

## Publications of Robert W. Field

1. R. W. Field and T. H. Bergeman, "Radio Frequency Spectroscopy and Perturbation Analysis in CS  $A^1\Pi$  ( $v = 0$ )", *J. Chem. Phys.* **54**, 2936–2948 (1971).
2. B. G. Wicke, R. W. Field, and W. A. Klemperer, "Fine Structure, Dipole Moment, and Perturbation Analysis of  $a^3\Pi$  CO", *J. Chem. Phys.* **56**, 5758–5770 (1972).
3. R. W. Field, B. G. Wicke, J. D. Simmons and S. G. Tilford, "Analysis of Perturbations in the  $a^3\Pi$  and  $A^1\Pi$  States of CO", *J. Mol. Spectrosc.* **44**, 383–399 (1972).
4. R. W. Field, S. G. Tilford, R. A. Howard, and J. D. Simmons, "Fine Structure and Perturbation Analysis of the  $a^3\Pi$  State of CO", *J. Mol. Spectrosc.* **44**, 347–382 (1972).
5. R. W. Field, R. S. Bradford, D. O. Harris, and H. P. Broida, "Microwave Optical Double Resonance Spectroscopy of BaO", *J. Chem. Phys.* **56**, 4712–4714 (1972).
6. R. W. Field, R. S. Bradford, H. P. Broida, and D. O. Harris, "Excited State Microwave Spectroscopy on the  $A^1\Sigma$  State of BaO", *J. Chem. Phys.* **57**, 2209–2210 (1972).
7. R. W. Field, "The Valence States of NO<sup>+</sup>", *J. Mol. Spectrosc.* **47**, 194–203 (1973).
8. R. W. Field, A. D. English, T. Tanaka, D. O. Harris, and D. A. Jennings, "Microwave Optical Double Resonance Spectroscopy with a CW Dye Laser: BaO  $X^1\Sigma$  and  $A^1\Sigma$ ", *J. Chem. Phys.* **59**, 2191–2203 (1973).
9. T. Tanaka, A. D. English, R. W. Field, D. A. Jennings, and D. O. Harris, "Microwave Optical Double Resonance of NO<sub>2</sub> with a Tunable CW Dye Laser", *J. Chem. Phys.* **59**, 5217–5218 (1973).
10. R. W. Field and H. Lefebvre-Brion, "On the Effective Spin–Spin Constants of Some States of Diatomic Molecules. Application to the CO Molecule", *Acta Hungarica Physica* **35**, 51–61 (1974).
11. D. O. Harris, R. W. Field, and H. P. Broida, "Microwave Optical Double Resonance Spectroscopy of Metal Oxides", *Berich. Bunsen. Gesell. Phys. Chem.* **78**, 146–153 (1974).
12. R. W. Field, "Assignment of the Lowest  $^3\Pi$  and  $^1\Pi$  States of CaO, SrO, and BaO", *J. Chem. Phys.* **60**, 2400–2413 (1974).
13. R. W. Field, C. R. Jones, and H. P. Broida, "Gas-Phase Reaction of Ba with N<sub>2</sub>O. II. Mechanism of Reaction", *J. Chem. Phys.* **60**, 4377–4382 (1974).
14. D. O. Harris, R. W. Field, and T. Tanaka, "MODR of NO<sub>2</sub> with a Tunable CW Dye Laser. II. Excited State Microwave Transitions", *J. Chem. Phys.* **61**, 3401–3407 (1974).
15. R. W. Field, G. A. Capelle, and C. R. Jones, "The  $A^1\Pi$ – $X^1\Sigma$  System of CaO", *J. Mol. Spectrosc.* **54**, 156–159 (1975).
16. R. W. Field, T. Tanaka, and D. O. Harris, "CW Dye Laser Excitation Spectroscopy: CaF  $A^2\Pi_r$ – $X^2\Sigma^+$ ", *J. Mol. Spectrosc.* **57**, 107–117 (1975).
17. B. G. Wicke, W. A. Klemperer, and R. W. Field, "Lambda Doublings and Electric Dipole Moments of  $v = 6$  and  $7$   $a^3\Pi$  Carbon Monoxide", *J. Chem. Phys.* **62**, 3544–3545 (1975).
18. R. W. Field, M. Revelli, and G. A. Capelle, "Optical–Optical Double Resonance Laser Spectroscopy of BaO", *J. Chem. Phys.* **63**, 3228–3237 (1975).
19. G. A. Capelle, R. W. Field, and H. P. Broida, "Photon Yields of Several Reactions Producing Diatomic Strontium Oxide and Halides, and CaO ( $A^1\Pi$ – $X^1\Sigma$ ): A New Band System", *J. Chem. Phys.* **62**, 3131–3136 (1975).
20. T. Tanaka, R. W. Field, and D. O. Harris, "Microwave Optical Double Resonance and CW Dye Laser Excitation Spectroscopy of NO<sub>2</sub>. Rotational Assignment of the  $K = 0$ –4 Subbands of the 593 nm Band", *J. Mol. Spectrosc.* **56**, 188–199 (1975).
21. R. W. Field, C. R. Jones, and H. P. Broida, "Reply to Comment by D. Husain and J. R. Wiesenfeld on 'Gas Phase Reaction of Ba with N<sub>2</sub>O. II. Mechanism of Reaction' [J. Chem. Phys. **60**, 4377 (1974)]", *J. Chem. Phys.* **62**, 2012–2013 (1975).
22. R. W. Field, R. A. Gottscho, and E. Miescher, "Observed and Calculated Interactions between Valence States of the NO Molecule", *J. Mol. Spectrosc.* **58**, 394–413 (1975).
23. R. W. Field, Book Review: *A Dictionary of Spectroscopy* by R. C. Denney, *J. Am. Chem. Soc.* **98**, 1299 (1976).
24. R. W. Field, "Long-Lived, Energetic Products of Chemical Reactions: Ba+N<sub>2</sub>O, A Case Study", in *Molecular Spectroscopy: Modern Research* (Vol. II), K. N. Rao ed. (Academic Press, New York, 1976), pp. 261–274.
25. T. A. Miller, R. S. Freund and R. W. Field, "The Identification and Characterization of the  $^4\Sigma^+$  State of CN", *J. Chem. Phys.* **65**, 3790–3792 (1976).
26. R. W. Field, A. Lagerqvist, and I. Renhorn, "The Low Lying States of SiO", *Phys. Scripta* **14**, 298–319 (1976).
27. T. Ikeda, N. B. Wong, D. O. Harris, and R. W. Field, "Argon Ion and Dye Laser Induced MgO  $B^1\Sigma^+$ – $X^1\Sigma^+$  and  $B^1\Sigma^+$ – $A^1\Pi$  Photoluminescence Spectra Analysis of  $a^3\Pi$ ,  $\tilde{X}^1\Sigma^+$  Perturbations", *J. Mol. Spectrosc.* **68**, 452–487 (1977).
28. J. R. Lombardi, J. B. Koffend, R. A. Gottscho, and R. W. Field, "Laser Induced Phosphorescence in Gas Phase Thiophosgene", *J. Mol. Spectrosc.* **65**, 446–454 (1977).
29. P. F. Bernath, P. G. Cummins, J. R. Lombardi, and R. W. Field, "The Excitation Spectrum of Gas Phase Thiophosgene", *J. Mol. Spectrosc.* **69**, 166–167 (1977).
30. R. W. Field, A. Lagerqvist, and I. Renhorn, "A Perturbation Study of the Low Lying SiO Electronic States", *J. Chem. Phys.* **66**, 868–869 (1977).
31. J. B. Koffend and R. W. Field, "CW Optically Pumped Molecular Iodine Laser", *J. Appl. Phys.* **48**, 4468–4472 (1977).
32. J. B. Koffend, R. W. Field, D. R. Guyer, and S. R. Leone, "Pulsed and CW Optically Pumped Lasers for Novel Applications in Spectroscopy and Kinetics", in *Laser Spectroscopy III*, J. L. Hall and J. L. Carlsten eds. (Springer-Verlag, Berlin, 1977) pp. 382–393.
33. R. W. Field, "Transitions Near Dissociation Limits by Optical Optical Double Resonance and Optically Pumped Laser Spectroscopy", in *Etats Atomiques et Moléculaires Couplés à un Continuum. Atomes et Molécules Hautement Excités* (Editions du CNRS No. 273) (Centre National de la Recherche Scientifique, Paris, 1977) pp. 143–155.
34. R. W. Field, "Tunable Laser Spectroscopy", Application Note in *Coherent Focus on Science* **1**, no. 2 (1977).
35. R. A. Gottscho, J. B. Koffend, J. R. Lombardi, and R. W. Field, "Optical–Optical Double Resonance Laser Spectroscopy of BaO. II. New Observations of  $a^3\Pi$  and  $A^1\Pi$  and Re-examination of the Parkinson Band System", *J. Chem. Phys.* **68**, 4110–4122 (1978).
36. R. A. Gottscho and R. W. Field, "Assignment of Extra Lines in a Perturbed Band Spectrum Using Power Broadened Line Widths", *Chem. Phys. Lett.* **60**, 65–68 (1978).

37. K. A. Dick, W. Benesch, H. M. Crosswhite, S. G. Tilford, R. A. Gottscho, and R. W. Field, "High Resolution Spectra of Bands of the First Negative Group of Ionized Molecular Nitrogen ( $N_2^+$  1NG:  $B^2\Sigma_u^+ - X^2\Sigma_g^+$ )", *J. Mol. Spectrosc.* **69**, 95–108 (1978).
38. J. B. Koffend, F. J. Wodarczyk, and R. W. Field, "CW Optically-Pumped Molecular Iodine Laser", in *High Power Lasers and Applications*, K. L. Kompa and H. Walther eds. (Springer-Verlag, Berlin, 1978), pp. 96–109.
39. I. P. Herman, A. Javan, and R. W. Field, "Observation of Infrared-Optical Double Resonance in  $NO_2$ ", *J. Chem. Phys.* **68**, 2398–2405 (1978).
40. R. A. Gottscho, R. W. Field, and H. Lefebvre-Brion, "Ab Initio and Semiempirical Estimates of PN Valence State Interactions", *J. Mol. Spectrosc.* **70**, 420–431 (1978).
41. J. B. Koffend, S. Goldstein, R. Bacis, R. W. Field, and S. Ezekiel, "Doppler-Free Emission Spectroscopy and Secondary Frequency Standards Using an Optically Pumped Laser", *Phys. Rev. Lett.* **41**, 1040–1045 (1978).
42. J. B. Koffend, R. Bacis, and R. W. Field, "CW Optically Pumped Iodine Laser. Spectroscopy and Long Range Analysis of the  $X^1\Sigma_g^+$  Ground State of  $I_2$ ", *J. Mol. Spectrosc.* **77**, 202–212 (1979).
43. R. A. Gottscho, R. W. Field, K. A. Dick, and W. Benesch, "Deperturbation of the  $N_2^+$  First Negative Group  $B^2\Sigma_g^+ - X^2\Sigma_g^+$ ", *J. Mol. Spectrosc.* **74**, 435–455 (1979).
44. J. B. Koffend, R. Bacis and R. W. Field, "The Electronic Transition Moment of the  $B0^+_u - X^1\Sigma_g^+$  System of  $I_2$  Through Gain Measurements of an  $I_2$  Optically Pumped Laser", *J. Chem. Phys.* **70**, 2366–2372 (1979).
45. R. W. Field, R. A. Gottscho, J. G. Pruett, and J. J. Reuther, "Barium Oxide: The Questions Unanswered" in *Proceedings 14th International Conference on Free Radicals* (Sanda, Japan), Y. Morino, I. Tanaka, and E. Hirota eds. (Yamada Science Foundation, Osaka, Japan, 1979) pp. 39–59.
46. J. B. Koffend, R. Bacis, and R. W. Field, "Stimulated Emission Spectroscopy with an Optically Pumped  $I_2$  Laser", *Proc. Int. Conf. Lasers*, **168**, 240–251 (1979).
47. C. Linton, M. Dulick, and R. W. Field, "Laser Spectroscopy of  $CeO$ . Fluorescence of the  $C_1 - X_1$  and  $D_3 - X_3$  Systems", *J. Mol. Spectrosc.* **78**, 428–436 (1979).
48. M. Dulick, R. W. Field, and J. Cl. Beaufils, "On the Hyperfine Structure of the 0–0 Band in the  $PrO$  XVII System", *J. Mol. Spectrosc.* **78**, 333–334 (1979).
49. A. J. Kotlar, R. W. Field, J. I. Steinfeld, and J. A. Coxon, "Analysis of Perturbations in the  $A^2\Pi - X^2\Sigma^+$  'Red' System of  $CN$ ", *J. Mol. Spectrosc.* **80**, 86–108 (1980).
50. J. B. Koffend, F. J. Wodarczyk, R. Bacis, and R. W. Field, "Collisional Relaxation of Highly Excited Vibrational Levels of the  $I_2$   $X^1\Sigma_g^+$  State Using an  $I_2$  Optically Pumped Laser", *J. Chem. Phys.* **72**, 478–483 (1980).
