

180. Hudson, B. S., Braden, D. A., Allis, D. G., Jenkins, T., Baronov S., Middleton, C. T., Withnall, R. and Brown, C. M., "The crystalline enol of 1,3-cyclohexanedione and its complex with benzene: vibrational spectra, simulation of structure and dynamics and evidence for cooperative hydrogen bonding", submitted, April 2004.
179. Damian G. Allis, Mark Kosmowski, and Bruce S. Hudson, "The Inelastic Neutron Scattering Spectrum of H<sub>3</sub>B:NH<sub>3</sub> and the Reproduction of Its Solid-State Features by Periodic DFT", submitted, April 2004.
178. Allis, D. G.; Hudson, B. S., "Inelastic neutron scattering spectra of pagodane: experiment and DFT calculations", *Chem. Phys. Lett.* (2004) 386 (4-6), 356-363.
177. Allis, D. G.; Hudson, B. S.. "Inelastic neutron scattering spectra of NaBH<sub>4</sub> and KBH<sub>4</sub>: reproduction of anion mode shifts via periodic DFT", *Chem. Phys. Lett.* (2004), 385(3,4), 166-172.
176. Alexander, J. S.; Allis, D. G.; Hudson, Bruce S.; Ruhlandt-Senge, K., "An Examination of Metal-Ligand Binding Modes in Rubidium Diphenylmethanide" *J. Am. Chem. Soc.* (2003), 125(49), 15002-15003.
175. M. R. Johnson, K. Parlinski, I. Natkaniec and B. S. Hudson, "Ab initio calculations and INS measurements of phonons and molecular vibrations in a model peptide compound – urea", *Chem. Phys.* 291, 53-60 (2003).
174. Andrew C. Paoletti, Michael F. Shubsda, Bruce S. Hudson and Philip N. Borer, "Affinities of the Nucleocapsid Protein for Variants of SL3 RNA in HIV-1", *Biochemistry* 41, 15423-15428 (2002).
173. M. F. Shubsda, A. C. Paoletti, B. S. Hudson, P. N. Borer, "Affinities of Packaging Domain Loops in HIV-1 RNA for the Nucleocapsid Protein", *Biochemistry* 41, 5276-5282 (2002).
172. J. Tomkinson, S. F. Parker, D. A. Braden, B. S. Hudson, "Inelastic neutron scattering spectra of the transverse acoustic modes of the normal alkanes", *Phys. Chem. Chem. Phys.* 4, 716-721 (2002).
171. Bruce S. Hudson, "Inelastic Neutron Scattering: A Tool in Molecular Vibrational Spectroscopy and a Test of Ab Initio Methods", *J. Phys. Chem A* 105 (16), 3949-3960 (2001).

170. Deepak Singh, Bruce S. Hudson, Chris Middleton and Robert R. Birge, "Conformation and Orientation of the Retinyl Chromophore in Rhodopsin: A Critical Evaluation of Recent NMR Data on the Basis of the Theoretical Calculations Results in a Refined Picture Consistent with all Experimental Data", *Biochemistry*, 40(14), 4201-4204 (2001).
169. Bruce S. Hudson, "Oriented n-alkanes in urea-d4 inclusion complexes for inelastic neutron scattering vibrational studies", *Mol. Cryst. Liq. Cryst.*, 356, 423-432 (2001).
168. Bruce S. Hudson, John Tse, Marek Z. Zgierski, Stewart Parker, Dale A. Braden and Chris Middleton, "The inelastic incoherent neutron spectrum of crystalline oxamide", *Chem. Phys.* 261 (1/2), 249-260 (2000).
167. Xiang Niu, Lakshmi Gopal, Michael P. Masingale, Dale A. Braden, Bruce S. Hudson, and Michael B. Sponsler, "Experimental and Theoretical Investigation of cis-trans Alkene Isomerization in [(Cy3P)2Cl2Ru]2( $\mu$ -CHCH=CHCH) and Related Vinylalkylidenes", *Organometallics* 2000, 19, 649-660.
166. Dale A. Braden and Bruce S. Hudson, "C6F6 and sym-C6F3H3: Ab initio and DFT studies of structure, vibrations and inelastic neutron scattering spectra", *J. Phys. Chem.* 104, 982-989 (2000).
165. Gregory P. Harhay and Bruce S. Hudson, "The effect of correlation of inhomogeneous environmental shifts on Raman depolarization ratios for nearly degenerate excited states", *J. Phys. Chem.* 104, 681-684 (2000).
164. Bruce S. Hudson, Dale A. Braden, Stewart F. Parker and Horst Prinzbach, "The vibrational inelastic neutron scattering spectrum of dodecahedrane: experiment and DFT simulation", *Angew. Chem. Int. Ed.* 39, 514-516 (2000) [*Angew. Chemie.* 112, 524-526 (2000)].
163. Stewart F. Parker, John Tomkinson, Dale A. Braden and Bruce S. Hudson,, "Experimental test of the validity of the use of the n-alkanes as model compounds for polyethylene", *Chem. Commun.* 2000, 165-166.
162. D. A. Braden, S. F. Parker, J. Tomkinson and B. S. Hudson, "Inelastic Neutron Scattering Spectra of the Longitudinal Acoustic Modes of the Normal Alkanes from Pentane to Pentacosane", *J. Chem. Phys.* 111, 429 (1999).
161. Bruce S. Hudson, Joseph M. Huston and Gerardo Soto-Campos, "A Reversible "Dark State" Mechanism for Complexity of the Fluorescence of Tryptophan in Proteins", *J. Phys. Chem. A* 103, 2227-2234 (1999).
160. Bruce S. Hudson and Robert R. Birge, "Angular orientation of the retinyl chromophore of bacteriorhodopsin: reconciliation of 2H NMR and optical measurements", *J. Phys. Chem. A* 103, 2274-2281 (1999).

