric-dipole- allowed and collision-induced transitions," B. Gao, G. C. Tabisz, M. Trippenbach and J. Cooper, *Phys. Rev. A* 44, 7379-7391 (1991).
220. "Observation of modulated Hanle resonances in phase-diffusing optical fields," G. Vemuri, M. H. Anderson, J. Cooper and S. J. Smith, *Phys. Rev. A* 44, 7635-7641 (1991).
221. "Cone emission from laser-pumped two-level atoms," L. You, J. Mostowski, J. Cooper, and R. Shuker, *Phys. Rev. A* 44, R6998-R7001 (1991).
222. "Laser-noise-induced population fluctuations in two-level systems: Complex and real Gaussian driving fields," R. Walser, H. Ritsch, P. Zoller and J. Cooper, *Phys. Rev. A* 45, 468-476 (1992).
223. "Suppression of ionization in one- and two-dimensional model calculations," L. You, J. Mostowski and J. Cooper, *Phys. Rev. A* 45, 3203-3209 (1992).
224. "Calculation of the background emitted during high-harmonic generation," K. Burnett, V. C. Reed, J. Cooper and P. L. Knight, *Phys. Rev. A* 45, 3347-3349 (1992).
225. "Dissipation and fluctuation due to foreign atom collisions: a Langevin operator approach," L. You and J. Cooper, *Bull. Am. Phys. Soc.* 37, 1109 (1992).
226. "Rotational spectrum of HD perturbed by He or Ar gases: The effects of inelastic collisions on the interference between allowed and collisionally induced components," B. Gao, J. Cooper and G. Tabisz, *Bull. Am. Phys. Soc.* 37, 1094 (1992).
227. "Liouville space projection operator approach to the unified description of radiative and dielectronic recombination," V. L. Jacobs, J. Cooper and S. L. Haan, *Bull. Am. Phys. Soc.* 37, 1136 (1992).
228. "Slow collisions between identical atoms: application of the Born and Markov approximations to the system of moving atoms," M. Trippenbach, B. Gao, J. Cooper and K. Burnett, *Phys. Rev. A* 45, 6539-6554 (1992).
229. "Slow collisions between identical atoms in a laser field: The spectrum of redistributed light," M. Trippenbach, B. Gao, J. Cooper and K. Burnett, *Phys. Rev. A* 45, 6555-6569 (1992).
230. "Harmonic generation by laser-driven anharmonic systems, I. Classical hydrogen atoms," G. Bandarage, A. Maquet, T. Menis, R. Taieb, V. Veniard and J. Cooper, *Phys. Rev. A* 46, 380-390 (1992).
231. "Collisional energy transfer between excited-state strontium and noble-gas atoms," D. A. Miller, L. You, J. Cooper and A. Gallagher, *Phys. Rev. A* 46, 1303-1309 (1992).

J. Cooper

Publications: (continued)