51. P. F. Bernath and R. W. Field, "Optical–Optical Double-Resonance Spectroscopy of  $CaF$ : The  $E^2\Sigma^+$  and  $E^2\Pi$  States", *J. Mol. Spectrosc.* **82**, 339–347 (1980).
52. R. A. Gottscho, P. S. Weiss, R. W. Field, and J. G. Pruett, "Sub-Doppler Optical–Optical Double-Resonance Spectroscopy of  $BaO$ . Electronic Structure in the 4 eV Region", *J. Mol. Spectrosc.* **82**, 283–309 (1980).
53. R. A. Gottscho, J. B. Koffend, and R. W. Field, "Optical–Optical Double-Resonance Spectroscopy of  $BaO$ . The Low Lying States", *J. Mol. Spectrosc.* **82**, 310–338 (1980).
54. R. Bacis, S. Churassy, R. W. Field, J. B. Koffend, and J. Vergés, "High Resolution and Sub-Doppler Fourier Transform Spectroscopy: Iodine Molecular Fluorescence Excited by the 514.5 and 501.7 nm  $Ar^+$  Laser Lines", *J. Chem. Phys.* **72**, 34–42 (1980).
55. R. A. Gottscho, R. W. Field, R. Bacis, and S. J. Silvers, "Simultaneous Measurement of Rotational and Translational Relaxation by Sub-Doppler Optical–Optical Double Resonance Spectroscopy:  $BaO(A^1\Sigma^+)$ -Ar and  $BaO(A^1\Sigma^+)$ - $CO_2$ ", *J. Chem. Phys.* **73**, 599–611 (1980).
56. M. Dulick, P. F. Bernath, and R. W. Field, "Rotational and Vibrational Analysis of the  $CaF$   $B^2\Sigma^+ - X^2\Sigma^+$  System", *Can. J. Phys.* **58**, 703–712 (1980).
57. O. Appelblad, A. Lagerqvist, I. Renhorn, and R. W. Field, "The Spectrum of  $CuO$ : Low Lying Electronic States Observed by Laser Induced Fluorescence", *Phys. Scripta* **22**, 603–608 (1980).
58. P. F. Bernath, P. G. Cummins, and R. W. Field, "Intermodulated Fluorescence Spectroscopy of  $CaF$   $A^2\Pi - X^2\Sigma^+$ ", *Chem. Phys. Lett.* **70**, 618–620 (1980).
59. S. J. Silvers, R. W. Field, and R. A. Gottscho, "Collisional Depolarization of State Selected ( $J, M_J$ )  $BaO$   $A^1\Sigma^+$  Measured by Optical–Optical Double Resonance", *J. Chem. Phys.* **74**, 6000–6008 (1981).
60. P. Bernath, R. W. Field, B. Pinchemel, Y. Lefebvre, and J. Schamps, "Laser Spectroscopy of  $CaBr$ :  $A^2\Pi - X^2\Sigma^+$  and  $B^2\Sigma^+ - X^2\Sigma^+$  Systems", *J. Mol. Spectrosc.* **88**, 175–193 (1981).
61. P. F. Bernath, M. Dulick, R. W. Field, and J. Hardwick, "Laser Excited Fluorescence of  $CS_2$ ", *J. Mol. Spectrosc.* **86**, 275–285 (1981).
62. C. Linton, M. Dulick, R. W. Field, P. Carette, and R. F. Barrow, "Low Lying Electronic States of  $CeO$ ", *J. Chem. Phys.* **74**, 189–191 (1981).
63. P. C. F. Ip, P. F. Bernath, and R. W. Field, "Optical–Optical Double-Resonance Spectroscopy of  $BaF$ : The  $E^2\Sigma^+$  and  $F^2\Pi$  States", *J. Mol. Spectrosc.* **89**, 53–61 (1981).
64. M. Dulick, R. W. Field, and J. Cl. Beaufils, "Rotational and Hyperfine Analysis of the 0,0 Band of the  $PrO$  XX System", *J. Mol. Spectrosc.* **87**, 268–277 (1981).
65. M. Dulick, R. W. Field, J. Cl. Beaufils, and J. Schamps, "The Electronic Spectrum of  $PrO$ . Energy Linkages, Rotational Analysis, and Hyperfine Structure for Systems XVII and XXI", *J. Mol. Spectrosc.* **87**, 278–288 (1981).
66. P. F. Bernath, B. Pinchemel, R. W. Field, K. Möller and T. Törring, "Combined Fitting of Optical and Millimeter Wave Data: The Linked  $A^2\Pi - X^2\Sigma^+$  and  $B^2\Sigma^+ - X^2\Sigma^+$  Systems of  $Ca^{79}Br$  and  $Ca^{81}Br$ ", *J. Mol. Spectrosc.* **88**, 420–423 (1981).
67. D. E. Reisner, P. F. Bernath, and R. W. Field, "Vibration-Rotation and Deperturbation Analysis of the  $A^2\Pi - X^2\Sigma^+$  and  $B^2\Sigma^+ - X^2\Sigma^+$  Systems of the  $CaI$  Molecule", *J. Mol. Spectrosc.* **89**, 107–124 (1981).
68. S. Churassy, F. Martin, R. Bacis, J. Vergès, and R. Field, "Rotation-Vibration Analysis of  $B0^+_u - a1_g$  and  $B0^+_u - a'0^+_g$  Electronic Systems of  $I_2$  by Laser-Induced-Fluorescence Fourier-Transform Spectroscopy", *J. Chem. Phys.* **75**, 4863–4868 (1981).
69. P. F. Bernath, B. Pinchemel, and R. W. Field, "The Hyperfine Structure of the Calcium Monohalides", *J. Chem. Phys.* **74**, 5508–5515 (1981).
70. R. W. Field, "Tunable Laser Electronic Spectroscopy", *Disc. Faraday Soc.* **71**, 111–123 (1981).
71. P. G. Cummins, R. W. Field, and I. Renhorn, "Argon Ion Laser-Induced  $BaS$   $B^1\Sigma^+ - A^1\Sigma^+$ ,  $A'^1\Pi$ ,  $a^3\Pi$ , and  $X^1\Sigma^+$  Photoluminescence Spectra: Analysis of  $A \sim A'$  and  $A \sim a$ , and  $A' \sim a$  Perturbations", *J. Mol. Spectrosc.* **90**, 327–352 (1981).

72. D. Cerny, R. Bacis, R. W. Field, and R. A. McFarlane, "Nitrogen  $B^3\Pi_g \rightleftharpoons W^3\Delta_u$  Laser Systems. Assignment and Model for Observed Lasing Lines", *J. Phys. Chem.* **85**, 2626–2631 (1981).
73. C. Kittrell, E. Abramson, J. L. Kinsey, S. McDonald, D. E. Reisner, D. Katayama, and R. W. Field, "Selective Vibrational Excitation by Stimulated Emission Pumping", *J. Chem. Phys.* **75**, 2056–2059 (1981).
74. H. Lefebvre-Brion and R. W. Field, "Perturbations in the Spectra of Diatomic Molecules", *Commun. Atomic Mol. Phys.* **11**, 37–44 (1981).
75. S. M. Harris, R. A. Gottscho, R. W. Field, and R. F. Barrow, "Valence States of the SiS Molecule: Analysis of ( $d^3\Delta_1$ ,  $e^3\Sigma^-$ ,  $C^1\Sigma^-$ ,  $D^1\Delta$ ) Perturbations in the  $A^1\Pi - X^1\Sigma^+$  System", *J. Mol. Spectrosc.* **91**, 35–59 (1982).
76. H. S. Schweda, G. K. Chawla, and R. W. Field, "Highly Excited, Normally Inaccessible Vibrational Levels by Sub-Doppler Modulated Gain Spectroscopy: The  $\text{Na}_2 A^1\Sigma_u^+$  State", *Opt. Commun.* **42**, 165–170 (1982).
77. R. F. Marks, R. A. Gottscho, and R. W. Field, "The CaO  $D, d^{1,3}\Delta - a^3\Pi$  System: Sub-Doppler Spectrum, Rotational Analysis, and Deperturbation", *Phys. Scripta* **25**, 312–328 (1982).
78. R. F. Marks, H. S. Schweda, R. A. Gottscho, and R. W. Field, "The Orange Arc Bands of CaO. Analysis of a  $D, d^{1,3}\Delta - a^3\Pi$  System", *J. Chem. Phys.* **76**, 4689–4691 (1982).
79. E. Abramson, C. Kittrell, J. L. Kinsey, and R. W. Field, "Excitation Spectroscopy of the Acetylene  $\tilde{A} - \tilde{X}$  Transition in the 220 nm Wavelength Region", *J. Chem. Phys.* **76**, 2293–2295 (1982).
80. B. Pouilly, J. M. Robbe, J. Schamps, L. Young, and R. W. Field, "Perturbations in the  $A^1\Pi - X^1\Sigma^+$  System of the BeS Molecule. The  $a^3\Pi_i$  State", *J. Mol. Spectrosc.* **96**, 1–55 (1982).
81. R. W. Field, "Diatomic Molecule Electronic Structure beyond Simple Molecular Constants", *Berich. Bunsen. Gesell. Phys. Chem.* **86**, 771–779 (1982).
82. D. G. Imre, J. L. Kinsey, R. W. Field, and D. H. Katayama, "Spectroscopic Characterization of Repulsive Potential Energy Surfaces: Fluorescence Spectrum of Ozone", *J. Phys. Chem.* **86**, 2564–2566 (1982).
83. D. E. Reisner, P. H. Vaccaro, C. Kittrell, R. W. Field, J. L. Kinsey, and H.-L. Dai, "Selective Vibrational Excitation of Formaldehyde  $\tilde{X}^1A_1$  by Stimulated Emission Pumping", *J. Chem. Phys.* **77**, 573–575 (1982).
84. C. Linton, M. Dulick, R. W. Field, P. Carette, P. C. Leyland, and R. F. Barrow, "Electronic States of the CeO Molecule: Absorption, Emission and Laser Spectroscopy", *J. Mol. Spectrosc.* **102**, 441–497 (1983).
85. F. Martin, S. Churassy, R. Bacis, R. W. Field, and J. Vergès, "Long Range Behavior of the Gerade States Near the  $2P_{3/2} + 2P_{3/2}$  Iodine Dissociation Limit by Laser-Induced-Fluorescence Fourier-Transform Spectroscopy", *J. Chem. Phys.* **79**, 3725–3737 (1983).
86. R. W. Field, O. Benoit d'Azy, M. Lavollée, R. Lopez-Delgado, and A. Tramer, "Radiative Decay Rates from Deperturbed  $v = 0 - 7$  Vibrational Levels of CaO  $A^1\Pi$  Measured Using Synchrotron Radiation", *J. Chem. Phys.* **78**, 2838–2846 (1983).
87. H.-L. Dai, E. Abramson, R. W. Field, D. Imre, J. L. Kinsey, C. L. Korpa, D. E. Reisner, and P. H. Vaccaro, "Single Eigenstate Polyatomic Molecule Vibrational Spectroscopy at 1–4 eV", *Springer Series Opt. Sci.* **40**, 74–77, (1983).
88. P. H. Vaccaro, J. L. Kinsey, R. W. Field, and H.-L. Dai, "Electric Dipole Moments of Excited Vibrational Levels in the  $\tilde{X}^1A_1$  State of Formaldehyde by Stimulated Emission Spectroscopy", *J. Chem. Phys.* **78**, 3659–3664 (1983).
89. C. Kittrell, S. Cameron, L. Butler, R. W. Field, and R. F. Barrow, "Two-Photon Excitation of the  $D^1\Delta - X^1\Sigma^+$  Transition in Carbon Monoxide", *J. Chem. Phys.* **78**, 3623–3624 (1983).
90. C. Linton, S. McDonald, S. Rice, M. Dulick, Y. C. Liu, and R. W. Field, "Laser Spectroscopy of YbO: Observation and Analysis of Some  $0^+ - 1\Sigma^+$  Transitions", *J. Mol. Spectrosc.* **101**, 332–343 (1983).
91. H. Schall, C. Linton, and R. W. Field, "Laser Spectroscopy of LaF: Determination of the Separation of the Singlet and Triplet State Manifolds", *J. Mol. Spectrosc.* **100**, 437–448 (1983).
92. Li Li and R. W. Field, "Direct Observation of High-Lying  $^3\Pi_g$  States of the  $\text{Na}_2$  Molecule by Optical–Optical Double Resonance", *J. Phys. Chem.* **87**, 3020–3022 (1983).
93. H. J. Vedder, G. K. Chawla, and R. W. Field, "Observation of the Quasibound Energy Levels and Tunneling Lifetimes in the  $\text{Na}_2 B^1\Pi_u$  State", *Chem. Phys. Lett.* **111**, 303–308 (1984).
94. Y. C. Liu, H. Schall, R. W. Field, and C. Linton, "Laser Spectroscopy of Holmium Oxide: Examination of the Low-Lying States", *J. Mol. Spectrosc.* **104**, 72–88 (1984).
95. Li Li, S. F. Rice, and R. W. Field, "Observation of the  $v = 0 - 13$  Levels of  $\text{Na}_2 b^3\Pi_u$  by OODR  $^3\Pi_g - b^3\Pi_u$  Fluorescence Spectroscopy", *J. Mol. Spectrosc.* **105**, 344–350 (1984).