159. Robert R. Birge, Marek Z. Zgierski, Luis Serrano-Andres and Bruce S. Hudson, "The Transition Dipole Orientation of Linear Polyenes: Semi-Empirical Models and Extrapolation to the Infinite Chain Limit", *J. Phys. Chem. A* 103, 2251-2273 (1999).
158. Bruce S. Hudson, "An Ionization/Recombination Mechanism for the Complexity of the Fluorescence of Tryptophan in Proteins", *Acct. Chem. Res.* 32, 297-300 (1999).
157. Stewart F. Parker, Dale A. Braden, John. Tomkinson and Bruce S. Hudson, "Full Longitudinal Acoustic Mode (LAM) Spectrum of an n-Alkane: Comparison of Observed and Computed Incoherent Inelastic Neutron Scattering Spectrum of n-Octadecane", *J. Phys. Chem. B* 102, 5955-5956 (1998).
156. Bruce S. Hudson and Laura M. Markham, "Resonance Raman Spectroscopy as a Test of Ab Initio Methods for the Computation of Molecular Potential Energy Surfaces", *J. Raman Spectroscopy* 29, 489-500 (1998).
155. Jae-seok Ryu and Bruce S. Hudson, "Absorption Spectra due to Curve-Crossing Potentials: Time-Dependent Wavepacket Calculations", *J. Korean Phys. Soc.* 31, 299-304 (1997).
154. Jae-seok Ryu and Bruce S. Hudson, "Absorption Spectra of a Cosine Potential in an Excited State: Time-Dependent Wavepacket Calculations", *J. Korean Phys. Soc.* 31, 293-298 (1997).
153. Jae-seok Ryu and Bruce S. Hudson, "Electronic Spectrum of Ethylene from 6 to 9 eV: New Insights from Wavepacket Dynamics Calculations", *J. Korean Phys. Soc.* 31, 282-292 (1997).
152. Horst B. Lueck, Bruce S. Hudson, D. M. Friedrich and M. Z. Zgierski, "Resonance Raman Studies of Benzene Derivatives with Methoxy Substitution: Conformational Symmetry Breaking Effects", *J. Raman Spectroscopy* 28, 455-458 (1997).
151. Mary S. C. Foley, Dale A. Braden, Bruce S. Hudson and Marek Z. Zgierski, "Resonance Raman studies of hexafluoro-1,3-butadiene", *J. Phys. Chem.* 101, 1455-1459 (1997).
150. Horst B. Lueck, Tim C. Swinney, Bruce S. Hudson and Donald M. Friedrich, "Resonance Raman studies of benzene derivatives with strong conjugation: Nitrile Substitution", *Chem. Phys. Lett.* 258, 80-86 (1996).
149. Marc Van Gilst and Bruce S. Hudson, "Histidine- Tryptophan Interactions in T4 Lysozyme: 'Anomalous' pH Dependence of Fluorescence", *Biophysical Chemistry* 63, 17-25 (1996).

148. Laura M. Markham and Bruce S. Hudson, "Ab Initio Analysis of the Effects of Aqueous Solvation on the Resonance Raman Intensities of N-Methylacetamide", *J. Phys. Chem.* 100, 2731-2737 (1996).
147. Bruce S. Hudson, "Vibronic spectroscopy of simple peptides: resonance Raman studies of solvation effects", SPIE Vol 2524 (National Science Foundation (NSF) Forum on Optical Science and Engineering) 114-124 (1995).
146. Horst Lueck, Bruce S. Hudson and Marek Z. Zgierski, "Resonance Raman studies of Benzene Derivatives with Strong Conjugation", SPIE Vol 2548 (Laser Techniques for State-Selected and State-to-State Chemistry III), 372-380 (1995).
145. Bruce S. Hudson, Mary S. C. Foley, John P. Chan and Marek Z. Zgierski, "Resonance Raman studies of simple fluorinated compounds: trifluoromethyl iodide and hexafluorobutadiene", SPIE Vol 2548 (Laser Techniques for State-Selected and State-to-State Chemistry III), 249-256 (1995).
144. Jae-seok Ryu and Bruce S. Hudson, "A new interpretation of the electronic spectrum of ethylene from 6-8 eV", *Chem. Phys. Lett.* 245, 448-454 (1995).
143. Gerhard Stock, Clemens Woywod, Wolfgang Domcke, Tim Swinney and Bruce S. Hudson, "Resonance Raman spectroscopy of the S1 and S2 states of pyrazine: Experiment and first principles calculation of spectra", *J. Chem. Phys.* 106, 1-10 (1995).
142. Marek Z. Zgierski, Marek Pawlikowski and Bruce S. Hudson, "Theory of Resonance Raman Scattering in Benzene Derivatives", *J. Chem. Phys.* 103, 1361-1374 (1995).
141. Bruce S. Hudson, "Resonance Raman studies of hydrogen bonded solutions: quantitative comparisons of experiment with ab initio calculations", *Proceedings of LALS'94, Minsk (SPIE Conference Proceedings 2370)*, 152-160 (1994).
140. Marc Van Gilst, Chunlin Tang, Amy Roth and Bruce Hudson, "Quenching Interactions and Non-exponential Decay: Tryptophan 138 of Bacteriophage T4 Lysozyme", *J. Fluorescence* 4, 203-207 (1994).
139. Laura M. Markham, Leland C. Mayne, Bruce S. Hudson and Marek Z. Zgierski, "Resonance Raman Studies of Imidazole, Imidazolium and their Derivatives: The Effect of Deuterium Substitution", *J. Phys. Chem.* 97, 10319-10325 (1993).

