

1. "Ammonia Maser with Separated Oscillating Fields," S. G. Kukolich, *Proc. IEEE* **52**, 211 (1964).
2. "Measurement of Hyperfine Structure of the J=3, K=2 Inversion Line of N<sup>14</sup>H<sub>3</sub>," S. G. Kukolich, *Phys. Rev.* **138**, A 1322 (1965).
3. "Square-Wave Phase Modulation in Ramsey-Type Molecular Beam Resonance Experiments," S.G. Kukolich, and K.W. Billman, *J. Appl. Phys.* **38**, 1826 (1967).
4. "Measurements of Ammonia Hyperfine Structure with a Two-Cavity Maser," S. G. Kukolich, *Phys. Rev.* **156**, 83 (1967).
5. "Measurements of the 3-2 Inversion Frequency and Frequency Stability of a Two-Cavity Ammonia Maser," S. G. Kukolich, *Proc. IEEE* **56**, 124 (1968).
6. "Time Dependence of Quantum State Amplitudes Demonstrated by Free Precession of Spins," S. G. Kukolich, *Am. J. Phys.* **36**, 420 (1968).
7. "Hyperfine Structure of N<sup>15</sup>H<sub>3</sub>," S. G. Kukolich, *Phys. Rev.* **172**, 59 (1968).
8. "Demonstration of the Ramsauer-Townsend Effect in a Xenon Thyatron," S. G. Kukolich, *Am. J. Phys.* **36**, 701 (1968).
9. "Measurement of Hyperfine Structure in NH<sub>2</sub>D," S. G. Kukolich, *J. Chem. Phys.* **49**, 5523 (1968).
10. "Molecular g-Values, Magnetic Susceptibility Anisotropies, Second Moment of the Charge Distribution and Molecular Quadrupole Moments in Formic Acid," S. G. Kukolich and W. H. Flygare, *J. Am. Chem. Soc.* **91**, 2433 (1969).
11. "Simple ESR Apparatus for Low Fields," S. G. Kukolich, *Am. J. Phys.* **37**, 222 (1969).
12. "Measurement of Molecular g-Values in H<sub>2</sub>O and D<sub>2</sub>O and Hyperfine Structure in H<sub>2</sub>O," S. G. Kukolich, *J. Chem. Phys.* **50**, 3751 (1969).
13. "Measurements of Deuterium Quadrupole Coupling in Formic Acid," S. G. Kukolich, *J. Chem. Phys.* **51**, 358 (1969).
14. "Molecular g-Values, Magnetic Susceptibilities, Molecular Quadrupole Moment and Spin-Rotation Interaction in <sup>15</sup>NH<sub>3</sub>," S. G. Kukolich, and W. H. Flygare, *Molecular Physics* **17**, 127 (1969).
15. "Magnetic Susceptibility Anisotropy and Molecular Quadrupole Moment in <sup>14</sup>NH<sub>3</sub>," S. G. Kukolich, *Chemical Physics Letters* **5**, 401 (1970).
16. "<sup>14</sup>NH<sub>3</sub> Hyperfine Structure and Quadrupole Coupling," S. G. Kukolich and S. C. Wofsy, *J. Chem. Phys.* **52**, 5477 (1970).
17. "Molecular Beam Measurement of the Magnetic Susceptibility Anisotropies and Molecular Quadrupole Moments in H<sub>2</sub>CO," S. G. Kukolich, *J. Chem. Phys.* **54**, 8 (1970).

18. "The Molecular Zeeman Effect in PH<sub>2</sub>D and PHD<sub>2</sub> and the Molecular g-Values, Magnetic Susceptibilities and Molecular Quadrupole Moment in PH<sub>3</sub>," S. G. Kukolich, and W. H. Flygare, *Chem. Phys. Letters* **7**, 43 (1970).
19. "Measurement of H<sub>2</sub>CO Hyperfine Structure with a Two-Cavity Maser," S. G. Kukolich, and D. J. Ruben, *J. Mol. Spect.* **38**, 130 (1971).
20. "Deuterium Quadrupole Coupling in Formyl Fluoride," S. G. Kukolich, *J. Chem. Phys.* **55**, 610 (1971).
21. "Molecular Beam Measurement of Hyperfine Structure in Fluoroform," S. G. Kukolich, A. C. Nelson and D. J. Ruben, *J. Mol. Spect.* **40**, 33 (1971).
22. "Nitrogen Quadrupole Coupling and Spin-Rotation Interaction in CH<sub>3</sub>NC," S. G. Kukolich, *Chem. Phys. Lett.* **10**, 52 (1971).
23. "High Resolution Measurements of <sup>35</sup>Cl and D Quadrupole Coupling in CH<sub>2</sub>DCl and CH<sub>3</sub>Cl," S. G. Kukolich, *J. Chem. Phys.* **55**, 4488 (1971).
24. "High Resolution Rotational Spectra of Formamide," S. G. Kukolich and A. C. Nelson, *Chem. Phys. Lett.* **11**, 383 (1971).
25. "Molecular Beam Microwave Spectra of HNCO and DNCO," S. G. Kukolich, A. C. Nelson and B. S. Yamanashi, *J. Am. Chem. Soc.* **93**, 6769 (1971).
26. "Transistor Stark Modulator for Microwave Spectroscopy," S.G. Kukolich, *Proc. IEEE* **60**, 136 (1972).
27. "High Resolution Molecular Zeeman Measurements in CH<sub>2</sub>F<sub>2</sub>; Observation of <sup>19</sup>F Chemical Shift Anisotropy," S. G. Kukolich and A. C. Nelson, *J. Chem. Phys.* **56**, 4446 (1972).