96. E. Abramson, R. W. Field, D. Imre, K. K. Innes, and J. L. Kinsey, "Stimulated Emission Pumping of Acetylene: Evidence for Quantum Chaotic Behavior Near 27,900 cm<sup>-1</sup> of Excitation?", *J. Chem. Phys.* **80**, 2298–2300 (1984).
97. D. E. Reisner, R. W. Field, J. L. Kinsey, and H.-L. Dai, "Stimulated Emission Spectroscopy: A Complete Set of Vibrational Constants for  $\tilde{X}^1A_1$  Formaldehyde", *J. Chem. Phys.* **80**, 5968–5978 (1984).
98. E. Abramson, H.-L. Dai, R. W. Field, D. G. Imre, J. L. Kinsey, C. Kittrell, D. E. Reisner, and P. H. Vaccaro, "Laser Population of Highly Excited Vibrational Levels of Molecules", in *Reactants and Probes in Chemistry*, W.M. Jackson and A.B. Harvey, eds. (Howard University Press, Washington, DC. 1985) pp. 393–404.
99. E. Abramson, R. W. Field, D. Imre, K. K. Innes, and J. L. Kinsey, "Fluorescence and Stimulated Emission  $S_1 \rightarrow S_0$  Spectra of Acetylene: Regular and Ergodic Regions", *J. Chem. Phys.* **83**, 453–465 (1985).
100. H.-L. Dai, R. W. Field, and J. L. Kinsey, "State-Specific Rates of  $\text{H}_2\text{CO}(S_0) \rightarrow \text{H}_2 + \text{CO}$  at Energies Near the Top of Barrier: A Violation of RRKM Theory?", *J. Chem. Phys.* **82**, 1606–1607 (1985).
101. H.-L. Dai, R. W. Field, and J. L. Kinsey, "Intramolecular Vibrational Dynamics Including Rotational Degrees of Freedom: Chaos and Quantum Spectra", *J. Chem. Phys.* **82**, 2161–2163 (1985).
102. S. Churassy, G. K. Chawla, and R. W. Field, "Modulated Gain Spectrometer", *J. Opt. Soc. Am. B* **2**, 1929–1933 (1985).
103. Li Li, S. F. Rice, and R. W. Field, "The  $\text{Na}_2 a^3\Sigma_u^+$  State. Rotationally Resolved OODR  $^3\Pi_g - a^3\Sigma_u^+$  Fluorescence Spectroscopy", *J. Chem. Phys.* **82**, 1178–1182 (1985).
104. H. L. Dai, C. L. Korpa, J. L. Kinsey, and R. W. Field, "Rotation Induced Vibrational Mixing in  $\tilde{X}^1A_1$  Formaldehyde: Non-Negligible Dynamical Consequences of Rotation", *J. Chem. Phys.* **82**, 1688–1701 (1985).
105. S. F. Rice, H. Martin, and R. W. Field, "The Electronic Structure of the Calcium Monohalides. A Ligand Field Approach", *J. Chem. Phys.* **82**, 5023–5034 (1985).

106. P. H. Vaccaro, R. Redington, J. Schmidt, J. L. Kinsey, and R. W. Field, "Rotational Relaxation in the  $\text{H}_2\text{CO} \tilde{\Lambda}^1\text{A}_2$  State by Transient Gain Spectroscopy", *J. Chem. Phys.* **82**, 5755–5756 (1985).
107. J. A. Gray, S. F. Rice, and R. W. Field, "The Electric Dipole Moment of  $\text{NiH} X^2\Delta_{5/2}$  and  $B^2\Delta_{5/2}$ ", *J. Chem. Phys.* **82**, 4717–4718 (1985).
108. R. L. Sundberg, E. Abramson, J. L. Kinsey, and R. W. Field, "Evidence of Quantum Ergodicity in Stimulated Emission Pumping Spectra of Acetylene", *J. Chem. Phys.* **83**, 466–475 (1985).
109. M. Dulick and R. W. Field, "Electronic Structure of  $\text{PrO}$ : An Analysis Summary", *J. Mol. Spectrosc.* **113**, 105–141 (1985).
110. X. Xie and R. W. Field, "The  ${}^6\text{Li}_2 \Lambda^1\Sigma_u^+ \sim b^3\Pi_u$  Spin-Orbit Perturbations: Sub-Doppler Spectra and Steady State Kinetic Lineshape Model", *Chem. Phys.* **99**, 337–345 (1985).
111. X. Xie and R. W. Field, "The Bound and Quasibound Levels of  ${}^6\text{Li}_2 a^3\Sigma_u^+$ ", *J. Chem. Phys.* **83**, 6193–6196 (1985).
112. H. Lefebvre-Brion and R. W. Field, *Perturbations in the Spectra of Diatomic Molecules* (Academic Press, Orlando, Florida, 1986) 465 pp.
113. J. A. Gray and R. W. Field, "The Zeeman Effect as an Aid to Electronic Assignment: The  $\text{NiH} A^2\Delta_{5/2}$  State", *J. Chem. Phys.* **84**, 1041–1042 (1986).
114. S. F. Rice and R. W. Field, "Perturbation Facilitated OODR Resolved Fluorescence Spectroscopy of the  $a^3\Sigma_u^+$  State of  $\text{Li}_2$  and  $\text{Na}_2$ ", in *Methods of Laser Spectroscopy*, Y. Prior ed. (Plenum, New York, 1986), pp. 389–398.
115. S. F. Rice, X. Xie, and R. W. Field, "The Predissociation of  $\text{Li}_2 b^3\Pi_u$  by  $a^3\Sigma_u^+$ ", *Chem. Phys.* **104**, 161–167 (1986).
116. X. Xie and R. W. Field, "Perturbation Facilitated Optical–Optical Double Resonance Spectroscopy of the  ${}^6\text{Li}_2 3^3\Sigma_g^+, 2^3\Pi_g, 1^3\Delta_g, b^3\Pi_u$ , and  $a^3\Sigma_u^+$  States", *J. Mol. Spectrosc.* **117**, 228–244 (1986).
117. Li Li and R. W. Field, "CW Optical–Optical Double Resonance Studies of the  $2^3\Pi_g, 3^3\Pi_g, 4^3\Sigma_g^+$ , and  $1^3\Delta_g$  Rydberg States of  $\text{Na}_2$ ", *J. Mol. Spectrosc.* **117**, 245–282 (1986).
118. H. Schall, J. Gray, M. Dulick, and R. W. Field, "Sub-Doppler Zeeman Spectroscopy of the  $\text{CeO}$  Molecule", *J. Chem. Phys.* **85**, 751–761 (1986).
119. G. J. Scherer, Y. Chen, R. L. Redington, J. L. Kinsey, and R. W. Field, "An Unsuspected Fermi Perturbation in the Acetylene  $\tilde{\Lambda}^1\text{A}_u 3\nu_3$  Level", *J. Chem. Phys.* **85**, 6315–6323 (1986).
120. G. Pichler, J. T. Bahns, K. M. Sando, W. C. Stwalley, W. Müller, D. D. Konowalow, Li Li, and R. W. Field, "Electronic Assignments of the Violet Bands of Sodium", *AIP Conf. Proc.* **146**, 160–162 (1986).
121. G. Pichler, J. T. Bahns, K. M. Sando, W. C. Stwalley, D. D. Konowalow, Li Li, R. W. Field, and W. Müller, "Electronic Assignments of the Violet Bands of Sodium", *Chem. Phys. Lett.* **129**, 425–428 (1986).
122. B. Barakat, R. Bacis, S. Churassy, R. W. Field, J. Ho, C. Linton, S. McDonald, F. Martin, and J. Vergès, "Observation and Analysis of the  $2^1\Sigma_g^+$  State of  ${}^7\text{Li}_2$ ", *J. Mol. Spectrosc.* **116**, 271–285 (1986).
123. S. F. Rice and R. W. Field, "The Electric Dipole Moment of the  $A^2\Pi$  State of  $\text{ScO}$ ", *J. Mol. Spectrosc.* **119**, 331–336 (1986).
124. C. E. Hamilton, J. L. Kinsey, and R. W. Field, "Stimulated Emission Pumping: New Methods in Spectroscopy and Molecular Dynamics", *Ann. Rev. Phys. Chem.* **37**, 493–524 (1986).
125. 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  $\text{Na}_2$  Using Modulated Gain Spectroscopy", *AIP Conf. Proc. (International Laser Symposium)* **146**, 466–468 (1986).
126. J.-P. Pique, Y. Chen, R. W. Field and J. L. Kinsey, "Chaos and Dynamics on 0.5–300 ps Time Scales in vibrationally Excited Acetylene: Fourier Transform of Stimulated Emission Pumping Spectrum", *Phys. Rev. Lett.* **58**, 475–478 (1987).
127. A. C. LeFloch, F. Launay, J. Rostas, R. W. Field, C.M. Brown, and K. Yoshino, "Reinvestigation of the  $\text{CO} A^1\Pi$  State and its Perturbations: The  $v = 0$  Level", *J. Mol. Spectrosc.* **121**, 337–379 (1987).
128. Li Li and R. W. Field, "A Spin-Orbit  $2^1\Pi_g \sim 2^3\Pi_{2g}$  Perturbation in  $\text{Na}_2$ : Hyperfine Splittings, Perturbation Matrix Elements, and Electronic Structure Implications", *J. Mol. Spectrosc.* **123**, 237–246 (1987).
129. G. K. Chawla, H. J. Vedder, and R. W. Field, "The Potential Energy Barrier of the  $\text{Na}_2 B^1\Pi_u$  State", *J. Chem. Phys.* **86**, 3082–3088 (1987).
130. Li Li, R. W. Field, and Q. Zhu, "Hyperfine Interaction of the Triplet Rydberg States of  $\text{Na}_2$ ", *AIP Conf. Proc. (International Laser Symposium)* **160**, 378–380 (1987).
131. F. Temps, S. Halle, P. H. Vaccaro, R. W. Field, and J. L. Kinsey, "Collisional Energy Transfer in Highly vibrationally Excited  $\text{H}_2\text{CO} (\tilde{X}^1\text{A}_1)$ ", *J. Chem. Phys.* **87**, 1895–1897 (1987).
132. H. Schall, M. Dulick, and R. W. Field, "The Electronic Structure of  $\text{LaF}$ : A Multi-Configuration Ligand Field Calculation", *J. Chem. Phys.* **87**, 2898–2912 (1987).
133. M. Li, J. A. Gray, and R. W. Field, "A Multipass, Magnetically Confined Sputter Source for Absorption-Based Spectroscopy of Transient Molecules: The Spectrum of  $\text{NiH}$ ", *Chem. Phys.* **117**, 171–176 (1987).
134. J.-P. Pique, Y. Chen, R. W. Field, and J. L. Kinsey, "Laser Spectroscopy and Quantum Chaos: An Example Through the Fourier Transform of a Stimulated Emission Pumping Spectrum of  $\text{C}_2\text{H}_2$  at Very High Vibrational Energy", (Conference Laser M2P, 1987) *J. Phys. C7*, 655–657 (1987).
135. R. W. Field, "High Resolution Spectroscopy of Small Molecules", (Conference Laser M2P, 1987) *J. Phys. C7*, 17–28 (1987).
136. P. H. Vaccaro, F. Temps, S. Halle, J. L. Kinsey, and R. W. Field, "Polarization-Detected Transient Gain Studies of Relaxation Processes in  $v_4 = 1 \tilde{\Lambda}^1\text{A}_2$  Formaldehyde– $h_2$ ", *J. Chem. Phys.* **88**, 4819–4833 (1988).
137. R. L. Redington, Y. Chen, G. J. Scherer, and R. W. Field, "Laser Fluorescence Excitation Spectrum of Jet-Cooled Tropolone: The  $\tilde{\Lambda}^1\text{B}_2$ – $\tilde{X}^1\text{A}_1$  System", *J. Chem. Phys.* **88**, 627–633 (1988).
138. F. Temps, S. Halle, P. H. Vaccaro, R. W. Field, and J. L. Kinsey, "Vibrationally Excited Formaldehyde: The Relationship Between Vibrational Structure and Collisional Properties", (Faraday Discussion on Molecular Vibrations, 1987) *J. Chem. Soc. Farad. Trans. Two* **84**, 1457–1482 (1988).
139. J. P. Pique, Y. Chen, R. W. Field, J. L. Kinsey, and M. Lombardi, "New Order Out of the Chaotic Bath of Highly Excited Vibrational States of  $\text{C}_2\text{H}_2$ ", *Berich. Bunsen. Gesell. Phys. Chem.* **92**, 422–424 (1988).
140. Y. Chen, D. M. Jonas, C. E. Hamilton, P. G. Green, J. L. Kinsey, and R. W. Field, "Acetylene: Isomerization and Dissociation", *Berich. Bunsen. Gesell. Phys. Chem.* **92** 329–336 (1988).

141. J.-P. Pique, Y. M. Engel, R. D. Levine, Y. Chen, R. W. Field, and J. L. Kinsey, "Broad Spectral Features in the Stimulated Emission Pumping Spectrum of Acetylene", *J. Chem. Phys.* **88**, 5972–5974 (1988).