232. "Frequency spectrum of the signal wave in resonant four-wave mixing induced by broad-bandwidth lasers," D. R. Meacher, P. G. R. Smith, P. Ewart and J. Cooper, Phys. Rev. A 46, 2718-2725 (1992).
233. "Cone emission from laser-pumped two-level atoms I. Quantum theory of resonant light propagation," L. You, J. Mostowski, and J. Cooper, Phys. Rev. A 46, 2903-2924 (1992).
234. "Cone emission from laser-pumped two-level atoms II. Analytical model studies," L. You, J. Mostowski, and J. Cooper, Phys. Rev. A 46, 2925-2938 (1992).
235. "Rotational spectrum of HD perturbed by He or Ar gases: The effects of rotationally inelastic collisions on the interference between allowed and collisionally induced components," B. Gao, J. Cooper and G. Tabisz, Phys. Rev. A 46, 5781-5788 (1992).
236. "Dissipation and fluctuation due to foreign-atom collisions: A Langevin-type equation approach," L. You and J. Cooper, Phys. Rev. A 46, 4335-4346 (1992).
237. "Comparative study of four-wave mixing in chaotic and phase-diffusing fields," G. S. Agarwal, G. Vemuri, C. V. Kunasz and J. Cooper, Phys. Rev. A 46, 5879-5884 (1992).
238. "Calculating the diffusion coefficient for laser cooling of atoms with long-range collisions," A. M. Smith, K. Burnett and J. Cooper, Phys. Rev. A 46, 4065-4076 (1992).
239. "Isotope selective photoionization spectroscopy of barium," D. J. Armstrong and J. Cooper, Phys. Rev. A 47, R2446-2449 (1993).
240. "Experimental study of absorption and gain by two-level atoms in time-delayed non-Markovian optical field," M. H. Anderson, G. Vemuri, J. Cooper, P. Zoller and S. J. Smith, Phys. Rev. A 47, 3202-3209 (1993).
241. "Electric field effects on barium autoionizing spectra," D. J. Armstrong, C. H. Greene, R. P. Wood and J. Cooper, Phys. Rev. Lett. 70, 2379-2382 (1993).
242. "Compound-cavity laser theory for arbitrary interface reflectivity," S. E. Hodges, M. Munroe, M. G. Raymer and J. Cooper, in Quantum Electronics and Laser Science Conference 1993, OSA Technical Digest Series 12 (OSA, Washington, DC 1993), pp. 251-252.
243. "Total intensity modulation and mode-hopping in a coupled cavity laser due to external-cavity length variations," M. Munroe, S. E. Hodges, J. Cooper and M. G. Raymer, in Quantum Electronics and Laser Science Conference 1993, OSA Technical Digest Series 12 (OSA, Washington, DC 1993), p. 288.
244. "Electric field effects on barium autoionizing spectra," D. J. Armstrong, C. H. Greene, R. P. Wood and J. Cooper, Bull. Am. Phys. Soc. 38, 1091 (1993).
245. "Degenerate four-wave mixing with the phase diffusion field," M. H. Anderson, C. Chen, D. S. Elliot, J. Cooper and S. J. Smith, Bull. Am. Phys. Soc. 38, 1093 (1993).
246. "Propagational formulation of resonant Raman scattering," L. You, J. Cooper and P. Zoller, Bull. Am. Phys. Soc. 38, 1098 (1993).

Publications: (continued)

247. "New aspects of cone emission," R. C. Hart, Li You, A. Gallagher and J. Cooper, *Bull. Am. Phys. Soc.* 38 (post-deadline) (1993).
248. "Population fluctuation in two-level atoms induced by laser noise," G. Vemuri, M. H. Anderson, R. D. Jones, J. Cooper and S. J. Smith, in Recent Developments in Quantum Optics (R. Inguva, Ed., Plenum, New York, 1993), pp. 455-472.
249. "Complete experimental characterization of the quantum state of a light mode via the Wigner function and the density matrix: Application to quantum phase distributions of vacuum and squeezed-vacuum states," D. T. Smithey, M. Beck, J. Cooper, M. G. Raymer and A. Faridani, *Physica Scripta* T48, 35-44 (1993).
250. "Experimental determination of number-phase uncertainty relations, D. J. Smithey, M. Beck, J. Cooper and M. G. Raymer, *Opt. Lett.* 18, 1259-1261 (1993).
251. "Diode-laser noise spectroscopy of rubidium," D. H. McIntyre, J. Cooper, C. Fairchild, J. J. Maki and R. Walser, *Bull. Am. Phys. Soc.* 38, 1758 (1993).
252. "Compound-cavity laser modes for arbitrary interface reflectivity," S. E. Hodges, M. Munroe, J. Cooper and M. G. Raymer, *Opt. Lett.* 18, 1481-1483 (1993).
253. "Measurement of number-phase uncertainty relations of optical fields," D. T. Smithey, M. Beck, J. Cooper and M. G. Raymer, *Phys. Rev. A* 48, 3159-3167 (1993).
254. "Diode laser noise spectroscopy of rubidium," D. H. McIntyre, C. E. Fairchild, J. Cooper and R. Walser, *Opt. Lett.* 18, 1816-1818 (1993).
255. "Many-port homodyne detection of optical phase," M. G. Raymer, J. Cooper and M. Beck, *Phys. Rev. A* 48, 4617-4628 (1993).
256. "Total intensity modulation and mode-hopping in a coupled-cavity laser as a result of external-cavity length variations," M. Munroe, S. E. Hodges, J. Cooper and M. G. Raymer, *Opt. Lett.* 19, 105-107 (1994).
257. "Quantum states and number-phase uncertainty relations measured by optical homodyne tomography," M. G. Raymer, D. T. Smithey, M. Beck and J. Cooper, *Acta Physica Polonica A* 86, 71-80 (1994).
258. "Quantum optics of a Bose-Einstein condensate," M. Lewenstein, Li You and J. Cooper, *Acta Physica Polonica A* 86, 173-190 (1994).
259. "Light pressure force in N-atom systems," K. Ellinger, J. Cooper and P. Zoller, *Phys. Rev. A* 49, 3909-3933 (1994).
260. "Energy-pooling collisions in barium," J. A. Neuman, A. Gallagher and J. Cooper, *Phys. Rev. A* 50, 1292-1300 (1994).
261. "Theory of selective reflection spectroscopy," J. Guo, J. Cooper, A. Gallagher and M. Lewenstein, *Opt. Commun.* 110, 732-743 (1994).