138. Gregory P. Harhay and Bruce S. Hudson, "Quantitative Resonance Raman Spectroscopy of N-Acetylpyrrolidine in Aqueous Solution", *J. Phys. Chem.* 97, 8158-8164 (1993).
137. Gary D. Strahan and Bruce S. Hudson, "The VUV excited electronic states of 1,3-butadiene: Selective enhancement of vibrational modes in resonant Raman transitions", *J. Chem. Phys.* 99, 5780-5789 (1993).
136. Bruce S. Hudson, "Studies of Tryptophan Fluorescence using Bacteriophage T4 Lysozyme" in Proceedings of LALS'92 (Fourth International Conference on Laser Applications in the Life Sciences) SPIE Conference Proceedings Vol. 1921, pgs 177-186 (1993).
135. Michael von Dirke, Bernd Heumann, Reinhard Schinke, Roseanne Sension and Bruce S. Hudson, "Emission spectroscopy of H<sub>2</sub>O dissociating in the B1A1 state: Rapid bending motion manifested through excitation of high bending states of H<sub>2</sub>O(X)", *J. Chem. Phys.* 99, 1050-1056 (1993).
134. Jerome Berryhill, Shekhar Pramanick, Marek Z. Zgierski, Francesco Zerbetto and Bruce S. Hudson, "Resonance Raman activity in odd quanta of the trans-bending vibration of acetylene: strong vibronic coupling in the X to A and X to B transitions", *Chem. Phys. Lett.* 205, 39-43 (1993).
133. Pedro L. Muiño, Danni Harris, Jerome Berryhill, Bruce Hudson and Patrik Callis, "Simulation of solvent dynamics effects on the fluorescence of 3-methylindole in water", *SPIE Conf. Proc.* 1640, 240-251 (1992).
132. Bruce S. Hudson and Danni L. Harris, "Mutagenic effects on the fluorescence of tryptophan residues in bacteriophage T4 lysozyme: Correlations with dynamics", *SPIE Conf. Proc.* 1640, 94-101 (1992).
131. Bruce Hudson, "Ultraviolet resonance Raman spectroscopy: studies of depolarization dispersion and strong vibronic coupling", *SPIE Conf. Proc.* 1638, 333-344 (1992).
130. V. Engel, V. Staemmler, R. L. Vander Wal, F. F. Crim, R. J. Sension, B. Hudson, P. Andresen, K. Weide and R. Schinke, "The Photodissociation of Water in the First Absorption Band: A Prototype Example for Dissociation on a Repulsive Potential Energy Surface" *J. Phys. Chem.* 96, 3201-3213 (1992).
129. Xiumei Dou, Quan-yuan Shang and Bruce S. Hudson, "Analysis of the Decay of the Fluorescence Anisotropy of 2,4,6,8-Decatetraene in a Viscous Hydrocarbon Solution: The Off-axis Orientation of the Transition Moment," *Chem. Phys. Lett.* 189, 48-53 (1992).

128. Roseanne J. Sension, Richard J. Brudzynski, Shijian Li, Bruce S. Hudson, Francesco Zerbetto and Marek Z. Zgierski, "Resonance Raman spectroscopy of the B<sub>1u</sub> region of benzene: analysis in terms of pseudo-Jahn-Teller distortion", *J. Chem. Phys.* 96, 2617-2628 (1992).
127. Shaleen K. Lee, Quan-yuan Shang and Bruce S. Hudson, "Urea and Thiourea Inclusion Complexes of Conjugated Polyenes: Polarized Fluorescence Excitation and Resonance Raman Studies", *Mol. Cryst. Liq. Cryst.* 211, 147-156 (1992).
126. Danni L. Harris and Bruce S. Hudson, "Fluorescence and Molecular Dynamics Study of the Internal Motion of the Buried Tryptophan in Bacteriophage T4 Lysozyme: Effects of Temperature and Alteration of Nonbonded Networks", *Chemical Physics* 158, 353-382 (1991).
125. Quan-yuan Shang and Bruce Hudson, "The off-axis orientation of the transition dipole moment for the strongly allowed electronic transition of a linear conjugated polyene", *Nature* 22, 703-705 (1991).
124. Quan-yuan Shang and Bruce S. Hudson, "Resonance Raman Depolarization Ratios for Cyclopentadiene Demonstrate the Presence of Two Overlapping Electronic Transitions with Perpendicular Polarizations in the Low Energy Absorption Band: The 1B<sub>2</sub> and 2A<sub>1</sub> States", *Chem. Phys. Lett.* 183, 63-68 (1991).
123. Richard R. Chadwick, Gary D. Strahan, Marek Z. Zgierski and B. Hudson, "Resonance Raman scattering of butadiene: Vibronic activity of the bu modes demonstrates the presence of a low lying A<sub>g</sub> state", *J. Chem. Phys.* 95, 7204-7211 (1991).
122. Roseanne J. Sension, Richard J. Brudzynski and Bruce S. Hudson, "Vacuum ultraviolet resonance Raman studies of the valence excited electronic states of Benzene and Benzene-d<sub>6</sub>: The E<sub>1u</sub> state and a putative A<sub>2u</sub> state," *J. Chem. Phys.* 94, 873-882 (1991).
121. Bruce S. Hudson, "Resonance Raman Studies of the Peptide Bond: Implications for the Geometry of the Electronic Excited State and the Nature of the Vibronic Linewidth", in *Proceedings of LALS'90: Laser Applications in the Life Sciences (SPIE Proceedings Vol. 1403, pgs 27-36)*. (Paper presented at LALS'90, Moscow USSR 27-31 August 1990).
120. Gregory P. Harhay and Bruce Hudson, "Resonance Raman spectroscopy of the cis/trans isomerization of X-proline peptide bonds", *J. Phys. Chem.* 95, 3511-3513 (1991).