142. M. H. Alexander, P. Andresen, R. Bacis, R. Bersohn, F. J. Comes, P. J. Dagdigian, R. N. Dixon, R. W. Field, G. W. Flynn, K.-H. Gericke, B. J. Howard, J. P. Huber, D. S. King, J. L. Kinsey, K. Kleinermanns, A. C. Luntz, A. J. MacCaffery, B. Pouilly, H. Reisler, S. Rosenwaks, E. Rothe, M. Shapiro, J. P. Simons, R. Vasudev, J. R. Wiesenfeld, C. Wittig, and R. N. Zare, "A Nomenclature for  $\Lambda$ -Doublet Levels in Rotating Linear Molecules", *J. Chem. Phys.* **89**, 1749–1753 (1988).
143. S. F. Rice, W. J. Childs, and R. W. Field, "The  $A'^2\Delta$  state of ScO: Analysis of the  $A'^2\Delta(v = 3) \sim A^2\Pi(v = 1)$  Perturbation", *J. Mol. Spectrosc.* **133**, 22–35 (1988).
144. R. W. Field, "A Zero-Order Electronic Structure Model for Ionic Diatomic Molecules", in *The Structure of Small Molecules and Ions*, R. Naaman and Z. Vager eds. (Plenum, New York, 1988) pp. 333–334.
145. R. W. Field, "Statistical Spectroscopy: Insight or Nonsense?", *AIP Conf. Proc. (ILS-IV)* **191**, 673–682 (1988).
146. M. Li and R. W. Field, "Sideband OODR Zeeman Spectroscopy of NiH: A New Diagnostic for Electronic and Rotational Assignment", *J. Chem. Phys.* **90**, 2967–2970 (1989).
147. R. L. Redington and R. W. Field, "Laser Fluorescence Excitation Band Profiles of Jet-Cooled Tropolone", *Spectrochim. Acta* **45A** 41–46 (1989).
148. X. Xie, R. W. Field, Li Li, A.M. Lyyra, J.T. Bahns, and W.C. Stwalley, "Absolute Vibrational Numbering and Molecular Constants of the  $\text{Na}_2 2^3\Pi_g$  State", *J. Mol. Spectrosc.* **134**, 119–128 (1989).
149. X. Xie, R. W. Field, Li Li, A.M. Lyyra, J. T. Bahns, and W. C. Stwalley, "The Absolute Vibrational Numbering and Molecular Constants of the  $\text{Na}_2 2^3\Pi_g$  and  $1^3\Delta_g$  States", *AIP Conf. Proc. 191: Opt. Sci. Eng. Series* **10**(ILS-IV), 569–571 (1989).
150. Li Li, Q. Zhu, and R. W. Field, "Hyperfine Structure of the  $\text{Na}_2 1^3\Delta_g$  State", *J. Mol. Spectrosc.* **134**, 50–62 (1989).
151. Li Li, Q. Zhu, and R. W. Field, "The Hyperfine Structure of the  $\text{Na}_2 4^3\Sigma_g^+$  State", *Mol. Phys.* **66**, 685–694 (1989).
152. J. B. Norman, K. J. Cross, H. S. Schweda, M. Polak, and R. W. Field, "The CaO  $c^3\Sigma^+ - a^3\Pi(0,0)$  Band: The Key to the Orange System and the Global Electronic Structure of CaO", *Mol. Phys.* **66**, 235–268 (1989).
153. D. P. Baldwin and R. W. Field, "The  $C'^1\Sigma^+ - A'^1\Pi(0,0)$  and  $(1,1)$  Bands of CaO", *J. Mol. Spectrosc.* **133**, 90–95 (1989).
154. P. H. Vaccaro, A. Zabludoff, M. Carrera-Patiño, J. L. Kinsey, and R. W. Field, "High Precision Dipole Moments in  $\tilde{\Lambda}^1\text{A}_2$  Formaldehyde Determined via Stark Quantum Beat Spectroscopy", *J. Chem. Phys.* **90**, 4150–4167 (1989).
155. R. W. Field, "Pathologically Complex Spectra of Small Molecules: High Resolution Techniques for Displaying Vibrational Chaos and Electronic Simplicity", in *Conference on Quantum Electronics and Laser Science, 1989 Technical Digest Series*, Vol. **12** (Optical Society of America, Washington, DC, 1989), pp. 160–162.
156. R. W. Field, D. P. Baldwin, E. J. Hill, M. Li, and M. C. McCarthy, "Spectroscopy Beyond Molecular Constants", in *Symposium on "Future Trends in Spectroscopy", Pontificiae Academiae Scientiarum Scripta Varia* **81**, 75–89 (1989).
157. R. W. Field, D. P. Baldwin, E. J. Hill, M. Li, and M. C. McCarthy, "Spectroscopy Beyond Molecular Constants", *Spectrochim. Acta* **45**(Supplement), 75–89 (1989).
158. P. G. Green, J. L. Kinsey, and R. W. Field, "A New Determination of the Dissociation Energy of Acetylene", *J. Chem. Phys.* **91**, 5160–5163 (1989).
159. F. Temps, S. Halle, P. H. Vaccaro, R. W. Field, and J. L. Kinsey, "Collisional Relaxation of  $\text{H}_2\text{CO}$  ( $\tilde{\Lambda}^1\text{A}_2, v_4 = 1$ ,  $J_{K_a K_c} = 13_{2,12}$ ) by He, Ar, Xe, and  $\text{N}_2$ ", *J. Chem. Phys.* **91**, 1008–1011 (1989).
160. Y. Chen, D. M. Jonas, J. L. Kinsey, and R. W. Field, "High Resolution Spectroscopic Detection of Acetylene-Vinylidene Isomerization by Spectral Cross Correlation", *J. Chem. Phys.* **91**, 3976–3987 (1989).
161. J. V. Auwera, T. R. Huet, M. Herman, C. Hamilton, J. L. Kinsey, and R. W. Field, "The  $\tilde{\Lambda}^1\text{A}$  Electronic State of Monodeuterated Acetylene", *J. Mol. Spectrosc.* **137**, 381–395 (1989).
162. C. E. Hamilton, R. W. Field, T. R. Huet, and M. Herman, "Low Energy Vibrational Levels in the  $\tilde{\Lambda}^1\text{A}_u$  Electronic State of  $\text{C}_2\text{D}_2$ ", *J. Mol. Spectrosc.* **137**, 427–429 (1989).
163. R. O. Loo, W. J. Marinelli, P. L. Houston, S. Areppalli, J. R. Wiesenfeld, and R. W. Field, "Multiphoton Ionization of  $\text{O}_2 X^3\Sigma_g^-$ ,  $a^1\Delta_g$ , and  $b^1\Sigma_g^+$  via the Two-Photon Resonant  $n\sigma_g$ ,  $n\delta\sigma_g$ , and  $n\delta\pi_g$  Rydberg Levels", *J. Chem. Phys.* **91**, 5185–5200 (1989).
164. T. D. Varberg, E. J. Hill, and R. W. Field, "Laser Spectroscopy of CoH: Spin-Orbit Splitting of the Ground State", *J. Mol. Spectrosc.* **138**, 630–637 (1989).
165. D. P. Baldwin, J. B. Norman, R. A. Soltz, A. Sur, and R. W. Field, "The  $e^3\Sigma^- - a^3\Pi(0,0)$  and  $E^1\Sigma^- - A'^1\Pi(0,0), (1,1)$ , and  $(2,2)$  Bands of CaO. Multistate Deperturbation of the  $e^3\Sigma^-(v = 0) \sim c^3\Sigma^+(v = 1) \sim E^1\Sigma^-(v = 0)$  System", *J. Mol. Spectrosc.* **139**, 39–67 (1990).
166. D. P. Baldwin and R. W. Field, "The  $F^1\Pi - A'^1\Pi(0,0)$  and  $B^1\Pi - A'^1\Pi(1,0)$  Green-Band Transitions of CaO", *J. Mol. Spectrosc.* **139**, 68–76 (1990).
167. D. P. Baldwin and R. W. Field, "Dispersed Laser Fluorescence Spectroscopy of the Perturbation Facilitated  $B^1\Pi - b^3\Sigma^+(1,1)$  Band of CaO", *J. Mol. Spectrosc.* **139**, 77–83 (1990).
168. J. B. Norman and R. W. Field, "Collision-Induced Angular Momentum Reorientation and Rotational Energy Transfer in  $\text{CaF}(A^2\Pi_{1/2})$ -Ar Thermal Collisions", *J. Chem. Phys.* **92**, 76–89 (1990).
169. J. A. Gray, M. Li, and R. W. Field, "Zeeman Spectroscopy and Deperturbation of the Low-Lying States of NiH", *J. Chem. Phys.*, **92**, 4651–4659 (1990).
170. E. J. Hill and R. W. Field, "Fluorescence-based Intracavity Laser Spectroscopy and the Electronic Structure of NiH", *J. Chem. Phys.* **93**, 1–5 (1990).
171. S. A. Kadavathu, R. Scullman, J. A. Gray, M. Li, and R. W. Field, "New Low-Lying States in NiH: Rotational Analysis with the Aid of Laser-Induced Dispersed Fluorescence Spectroscopy", *J. Mol. Spectrosc.* **140**, 126–140 (1990).
172. D. M. Jonas, X. Zhao, K. Yamanouchi, P. G. Green, G. W. Adamson, and R. W. Field, "High Resolution VUV Fluorescence Excitation Spectrum and Predissociation of  $\tilde{\Lambda}^1\text{A}$  HCN", *J. Chem. Phys.* **92**, 3988–3989 (1990).
173. T. D. Varberg, R. W. Field, and A. J. Merer, "Hyperfine Structure of the  $\text{MnH } X^7\Sigma^+$  State: A Large Gas-To-Matrix Shift in the Fermi Contact Interaction", *J. Chem. Phys.* **92**, 7123–7127 (1990).
174. R. L. Redington, T. E. Redington, M. A. Hunter, and R. W. Field, " $\tilde{\Lambda}^1\text{B}_2 - \tilde{X}^1\text{A}_1$  26 $\gamma$  Transitions of  $^{18}\text{O}$ -Enriched Tropolone", *J. Chem. Phys.* **92**, 6456–6462 (1990).

175. S. A. McDonald, S. F. Rice, R. W. Field, and C. Linton, "Laser Spectroscopy of Low-Lying Excited States in YbO: Linkage of the  $\text{Yb}^{2+}$   $f^3s$  and  $f^4$  Configurations", *J. Chem. Phys.* **93**, 7676–7686 (1990).
176. Y.-T. Chen, D. M. Watt, R. W. Field, and K. K. Lehmann, "Observation of Highly vibrationally Excited  $\tilde{X}^1\Sigma^+$  HCP by Stimulated Emission Pumping Spectroscopy", *J. Chem. Phys.* **93**, 2149–2151 (1990).
177. Y. Chen, S. D. Halle, D. M. Jonas, J. L. Kinsey, and R. W. Field, "Stimulated-Emission Pumping Studies of Acetylene  $\tilde{X}^1\Sigma_g^+$  in the 11,400–15,700  $\text{cm}^{-1}$  Region: The Onset of Mixing", *J. Opt. Soc. Am. B* **7**, 1805–1815 (1990).
178. J. E. Murphy, J. M. Berg, A. J. Merer, N. Harris, and R. W. Field, "Rydberg States and Ionization Potential of Calcium Monofluoride", *Phys. Rev. Lett.* **65**, 1861–1864 (1990).
179. D. P. Baldwin, E. J. Hill, and R. W. Field, "Electron Affinity of O<sup>-</sup> and Diabatic CaO(g) Integer Charge Potential Curves", *J. Am. Chem. Soc.* **112**, 9156–9161 (1990).
180. P. Dupré, R. Jost, M. Lombardi, P. G. Green, E. Abramson, and R. W. Field, "Anomalous Behavior of the Anticrossing Density as a Function of Excitation Energy in the C<sub>2</sub>H Molecule", *Chem. Phys.* **152**, 293–318 (1991).
181. P. Ip, K. J. Cross, R. W. Field, J. Rostas, B. Bourguignon, and J. McCombie, "The  $B^1\Sigma^+ - a^3\Pi_i$  and  $D^1\Delta - a^3\Pi_i$  Intercombination Systems of the MgO Molecule", *J. Mol. Spectrosc.* **146**, 409–436 (1991).
182. Li Li, A. M. Lyyra, W. C. Stwalley, M. Li, and R. W. Field, "The Na<sub>2</sub>  $4^1\Sigma_g^+ \sim 2^3\Pi_g \sim 1^3\Delta_g$  Triple Perturbation: Deperturbation of the ( $v_{\Sigma}, v_{\Pi}, v_{\Delta}$ ) = (6,2,7) and (7,3,8) Interactions", *J. Mol. Spectrosc.* **147**, 215–228 (1991).
183. S. A. Kadavathu, R. W. Field, J. A. Gray, M. Li, and R. Scullman, "Excited States of NiH and NiD in the 15,500–19,000  $\text{cm}^{-1}$  Region: Rotational Analysis with the Aid of Laser-Induced Fluorescence Spectroscopy", *J. Mol. Spectrosc.* **147**, 448–470 (1991).