J. Cooper

Publications: (continued)

262. "Quantum optics of a Bose-Einstein condensate," L. You, M. Lewenstein and J. Cooper, *Bull. Am. Phys. Soc.* 39, 1217 (1994).
263. "Propagation and self trapping of short pulses in Sr," M. L. Dowell, R. C. Hart, A. Gallagher and J. Cooper, ICAP-14 Abstract 1.A-6, July 31-Aug. 5, 1994 (Boulder, Colorado).
264. "Line shapes for light scattered from Bose-Einstein condensates," L. You, M. Lewenstein and J. Cooper, ICAP-14 Abstract 1.M-8, July 31-Aug. 5, 1994 (Boulder, Colorado).
265. "Quantum field theory of atoms interacting with photons: Foundations," M. Lewenstein, L. You, J. Cooper and K. Burnett, *Phys. Rev. A* 50, 2207-2231 (1994).
266. "Influence of relaxation phenomena in the unified description of resonant and nonresonant radiative transitions," V. L. Jacobs, J. Cooper and S. L. Haan, *Phys. Rev. A* 50, 3005-3038 (1994).
267. "Generation and propagation of high-order harmonics in a rapidly ionizing medium," S. C. Rae, K. Burnett and J. Cooper, *Phys. Rev. A* 50, 3438-3446 (1994).
268. "Line shapes for light scattered from Bose-Einstein condensates," L. You, M. Lewenstein and J. Cooper, *Phys. Rev. A* 50, R3565-3568 (1994).
269. "Saturated absorption spectroscopy using diode laser phase noise," R. Walser, J. Cooper and P. Zoller, *Phys. Rev. A* 50, 4303-4309 (1994).
270. "Failures of the four-wave mixing model for cone emission," R. C. Hart, L. You, A. C. Gallagher and J. Cooper, *Opt. Commun.* 111, 331-337 (1994).
271. "Quantum-classical correspondences for atomic operators: a doubled atomic space approach," L. You and J. Cooper, *Phys. Rev. A* 50, 5264-5273 (1994).
272. "Laser-assisted inelastic rescattering during above threshold ionization," K. C. Kulander, J. Cooper and K. J. Schafer, *Phys. Rev. A* 51, 561-568 (1995).
273. "Cooling and resonance fluorescence of two atoms in a 1D optical molasses," J. Guo and J. Cooper, *Phys. Rev. A* 51, 3128-3135 (1995).
274. "Semi-classical study of spectral evolution under propagation in an active medium," L. You and J. Cooper, *Phys. Rev. A* 51, 4194-4202 (1995).
275. "Quantum field theory of atoms interacting with photons. II. Scattering of short laser pulses in trapped bosonic atoms," L. You, M. Lewenstein and J. Cooper, *Phys. Rev. A* 51, 4712-4727 (1995).
276. "Filament formation in a fully saturable medium," M. L. Dowell, R. C. Hart, B. D. Paul, A. Gallagher and J. Cooper, *Bull. Am. Phys. Soc.* 40, 1337-1338 (1995).
277. "Interference of allowed and collision-induced transitions in HD: Calculation," G. C. Tabisz, B. Gao and J. Cooper in Collision- and Interaction-induced Spectroscopy, Eds. G. C. Tabisz and M. N. Newman (Kluwer, Dordrecht, 1995) pp. 417-421.