119. Leland C. Mayne and Bruce Hudson, "The Resonance Raman spectroscopy of N-methylacetamide: overtones and combinations of the C-N stretch (amide II') and the effect of solvation on the C=O stretch (amide I) intensity", *J. Phys. Chem.* 95, 2962-2967 (1991).
118. Quan-yuan Shang, Bruce S. Hudson and Huang Chaoen, "Infrared and Raman spectra of lithium triborate (LBO): vibrational assignments and a correlation with its non-linear optical activity", *Spectrochim. Acta*, 47A, 291-298 (1991).
117. Bruce Hudson and Danni Harris, "T4 Phage Lysozyme: A Protein Designed for Understanding Tryptophan Photophysics", *SPIE Vol. 124: Time-Resolved Laser Spectroscopy in Biochemistry II*, pgs. 80-91 (1990).
116. B. Hudson, "Lasers add to selectivity of spectroscopic instrumentation", *Laser Focus World*, 26(2), 85-6, 88, 90, 92-7 (1990).
115. R. J. Brudzynski and B. Hudson, "Determination of the Torsional Potential of Allene from Highly Excited Torsional Vibrations Observed by Ultraviolet Resonance Raman Spectroscopy: The Torsional Barrier of Cumulenes", *J. Am. Chem. Soc.* 112, 4963 (1990).
114. D. Harris and B. Hudson, "The Photophysics of Tryptophan in Bacteriophage T4 Lysozyme", *Biochemistry* 29, 5276-5285 (1990).
113. Roseanne J. Sension, Bruce Hudson and Patrik R. Callis, "Resonance Raman Studies of Guanidinium and Substituted Guanidinium Ions", *J. Phys. Chem.* 94, 4015- 4025 (1990).
112. Q. Shang, S. Pramanick and B. Hudson, "Chemical nature of conduction in iodine-doped trans-1,4-poly(buta-1,3-diene) and some of its derivatives: the presence of I<sub>3</sub>-and the effect of double-bond configuration", *Macromolecules* 23, 1886-1889 (1990).
111. Richard J. Brudzynski, Roseanne J. Sension and Bruce Hudson, "Resonance Raman Study of the First Absorption Band of H<sub>2</sub>S", *Chem. Phys. Lett.* 165, 487-493 (1990).
110. R. J. Sension, R. J. Brudzynski, B. Hudson, J. Zhang and D. G. Imre, "Resonance Emission Studies of the Photodissociating Water Molecule", *Chem. Phys.* 141, 393-400 (1990).
109. L. H. Klemm, B. S. Hudson and J. J. Lu, "Preparation of Azulene Derivatives: An Aminoacid, Dicarboxylates and Isothiocyanate and Related Compounds", *Org. Prep. Proc. Int.* 21, 633-641 (1989).

108. B. Hudson, "Vacuum Ultraviolet Resonance Raman Spectroscopy", in *Recent Trends in Raman Spectroscopy*, S.S. Jha and S.B. Banerjee, editors (World Scientific Press, Singapore, 1989) pgs. 368-385. (Presented at title conference Calcutta, India, November 1988).
107. I. D. Johnson and B. Hudson, "Environmental Modulation of M13 Coat Protein Tryptophan Fluorescence Dynamics," *Biochemistry* 28, 6392-6400 (1989).
106. A. Ruggiero and B. Hudson, "Analysis of the Anisotropy of trans-Parinaric Acid in Lipid Bilayers", *Biophys. J.* 55, 1125-1135 (1989).
105. A. Ruggiero and B. Hudson, "Critical Density Fluctuations in Lipid Bilayers Detected by Fluorescence Lifetime Heterogeneity", *Biophys. J.* 55, 1111-1124 (1989).
104. R. J. Sension and B. Hudson, "Vacuum ultraviolet resonance Raman studies of the excited electronic states of ethylene," *J. Chem. Phys.* 90, 1377-1389 (1989).
103. R. J. Sension, R. J. Brudzynski and B. Hudson, "Resonance Raman Studies of the Low-Lying Dissociative Rydberg/Valence States of H<sub>2</sub>O, D<sub>2</sub>O and HDO", *Phys. Rev. Lett.* 61, 694-697 (1988).
102. S. Li and B. Hudson, "Resonance Raman Studies of the 1La State of 1,2,3-Trisubstituted Benzene Derivatives: Lack of an Induced Transition Moment", *Chem. Phys. Lett.* 148, 581-585 (1988).
101. B. Hudson, A. Ruggiero, D. Harris, I. Johnson, X. Dou, T. Novet, L. McIntosh, C. Phillips and T. Nester, "Fluorescence studies of bilayers and proteins: critical behavior and genetic engineering", in *Time-Resolved Laser Spectroscopy in Biochemistry*, J. R. Lakowicz, M. R. Eftink, J. B. A. Ross and J. Wampler, eds. (SPIE, Bellingham, WA), *Proc. SPIE-Int. Soc. Opt. Eng.* 909, 113-120 (1988).
100. B. Hudson and R. J. Sension, "Far Ultraviolet Resonance Raman Spectroscopy: Methodology and Applications" in *Vibrational Spectra and Structure*, Vol. 17A, H. D. Bist, J. R. Durig and J. F. Sullivan, eds. (Elsevier, Amsterdam, 1989) pgs 363-390. (Presented at Workshop on Advanced Raman Spectroscopy, Indian Institute of Technology, Kanpur, India, December, 1987).
99. M. M. Goerger and B. Hudson, "Synthesis of all trans-Parinaric Acid-d<sub>8</sub> Specifically Deuterated in the Vinyl Positions", *J. Org. Chem.* 53, 3148-3153 (1988).