184. K. Yamanouchi, N. Ikeda, S. Tsuchiya, D. M. Jonas, J. K. Lundberg, G. W. Adamson, and R. W. Field, "Vibrationally Highly Excited Acetylene as Studied by Dispersed Fluorescence and Stimulated Emission Pumping Spectroscopy: Vibrational Assignment of the Feature States", *J. Chem. Phys.* **95**, 6330–6342 (1991).
185. T. D. Varberg, R. W. Field, and A. J. Merer, "Elucidation of Electronic Structure by the Analysis of Hyperfine Interactions: The MnH  $A^7\Pi - X^7\Sigma^+$  (0,0) Band", *J. Chem. Phys.* **95**, 1563–1576 (1991).
186. J. A. Gray, M. Li, Th. Nelis, and R. W. Field, "The Electronic Structure of NiH: The {Ni<sup>+</sup>3d<sup>9</sup> 2D} Supermultiplet", *J. Chem. Phys.* **95**, 7164–7178 (1991).
187. J.-P. Pique, Y. Chen, R. W. Field, and J. L. Kinsey, Reply to Comment by J. Wilkie and P. Brumer, "Failure of the Fourier Transform of the Stimulated Emission Pumping Spectrum of Acetylene to Discern Chaotic Behavior", *Phys. Rev. Lett.* **69**, 2018 (Comment) and *Phys. Rev. Lett.* **69**, 2019 (Reply) (1992).
188. M. C. McCarthy and R. W. Field, "The Use of Magnetic Rotation Spectroscopy to Simplify and Presort Spectra: An Application to NiH and CeF", *J. Chem. Phys.* **96**, 7237–7244 (1992).
189. T. D. Varberg, J. A. Gray, R. W. Field, and A. J. Merer, "Reanalysis and Extension of the MnH  $A^7\Pi - X^7\Sigma^+$  (0,0) Band: Fine Structure and Hyperfine-Induced Rotational Branches", *J. Mol. Spectrosc.* **156**, 296–318 (1992).
190. Li 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 State of Li<sub>2</sub>", *J. Chem. Phys.* **96**, 3342–3343 (1992).
191. E. J. Friedman-Hill and R. W. Field, "A Reexamination of the RKR Potential of the  $a^3\Sigma_u^+$  State of Na<sub>2</sub>", *J. Chem. Phys.* **96**, 2444–2448 (1992).
192. E. J. Friedman-Hill and R. W. Field, "Analysis of the [16.0] $^3\Sigma^- - X^3\Sigma^-$  and [16.0] $^3\Sigma^- - [4.3]^3\Pi_i$  Band Systems of the NiO Molecule", *J. Mol. Spectrosc.* **155**, 259–276 (1992).
193. D. M. Jonas, S. A. B. Solina, X. Zhao, and R. W. Field, "High Resolution VUV Stark Measurement of the Dipole Moment of  $\tilde{A}^1\text{A}'$  HCN", *J. Chem. Phys.* **96**, 7209–7217 (1992).
194. S. L. Coy, S. D. Halle, J. L. Kinsey and R. W. Field, "Pressure-Induced Rotational Energy Transfer in H<sub>2</sub>CO  $\tilde{A}^1\text{A}_2$   $v_4 = 1$ : Dipolar *M*-Dependence with No Single-Collision Elastic Contribution", *J. Mol. Spectrosc.* **153**, 340–375 (1992).
195. L. A. Kaledin, C. Linton, T. E. Clarke, and R. W. Field, "Laser Spectroscopy of the Lanthanide Monofluorides: The Ground State Configuration of Holmium Fluoride", *J. Mol. Spectrosc.* **154**, 417–426 (1992).
196. D. M. Jonas, S. A. B. Solina, R. W. Field, and R. J. Silbey, "Experimental Distinction of Electric and Magnetic Transition Moments", *J. Chem. Phys.* **96**, 7189–7190 (1992).
197. J. K. Lundberg, Y. Chen, J.-P. Pique, and R. W. Field, "Ultraviolet-Optical Double Resonance Study of the Predissociated  $\tilde{C}^1\text{A}_g$  State of Acetylene", *J. Mol. Spectrosc.* **156**, 104–122 (1992).
198. R. L. Redington, T. E. Redington, B. Rajaram, and R. W. Field, "Excitation Spectra of 2,5-Dihydroxy-*p*-Benzoquinone Monomer and Hydrates", *J. Chem. Phys.* **97**, 1624–1629 (1992).
199. D. M. Jonas, S. A. B. Solina, B. Rajaram, R. J. Silbey, R. W. Field, K. Yamanouchi, and S. Tsuchiya, "Intramolecular Vibrational Relaxation and Forbidden Transitions in the SEP Spectrum of Acetylene", *J. Chem. Phys.* **97**, 2813–2816 (1992).
200. J. K. Lundberg, D. M. Jonas, Y. Chen, B. Rajaram, and R. W. Field, "Rotationally Resolved UV–UV Double Resonance Study of the Nonplanar  $\tilde{E}$  State of Acetylene", *J. Chem. Phys.* **97**, 7180–7196 (1992).
201. Li Li, Q. Zhu, A. M. Lyyra, T.-J. Whang, W. C. Stwalley, R. W. Field, and M. H. Alexander, "Collision-Induced Transitions between  $A^1\Sigma_u^+$  and  $b^3\Pi_u$  States of Na<sub>2</sub>: The 'Gateway' Effect of Perturbed Levels", *J. Chem. Phys.* **97**, 8835–8841 (1992).
202. C. Gittins, N. Harris, and R. W. Field, "Rydberg States of CaF: Healing a Scar in the 's'Σ Series", Lawrence Berkeley Laboratory Report #LBL-32305 (XIV International Symposium on Molecular Beams, 1992) pp. 57–60.
203. J. K. Lundberg, R. W. Field, C. D. Sherrill, E. T. Seidl, Y. Xie, and H. F. Schaefer III, "Acetylene: Synergy Between Theory and Experiment", *J. Chem. Phys.* **98**, 8384–8391 (1993).
204. D. M. Jonas, S. A. B. Solina, B. Rajaram, S. J. Cohen, R. J. Silbey, R. W. Field, K. Yamanouchi, and S. Tsuchiya, "Intramolecular Vibrational Relaxation in the SEP Spectrum of Acetylene", *J. Chem. Phys.* **99**, 7350–7370 (1993).
205. M. C. McCarthy, R. W. Field, R. Engleman, Jr., and P. F. Bernath, "Laser and Fourier Transform Spectroscopy of PtH and PtD", *J. Mol. Spectrosc.* **158**, 208–236 (1993).
206. J. M. Berg, J. E. Murphy, N. A. Harris, and R. W. Field, "Observation and Analysis of Core-Penetrating Rydberg States of Calcium Monofluoride", *Phys. Rev. A* **48**, 3012–3029 (1993).

207. N. A. Harris and R. W. Field, "The Core-Penetrating Rydberg Series of the CaF Molecule: At the Borderline Between Valence and Rydberg States", *J. Chem. Phys.* **98**, 2642–2646 (1993).
208. Li Li, Q. Zhu, A. M. Lyyra, T.-J. Whang, W. C. Stwalley, R. W. Field, and M. H. Alexander, "Rotational Energy Transfer in the  $\text{Na}_2 b^3\Pi_u$  State: Propensity Rules for Rotation, Spin-Orbit Component, and  $\ell/\ell$ -Parity Changing Collisions", *J. Chem. Phys.* **98**, 8406–8412 (1993).
209. Li Li, Q. Zhu, A. M. Lyyra, T.-J. Whang, W. C. Stwalley, R. W. Field, and M. H. Alexander, "Rotational Energy Transfer in the  $\text{Na}_2 b^3\Pi_u$  State: Propensity Rules for Transitions Between Hyperfine Components", *J. Chem. Phys.* **98**, 8413–8418 (1993).
210. Z. J. Jakubek and R. W. Field, "Comment on: High Resolution Laser Spectroscopy of the  $\tilde{C}^2\Delta - \tilde{X}^2\Sigma^+$  Transition of CaOH and CaOD: Vibronic Coupling and the Renner-Teller Effect", *J. Chem. Phys.* **98**, 6574–6575 (1993).
211. X. Zhao, G. W. Adamson, and R. W. Field, "The  $\text{HCO} \bar{\beta}^2\text{A}' \leftrightarrow \tilde{X}^2\text{A}'$  System: Fluorescence Excitation and Stimulated Emission Pumping Spectra", *J. Mol. Spectrosc.* **160**, 11–38 (1993).
212. C. M. Gittins, N. A. Harris, R. W. Field, J. Vergès, C. Effantin, A. Bernard, J. d'Incan, W. E. Ernst, P. Bündgen, and B. Engels, "Analysis and Deperturbation of the  $C^2\Pi$  and  $D^2\Sigma^+$  States of CaF", *J. Mol. Spectrosc.* **161**, 303–311 (1993).
213. R. Liyanage, P. T. A. Reilly, Y. Yang, R. J. Gordon, and R. W. Field, "Evidence of the Indirect Predissociation of the  $F^1\Delta$  State of HCl", *Chem. Phys. Lett.* **216**, 544–550 (1993).
214. Z. J. Jakubek, N. A. Harris, R. W. Field, J. A. Gardner, and E. Murad, "Ionization Potentials of CaF and BaF", *J. Chem. Phys.* **100**, 622–627 (1994).
215. Z. J. Jakubek and R. W. Field, "Core-Penetrating Rydberg Series of BaF:  $s \sim p \sim d \sim f$  Supercomplexes", *Phys. Rev. Lett.* **72**, 2167–2170 (1994).
216. K. Yamanouchi, J. Miyawaki, S. Tsuchiya, D. M. Jonas, and R. W. Field, "New Scheme for Extracting Molecular Dynamics from Spectra: Case Study on vibrationally Highly Excited Acetylene", *Laser Chem.* **14**, 183–190 (1994).
217. M. C. McCarthy, J. C. Bloch and R. W. Field, "Frequency-Modulation Enhanced Magnetic Rotation Spectroscopy: A Sensitive and Selective Absorption Scheme for Paramagnetic Molecules", *J. Chem. Phys.* **100**, 6331–6346 (1994).
218. M. C. McCarthy and R. W. Field, "Frequency-Modulation Enhanced Magnetic Rotation Spectroscopy of PdH, PdD, NiH, and CuH", *J. Chem. Phys.* **100**, 6347–6358 (1994).
219. L. A. Kaledin, J. C. Bloch, M. C. McCarthy, L. V. Gurvich, and R. W. Field, "Laser Spectroscopic Study of Terbium Monofluoride: Ligand Field Assignments of Some  $f^8[7F]sp - f^8[7F]s^2$  Transitions", *Mol. Phys.* **83**, 881–905 (1994).
220. R. W. Field, S. L. Coy, and S. A. B. Solina, "Pure Sequence Vibrational Spectra of Small Polyatomic Molecules: Feature State Assignments, Sequential Dynamics, Energy and Time Scaling, and the Bag-of-Atoms Limit", *Prog. Theor. Phys. Suppl.* **116**, 143–166 (1994).
221. E. J. Friedman-Hill and R. W. Field, "First Observation and Electronic Structure of the Diatomic Platinum Nitride Molecule", *J. Chem. Phys.* **100**, 6141–6152 (1994).
222. G. M. Schmid, S. L. Coy, R. W. Field, and R. J. Silbey, "Duffing's Oscillator and the Normal to Local Mode Transition in  $\text{AB}_2$  Triatomic Molecules", *Chem. Phys. Lett.* **219**, 331–338 (1994).
223. G. M. Schmid, S. L. Coy, R. W. Field, and R. J. Silbey, "The Normal to Local Mode Transition in  $\text{AB}_2$  Triatomic Molecules: The Susceptibility of Eigenstates to Symmetry Breaking Perturbations", *J. Chem. Phys.* **101**, 869–875 (1994).
224. J. C. Bloch, R. W. Field, G. E. Hall, and T. J. Sears, "Time-Resolved Frequency Modulation Spectroscopy of Photochemical Transients", *J. Chem. Phys.* **101**, 1717–1720 (1994).
225. T. J. Sears, M. Wu, G. E. Hall, B.-C. Chang, G. Hansford, J. C. Bloch, and R. W. Field, "Infrared and Near Infrared Transient Absorption Spectroscopy of Molecular Free Radicals", *Proc. SPIE 2124 (Laser Techniques for State-Selected and State-to-State Chemistry)* 219–226 (1994).
226. C. D. Pibel, K. Yamanouchi, J. Miyawaki, S. Tsuchiya, B. Rajaram, and R. W. Field, "The  $\Omega = 1$  van der Waals and  $\Omega = 0^+$  Double Well Potentials of  $\text{Xe} 6s[3/2]^0_+ + \text{Kr} ^1S_0$  Determined from Tunable Vacuum Ultraviolet Laser Spectroscopy", *J. Chem. Phys.* **101**, 10242–10251 (1994).
227. R. W. Field, H. Ishikawa, B. Rajaram, J. Wang, Y. Ohshima, and Y.-T. Chen, "Caught in the Act of Isomerization", in *38th Welch Conference on Chemical Dynamics of Transient Species* (Welch Foundation, Houston, 1994) pp. 259–284.