28. "High Resolution Measurements of Hyperfine Structure in the Rotational Spectrum of CH<sub>3</sub>NC," S. G. Kukolich, *J. Chem. Phys.* **57**, 869 (1972).
29. "Transient Nutation Effects in Time-Resolved Infrared Microwave Double Resonance in Ammonia," J. M. Levy, J. H. S. Wang, S. G. Kukolich, and J. I. Steinfeld, *Phys. Rev. Letters* **29**, 395 (1972).
30. "Variation of Cl Quadrupole Coupling with Isotopic Substitution in CH<sub>3</sub>Cl," S. G. Kukolich and A. C. Nelson, *J. Chem. Phys.* **57**, 4052 (1972).
31. "Hyperfine Structure in Fluoroform: A Reassignment," S. G. Kukolich and D. J. Ruben, *J. Mol. Spect.* **44**, 607 (1972).
32. "Molecular Zeeman Effect in NH<sub>3</sub>," S. G. Kukolich and K. H. Casleton, *Chem. Phys. Lett.* **18**, 408 (1973).
33. "Chlorine Quadrupole Coupling in Methyl Chloride; Variation of Quadrupole Coupling Strength with Isotopic Substitution," S. G. Kukolich and A. C. Nelson, *J. Am. Chem. Soc.* **95**, 680 (1973).

34. "High Resolution Measurements of  $^{14}\text{N}$ , D Quadrupole Coupling in  $\text{CH}_3\text{CN}$ ," S.G. Kukolich, D.J. Ruben, J.H.S. Wang and J.R. Williams, *J. Chem. Phys.* **58**, 3155 (1973).
35. "Measurement of Hyperfine Structure in  $\text{CH}_2\text{F}_2$  by Beam Maser Spectroscopy," S.G. Kukolich, J.H.S. Wang and D.J. Ruben, *J. Chem. Phys.* **58**, 5474 (1973).
36. "Beam Maser Measurement of  $^{19}\text{F}$  Hyperfine Structure and Relaxation to Magnetic Shielding in  $\text{COF}_2$ ," J.H.S. Wang and S.G. Kukolich, *J. Am. Chem. Soc.* **95**, 4138 (1973).
37. "Microwave Transient Nutation Measurements of Relaxation in  $\text{OCS}$  and  $\text{NH}_3$ ," J.H.S. Wang, J.M. Levy, S.G. Kukolich and J.I. Steinfeld, *Chem. Phys.* **1**, 141 (1973).
38. "Molecular Beam Maser Measurements of Relaxation Cross-Sections in  $\text{NH}_3$ ," S.G. Kukolich, J.H.S. Wang and D.E. Oates, *Chem. Phys. Letters* **20**, 519 (1973).
39. "Microwave Spectroscopy and Molecular Structure; Some Undergraduate Laboratory Projects," S.G. Kukolich, *Am. J. Phys.* **41**, 1084 (1973).
40. "Direct Observation of Rotational Energy Transfer in Ammonia by Time-Resolved Infrared-Microwave Double Resonance," J.M. Levy, J.H.S. Wang, S.G. Kukolich and J.I. Steinfeld, *Chem. Phys. Letters* **21**, 598 (1973).
41. "Analysis of  $\text{SO}_2$  Concentration in Air by Microwave Spectroscopy," A.R. Brenner and S.G. Kukolich, *Analytical Letters* **6**, 691 (1973).
42. "Laser-Molecular Beam Measurement of Hyperfine Structure in the  $\text{I}_2$  Spectrum," D.J. Ruben, S.G. Kukolich, L.A. Hackel, D.G. Youmans and S. Ezekiel, *Chem. Phys. Letters* **22**, 326 (1973).
43. "Measurement of Deuterium Quadrupole Coupling in  $\text{CH}_3\text{OD}$ ," K.H. Casleton and S.G. Kukolich, *Chem. Phys. Letters* **22**, 331 (1973).
44. "Measurements of Relaxation Cross Sections for  $\text{NH}_3$  and  $\text{OCS}$  with a Molecular Beam Maser Spectrometer," J.H.S. Wang, D.E. Oates, A. Ben-Reuven and S.G. Kukolich, *J. Chem. Phys.* **59**, 5268 (1973).
45. "Relaxation Rates in Molecular Beam Maser Experiments," A. Ben-Reuven and S.G. Kukolich, *Chem. Phys. Letters* **23**, 376 (1973).
46. "Deuterium Quadrupole Coupling in Formic Acid," S.G. Kukolich, and D.J. Ruben, *J. Chem. Phys.* **60**, 100 (1974).
47. "Beam Maser Measurements of Deuterium Quadrupole Coupling in  $\text{CD}_2\text{F}_2$ ," A.C. Nelson, S.G. Kukolich and D.J. Ruben, *J. Mol. Spect.* **51**, 107 (1974).
48. "Measurement of the Dipole Moment of  $\text{CF}_3\text{CN}$ ," P.B. Foreman, K.R. Chien, J.R. Williams and S.G. Kukolich, *J. Mol. Spect.* **52**, 251 (1974).

49. "Beam Maser Measurements of CH<sub>3</sub>OH Rotational Transitions," L. Gaines, K.H. Casleton and S.G. Kukolich, *Ap. J. Letters* **191**, L99 (1974).
50. "Beam Maser Measurements of Distortion Effects on Quadrupole Coupling in NH<sub>3</sub>," D.J. Ruben and S.G. Kukolich, *J. Chem. Phys.* **61**, 3780 (1974).