98. R.D. Ludescher, I.D. Johnson, J.J. Volwerk, G.H. de Haas, P.C. Jost and B. Hudson, "Rotational Dynamics of the Single Tryptophan of Porcine Pancreatic Phospholipase A2, its Zymogen and an Enzyme/Micelle Complex. A Steady-State and Time-Resolved Anisotropy Study", *Biochemistry* 27, 6618-6628 (1988).
97. B. Hudson and S.A. Cavalier, "Studies of Membrane Dynamics and Lipid-Protein Interactions with Parinaric Acid", in *Spectroscopic Membrane Probes*, edited by L. Loew, pg. 43-62. (CRC Press, Boca Raton, 1988).
96. B. Hudson, "Far Ultraviolet Resonance Raman Spectroscopy: New Capability and Applications in the Vacuum Ultraviolet Region", *J. Luminen.* 40, 827 (1988). (Presented at 1987 International Conference on Luminescence, Beijing, China, August, 1987).
95. R. J. Sension, L. C. Mayne and B. Hudson, "Far Ultraviolet Resonance Raman Scattering: Highly Excited Torsional Vibrations of Ethylene", *J. Am. Chem. Soc.* 109, 5036-5038 (1987).
94. R. D. Ludescher, L. Peting, S. Hudson and B. Hudson, "Time-resolved Fluorescence Anisotropy for Systems with Lifetime and Dynamic Heterogeneity", *Biophysical Chemistry* 28, 59-75 (1987).
93. L. C. Mayne and B. Hudson, "Ultraviolet Resonance Raman Spectroscopy of Proline Peptide Bonds: Selective Excitation", *J. Phys. Chem.* 91, 4438-4440 (1987).
92. B. Hudson, "b-Barium Borate: An Important New Capability in Laser Technology", *Spectroscopy* 2, 33-37 (1987).
91. B. Hudson and L. C. Mayne, "Ultraviolet Resonance Raman Studies of Protein Constituents", for *Biological Applications of Raman Spectroscopy*, edited by T. G. Spiro, (Wiley, New York, 1987) pgs 181-209.
90. B. S. Hudson, R. D. Ludescher, A. Ruggiero, D. L. Harris and I. Johnson, "Fluorescence Anisotropy Decay Determinations of Rapid Reorientational Motion: Complications in the Interpretation of Bilayer Acyl-Chain and Protein Tryptophan Dynamics", *Comments on Molecular and Cellular Biophysics* 4, 171-188 (1987).
89. W. L. Peticolas and B. Hudson, editors, *Proceedings of the Tenth International Conference on Raman Spectroscopy* (University of Oregon, Eugene, 1986).

88. B. Hudson, D. L. Harris, R. D. Ludescher, A. Ruggiero, A. Cooney-Freed and S. A. Cavalier, "Fluorescence Probe Studies of Proteins and Membranes", in *Fluorescence in the Biological Sciences*, edited by D. L. Taylor, A. S. Waggoner, F. Lanni, R. F. Murphy and R. Birge. (Alan R. Liss, New York, 1986) pgs 159-202.
87. B. Hudson and L. Mayne, "Ultraviolet Resonance Raman Spectroscopy of Biopolymers", *Methods in Enzymology* 130, 331-350 (1986).
86. B. Hudson, P. B. Kelly, L. D. Ziegler, R. A. Desiderio, D. P. Gerrity, W. Hess and R. Bates, "Far Ultraviolet Resonance Raman Studies of Electronic Excitations", in *Advances in Laser Spectroscopy, Volume 3*, edited by B. A. Garetz and J. R. Lombardi, (John Wiley & Sons, New York, 1986) pages 1-32.
85. N. E. Schlotter and B. Hudson, "A Test of the Validity of Non-bonded Potential Energy Functions: The Ability of an Empirical Energy Function to Reproduce the Structure and Low Frequency Vibrations of a Flexible Molecule in a van der Waals Crystal", *J. Phys. Chem.* 90, 719-721 (1986).
84. B. Hudson, "Resonance Raman Spectroscopy in the Far-Ultraviolet Region", *Spectroscopy* 1, 22 - 31 (1986).
83. B. Hudson, "Ultraviolet Resonance Raman Studies of Electronic Excitations", in *Time-Resolved Vibrational Spectroscopy*, edited by A. Laubereau and M. Stockburger (Springer-Verlag, Berlin, 1985) pages 170- 174.
82. R. D. Ludescher, J. J. Volwerk, G. H. de Haas and B. Hudson, "Complex Photophysics of the Single Tryptophan of Porcine Pancreatic Phospholipase A<sub>2</sub>, its Zymogen and an Enzyme/Micelle Complex", *Biochemistry* 24, 7240-7249 (1985).
81. D. P. Gerrity, L. D. Ziegler, P. B. Kelly, R. A. Desiderio and B. Hudson, "Ultraviolet Resonance Raman Spectroscopy of Benzene Vapor with 220-184 nm Excitation", *J. Chem. Phys.* 83, 3209-3213 (1985).
80. R. R. Chadwick, D. P. Gerrity and B. Hudson, "Resonance Raman Spectroscopy of Butadiene: Demonstration of a 21A<sub>g</sub> State Below the 11B<sub>u</sub> State", *Chem. Phys. Lett.* 115, 24-28 (1985).
79. W. L. Kubasek, B. Hudson and W. L. Peticolas, "Ultraviolet Resonance Raman Excitation Profiles of Nucleic Acid Bases with Excitation from 200 to 300 Nanometers", *Proc. Natl. Acad. Sci. USA* 82, 2369 (1985).
78. P. B. Kelly and B. Hudson, "Resonance Fluorescence and Resonance Raman Spectra of Molecular Oxygen", *Chem. Phys. Lett.* 114, 451-455 (1985).