J. Cooper

Publications: (continued)

278. "The induced dipole moment and collisional interference in the rotational spectrum of HD-He and HD-Ar," B. McQuarrie, G. C. Tabisz, B. Gao and J. Cooper, in Spectral Line Shapes, Volume 8, Eds. A. D. May, J. R. Drummond and E. Oks (AIP, New York, 1995) pp. 225-226.
279. "Probe transmission spectrum of a blue-detuned optical lattice," J. Guo and J. Cooper, *Phys. Rev. A* 52, R1819-1822 (1995).
280. "Role of the induced dipole moment in the collisional interference in the pure rotational spectrum of HD-He and HD-Ar," B. McQuarrie, G. C. Tabisz, B. Gao and J. Cooper, *Phys. Rev. A* 52, 1976-1981 (1995).
281. "Self-focused light propagation in a fully saturable medium: Theory," M. L. Dowell, B. D. Paul, A. Gallagher and J. Cooper, *Phys. Rev. A* 52, 3244-3253 (1995).
282. "Generation of transient Rabi sidebands in pulse propagation: A possible source for cone emission," J. Guo, J. Cooper, and A. Gallagher, *Phys. Rev. A* 52, R3440-3443 (1995).
283. "Quantum-classical correspondences for atomic operators: a positive-P representation approach," L. You, J. Cooper and P. Zoller, *J. Opt. Soc. Am. B* 12, 1774-1782 (1995).
284. "Ultrafast measurement of optical-field statistics by dc-balanced homodyne detection," M. G. Raymer, J. Cooper, H. J. Carmichael, M. Beck and D. T. Smithey, *J. Opt. Soc. Am. B* 12, 1801-1812 (1995).
285. "Quantum field theory of atoms interacting with photons. III. Scattering of weak cw light from cold samples of bosonic atoms," L. You, M. Lewenstein, R. J. Glauber and J. Cooper, *Phys. Rev. A* 53, 329-352 (1996).
286. "Selective reflection from a dense atomic vapor," J. Guo, J. Cooper and A. Gallagher, *Phys. Rev. A* 53, 1130-1138 (1996).
287. "Self-focused light propagation in a fully saturable medium: Experiment," M. L. Dowell, R. C. Hart, A. Gallagher and J. Cooper, *Phys. Rev. A* 53, 1775-1780 (1996).
288. "Expansion of a Bose-Einstein condensate in a harmonic potential," M. J. Holland and J. Cooper, *Phys. Rev. A* 53, R1954-1957 (1996).
289. "Lorentz-Lorenz shift in an inhomogeneously broadened medium," J. Guo, A. Gallagher and J. Cooper, *Opt. Comm.* 131, 219-222 (1996).
290. "Trajectory simulation of the kinetic equations for classical systems," M. Holland, J. Williams, K. Coakley and J. Cooper, *Quantum Semiclass. Opt.* 8, 571-581 (1996).
291. "Density dependence of selective reflection by Rb vapor," P. Wang, J. Guo, J. Cooper and A. Gallagher, *Proceedings 13th International Conference Spectral Line Shapes (Firenze, June 16-21, 1996)* p. B-16.
292. "Turn-on transient dynamics in a multimode, compound-cavity laser," S. E. Hodges, M. Monroe, W. Gadowski, J. Cooper and M. G. Raymer, *J. Opt. Soc. Am. B* 14, 180-190 (1997).

Publications: (continued)