51. "Laboratory Measurements of Rotational Relaxation Cross-Sections for H<sub>2</sub>CO," P.B. Foreman, K.R. Chien and S.G. Kukolich, *Chem. Phys. Letters* **29**, 295 (1974).
52. "Rotational Energy Distribution in a Nozzle Beam," S.G. Kukolich, D.E. Oates and J.H.S. Wang, *J. Chem. Phys.* **61**, 4686 (1974).
53. "Deuterium Quadrupole Coupling in the Gas Phase," S.G. Kukolich, *Mol. Phys.* **29**, 249 (1975).
54. "Relaxation Cross-Section Measurements on NH<sub>3</sub> and Lower State Focusing in a Beam Maser," K.R. Chien, P.B. Foreman, K.H. Casleton and S.G. Kukolich, *Chem. Phys.* **7**, 161 (1975).
55. "Beam Maser Measurements of Hyperfine Structure in <sup>14</sup>N<sub>2</sub>O," K.H. Casleton and S.G. Kukolich, *J. Chem. Phys.* **62**, 2696 (1975).
56. "Beam Maser Measurements of Rotational Relaxation of H<sub>2</sub>CO," P.B. Foreman, K.R. Chien and S.G. Kukolich, *J. Chem. Phys.* **62**, 4710 (1975).
57. "Observation of Magnetic Octupole and Scalar Spin-Spin Interactions in I<sub>2</sub> Using Laser Spectroscopy," L.A. Hackel, K.H. Casleton, S.G. Kukolich and S. Ezekiel, *Phys. Rev. Letters* **35**, 568 (1975).
58. "Proton Magnetic Shielding Tensors from Spin-Rotation Measurements of H<sub>2</sub>CO and NH<sub>3</sub>," S.G. Kukolich, *J. Am. Chem. Soc.* **97**, 5704 (1975).
59. "Rotational Relaxation Measurements on OCS using a Beam Maser," K.H. Casleton, K.R. Chien, P.B. Foreman and S.G. Kukolich, *Chem. Phys. Letters* **36**, 308 (1975).
60. "Spin-Rotation Measurements and Magnetic Shielding in CH<sub>2</sub>CF<sub>2</sub>," K.H. Casleton, T.D. Gierke, J.H.S. Wang and S.G. Kukolich, *J. Chem. Phys.* **64**, 471 (1976).
61. "Rotational Absorption Spectrum of Methylene Fluoride in the 20-100 cm<sup>-1</sup> Region," J.A. Koutcher, R.H. Larkin, J.R. Williams and S.G. Kukolich, *J. Mol. Spect.* **60**, 373 (1976).
62. "Angular Resolution and Isotope Studies for Inversion Relaxation in NH<sub>3</sub>," J.R. Williams and S.G. Kukolich, *J. Chem. Phys.* **66**, 251 (1977).
63. "Measurements of T<sub>1</sub> and T<sub>2</sub> Relaxation Cross Sections for HDO," J.R. Williams, K.H. Casleton and S.G. Kukolich, *J. Chem. Phys.* **66**, 902 (1977).
64. "Beam Maser Double Resonance Measurements on HDO," S.G. Kukolich, *J. Chem. Phys.* **66**, 4345 (1977).

65. "<sup>13</sup>C Magnetic Shielding from Beam Maser Measurements of Spin-Rotation Interaction in CH<sub>3</sub>CN," S.G. Kukolich, G. Lind, M. Barfield, L. Faehl and J.L. Marshall, *J. Am. Chem. Soc.* **100**, 7155 (1978).
66. "A Simple Electronic Control Mixer," S.G. Kukolich, *R/C Modeler* **15**, 82 (1978).
67. "Variation of Br Quadrupole Coupling with Isotropic Substitution in Methyl Bromide," J.R. Williams and S.G. Kukolich, *J. Mol. Spect.* **74**, 242 (1979).
68. "Beam Maser Rotational Relaxation Measurements on OCS," J.R. Williams and S.G. Kukolich, *Chem. Physics* **36**, 201 (1979).
69. "Measurement of Cl and N Quadrupole Coupling in ClCN," C.D. Cogley, H.A. Fry and S.G. Kukolich, *J. Mol. Spect.* **75**, 447 (1979).
70. "A Traveling Wave Tube Microwave Spectrometer," C.D. Cogley and S.G. Kukolich, *J. Phys. E: Sci. Instrum.* **13**, 761 (1980).
71. "Beam Maser Spectroscopy on J=1-2, K=1 and K=0 Transitions in CH<sub>3</sub>CN and CH<sub>3</sub><sup>13</sup>CN, S.G. Kukolich, *J. Chem. Phys.* **76**, 97 (1982).
72. "Deuterium Hyperfine Structure Measurements and Theory for CD<sub>3</sub>Br," S.G. Kukolich and C.D. Cogley, *J. Chem. Phys.* **76**, 1685 (1982).
73. "Beam Maser Measurements of HDO Hyperfine Structure," H.A. Fry and S.G. Kukolich, *J. Chem. Phys.* **76**, 4387 (1982).
74. "Beam Maser Spectroscopy on CH<sub>3</sub>CCD and CD<sub>3</sub>CCH," C.D. Cogley, L.M. Tack and S.G. Kukolich, *J. Chem. Phys.* **76**, 4387 (1982).
75. "Beam Maser Measurements of Hyperfine Structure in Chloroacetylene-D," L.M. Tack and S.G. Kukolich, *J. Mol. Spect.* **94**, 95 (1982).
76. "Measurements of Rotational Transitions and Hyperfine Structure in PH<sub>2</sub>D," S.G. Kukolich, L. Schaum and A. Murray, *J. Mol. Spect.* **94**, 393 (1982).