77. L. C. Mayne, L. D. Ziegler and B. Hudson, "Ultraviolet Resonance Raman Spectroscopy of N-methylacetamide", *J. Phys. Chem.* 89, 3395-3398 (1985).
76. R. A. Desiderio, D. P. Gerrity and B. Hudson, "Resonance Raman Scattering in the  $1S_g^+ \rightarrow 1B_2 (1S_u^+)$  Transition of  $CS_2$ ", *Chem. Phys. Lett.* 115, 29-33 (1985).
75. L. D. Ziegler, P. B. Kelly and B. Hudson, "Resonance Rovibrational Raman Scattering as a Probe of Unimolecular Subpicosecond Dynamics", *J. Chem. Phys.* 81, 6399-6400 (1984).
74. R. A. Desiderio and B. S. Hudson, "Coherent Elimination of Isotropic Scattering Invariants in Coherent Raman and Hyper-Raman Spectroscopy", *J. Chem. Phys.* 81, 5434-5436 (1984).
73. L. D. Ziegler, B. Hudson, D. P. Strommen and W. L. Peticolas, "Resonance Raman Spectroscopy of Mononucleotides Obtained with 266 and 213 nm Laser Radiation", *Biopolymers* 23, 2067-2081 (1984).
72. B. Hudson and B. E. Kohler, "Electronic Structure and Spectra of Finite Linear Polyenes", *Synthetic Metals* 9, 241-252 (1984).
71. L. D. Ziegler and B. Hudson, "Resonance Rovibronic Raman Scattering of Ammonia", *J. Phys. Chem.* 88, 1110-1116 (1984).
70. H. W. Williamson, C. G. Morgan, S. Fuller and B. Hudson, "Melittin Induces Fusion of Phospholipid Vesicles", *Biochem. Biophys. Acta* 732, 668-674 (1983).
69. L. D. Ziegler and B. Hudson, "Vibronic Coupling Activity in the Resonance Raman Spectra of Alkyl Benzenes", *J. Chem. Phys.* 79, 1134- 1137 (1983).
68. L. D. Ziegler and B. Hudson, "Resonance Raman Scattering of Ethylene: Evidence for a Twisted Geometry in the V State", *J. Chem. Phys.* 79, 1197-1202 (1983).
67. S. G. Stanton, R. Pecora and B. Hudson, "Reorientation of Small Molecules and Anions in Solution Studied by Resonance Enhanced Dynamic Rayleigh Scattering", *J. Chem. Phys.* 78, 3365-3371 (1983).
66. B. Hudson, B. E. Kohler and K. Schulten, "Linear Polyene Electronic Structure and Potential Surfaces", *Excited States*, Vol. 6, E. C. Lim, editor (New York: Academic Press, 1982), pgs 1-95.
65. L. D. Ziegler and B. Hudson, "The Vibronic Spectroscopy of Benzene: Old Problems and New Techniques", *Excited States*, Vol. 5, E.C. Lim, editor (New York: Academic Press, 1982), pgs 41-139.

64. N. E. Schlotter and B. Hudson, "Tetraphenyl Group IVB Compounds: Flexible Molecules with High Symmetry Crystals I. Assignments of Low Frequency Infrared and Raman Bands", *J. Chem. Phys.* 76, 4844-4856 (1982).
63. R. A. Desiderio and B. S. Hudson, "Laplace Transforms of Correlation Functions for CARS", *J. Chem. Phys.* 76, 4294-4296 (1982).
62. P. K. Wolber and B. S. Hudson, "Bilayer Acyl Chain Dynamics and Lipid Protein Interactions: The Effect of the M13 Bacteriophage Coat Protein on the Decay of the Fluorescence Anisotropy of Parinaric Acid", *Biophys. J.* 37, 253-262 (1982).
61. S. G. Stanton, R. Pecora and B. S. Hudson, "Resonance Enhanced Dynamic Rayleigh Scattering", *J. Chem. Phys.* 75, 5615-5626 (1981).
60. B. S. Hudson and R. T. Loda, "Spectroscopy of 2,4,6,8,10-Dodecapentaenal: Laser Site Selection of a Retinal Analog", *Chem. Phys. Lett.* 81, 591 (1981).
59. P. K. Wolber and B. Hudson, "Fluorescence Lifetime and Time Resolved Polarization Anisotropy Studies of Acyl Chain Order and Dynamics in Lipid Bilayers", *Biochemistry* 20, 2800-2810 (1981).
58. A. Tsai, B. S. Hudson, and R. D. Simoni, "Preparation of Parinaric Acid Derivatives", *Methods in Enzymology: Lipids, Part D, Volume 72*, 483-485 (1981).
57. L. A. Sklar, B. Hudson, and R. D. Simoni, "Parinaric Acid from *Parinarium glaberrimum*", *Methods in Enzymology: Lipids, Part D, Volume 72*, 479-482 (1981).
56. L. D. Ziegler and B. Hudson, "Resonance Raman Scattering of Benzene and Benzene-d6 with 212.8 nm Excitation", *J. Chem. Phys.* 74, 982-992 (1981).
55. J. O. Bjarnason, H. C. Andersen and B. Hudson, "Quantum Theory of Coherent Hyper-Raman Scattering from Isotropic Materials", *J. Chem. Phys.* 73, 1827-1835 (1980).
54. J. O. Bjarnason, H. C. Andersen and B. Hudson, "Quantum Theory of Coherent Raman Scattering by Optically Active Isotropic Materials", *J. Chem. Phys.* 72, 4132-4140 (1980).
53. C. B. Berde, H. C. Andersen and B. Hudson, "A Theory of the Effects of Headgroup Structure and Acyl Chain Unsaturation on the Chain Melting Transition of Neutral Aqueous Phospholipid Dispersions", *Biochemistry* 19, 4279-4293 (1980).
52. L. D. Ziegler and B. Hudson, "The Thermal Blooming Spectrum of Liquid Benzene in the Near Ultraviolet", *Chem. Phys. Lett.* 71, 113-116 (1980).