293. "Multimode laser model with coupled cavities and quantum noise," S. E. Hodges, M. Munroe, J. Cooper and M. G. Raymer, *J. Opt. Soc. Am. B* 14, 191-199 (1997).
294. "Bose-Einstein Condensation: Kinetic evolution obtained from simulated trajectories," M. Holland, J. Williams and J. Cooper, *Phys. Rev. A* 55, 3670-3677 (1997).
295. "Many particle effects in laser cooling of 1D optical molasses," K. Ellinger and J. Cooper, *Phys. Rev. A* 55, 4351-4376 (1997).
296. "Velocity dependence of energy pooling collisions in strontium," J. A. Neuman, J. Cooper, and A. Gallagher, *Phys Rev. A* 56, 432-442 (1997).
297. "Selective reflection by Rb," P. Wang, A. Gallagher and J. Cooper, *Phys. Rev. A* 56, 1598-1606 (1997).
298. "Emergence of interaction effects in Bose-Einstein condensation," M. Holland, D. Jin, M. Chiofalo and J. Cooper, *Phys. Rev. Lett.* 78, 3801-3805 (1997).
299. "Spectral broadening of stochastic light, intensity-smoothed by a saturated semiconductor optical amplifier," M. Munroe, M. G. Raymer and J. Cooper, *IEEE J. Quant. Electron.* 34, 548-551 (1998).
300. "Achieving steady state Bose-Einstein condensation," J. Williams, R. Walser, C. Weiman, J. Cooper and M. Holland, *Phys. Rev. A* 57 2030-2036 (1998).
301. "Nonlinear Josephson-type oscillations of a driven, two-component Bose-Einstein condensate," J. William, R. Walser, J. Cooper, E. Cornell and M. Holland, *Phys. Rev. A.* 59, R31-34 (1998).
302. "Observation of conical emission from a single self-trapped beam," B. D. Paul, M. L. Dowell, A. Gallagher and J. Cooper, *Phys. Rev. A* 59, 4784-4796 (1999).
303. "Quantum kinetic theory for a condensed bosonic gas," R. Walser, J. Williams, J. Cooper and M. Holland, *Phys. Rev. A* 59, 3878-3889 (1999).
304. "A kinetic theory of a weakly interacting bosonic gas," R. Walser, J. Williams, J. Cooper and M. Holland, *Bull. Am. Phys. Soc.* 44, 1537 (1999).
305. "Collapses and revivals in the coherent evolution of the two-component BEC," J. Williams, R. Walser, J. Cooper, E. Cornell and M. Holland, *Bull. Am. Phys. Soc.* 44, 1157 (1999).
306. "Temporal and spatial pulse propagation with weak side bands," B. D. Paul, J. Cooper, A. Gallagher and M. G. Raymer, *Bull. Am. Phys. Soc.* 44, 1245 (1999).
307. "Cone emission from simple self focussed filaments in Sr vapor," B. D. Paul, J. Cooper and A. Gallagher, *Bull. Am. Phys. Soc.* 44, 1245 (1999).
308. "Nonlinear Josephson-type oscillations of a driven two-component Bose-Einstein condensate," J. Williams, R. Walser, J. Cooper, E. A. Cornell and M. Holland, *Phys. Rev. A* 59, R31-34 (1999).

J. Cooper

Publications: (continued)

309. "Conversion of diode-laser phase noise to amplitude noise in O₂ gas at A-band frequencies," C. E. Fairchild, B. Wichner, E. Zubek, D. H. McIntyre, R. Walser and J. Cooper, OSA/ILS Sept. 99.
310. "Excitation of a dipole topological state in a strongly coupled two-component Bose-Einstein condensate," J. Williams, R. Walser, J. Cooper, E. A. Cornell and M. Holland, Phys. Rev. A 61, 033612/1-9 (2000).
311. "Reversible and irreversible evolution of a condensed bosonic gas," R. Walser, J. Cooper and M. Holland, Phys. Rev. A 63, 013607/1-14 (2001).
312. "Equivalence of kinetic theories of Bose-Einstein condensation," J. Wachter, R. Walser, J. Cooper and M. Holland, Phys. Rev. A 64, 053612/1-6 (2001); Erratum, Phys. Rev. A 65, 039904 (2002).
313. "Theory of optical near-resonant cone emission in atomic vapor," B. D. Paul, J. Cooper, A. Gallagher and M. G. Raymer, Phys. Rev. A 66, 063816/1-19 (2002).
314. "Gapless kinetic theory beyond the Popov approximation," J. Wachter, R. Walser, J. Cooper and M. J. Holland, Phys. Rev. A (submitted).
315. "Hall effects in Bose-Einstein condensates in a rotating optical lattice," R. Bhat, M. Kramer, J. Cooper and M. J. Holland, Phys. Rev. A 76, 043601/1-11 (2007).
316. "Atomtronic circuits of diodes and transistors," R. A. Pepino, J. Cooper, D. Z. Anderson and M. J. Holland, Phys. Rev. Lett. (submitted).