77. "Microwave Structure Determination and Quadrupole Coupling Measurements on Acetylene-HCN and Ethylene-HCN Complexes," S.G. Kukolich, P.D. Aldrich, W.G. Read and E.J. Campbell, *Chem. Phys. Letters* **90**, 329 (1982).
78. "The Structure of the NO Dimer," S.G. Kukolich, *J. Am. Chem. Soc., Communication to the Editor* **104**, 4715 (1982).
79. "Microwave Structure Determination for the Furan-HCl Complex," J.A. Shea and S.G. Kukolich, *J. Am. Chem. Soc., Communication to the Editor* **104**, 4999 (1982).
80. "Deuterium Quadrupole Coupling in BD<sub>3</sub>CO," A.M. Murray and S.G. Kukolich, *J. Chem. Phys.* **77**, 4312 (1982).

81. "Nitrogen Quadrupole Coupling Measurements on ON-NO<sub>2</sub> Using the Flygare-Balle Pulsed-Beam Spectrometer," S.G. Kukolich, *J. Am. Chem. Soc.* **104**, 6927 (1982).
82. "The Microwave Spectrum and Molecular Structure at the Furan-Argon Complex," S.G. Kukolich, and J.A. Shea, *J. Chem. Phys. Comm.* **77**, 5242 (1982).
83. "Microwave Spectrum, Structure and Quadrupole Coupling for the Ethylene-Hydrogen Cyanide Complex," S.G. Kukolich, W.G. Read and P.D. Aldrich, *J. Chem. Phys.* **78**, 3552 (1983).
84. "Beam Maser Spectroscopy on CD<sub>3</sub>CN," A.M. Murray and S.G. Kukolich, *J. Chem. Phys.* **78**, 3557 (1983).
85. "The Rotational Spectrum and Molecular Structure of the Furan-HCl Complex," J.A. Shea and S.G. Kukolich, *J. Chem. Phys.* **78**, 3545 (1983).
86. "The Structure and Molecular Properties of the Acetylene-HCl Complex as Determined from Rotational Spectra," P.D. Aldrich, S.G. Kukolich and E.J. Campbell, *J. Chem. Phys.* **78**, 3521 (1983).
87. "Measurements of BrCN Hyperfine Structure," C.D. Cogley and S.G. Kukolich, *J. Mol. Spect.* **97**, 220 (1983).
88. "Microwave Structure on the Furan-Argon Complex," S.G. Kukolich, *J. Am. Chem. Soc.* **105**, 2207 (1983).
89. "Microwave Measurements of Bromine Quadrupole Coupling Constants and the Molecular Structure of XeHBr," S.G. Kukolich and E.J. Campbell, *Chem. Phys. Letters* **94**, 73 (1983).
90. "Structure and Quadrupole Coupling Measurements on the NO Dimer," S.G. Kukolich, *J. Mol. Spect.* **98**, 80 (1983).
91. "Microwave Structure Measurements on the Cyclopropane-HCN Complex," S.G. Kukolich, *J. Chem. Phys.* **78**, 4832 (1983).
92. "Electric Dipole Moments of (HC<sup>15</sup>N) and HC<sup>15</sup>N-H<sup>35</sup>Cl," E.J. Campbell and S.G. Kukolich, *Chem. Phys.* **76**, 225 (1983).
93. "Beam Maser Spectroscopy on Cyanoacetylene-D," L.M. Tack and S.G. Kukolich, *J. Chem. Phys.* **78**, 6512 (1983).
94. "Molecular Zeeman Effect Measurements on the Ethylene-HCl Complex," S.G. Kukolich, P.D. Aldrich, W.G. Read and E.J. Campbell, *J. Chem. Phys.* **79**, 1105 (1983).
95. "The Magnetic Susceptibility Anisotropy, Molecular g-Values, and Other Molecular Properties of Cyclopropane as Determined from Rotational Zeeman Studies of the Cyclopropane-H<sup>35</sup>Cl and Cyclopropane-HC<sup>15</sup>N

- Complexes," P.D. Aldrich, S.G. Kukolich, E.J. Campbell and W.G. Read, *J. Am. Chem. Soc.* **105**, 5569 (1983).
96. "Measurements of Molecular g-Values, Magnetic Susceptibility Anisotropies and Quadrupole Moments for the Acetylene-HCl Complex," S.G. Kukolich, E.J. Campbell, W.G. Read and J.A. Shea, *J. Am. Chem. Soc.* **105**, 6423 (1983).
97. "Advances in Nuclear Quadrupole Resonance Vol. 5," (Book Review), S.G. Kukolich, *J. Mag. Reson.* **64**, 361 (1985).
98. "Fourier Transform Spectroscopy on the  $3\nu_2$ ,  $2\nu_2 + \nu_6$  and  $\nu_3 + \nu_5$  Bands of  $\text{H}_2\text{CO}$ ," T. Tipton, J.I. Choe, S.G. Kukolich, and R. Hubbard, *J. Mol. Spect.* **114**, 483 (1985).
99. "Microwave Measurements and Calculations of Quadrupole Coupling Effects in  $\text{CH}_3\text{I}$  and  $\text{CD}_3\text{I}$ ," S.H. Young and S.G. Kukolich, *J. Mol. Spect.* **114**, 483 (1985).
100. "Microwave Spectrum of the HI-HF Complex," R.E. Bumgarner, C.D. Cogley and S.G. Kukolich, *Chem. Phys. Letters* **122**, 535 (1985).