51. L. D. Ziegler and B. Hudson, "Tuning Ranges of 266 nm Pumped Dyes in the Near UV", *Optics Commun.* 32, 119-120 (1980).
50. C. G. Morgan, B. Hudson and P. K. Wolber, "The Photochemical Dimerization of Parinaric Acid in Lipid Bilayers", *Proc. Nat. Acad. Sci. USA* 77, 26-30 (1980).
49. D. Kimelman, E. S. Tecoma, P. K. Wolber, B. Hudson, W. T. Wickner and R. D. Simoni, "Protein-Lipid Interactions: Studies of the M13 Coat Protein in Dimyristoyl-phosphatidylcholine Vesicles Using Parinaric Acid", *Biochemistry* 18, 5874-5880 (1979).
48. W. M. Hetherington and B. S. Hudson, "Electronic Spectroscopy of Stilbene in Bibenzyl Crystals: Spectra of Stilbene Dimers", *Chem. Phys. Lett.* 65, 261-265 (1979).
47. P. K. Wolber and B. Hudson, "An Analytic Solution to the Forster Energy Transfer Problem in Two Dimensions", *Biophys. J.* 28, 197-210 (1979).
46. B. Hudson and J. Andrews, "The Low Frequency Normal Modes of trans, trans- 1,3,5,7- octatetraene", *Chem. Phys. Lett.* 63, 493-496 (1979).
45. J.O. Bjarnason, B. S. Hudson and H. C. Andersen, "Quantum Theory of Lineshapes in Coherent Raman Spectroscopy of Gases and Liquids", *J. Chem. Phys.* 70, 4130-4148 (1979).
44. R. A. Desiderio and B. S. Hudson, "Effects of Inhomogeneous Broadening on the Excitation Profile for Resonance Coherent Raman Scattering", *Chem. Phys. Lett.* 61, 445-448 (1979).
43. J. Andrews and B. Hudson, "Geometric Effects in the Excited States of Conjugated Trienes", *Chem. Phys. Lett.* 60, 380-384 (1979).
42. C. B. Berde, B. Hudson, R. D. Simoni and L. A. Sklar, "Human Serum Albumin: Spectroscopic Studies of Binding and Proximity Relationships for Fatty Acids and Bilirubin", *J. Biol. Chem.* 254, 391-400 (1978).
41. B. Hudson, "Coherent Anti-Stokes Raman Scattering Spectroscopy", in *New Applications of Lasers to Chemistry*, Edited by G. Hieftje (American Chemical Society, Washington, 1978), pp. 171-192.
40. B. Laskowski, J. Diamond, A. Waleh, and B. Hudson "The Generator Coordinate Method for Molecular Wave Functions: A Moment Method and a Simple Intrinsic Function", *J. Chem. Phys.* 69, 5222-5230 (1978).
39. J. Andrews and B. Hudson, "Polyene Spectroscopy: Vibronic Evidence for a  $1A_g$  Excited State in Deca-2,4,6,8-tetraene", *Chem. Phys. Lett.* 57, 600-604 (1978).

38. J. R. Andrews and B. Hudson, "Environmental Effects on Radiative Rate Constants with Applications to Linear Polyenes", *J. Chem. Phys.* 68, 4587-4594 (1978).
37. H. C. Andersen and B. Hudson, "Coherent Anti-Stokes Raman Scattering Spectroscopy", *Specialist Periodical Report of the Chemical Society No. 29, Molecular Spectroscopy*, Vol. 5, 142-201 (1978).
36. L. A. Sklar, B. Hudson and R. D. Simoni, "Conjugated Polyene Fatty Acids as Fluorescent Probes: Binding to Bovine Serum Albumin", *Biochemistry* 16, 5100-5108 (1977).
35. R. E. Jacobs, B. Hudson, and H. C. Andersen, "A Theory of Phase Transitions and Phase Diagrams for One- and Two-Component Phospholipid Bilayers", *Biochemistry* 16, 4349-4359 (1977).
34. B. Hudson, "New Laser Techniques for Biophysical Studies", *Ann. Rev. Biophys. Bioengin.* 6, 135-150 (1977).
33. B. Hudson, J. Dawson, R. Desiderio, and C. W. Mosher, "Ethidium Analogues with Improved Resolution in the Dye-Buoyant Density Procedure", *Nucleic Acids Research* 4, 1349-1359 (1977).
32. E. Tecoma, L. A. Sklar, R. D. Simoni, and B. Hudson, "Conjugated Polyene Fatty Acids as Fluorescent Probes: Biosynthetic Incorporation of Parinaric Acids by *Escherichia coli* and Studies of Phase Transitions", *Biochemistry* 16, 829-835 (1977).
31. L. A. Sklar, B. Hudson and R. D. Simoni, "Conjugated Polyene Fatty Acids as Fluorescent Probes: Synthetic Phospholipid Membrane Studies", *Biochemistry* 16, 819-828 (1977).
30. L. A. Sklar, B. Hudson, M. Petersen and J. Diamond, "Conjugated Polyene Fatty Acids as Fluorescent Probes: Spectroscopic Characterization", *Biochemistry* 16, 813-819 (1977).
29. B. Hudson, W. Hetherington, S. Cramer, I. Chabay, and G. Klauminzer, "Resonance Enhanced Coherent Anti-Stokes Raman Scattering Spectroscopy", *Proc. Natl. Acad. Sci. USA* 73, 3798-3802 (1976).
28. A. Waleh, B. Hudson, and G. Loew, "Excited Electronic States of the Ethidium Cation", *Biopolymers* 15, 1637-1640 (1976).
27. S. L. Yip, N. O. Lipari, C. B. Duke, B. Hudson, and J. Diamond, "The Electronic Structure of Bond-Alternating and Non-Alternant Conjugated Hydrocarbons: Diphenylpolyenes and Azulene", *J. Chem. Phys.* 64, 4020-4026 (1976).