228. H.-L. Dai and R. W. Field eds., *Molecular Dynamics and Spectroscopy by Stimulate Emission Pumping* (World Scientific, Singapore, 1995) 1120 pp.
229. Li Li and R. W. Field, "Continuous Wave Perturbation-Facilitated Optical–Optical Double Resonance Spectroscopy of  $\text{Na}_2$  and  $\text{Li}_2$ ", in *Molecular Dynamics and Spectroscopy by Stimulate Emission Pumping*, H.-L. Dai and R. W. Field eds. (World Scientific, Singapore, 1995) pp. 251–278.
230. S. L. Coy, D. Chasman, and R. W. Field, "Extracting Dynamical Information from Complex and Congested Spectra: Statistics, Pattern Recognition and Parsimonious Trees", in *Molecular Dynamics and Spectroscopy by Stimulate Emission Pumping*, H.-L. Dai and R. W. Field eds. (World Scientific, Singapore, 1995) pp. 891–942.
231. K. Yamanouchi and R. W. Field, "Short Time Dynamics of Highly Excited Small Polyatomic Molecules Extracted from Laser Spectra", *Laser Chem.* **16**, 31–41 (1995).
232. R. W. Field, "A Trans-Pacific Collaboration: Dynamical Experiments and Experiences", *Laser Chem.* **15**, 79–80 (1995).
233. P. Dupré, P. G. Green, and R. W. Field, "Quantum Beat Spectroscopic Studies of Zeeman Anticrossings in the  $\tilde{A}^1\text{A}_u$  State of the Acetylene Molecule ( $\text{C}_2\text{H}_2$ )", *Chem. Phys.* **196**, 211–238 (1995).
234. G. M. Schmid, S. L. Coy, R. W. Field, and R. J. Silbey, "How Robust are Molecular Properties? A Stability Criterion for Eigenstates", *J. Chem. Phys.* **102**, 337–345 (1995).
235. M. C. McCarthy, H. Kanamori, M. Li, and R. W. Field, "Sideband Optical–Optical Double Resonance Zeeman Spectroscopy. I. Theory of Saturation and Line Shape Behavior", *J. Chem. Phys.* **102**, 8295–8307 (1995).
236. J. M. Smith, J. C. Bloch, R. W. Field, and J. I. Steinfeld, "Trace Detection of  $\text{NO}_2$  by Frequency-Modulation-Enhanced Magnetic Rotation Spectroscopy", *J. Opt. Soc. Am. B* **12**, 964–969 (1995).
237. S. A. B. Solina, J. P. O'Brien, R. W. Field, and W. F. Polik, "The Acetylene  $S_0$  Surface: From Dispersed Fluorescence Spectra to Polyads to Dynamics", *Berich. Bunsen. Gesell. Phys. Chem.* **99**, 555–560 (1995).
238. J. E. Murphy, E. Friedman-Hill and R. W. Field, "A Multichannel Quantum Defect Fit to the  $n^* = 6–8$  Core-Penetrating  $s \sim p \sim d$  Supercomplexes of CaF", *J. Chem. Phys.* **103**, 6459–6466 (1995).

239. J. Schamps, M. Bencheikh, C. Barthelat, and R. W. Field, "The Electronic Structure of LaO: Ligand Field vs. *Ab Initio* Calculations", *J. Chem. Phys.* **103**, 8004–8013 (1995).
240. R. Liyanage, Y. Yang, S. Hashimoto, R. J. Gordon, and R. W. Field, "Electronic Control of the Spin-Orbit Branching Ratio in the Photodissociation and Predissociation of HCl", *J. Chem. Phys.* **103**, 6811–6814 (1995).
241. B. D. Gilbert, J. Janni, D. Moss, M. Kixmoeller, R. W. Field, J. I. Steinfeld, K. Kniepp, Y. Wang, R. R. Dasari, and M. S. Feld, "Spectroscopic Detection Methods for Explosive Molecules and their Fragmentation Products", *Proc. fifth Int. Symp. on Analysis and Detection of Explosives* (Chantilly, VA, December 8, 1995).
242. S. A. B. Solina, J. P. O'Brien, R. W. Field, and W. F. Polik, "Dispersed Fluorescence Spectrum of Acetylene from the  $\tilde{A}^1A_u$  Origin: Recognition of Polyads and Test of Multiresonant Effective Hamiltonian Model for the  $\tilde{X}$  State", *J. Phys. Chem.* **100**, 7797–7809 (1996).
243. E. E. Eyler, S. Gangopadhyay, N. Melikechi, J. C. Bloch, and R. W. Field, "Frequency-Modulation Spectroscopy with Transform-Limited Nanosecond Laser Pulses", *Opt. Lett.* **21**, 225–227 (1996).
244. L. A. Kaledin, J. C. Bloch, M. C. McCarthy, E. A. Shenyavskaya, and R. W. Field, "Laser Spectroscopy of Gadolinium Monofluoride: Ligand Field Assignments of States in the 0–3 eV Range", *J. Mol. Spectrosc.* **176**, 148–161 (1996).
245. H. Ishikawa, Y.-T. Chen, Y. Ohshima, B. Rajaram, J. Wang, and R. W. Field, "Stimulated Emission Pumping Spectroscopy of HCP near the Isomerization Barrier:  $E_{\text{vib}} \leq 25,315 \text{ cm}^{-1}$ ", *J. Chem. Phys.* **105**, 7383–7401 (1996).
246. J. C. Bloch, M. C. McCarthy, R. W. Field, and L. A. Kaledin, "Laser Spectroscopy of Cerium Monofluoride: Ligand Field Assignments of Some  $4f$  5d  $6p^-$ – $4f$  5  $6s$  Transitions", *J. Mol. Spectrosc.* **177**, 251–262 (1996).
247. M. C. McCarthy, J. C. Bloch, R. W. Field, and L. A. Kaledin, "Laser Spectroscopy of Dysprosium Monofluoride: Ligand Field Assignments of States Belonging to the  $4f^9 6s^2$ ,  $4f^{10} 6s$ , and  $4f^9 6s 6p$  Superconfigurations", *J. Mol. Spectrosc.* **179**, 253–262 (1996).
248. A. L. Kaledin, M. C. Heaven, R. W. Field, and L. A. Kaledin, "The Electronic Structure of the Lanthanide Monohalides: A Ligand Field Approach", *J. Mol. Spectrosc.* **179**, 310–319 (1996).
249. Z. Jakubek and R. W. Field, "Core-Penetrating Rydberg Series of BaF: New Electronic States in the  $n^* \approx 4$  Region", *J. Mol. Spectrosc.* **179**, 99–124 (1996).
250. D. J. Nesbitt and R. W. Field, "Vibrational Energy Flow in Highly Excited Molecules: Role of Intramolecular Vibrational Redistribution", *J. Phys. Chem.* **100**, 12735–12756 (1996).
251. B. D. Gilbert, J. Janni, D. Moss, R. W. Field, J. I. Steinfeld, and A. Mercado, "Raman Techniques for Detection of Explosive Materials", *Proc. Opt. Soc. Am.: Topical Meeting on Laser Applications to Chemical and Environmental Analysis* (Orlando, FL, March, 1996) pp. 109–111.
252. P. J. Dagdigian, D. F. Varley, R. Liyanage, R. J. Gordon, and R. W. Field, "Detection of DCI by Multiphoton Ionization and Determination of DCI and HCl Internal State Distributions", *J. Chem. Phys.* **105**, 10251–10262 (1996).
253. M. A. Temsamani, M. Herman, S. A. B. Solina, J. P. O'Brien, and R. W. Field, "Highly vibrationally excited  $^{12}\text{C}_2\text{H}_2$  in the  $\tilde{X}^1\Sigma_g^+$  State: Complementarity of Absorption and Dispersed Fluorescence Spectra", *J. Chem. Phys.* **105**, 11357–11359 (1996).
254. M. C. McCarthy, H. Kanamori, T. C. Steimle, M. Li, and R. W. Field, "Sideband Optical–Optical Double Resonance Zeeman Spectroscopy. II. Studies of NiH, PdD, and PdH", *J. Chem. Phys.* **107**, 4179–4188 (1997).
255. 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 (9–13d and 11–14s), and Ar (5p–4s)", *J. Mol. Spectrosc.* **186**, 222–229 (1997).
256. R. W. Field, J. P. O'Brien, M. P. Jacobson, S. A. B. Solina, W. F. Polik, and H. Ishikawa, "Intramolecular Dynamics in the Frequency Domain", *Adv. Chem. Phys.* **101** (Solvay Conference 1995), 463–490 (1997).
257. R. W. Field and C. M. Gittins, "Realistic Representation of the Induced Electric Dipole Moment on a Polarizable Ligand: The Missing Factor in the Rittner Polarization Model", *J. Chem. Phys.* **106**, 10379–10382 (1997).
258. J. Janni, B. D. Gilbert, R. W. Field, and J. I. Steinfeld, "Infrared Absorption of Explosive Molecule Vapors", *Spectrochim. Acta A* **53**, 1375–1381 (1997).
259. M. C. McCarthy and R. W. Field, "Sideband Optical–Optical Double Resonance Zeeman Spectroscopy. III. Analysis of Composite Lines and Selective Detection", *J. Chem. Phys.* **107**, 4189–4193 (1997).
260. S. Drucker, J. P. O'Brien, P. Patel, and R. W. Field, "The Effects of Triplet Perturbers on Photophysical Processes in the  $\tilde{A}^1A_u$  State of Acetylene", *J. Chem. Phys.* **106**, 3423–3426 (1997).
261. S.-H. Lee, I.-C. Chen, G. W. Adamson, and R. W. Field, "The Fluorescence Excitation Spectrum of  $\text{HCO} \tilde{B}^2\text{A}' - \tilde{X}^2\text{A}' 0^0$  Band", *J. Mol. Spectrosc.* **182**, 385–395 (1997).
262. H. Ishikawa, C. Nagao, N. Mikami, and R. W. Field, "Observation of the 'Isomerization States' of HCP by Stimulated Emission Pumping Spectroscopy: Comparison Between Theory and Experiment", *J. Chem. Phys.* **106**, 2980–2983 (1997).
263. Z. J. Jakubek and R. W. Field, "Rydberg Series of BaF: Perturbation-Facilitated Studies of Core-Non-Penetrating States", *Phil. Trans. Roy. Soc. Lond. A* **355**, 1507–1526 (1997).
264. S. J. Humphrey, C. G. Morgan, A. M. Wodtke, K. L. Cunningham, S. Drucker, and R. W. Field, "Laser Excited Metastable States of Acetylene in the 5.5–5.7 eV Region", *J. Chem. Phys.* **107**, 49–53 (1997).
265. M. P. Jacobson, S. L. Coy, and R. W. Field, "Extended Cross Correlation: A Technique for Spectroscopic Pattern Recognition", *J. Chem. Phys.* **107**, 8349–8356 (1997).
266. S. L. Coy, M. P. Jacobson, and R. W. Field, "Identifying Patterns in Multicomponent Signals by Extended Cross Correlation", *J. Chem. Phys.* **107**, 8357–8369 (1997).
267. A. Strizhev, X. Li, R. Liyanage, R. J. Gordon, and R. W. Field, "A Unified Model of the Dynamics and Spectroscopy of the  $g^3\Sigma_0^-$  and  $E^1\Sigma^+$  States of Hydrogen Chloride", *J. Chem. Phys.* **108**, 984–989 (1998).
268. J. P. O'Brien, M. P. Jacobson, J. J. Sokol, S. L. Coy, and R. W. Field, "Numerical Pattern Recognition Analysis of Acetylene Dispersed Fluorescence Spectra", *J. Chem. Phys.* **108**, 7100–7113 (1998).
269. Y. Liu, J. Li, H. Gao, D. Chen, Li Li, R. W. Field, and A. M. Lyryra, "Predissociation of the  $\text{Na}_2 3^3\Pi_g$  and Other Triplet States", *J. Chem. Phys.* **108**, 2269–2276 (1998).
270. E. Hirota, R. W. Field, J. P. Maier, and S. Tsuchiya, eds., "Nonlinear Spectroscopy for Molecular Structure Determination", IUPAC monograph (Blackwell Science Ltd., Oxford, 1998), 276 pp.

271. J. Li, Y. Liu, H. Gao, H. Chen, J. Xian, G. Wu, D. Chen, Li Li, and R. W. Field, "Predisociation of the  $\text{Na}_2 4^3\Sigma_g^+$  State", *J. Chem. Phys.* **108**, 7707–7712 (1998).
272. M. P. Jacobson, J. P. O'Brien, R. J. Silbey, and R. W. Field, "Pure Bending Dynamics in the Acetylene  $\tilde{X}^1\Sigma_g^+$  State to 15,000  $\text{cm}^{-1}$  of Internal Energy", *J. Chem. Phys.* **109**, 121–133 (1998).
273. A. J. Marr, S. W. North, T. J. Sears, L. Ruslen, and R. W. Field, "Laser Transient Absorption Spectroscopy of Bromomethylene", *J. Mol. Spectrosc.* **188**, 68–77 (1998).