101. "FTIR Spectra of the  $2\nu_2$  and  $\nu_2 + \nu_4$  Bands of  $\text{PH}_3$ ," T. Tipton, J.I. Choe and S.G. Kukolich, *J. Phys. Chem.* **90**, 1534 (1986).
102. "Fourier Transform Spectra of the  $3300\text{ cm}^{-1}$  Bands of HCN," J.I. Choe, T. Tipton and S.G. Kukolich, *J. Mol. Spect.* **117**, 292 (1986).
103. "Microwave Spectrum of the  $\text{SO}_2\text{-H}_2\text{S}$  Complex," D.J. Pauley, R.E. Bumgarner and S.G. Kukolich, *Chem. Phys. Letters* **132**, 67 (1986).
104. "Fourier Transform Spectra of the  $2100\text{ cm}^{-1}$  Bands of HCN," J.I. Choe, D.K. Kwak and S.G. Kukolich, *J. Mol. Spect.* **121**, 75 (1987).
105. "Microwave Spectra and Structure of the HI-HF Complex," R.E. Bumgarner and S.G. Kukolich, *J. Chem. Phys.* **86**, 1083 (1987).
106. "Structure of the  $\text{SO}_2\text{-H}_2\text{S}$  Complex," R.E. Bumgarner, D.J. Pauley and S.G. Kukolich, *J. Chem. Phys.*, **87**, 3749 (1987).
107. "The Microwave Spectrum of the ONN-HF Complex," S.G. Kukolich, R.E. Bumgarner and D.J. Pauley, *Chem. Phys. Letters* **141**, 12 (1987).
108. "Nitrogen Quadrupole Coupling in Cyclopentadienyl Nickel Nitrosyl," S.G. Kukolich, J.V. Rund, D.J. Pauley and R.E. Bumgarner, *J. Am. Chem. Soc.* **110**, 7356 (1988).
109. "Microwave Measurements on  $\text{Ar-H}_2\text{S}$ ,  $\text{Ar-HDS}$  and  $\text{Ar-D}_2\text{S}$  Complexes," R.E. Bumgarner, D.J. Pauley and S.G. Kukolich, *J. Mol. Struct.* **110**, 7536 (1988).

110. "High-Resolution Spectroscopy of the  $\nu_6$  and  $\nu_8$  Bands of Formic Acid," R.E. Bumgarner, Jong-In Choe, S.G. Kukolich and R.J. Butcher, *J. Mol. Spec.* **132**, 261 (1988).
111. "Centrifugal Distortion Analysis for the Bent Isomer of  $\text{N}_2\text{O-HF}$ ," S.G. Kukolich and D.J. Pauley, *Chem. Phys.* **131**, 403 (1989).
112. "The Rotational Spectra and Centrifugal Distortion Parameters for the NNO-DF and ONN-DF Complexes," S.G. Kukolich and D.J. Pauley, *J. Chem. Phys.* **90**, 3458 (1989).
113. "Fourier Transform Spectroscopy of CO Intercombination Bands," J.-I. Choe, D.-K. Lee, A.C. LeFloch and S.G. Kukolich, *J. Mol. Spect.* **136**, 173 (1989).
114. "Rotational Transition and Quadrupole Coupling Measurements on the NNO-HCN Complex," D.J. Pauley, M.A. Roehrig and S.G. Kukolich, *Chem. Phys. Lett.* **167**, 57 (1990).
115. "The Rotational and Tunneling Spectrum of the  $\text{H}_2\text{S-CO}_2$  van der Waals Complex," J.K. Rice, L.H. Coudert, K. Matsumura, R.D. Suenram, F.S. Lovas, W. Stahl, D.J. Pauley and S.G. Kukolich, *J. Chem. Phys.* **92**, 6408 (1990)
116. " $\text{NH}_3$  and  $\text{PH}_3$  Molecular Quadrupole Moments and the Signs of Molecular  $g$ -values," J. Combariza, W.R. Salzman and S.G. Kukolich, *Chem. Phys. Letters* **167**, 607 (1990)
117. "Quadrupole Coupling Measurements on  $\text{IF}_5$ ," J. C. Shea and S.G. Kukolich, *Chem. Phys. Letters* **168**, 489 (1990).
118. "Structure and Quadrupole Coupling Measurements for  $\text{ClF}_3$ ," S. T. Haubrich, M. Roehrig and S.G. Kukolich, *J. Chem. Phys.* **93**, 121 (1990)
119. "Comment on: Structure of  $\text{H}_2\text{S-SO}_2$ ," D.J. Pauley and S.G. Kukolich, *J. Chem. Phys.* **93**, 871 (1990)
120. "Microwave Spectra and Structure of the NNO-HCN,  $^{15}\text{NNO-HCN}$  and NNO-DCN Complexes", D.J. Pauley and S.G. Kukolich, *J. Chem. Phys.* **93**, 3881 (1990).
121. "Molecular Hyperfine Structure Calculations using an Uncoupled Representation", S.H. Young and S.G. Kukolich, *Molecular Physics* **71**, 181 (1990).
122. "Microwave Measurements of Cobalt and Nitrogen Quadrupole Coupling in  $\text{Co}(\text{CO})_3\text{NO}$ ", S.G. Kukolich, M.A. Roehrig, S.T. Haubrich and J.C. Shea, *J. Chem. Phys.* **94**, 191 (1991).
123. "Microwave Measurements and Calculations on the Structure of the NNO-HCl Complex", D.J. Pauley, M.A. Roehrig, L. Adamowicz, J.C. Shea, S.T. Haubrich and S.G. Kukolich, *J. Chem. Phys.* **94**, 899 (1991).