26. L. A. Sklar, B. S. Hudson, and R. D. Simoni, "Conjugated Polyene Fatty Acids as Fluorescent Membrane Probes: Model System Studies", *J. Supramolecular Structure* 4, 449-465 (1976). Also in *Cell Surface Receptors*, pp. 409-425, G. L. Nicolson, M. A. Raftery, M. Rodbell and C. F. Fox, editors, Alan R. Liss (New York, 1976).
25. S. Cramer, D. Burland, and B. Hudson, "Polarized Single Crystal Raman Study of the Librational Phonons in p-Diiodobenzene", *J. Chem. Phys.* 64, 1140-1145 (1976).
24. I. Chabay, G. Klauminzer, and B. Hudson, "Coherent Anti-Stokes Raman Spectroscopy: Improved Experimental Design and Observation of New Higher Order Processes", *Appl. Phys. Lett.* 28, 27-29 (1976).
23. B. Hudson, J. Diamond, and J. N. A. Ridyard, "Polyene Spectroscopy: Photoelectron Spectra of the Diphenylpolyenes", *J. Am. Chem. Soc.* 98, 1126-1129 (1976).
22. R. E. Jacobs, B. Hudson, and H. C. Andersen, "A Theory of the Chain Melting Phase Transition of Aqueous Phospholipid Dispersions", *Proc. Natl. Acad. Sci. USA* 72, 3993-3997 (1975).
21. D. E. Post, W. Hetherington, and B. Hudson, "100 eV Electron Impact Spectra of Hexatriene", *Chem. Phys. Lett.* 35, 259-263 (1975).
20. D. R. Bauer, B. Hudson, and R. Pecora, "Resonance Enhanced Depolarized Rayleigh Scattering from Diphenylpolyenes", *J. Chem. Phys.* 63, 588-589 (1975).
19. B. Hudson, H. Karp, and S.-H. Chen, "Pseudorotational Motion of Methylcyclopentane Observed by Neutron Inelastic Scattering", *J. Chem. Phys.* 62, 4564-4565 (1975).
18. L. A. Sklar, B. Hudson, and R. D. Simoni, "Conjugated Polyene Fatty Acids as Membrane Probes: Preliminary Characterization", *Proc. Natl. Acad. Sci. USA* 72, 1649-1653 (1975).
17. B. Hudson and R. Jacobs, "The Ultraviolet Transitions of the Ethidium Cation", *Biopolymers* 14, 1309-1312 (1975).
16. R. F. Begley, A. B. Harvey, R. L. Byer, and B. S. Hudson, "A New Spectroscopic Tool: Coherent Anti-Stokes Raman Spectroscopy", *American Laboratory* 6 (11), 11-21 (1974).
15. B. Hudson, "Selection Rules for Coherent Anti-Stokes Raman Spectroscopy", *J. Chem. Phys.* 61 5461-5463 (1974).

14. B. Hudson, A. Warshel and R. G. Gordon, "Molecular Inelastic Neutron Scattering: Computational Methods Using Consistent Force Fields", *J. Chem. Phys.* 61, 2929-2939 (1974).
13. R. F. Begley, A. B. Harvey, R. L. Byer, and B. S. Hudson, "Raman Spectroscopy with Intense, Coherent, Anti-Stokes Beams", *J. Chem. Phys.* 61, 2466-2467 (1974).
12. B. Hudson and B. E. Kohler, "Linear Polyene Electronic Structure and Spectroscopy", *Ann. Rev. Phys. Chem.* 25, 437-460 (1974).
11. B. Hudson, "Interatomic Forces, Molecular Structure and Molecular Vibrations" in *Spectroscopy in Biology and Chemistry*, pp. 119-144, Sow-Hsin Chen and Sidney Yip, editors, Academic Press (New York, 1974).
10. B. Hudson and B. E. Kohler, "Polyene Spectroscopy: The Lowest Energy Excited Singlet State of Diphenyloctatetraene and Other Linear Polyenes", *J. Chem. Phys.* 59, 4984-5002 (1973).
9. B. Hudson and B. E. Kohler, "Comment on Polarized Fluorescence Spectra of Retinol and Diphenyloctatetraene", *Chem. Phys. Lett.*, 23, 139 (1973).
8. R. Steinert and B. Hudson, "The Helix-Coil Transition of DNA Observed with a Low Cost Ultraviolet Photometer", *J. Chem. Ed.* 50, 129-130 (1973).
7. B. Hudson and B. E. Kohler, "A Low-Lying Weak Transition in the Polyene , - Diphenyloctatetraene", *Chem. Phys. Lett.* 14, 299-304 (1972).
6. B. Honig, B. Hudson, B. D. Sykes and M. Karplus, "Ring Orientation in - Ionone and Retinals", *Proc. Natl. Acad. Sci. USA* 68, 1289-1293 (1971).
5. B. Hudson, W. B. Upholt, J. Devinny and J. Vinograd, "The Use of an Ethidium Analogue in the Dye-Buoyant Density Procedure for the Isolation of Closed Circular DNA: The Variation of the Superhelix Density of Mitochondrial DNA", *Proc. Natl. Acad. Sci. USA* 62, 813-820 (1969).
4. B. Hudson and J. Vinograd, "The Sedimentation Velocity Properties of Complex Mitochondrial DNA", *Nature* 221, 332-337 (1969).
3. C. J. Hallada, G. A. Tsigdinos and B. Hudson, "Molybdovanadophosphoric Acids and Their Salts. II. Investigation of Solution Properties", *J. Phys. Chem.* 72, 4304-4307 (1968).
2. B. Hudson, D. A. Clayton and J. Vinograd, "Complex Mitochondrial DNA", *Cold Spring Harbor Symposium on Quantitative Biology*, Vol. XXXIII, 435-442 (1968).
1. B. Hudson and J. Vinograd, "Catenated Circular DNA in HeLa Cell Mitochondria", *Nature* 216, 647-652 (1967).