274. H. Ishikawa, C. Nagao, N. Mikami, and R. W. Field, "Spectroscopic Investigation of the Generation of 'Isomerization' States: Eigenvector Analysis of the Bend-CP Stretch Polyad", *J. Chem. Phys.* **109**, 492–503 (1998).
275. Y. Liu, J. Li, H. Chen, D. Chen, Li Li, and R. W. Field, "The  $4^3\Pi_g$  and  $6^3\Pi_g$  States of  $\text{Na}_2$ : Observation and Assignment", *J. Mol. Spectrosc.* **192**, 32–40 (1998).
276. R. Liyanage, R. J. Gordon, and R. W. Field, "Diabatic Analysis of the Electronic States of Hydrogen Chloride", *J. Chem. Phys.* **109**, 8374–8387 (1998).
277. I. Dubinsky, K. Rybak, J. I. Steinfeld, and R. W. Field, "Frequency-Modulation-Enhanced Remote Sensing", *Appl. Phys. B* **67**, 481–492 (1998).
278. M. P. Jacobson, J. P. O'Brien, and R. W. Field, "Anomalously Slow IVR in the Acetylene  $\tilde{X}^1\Sigma_g^+$  State Above 10,000  $\text{cm}^{-1}$  of Internal Energy", *J. Chem. Phys.* **109**, 3831–3840 (1998).
279. L. A. Kaledin, M. C. Heaven, and R. W. Field, "Thermochemical Properties ( $D_0^0$  and  $IP$ ) of the Lanthanide Monohalides", *J. Mol. Spectrosc.* **193**, 285–292 (1999).
280. L. A. Kaledin, J. C. Bloch, M. C. McCarthy, and R. W. Field, "Analysis and Deperturbation of the  $A^2\Pi$  and  $B^2\Sigma^+$  States of  $\text{CaF}$ ", *J. Mol. Spectrosc.* **197**, 289–296 (1999).
281. H. Chen, Li Li, G. Lazarov, X. Wang, A. M. Lyyra, J. Huennekens, and R. W. Field, "Rotational Pattern Difference in Resolved Fluorescence Spectra with Different Detection Schemes", *J. Mol. Spectrosc.* **196**, 197–211 (1999).
282. J. Li, Y. Liu, D. B. Moss, C. M. Gittins, N. Harris, and R. W. Field, "Double-Resonance Spectroscopic Studies of Core-Penetrating Rydberg States of  $\text{CaCl}$ ", *J. Mol. Spectrosc.* **193**, 403–411 (1999).
283. J. O. Clevenger, N. A. Harris, R. W. Field, and J. Li, "The Predisociation Mechanism for  ${}^2\Sigma^+$  Rydberg States of  $\text{CaCl}$ ", *J. Mol. Spectrosc.* **193**, 412–417 (1999).
284. M. P. Jacobson, R. J. Silbey, and R. W. Field, "Local Mode Behavior in the Acetylene Bending System", *J. Chem. Phys.* **110**, 845–859 (1999).
285. M. P. Jacobson, C. Jung, H. S. Taylor, and R. W. Field, "State-by-State Assignment of the Bending Spectrum of Acetylene at 15,000  $\text{cm}^{-1}$ : A Case Study of Quantum-Classical Correspondence", *J. Chem. Phys.* **111**, 600–618 (1999).
286. D. B. Moss, R. Duan, M. P. Jacobson, J. P. O'Brien, and R. W. Field, "Observation of Coriolis Coupling Between  $v_2+4v_4$  and  $7v_4$  in Acetylene  $\tilde{X}^1\Sigma_g^+$  by Stimulated Emission Pumping Spectroscopy", *J. Mol. Spectrosc.* **199**, 265–274 (1999).
287. R. H. Lipson and R. W. Field, "Toward a Global and Causal Understanding of the Unusual Rydberg State Potential Energy Curves of the Heteronuclear Rare Gas Dimers", *J. Chem. Phys.* **110**, 10653–10656 (1999).
288. H. Ishikawa, R. W. Field, S. C. Farantos, M. Joyeux, J. Koput, C. Beck, and R. Schinke, "HCP→CPH Isomerization: Caught in the Act!", *Annu. Rev. Phys. Chem.* **50**, 443–484 (1999).
289. J. J. Steinfeld, R. W. Field, M. Gardner, M. Canagaratna, S. Yang, A. Gonzalez-Casielles, S. Witonsky, P. Bhatia, B. Gibbs, B. Wilkie, S. L. Coy, and A. Kachanov, "New Spectroscopic Methods for Environmental Measurement and Monitoring", *Proc. SPIE 3853 (Environmental Monitoring and Remediation Technologies II)*, 28–33 (1999).
290. M. P. Jacobson, S. L. Coy, R. W. Field, S. J. Lipson, R. B. Lockwood, D. L. Vitioe, W. A. M. Blumberg, and P. S. Armstrong, "Numerical Pattern Recognition Analysis of CO Atmospheric Simulation Experiments", *J. Phys. Chem.* **104**, 249–257 (2000).
291. M. Joyeux, D. Sugny, V. Tyng, M. E. Kellman, H. Ishikawa, R. W. Field, C. Beck, and R. Schinke, "Semiclassical Study of the Isomerization States of HCP", *J. Chem. Phys.* **112**, 4162–4172 (2000).
292. M. P. Jacobson and R. W. Field, "Acetylene at the Threshold of Isomerization", *J. Phys. Chem. (feature article)* **104**, 3073–3086 (2000).
293. S. Yang, M. Canagaratna, S. Witonsky, S. L. Coy, J. I. Steinfeld, R. W. Field, and A. Kachanov, "Intensity Measurements and Collision-Broadening Coefficients for the Oxygen A Band Measured by Intracavity Laser Absorption Spectroscopy", *J. Mol. Spectrosc.* **201**, 188–197 (2000).
294. M. P. Jacobson and R. W. Field, "Visualizing IVR: Expectation Values of Resonance Operators", *Chem. Phys. Lett.* **320**, 553–560 (2000).
295. X. Dai, J. O. Clevenger, Y. Liu, M. Song, J. Shang, D. Chen, R. W. Field, and Li Li, "The  $2^3\Delta_g$  State of  ${}^7\text{Li}_2$ ", *J. Mol. Spectrosc.* **200**, 120–122 (2000).
296. H. K. Srivastava, A. Conjusteau, H. Mabuchi, A. Callegari, K. K. Lehmann, G. Scoles, M. L. Silva, and R. W. Field, "Ro-vibrational Spectroscopy of the  $v = 6$  Manifold in  ${}^{12}\text{C}_2\text{H}_2$  and  ${}^{13}\text{C}_2\text{H}_2$ ", *J. Chem. Phys.* **113**, 7376–7383 (2000).
297. S. Altunata and R. W. Field, "A Statistical Approach for the Study of Singlet-Triplet Interactions in Small Polyatomic Molecules", *J. Chem. Phys.* **113**, 6640–6651 (2000).
298. J. M. Brown, R. J. Buenker, A. Carrington, C. di Lauro, R. N. Dixon, R. W. Field, J. T. Hougen, W. Hüttner, K. Kuchitsu, A. J. Merer, T. A. Miller, M. Quack, D. A. Ramsay, A. J. Stone, and R. N. Zare, "Remarks on the Signs of g-factors in Atomic and Molecular Zeeman Spectroscopy", *Mol. Phys.*, **98**, 1597–1601 (2000).
299. A. F. Ruckstuhl, M. P. Jacobson, R. W. Field, and J. A. Dodd, "Baseline Subtraction Using Robust Local Regression Estimation", *J. Quant. Spectrosc. Rad. Transf.* **68**, 179–193 (2001).
300. K. Hoshina, A. Iwasaki, K. Yamanouchi, M. P. Jacobson, and R. W. Field, "The IR-UV Dispersed Fluorescence Spectrum of Acetylene: New Classes of Bright States", *J. Chem. Phys.* **114**, 7424–7442 (2001).
301. C. M. Gittins, N. A. Harris, M. Hui, and R. W. Field, "Ionization-Detected Optical–Optical Double Resonance Spectroscopic Studies of Moderate Energy Rydberg States of Calcium Monofluoride", *Can. J. Phys.* **79**, 247–286 (2001).
302. Z. J. Jakubek and R. W. Field, "Core-Penetrating Rydberg Series of BaF: Single-State and Two-State Fits of New Electronic States in the  $4.4 \leq n^* \leq 14.3$  Region", *J. Mol. Spectrosc.* **205**, 197–220 (2001).
303. J. Li, Y. Liu, X. Dai, Li Li, and R. W. Field, "Relabeling and Classification of the Rydberg States", *J. Chem. Phys.* **114**, 7859–7865 (2001).

304. Li Li, X. Dai, Y. Liu, J. O. Clevenger, R. W. Field, G.-H. Jeung, N. Geum, and A. M. Lyyra, "The Predissociation of the  $1^3\Sigma_g^-$  State of  ${}^7\text{Li}_2$ ", *J. Mol. Spectrosc.* **205**, 139–145 (2001).
305. E. S. Hwang, J. B. Lipson, R. W. Field, and J. A. Dodd, "Detection of OH ( $X, v'', J''$ ) via the  $B^2\Sigma^+ - X^2\Pi$  Transition and Properties of the  $B^2\Sigma^+$  State", *J. Phys. Chem.* **105**, 6030–6037 (2001).
306. M. Silva, R. Jongma, R. W. Field, and A. M. Wodtke, "The Dynamics of 'Stretched Molecules': Experimental Studies of Highly vibrationally Excited Molecules with Stimulated Emission Pumping", *Ann. Rev. Phys. Chem.* **52**, 811–852 (2001).
307. S. Altunata and R. W. Field, "An Assumption-Violating Application of the Lawrence-Knight Deconvolution Procedure: A Retrieval of Electronic Coupling Mechanisms Underlying Complex Spectra", *J. Chem. Phys.* **114**, 6557–6561 (2001).
308. S. K. Witonsky, M. R. Canagaratna, S. L. Coy, J. I. Steinfeld, R. W. Field, and A. A. Kachanov, "The  $3\nu_1$  Overtone Band of *trans*-Nitrous Acid: Rotational and Perturbation Analysis and Absolute Intensity", *J. Chem. Phys.* **115**, 3134–3143 (2001).
309. Y. Liu, B. Ji, A. S.-C. Cheung, W. C. Stwalley, R. W. Field, and Li Li, "The Hyperfine Structure of the  $1^3\Delta_g$  State of  $\text{Na}_2$ ", *Chem. Phys.* **115**, 3647–3656 (2001).
310. M. L. Silva, M. P. Jacobson, Z. Duan, and R. W. Field, "Anomalous Simplicity of the  $\tilde{A} - \tilde{X}$  Dispersed Fluorescence Spectrum of  ${}^{13}\text{C}_2\text{H}_2$ ", *J. Mol. Struct.* **565-566**, 87–91 (2001).
311. S. Altunata, K. L. Cunningham, M. Canagaratna, R. Thom and R. W. Field, "The Mechanism of Surface Electron Ejection by Laser Excited Metastable Molecules", *J. Phys. Chem.* **106**, 1122–1130 (2002).
312. Li Li, A. Lazoudis, P. Yi, Y. Liu, J. Huennekens, R. W. Field, and A. M. Lyyra, "Hyperfine Structure of the  $1^3\Delta_g$ ,  $2^3\Pi_g$ , and  $3^3\Sigma_g^+$  States of  ${}^6\text{Li}'\text{Li}'$ ", *J. Chem. Phys.* **116**, 10704–10712 (2002).
313. J. Qi, F. C. Spano, T. Kirova, A. Lazoudis, J. Magnes, Li Li, L. M. Narducci, R. W. Field, and A. M. Lyyra, "Measurement of Transition Dipole Moments in Lithium Dimers Using Electromagnetically Induced Transparency", *Phys. Rev. Lett.* **88**, 173003/1–4 (2002).
314. M. L. Silva, M. P. Jacobson, Z. Duan, and R. W. Field, "Unexpected Simplicity in the  $S_1 - S_0$  Dispersed Fluorescence Spectra of  ${}^{13}\text{C}_2\text{H}_2$ ", *J. Chem. Phys.* **116**, 7939–7947 (2002).
315. S. N. Altunata, J. Cao, and R. W. Field, "Semiclassical Modeling of Rydberg Wave-Packet Dynamics in Diatomic Molecules: Average Decoupling Theory", *Phys. Rev. A* **65**, 053415/1–16 (2002).
316. J. F. Harrison, R. W. Field, and C. C. Jarrold, "Comparison of CaF, CaO, ZnF, and ZnO, Their Anions and Cations in Their Ground and Low-Lying Excited States", Chapter 11 in *ACS Symposium Series No. 828, Low-Lying Potential Energy Surfaces* (American Chemical Society, Washington, DC, 2002) pp. 238–259.
317. A. P. Mishra, R. L. Thom, S. Altunata, and R. W. Field, "Study of Intramolecular Dynamics of Highly Energized Small Molecules Using Laser Spectroscopic Techniques", in *Current Developments in Atomic, Molecular, and Chemical Physics with Applications*, M. Mohan ed. (Kluwer Academic/Plenum Publishers, New York, 2003) pp. 49–56.