124. "Fourier Transform Spectroscopy of the CS  $d^3\Delta_i - a^3\Pi_r$  System: Indirect Measurement of the  $^1\Sigma^-$  Valence State", Jong-In Choe, Young-Man Rho, Sang-Min Lee, A.C. Le Floch and S.G. Kukolich, *J. Mol. Spectros.* **149**, 185 (1991).
125. "EPR Spectra of C<sub>60</sub> Anion and Cation Radicals", S.G. Kukolich and D.R. Huffman, *Chem. Phys. Lett.* **182**, 263 (1991).
126. "Microwave Measurements of the Rotational Spectrum for Cyclopentadienyl-Cobalt-Dicarbonyl", M.A. Roehrig, Qi-Qi Chen, S.T. Haubrich and S.G. Kukolich, *Chem. Phys. Lett.* **183**, 84 (1991).
127. "Microwave Measurements of Manganese Quadrupole Coupling in Cyclopentadienyl Manganese Tricarbonyl", M.A. Roehrig, D.W. Wallace and S.G. Kukolich, *J. Chem. Phys.* **96**, 2449 (1992).
128. "The Microwave Spectrum and Structure for the HCCH-CO Complex", M.A. Roehrig and S.G. Kukolich, *Chem. Phys. Lett.* **188**, 232 (1992).
129. "Quadrupole Quadruple Coupling Measurements on ClNO," M.A. Roehrig and S.G. Kukolich, *Mol. Phys.* **76**, 221 (1992).
130. "Microwave Measurements of the Rotational Spectrum of Butadiene Iron Tricarbonyl", S.G. Kukolich, Qi-Qi Chen and M.A. Roehrig, *J. Chem. Phys.* **97**, 829 (1992).
131. "The Microwave Spectrum of Cyclobutadiene Iron Tricarbonyl", M.A. Roehrig, P. Wikrent, S. Huber, D. Wigley and S.G. Kukolich, *J. Mol. Spect.* **154**, 355 (1992).
132. "Generation of Furazolidone Radical Anion and its Inhibition by Glutathione", D. Lax and S.G. Kukolich, *Biochim. Med. and Metab. Bio.* **48**, 56 (1992).
133. "The Microwave Spectrum and Structural Parameters of Iron Tricarbonyl 1,3-Cyclohexadiene", G.L. Henderson, M.A. Roehrig, P. Wikrent and S.G. Kukolich, *J. Phys. Chem.* **96**, 8303 (1992).
134. "Microwave Measurements of the Rotational Spectrum and Structure of Butadiene Iron Tricarbonyl", S.G. Kukolich, M.A. Roehrig, D.W. Wallace and G.L. Henderson, *J. Am. Chem. Soc.* **115**, 2021 (1993).
135. "The Microwave Spectrum and Molecular Structure for Fe(NO)<sub>2</sub>(CO)<sub>2</sub>," S.G. Kukolich, D.W. Wallace, D.M. Wickwire, S.M. Sickafoose and M.A. Roehrig, *J. Phys. Chem.* **97**, 9317 (1993).
136. "Measurements of the Microwave Spectrum, Re-H Bond Length and Re Quadrupole Coupling for HRe(CO)<sub>5</sub>," S.G. Kukolich and S.M. Sickafoose, *J. Chem. Phys.* **99**, 6465 (1993).
137. "Microwave Measurements and *Ab-Initio* Dynamics of the Large Amplitude Motion Ring Puckering in 2-Sulpholene", M.A. Roehrig, W.J. McCarthy, Qi-Qi

- Chen, G.L. Henderson, L. Adamowicz and S.G. Kukolich, *J. Chem. Phys.* **99**, 7305 (1993).
138. "The Microwave Spectrum and Mn-H Bond Length for  $\text{HMn}(\text{CO})_5$ ," S.G. Kukolich and S.M. Sickafoose, *Chem. Phys. Lett.* **215**, 168 (1993).
139. "The Microwave Spectrum and Molecular Structure for Manganese Pentacarbonyl Hydride," S.G. Kukolich and S.M. Sickafoose, *Inorg. Chem.* **33**, 1217 (1994).
140. "Measurements of the Microwave Spectrum and Structural Parameters for Benzene Chromium Tricarbonyl," S.G. Kukolich, S.M. Sickafoose, L.D. Flores and S.M. Breckenridge, *J. Chem. Phys.* **100**, 6125 (1994).
141. "Microwave Spectra for  $\text{C}_6\text{H}_5\text{DCr}(\text{CO})_3$ ,  $\text{C}_6\text{D}_6\text{Cr}(\text{CO})_3$  and  $\text{C}_6\text{H}_5\text{FCr}(\text{CO})_3$  and the Structure of Benzene Chromium Tricarbonyl," S.M. Sickafoose, S.M. Breckenridge and S.G. Kukolich, *Inorg. Chem.* **33**, 5176 (1994).
142. "Precise Laboratory Measurements of Methanol Rotational Transition Frequencies in the 5 to 13 GHz Region," S.M. Breckenridge and S.G. Kukolich, *Astrophysical Journal* **438**, 504 (1995).
143. "Alternating C-C Bond Lengths in Gas-Phase Benzene Chromium Tricarbonyl," S.G. Kukolich, *J. Amer. Chem. Soc.* **117**, 5512 (1995).
144. "Measurements of Microwave Spectra and Structural Parameters for Cyclopentadienyl Chromium Dicarboxyl Nitrosyl," S.G. Kukolich, T.R. McKay, S.M. Breckenridge, L.D. Flores, G.E. Morris, S.M. Sickafoose and D.L. Morrison, *Inorg. Chem.* **34**, 4182 (1995).
145. "The Microwave Spectrum of Cyclopentadienyl Vanadium Tetracarbonyl, a Fluxional Molecule," R.T. McKay, J.L. Hubbard and S.G. Kukolich, *J. Mol. Spectrosc.* **172**, 378 (1995).
146. "Measurements of Microwave Rotational Transitions for Cyclopentadienyl Tungsten Dicarboxyl Nitrosyl," S. G. Kukolich, R. T. McKay, L. D. Flores and G. E. Morris, *J. Phys. Chem.* **99**, 11820 (1995).
147. "Microwave Molecular Structure Measurements for Tetracarbonyl Dihydro Osmium, A Classical Dihydride," S.G. Kukolich, S. M. Sickafoose and S. M. Breckenridge, *J. Am. Chem. Soc.* **118**, 205 (1996).
148. "Why Does a Stream of Water Deflect in an Electric Field?," G. K. Vemulapalli and S. G. Kukolich, *J. Chem. Ed.* **73**, 887 (1996).
149. "Microwave Measurements of the Gas-Phase Molecular Structure of Cobalt Tetracarbonyl Hydride, S. G. Kukolich and S. M. Sickafoose, *J. Chem. Phys.* **105**, 3466 (1996).
150. "Microwave Spectrum of the  $^{15}\text{N}^{16}\text{O}$  Dimer," S. G. Kukolich and S. M. Sickafoose, *Mol. Phys.* **89**, 1659-1661 (1996).

151. "Microwave Spectra and Quadrupole Coupling Measurements for Methyl Rhenium Trioxide," S. M. Sickafoose, P. Wikrent, B. J. Drouin and S. G. Kukolich, *Chem. Phys. Letters* **263**, 191-196 (1996).
152. "Measurements of Structural and Quadrupolar Coupling Parameters for 1-Chloroferrocene Using Microwave Spectroscopy," B. J. Drouin, P. A. Cassak and S. G. Kukolich, *Inorg. Chem.* **36**, 2868-2871 (1997).
153. "Measurements of the Structure of Methyltrioxorhenium Using Microwave Spectroscopy," P. Wikrent, B. J. Drouin, S. G. Kukolich, J. C. Lilly, M. T. Ashby, W. A. Herrmann and W. Scherer, *J. Chem. Phys.* **107**, 2187-2192 (1997).
154. "Determination of Structural Parameters for the Half-Sandwich Compounds Cyclopentadienyl Thallium and Cyclopentadienyl Indium and Indium Quadrupole Coupling for Cyclopentadienyl Indium Using Microwave Spectroscopy," B. J. Drouin, P. A. Cassak, P. M. Briggs and S. G. Kukolich, *J. Chem. Phys.* **107**, 3766-3773 (1997).
155. "Gas-Phase Iron Tricarbonyl Cyclooctatetraene Exhibits a 'Rigid-Rotor' Microwave Spectrum," S. G. Kukolich, S. M. Breckenridge-Estes and S. M. Sickafoose, *Inorg. Chem.* **36**, 4916-4918 (1997).
156. "Measurements of Structural and Quadrupole Coupling Parameters for Bromoferrocene Using Microwave Spectroscopy," B. J. Drouin, T. G. Lavaty, P. A. Cassak and S. G. Kukolich, *J. Chem. Phys.* **107**, 6541-6548 (1997).
157. "Gas-Phase Conformational Analysis of 1,4,7-Trithiacyclononane," B. J. Drouin, N. E. Gruhn, J. F. Madden, S. G. Kukolich, M. Barfield and R. S. Glass, *J. Phys. Chem. A* **101**, 9180-9184 (1997).
158. "Microwave Measurements of Rhenium Quadrupole Coupling in Cyclopentadienyl Rhenium Tricarbonyl," B. J. Drouin, P. A. Cassak and S. G. Kukolich, *J. Chem. Phys.* **108**, 8878-8883 (1998).
159. "Molecular Structure of Tetracarbonyldihydroiron: Microwave Measurements and Density Functional Theory Calculations," B. J. Drouin and S. G. Kukolich, *J. Am. Chem. Soc.* **120**, 6774-6780 (1998).
160. "Microwave Measurements and Calculations on Cyclopentadienyl Rhodium Dicarboxyl, A  $V_{10}$  Hindered Rotor," S. G. Kukolich, B. J. Drouin, P. Cassak and J.L. Hubbard, *Organometallics* **17**, 4105-4109 (1998).
161. "Microwave Measurements and Calculations on the Molecular Structure of Tetracarbonyldihydroruthenium," T. G. Lavaty, P. Wikrent, B. J. Drouin and S.G. Kukolich, *J. Chem. Phys.* **109**, 9473-9478 (1998).