318. S. N. Altunata and R. W. Field, "Modeling LiH Potential Energy Curves: An Approach Based on Integration in Finite Space", *Phys. Rev. A* **67**, 022507/1–13 (2003).
319. Z.-H. Loh and R. W. Field, "Contrasting Origins of the Isomerization Barriers for Vinylidene, Fluorovinylidene, and Difluorovinylidene", *J. Chem. Phys.* **118**, 4037–4044 (2003).
320. A. J. Merer, N. Yamakita, S. Tsuchiya, J. F. Stanton, Z. Duan, and R. W. Field, "New Vibrational Assignments in the  $\tilde{A}^1\text{A}_u - \tilde{X}^1\Sigma_g^+$  Electronic Transition of Acetylene", *Mol. Phys.* **101**, 663–673 (2003).
321. A. P. Mishra, R. W. Field, S. V. N. B. Rao, R. D'Souza, and T. K. Balasubramanian, "Absorption Intensities of the Multipole-Field-Induced Zero-Phonon Transitions in Solid HD, HT, and DT", *Phys. Rev. B* **67**, 134305/1–9 (2003).
322. A. P. Mishra and R. W. Field, "Absorption Intensities of the Multipole-Field-Induced Double Transitions Involving a Homonuclear-Heteronuclear Pair of Hydrogen Molecules in Condensed Phase", *Phys. Rev. B* **68**, 184303/1–8 (2003).
323. Y. Liu, Li Li, G. Lazarov, A. Lazoudis, A. M. Lyyra, and R. W. Field, "Hyperfine Structures of the  $2^3\Sigma_g^+$ ,  $3^3\Sigma_g^+$ , and  $4^3\Sigma_g^+$  States of  $\text{Na}_2$ ", *J. Chem. Phys.* **121**, 5821–5827 (2004).
324. H. Lefebvre-Brion and R. W. Field, *The Spectra and Dynamics of Diatomic Molecules*, (Elsevier, Amsterdam, 2004).
325. A. P. Mishra, R. L. Thom, and R. W. Field, "New  $S_1$  State Vibrational and  $T_{3,2,1}$  Spin-Rotational Assignments in the Vicinity of the Acetylene  $\tilde{A}^1\text{A}_u - \tilde{X}^1\Sigma_g^+$   $V_0^3 K_0^1$  Band", *J. Mol. Spectrosc.* **228**, 565–579 (2004).
326. J. J. Kay, D. S. Byun, J. O. Clevenger, X. Jiang, V. S. Petrović, R. Seiler, J. R. Barchi, A. J. Merer, and R. W. Field, "Spectrum-Only" Assignment of Core-Penetrating and Core-Nonpenetrating Rydberg States of Calcium Monofluoride", *Can. J. Chem.* **82**, 791–803 (2004).
327. P. Yi, M. Song, Y. Liu, R. W. Field, Li Li, and A. M. Lyyra, "Experimental Observation of Autler-Townes Splitting of the  $\text{Na}_2 A^2\Sigma_u^+ - b^3\Pi_u$  Mixed Levels", *Opt. Commun.* **233**, 131–138 (2004).
328. S. Yang, J. Cao and R. W. Field, "A Semiclassical Study of Wave Packet Dynamics in Anharmonic Potentials", *J. Chem. Phys.* **121**, 6599–6607 (2004).
329. J. W. Taylor, G. Ehlker, H.-H. Carstensen, L. Ruslen, R. W. Field and W. H. Green, "Direct Measurement of the Fast, Reversible Addition of Oxygen to Cyclohexadienyl Radicals in Nonpolar Solvents", *J. Phys. Chem. A* **108**, 7193–7203 (2004).
330. S. N. Altunata, S. L. Coy, and R. W. Field, "Properties of Nearly One-Electron Molecules: I. A Green's Function Approach", *J. Chem. Phys.* **123**, 084318/1–12 (2005).
331. S. N. Altunata, S. L. Coy, and R. W. Field, "Properties of Nearly One-Electron Molecules: Application to the Rydberg Spectrum of CaF", *J. Chem. Phys.* **123**, 084319/1–12 (2005).
332. R. W. Field, C. M. Gittins, N. A. Harris, and Ch. Jungen, "Quantum Defect Theory of Dipole and Vibronic Mixing in Rydberg States of CaF", *J. Chem. Phys.* **122**, 184314/1–10 (2005).
333. A. H. Steeves, H. A. Bechtel, S. L. Coy, and R. W. Field, "Millimeter-Wave-Detected, Millimeter-Wave Optical Polarization Spectroscopy (mmOPS)" *J. Chem. Phys.* **123**, 141102/1–4 (2005).
334. S. N. Altunata, S. L. Coy, and R. W. Field, "Broad Shape Resonance Effects in CaF Rydberg States", *J. Chem. Phys.* **124**, 194302/1–9 (2006).
335. Z. Duan, N. Yamakita, S. Tsuchiya, and R. W. Field, "Differential Temperature Laser Induced Fluorescence Spectroscopy", *Chem. Phys.* **324**, 709–720 (2006).
336. B. M. Wong, S. N. Altunata, and R. W. Field, "Analytical Calculations of Molecular Integrals for Multielectron R-Matrix Methods", *J. Chem. Phys.* **124**, 014106/1–9 (2006).

337. B. M. Wong, A. H. Steeves, and R. W. Field, "Electronic Signatures of Large Amplitude Motions: Dipole Moments of vibrationally Excited Local-Bend and Local-Stretch States of  $S_0$  Acetylene", *J. Phys. Chem. B* **110**, 18912–18920 (2006).
338. R. W. Field, O. Pirali and D. W. Tokaryk, "The Spin-Orbit and Rotational Constants for the  $N_2 C''^5\Pi_{ui}$  ( $v = 3$ ) State", *J. Chem. Phys.* **124**, 081103/1–3 (2006).
339. F. Xie, D. Li, Li Li, R. W. Field and S. Magnier, "Infrared-Infrared Double Resonance Spectroscopy of  $^{39}K_2$ : The  $1^3\Delta_g$  State", *Chem. Phys. Lett.* **431**, 267–271 (2006).
340. H. A. Bechtel, A. H. Steeves, and R. W. Field, "Laboratory Measurements of the Hyperfine Structure of  $H^{14}N^{12}C$  and  $D^{14}N^{12}C$ ", *Astrophys. J. Lett.* **649**, L53-L56 (2006).
341. B. M. Wong, R. L. Thom, and R. W. Field, "Accurate Inertias for Large-Amplitude Motions: Improvements on Prevailing Approximations", *J. Phys. Chem. A* **110**, 7406–7413 (2006).
342. M. A. Flory, R. W. Field, and L. M. Ziurys, "The Pure Rotational Spectrum of CrCN ( $\tilde{X}^6\Sigma^+$ ): An Unexpected Geometry and Unusual Spin Interactions", *Mol. Phys.* **105**, 585–597 (2007).
343. R. L. Thom, B. M. Wong, R. W. Field, and J. F. Stanton, "Studies of Intersystem Crossing Dynamics in Acetylene", *J. Chem. Phys.* **126**, 184307/1–7 (2007).
344. B. H. Layne, L. M. Duffy, H. A. Bechtel, A. H. Steeves, and R. W. Field, "Beam Action Spectroscopy via Inelastic Scattering", *J. Phys. Chem.* **111**, 7398–7403 (2007).
345. P. Qi, J. Bai, E. Ahmed, A. M. Lyyra, S. Kotochigova, A. J. Ross, C. Effantin, P. Zalicki, J. Vigué, 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**, 44301/1–17 (2007).
346. W. Bryan Lynch, H. A. Bechtel, A. H. Steeves, J. J. Curley, and R. W. Field, "Observation of the  $\tilde{A}^1A'$  State of Isocyanogen", *J. Chem. Phys.*, **126**, 244307/1–4 (2007).
347. J. J. Kay, S. N. Altunata, S. L. Coy, and R. W. Field, "Resonance between Electronic and Rotational Motions in Rydberg States of CaF", *Mol. Phys.* **105**, 1661–1673 (2007).
348. W. L. Virgo, K. L. Bittinger, A. H. Steeves, and R. W. Field, "Contrasting Singlet-Triplet Dynamical Behavior of Two Vibrational levels of the Acetylene  $S_1 2^1 3^1 B^2$  Polyad", *J. Phys. Chem.* **111**, 12534–12537 (2007).
349. A. H. Steeves, A. J. Merer, H. A. Bechtel, A. R. Beck and R. W. Field, "Direct Observation of the Symmetric Stretching Modes of  $\tilde{A}^1A_u$  Acetylene by Pulsed Supersonic Jet Laser Induced Fluorescence", *Mol. Phys.* **106**, 1867–1877 (2008).
350. V. S. Petrović and R. W. Field, "Polarization Dependence of Transition Intensities in Double Resonance Experiments: Unresolved Spin Doublets", *J. Chem. Phys.* **128**, 014301/1–8 (2008).
351. H. A. Bechtel, A. H. Steeves, B. M. Wong, and R. W. Field, "Evolution of Chemical Bonding during  $HCN \leftrightarrow HNC$  Isomerization as Revealed Through Nuclear Quadrupole Hyperfine Structure", *Angew. Chem.* **47**, 2969–2972 (2008).
352. J. J. Kay, S. L. Coy, V. S. Petrović, B. M. Wong, and R. W. Field, "Separation of Long-Range and Short-Range Interactions in Rydberg States of Diatomic Molecules", *J. Chem. Phys.* **128**, 194301/1–20, (2008).
353. S. Zhou, D. Xie, D. Xu, H. Guo, and R. W. Field, "Theoretical Emission Spectra of  $HNC (\tilde{A}^1A')$  on a New *Ab Initio* Potential Energy Surface", *Chem. Phys. Lett.* **455**, 145–150 (2008).
354. A. J. Merer, N. Yamakita, S. Tsuchiya, A. H. Steeves, H. Bechtel, and R. W. Field, "Darling-Dennison Resonance and Coriolis Coupling in the Bending Overtones of the  $\tilde{A}^1A_u$  State of Acetylene,  $C_2H_2$ ", *J. Chem. Phys.* **129**, 054304/1–19 (2008).
355. E. H. Ahmed, P. Qi, B. Beser, J. Bai, R. W. Field, J. P. Huennekens and A. M. Lyra, "Experimental Mapping of the Absolute Magnitude of the Transition Dipole Moment Function,  $\mu_e(R)$ , of the  $Na_2 A^1\Sigma_u^+ - X^1\Sigma_g^+$  Transition", *Phys. Rev. A* **77**, 053414/1–7 (2008).
356. L. C. O'Brien, B. A. Borchert, A. Farquhar, S. Shaji, J. J. O'Brien and R. W. Field, "Intracavity Laser Absorption Spectroscopy of AuO: Identification of the  $B^2\Sigma^- - X^2\Pi_{3/2}$  Transition", *J. Mol. Spectrosc.* **252**, 136–142 (2008).
357. M. de Groot, R. W. Field, and W. J. Buma, "Interference in Acetylene Intersystem Crossing Acts as the Molecular Analog of Young's Double-Slit Experiment", *Proc. Nat. Acad. Sci.* **106**, 2510–2514 (2009).
358. A. H. Steeves, H. A. Bechtel, A. J. Merer, N. Yamakita, S. Tsuchiya and R. W. Field, "Stretch-bend Combination Polyads in the  $\tilde{A}^1A_u$  State of Acetylene,  $C_2H_2$ ", *J. Mol. Spectrosc.* **256**, 256–278 (2009).
359. V. S. Petrović, J. J. Kay, S. L. Coy, and R. W. Field, "The Stark Effect in Rydberg States of a Highly Polar Diatomic Molecule: CaF", *J. Chem. Phys.* **131**, 064301/1–14 (2009).
360. A. J. Merer, Z. Duan, J. K. G. Watson, and R. W. Field, "Perturbations in the  $4\nu_3$  Level of the  $\tilde{A}^1A_u$  State of Acetylene,  $C_2H_2$ ", *Can. J. Phys.* (accepted).
361. R. Vallon, S. H. Ashworth, P. Crozet, R. W. Field, D. Forthomme, H. Harker, C. Richard and A. J. Ross, "A Room-Temperature Metal-Hydride Discharge Source, with Observations on NiH and FeH", *J. Phys. Chem. A* (accepted).
362. R. W. Field, J. Baraban, S. H. Lipoff, and A. R. Beck, "Effective Hamiltonians", in *Handbook of High-Resolution Spectroscopies*, M. Quack and F. Merkt eds. (John Wiley and Sons, 2010) (accepted).
363. H. J. Kulik, A. H. Steeves, and R. W. Field, "Ab Initio Investigation of High Multiplicity  $\Sigma^+ - \Sigma^+$  Optical Transition in the Spectra of CN and Isoelectronic Species", *J. Mol. Spectrosc.* (accepted).
364. K. L. Bittinger and R. W. Field, "Deconvolution of Spectral Data Using a Doorway-Coupling Model Hamiltonian", *J. Chem. Phys.* (submitted).
365. J. J. Kay, Ch. Jungen, B. M. Wong, S. L. Coy, and R. W. Field, "The Quantum Defects of CaF and Their Dependence on Internuclear Distance and Energy", *J. Chem. Phys.* (submitted).