162. "Microwave Spectra and the Molecular Structure of Tetracarbonyl ethylene-iron," B. J. Drouin and S. G. Kukolich, *J. Am. Chem Soc.* **121**, 4023-4030 (1999)

163. "The Gas-Phase Structure of Chloroferrocene from Microwave Spectra," B. J. Drouin, J. J. Dannemiller and S. G. Kukolich, *J. Chem. Phys.* **112**, 747-751 (2000)
164. "Structural Characterization of 'Anti' and 'Syn' – Allylirontricarbonylbromide, Rotational Spectra, Quadrupole Coupling and Density Functional Calculations," B. J. Drouin, J. J. Dannemiller and S. G. Kukolich, *Inorganic Chemistry*, **39**, 827-835 (2000)
165. "Microwave Spectra, DFT Calculations and Molecular Structure of Acetylenemethyldioxorhenium," S. G. Kukolich, B. J. Drouin, O. Indris, J. J. Dannemiller, J. P. Zoller and W. A. Herrmann, *J. Chem. Phys.* **113**, 7891-7900 (2000)
166. "The Microwave Spectrum of Cyclopentadienyl Niobium Tetracarbonyl," J. C. Earp, D. S. Margolis, C. Tanjaroan, T. E. Bitterwolf and S. G. Kukolich, *J. Mol. Spectroscopy*, **211**(1), 82-85, (2002)
167. "Measurements of microwave spectra and structural parameters for methylferrocene," D. S. Margolis, C. Tanjaroan, S. G. Kukolich, *J. Chem. Phys.* **117**(8), 3741-3747, (2002)
168. "Microwave spectrum of o-benzyne produced in a discharge nozzle," S. G. Kukolich, C. Tanjaroan, M. C. McCarthy and P. Thaddeus, *J. Chem. Phys.* **119**(8), 4353-4359, (2003)
169. "Microwave Spectroscopy Measurements of Rotational spectra, and DFT Calculations for Two Distinct Structural Isomers of 1,1'-Dimethylferrocene, C. Tanjaroan, K. Keck, and S.G. Kukolich, *J. Am. Chem Soc.* **126**, 844-850, (2004)
170. "The rotational spectrum and theoretical study of a dinuclear complex, MnRe(CO)<sub>10</sub>," Chakree Tanjaroan, Kristen S. Keck, Stephen G. Kukolich, Michael H. Palmer, and Martyn F. Guest, *J. Chem. Phys.* **120**, 4715-4725, (2004)
171. "Molecular structure of o-benzyne from microwave measurements," S. G. Kukolich, M. C. McCarthy and P. Thaddeus, *J. Phys. Chem.* **108**, 2645-2651, (2004)
172. "Microwave Spectra and the Metal-Hydrogen bond lengths for the C<sub>5</sub>H<sub>5</sub>Mo(CO)<sub>3</sub>H and C<sub>5</sub>H<sub>5</sub>W(CO)<sub>3</sub>H complexes," Chakree Tanjaroan, Kristen S. Keck, Matthew Sebonia, Chandana Karunatilaka, and Stephen G. Kukolich, *J. Chem. Phys.* **121**, 1449-1453, (2004)
173. "A theoretical study of the staggered and eclipsed forms of the dinuclear complex MnRe(CO)<sub>10</sub>," Michael H. Palmer, Philip J. Camp, Chakree Tanjaroan, Kristen S. Keck, Stephen G. Kukolich, *J. Chem. Phys.* **121**, 7187-7194, (2004)

174. "Microwave Measurements of  $^{14}\text{N}$  and D Quadrupole Coupling for (Z)-2-Hydroxypyridine and 2-Pyridone Tautomers," Chakree Tanjaroon, Ranga Subramanian, Chandana Karunatilaka, and Stephen G. Kukolich, *J. Phys. Chem. A* **108**(44), 9531-9539, (2004)
175. "The Gas Phase Structure of Ethynylferrocene using Microwave Spectroscopy," Ranga Subramanian, Chandana Karunatilaka, Kristen S. Keck, and Stephen G. Kukolich," *Inorganic Chemistry*. **44**(9), 3137-3145, (2005)
176. "Microwave Spectroscopy Measurements of the Structure of Cyclopentadienyltungstentricarbonyl Hydride," Chakree Tanjaroon, Chandana Karunatilaka, Kristen S. Keck, and Stephen G. Kukolich\*, *Organometallics*, **24**(12), 2848-2853 (2005)
177. "Microwave rotational spectrum, quadrupole hyperfine structure and DFT calculations for  $\text{C}_5\text{H}_5\text{TiC}_7\text{H}_7$ ," Kristen S. Keck, Chakree Tanjaroon, and Stephen G. Kukolich, *J. Mol. Spectrosc.* **232**(1), 55-60 (2005)
178. "Determination of Structural Parameters for Ferrocenecarboxaldehyde using Fourier Transform Microwave Spectroscopy." Ranga Subramanian, Chandana Karunatilaka, Riley O. Schock, Brian J. Drouin, Paul. A. Cassak\* and Stephen G. Kukolich, *J. Chem. Phys.* **123**(5), 054317/1-054317/9 (2005).
179. "Equilibrium structure of gas phase o-benzyne," Peter Groner and Stephen G. Kukolich, *J. Mol. Struct.* **780-781**, pp 178-181 (2005) (doi:10.1016/j.molstruc.2005.06.054)
180. "Microwave Spectra and Gas-Phase Structural Parameters of Bis( $\eta^5$ -Cyclopentadienyl)Tungsten Dihydride," Brandon S. Tackett, Chandana Karunatilaka, Adam Daly and Stephen G. Kukolich, *Organometallics* **26**(8), 2070-2076 (2007)
181. "High-resolution infrared spectrum of the  $\nu_1$  band of  $\eta^5$ - $\text{C}_5\text{H}_5\text{NiNO}$ ," Chandana Karunatilaka, Ranga Subramanian, Davian Pedroza, Deanne J. Idar and Stephen G. Kukolich, *J. Phys Chem A*. **111**(28), 6191-6196 (2007)
182. "The Structure of Tetracarbonyl ethyleneosmium: Ethylene Structure Changes upon Complex Formation," Chandana Karunatilaka, Brandon S. Tackett, John Washington, and Stephen G. Kukolich, *J. Am. Chem. Soc.* (accepted for publication 2007)
183. "The rotational spectrum of the cyclopentadienylallylnickel complex," Chakree Tanjaroon<sup>†</sup>, Matthew Sebonia, and Stephen G. Kukolich, *Chemical Physics* (submitted 2007)