

GEORGE H. ATKINSON

PUBLICATIONS

Professor
Department of Chemistry
University of Arizona
Tucson, AZ 85721
(On leave)

Professor
College of Optical Sciences
University of Arizona
Tucson, AZ 85721
(On leave)

Science and Technology
Adviser to the
Secretary of State
U.S. Department of State
Washington, DC 20007

June 2006

161. Primary events in the Bacteriorhodopsin photocycle: torsional vibrational dephasing in the first excited electronic state, A.C. Terentis, L. Ujj, H. Abramczyk, and **G.H. Atkinson**, *Chem. Phys.* **313** (2005) 51-62.
160. Picosecond Time-Resolved Coherent Anti-Stokes Raman Spectroscopy of the Artificial Bacteriorhodopsin Pigment, BR6.11, A.C. Terentis, L. Ujj, Y. Zhou, and **G.H. Atkinson**, *J. Phys. Chem. A* **107** (2003) 10787-10797.
159. Cavity-Enhanced Absorption: Intracavity Laser Spectroscopy (ILS), **G.H. Atkinson**, in *Cavity-Enhanced Spectroscopies*, R.D. van Zee and J. P. Looney (eds.), Academic Press **40** (2002) 129-156.
158. Picosecond Coherent Vibrational Spectroscopy (CARS) of a DNA-Intercalating Ru Complex, L. Ujj, C. Coates, J. Kelly, P. Kruger, J. McGarvey, and **G.H. Atkinson**, *J. of Phys. Chem. B* **106** (2002) 4854-4862.
157. Dynamics of Retinal Structural Changes in the Photocycle of the Artificial Bacteriorhodopsin Pigment BR6.9, Y. Zhou, L. Ujj, M. Sheves, M. Ottolenghi, and **G.H. Atkinson**, *J. of Phys. Chem. A* **106** (2002) 3325-3336.
156. Coherent Anti-Stokes Raman Spectroscopy, L. Ujj, and **G.H. Atkinson**, in *Handbook of Vibrational Spectroscopy*, J.M. Chalmers and P.R. Griffiths (Eds), John Wiley & Sons, Ltd. **1** (2002) 585-595.
155. Photocycle Dynamics and Vibrational Spectroscopy of the E46Q Mutant of Photoactive Yellow Protein, Y. Zhou, Laszlo Ujj, T. E. Meyer, M. A. Cusanovich, and **G.H. Atkinson**, *J. Phys. Chem. A* **105** (2001) 5719-5726.
154. Absolute Intensities and Pressure Broadening Coefficients of 2- μm CO₂ Absorption Features at Low Temperatures: Intracavity Laser Spectroscopy, J. Geng, J.I. Lunine and **G.H. Atkinson**, *Applied Optics* **40** (2001) 2551-2560.
153. Intracavity Laser Spectroscopy with an Ion-doped, Solid-state Tm³⁺: YAG Laser, E. Mehdizadeh, J. Lunine, and **G.H. Atkinson**, *J. Quant. Spect. Rad. Trans. (JQSRT)* **68** (2001) 453-465.

152. A New Generation of Ultra-Sensitive, Laser-Based Trace Gas Sensors: Intracavity Laser Spectroscopy, M. Wolperdinger, J. Kutzner, R. Mellish, and **G.H. Atkinson**, *Solid State Technology* **(2000)** 71-78.
151. Photochemistry of K-590 in the Room Temperature Bacteriorhodopsin Photocycle, J.K. Delaney, P.K. Schmidt, T.L. Brack, and **G.H. Atkinson**, *J. Phys. Chem. B* **104 (2000)** 10827-10834.
150. Vibrational Spectrum of the J-625 Intermediate in the Room Temperature Bacteriorhodopsin Photocycle, **G.H. Atkinson**, L. Ujj, and Y. Zhou, *J. Phys. Chem. A* **104 (2000)** 4130-4139.
149. Vibrational Spectrum of a Picosecond Intermediate in the Artificial BR5.12 Photo-reaction: Picosecond Time-Resolved CARS of T5.12, L. Ujj, Yidong Zhou, M. Sheves, M. Ottolenghi, S. Ruhman, and **G.H. Atkinson**, *J. Am. Chem. Soc.* **122 (2000)** 96-106.
148. On the Nature of the Primary Light-Induced Events in Bacteriorhodopsin: Ultrafast Spectroscopy of Native and C13=C14 Locked Pigments, T. Ye, N. Friedman, Y. Gat, **G.H. Atkinson**, M. Sheves, M. Ottolenghi, and S. Ruhman, *J. Phys. Chem. B* **103 (1999)** 5122-5130.
147. Coherent Anti-Stokes Vibrational Raman Spectra of Artificial Rhodopsin Pigments containing Ring Structuring Blocking 11-*cis* Isomerization, Y. Zhou, L. Ujj, J. Lou, F. Jäger, K. Nakanishi, and **G.H. Atkinson**, *J. Molecular Structure* **478 (1999)** 107-119.
146. Reactive Intermediates in the Room-Temperature Rhodopsin Photoreactions: Picosecond Time-Resolved CARS, **G.H. Atkinson**, F. Jäger, and L. Ujj, *Laser Chem.* **19 (1999)** 127-132.
145. New Photocycle Intermediates in the Photoactive Yellow Protein from *Ectothiorhodospira halophila*: picosecond transient absorption spectroscopy, L. Ujj, D.S. Devanathan, T.E. Meyer, M.A. Cusanovich, G. Tollin, and **G.H. Atkinson**, *Biophys. J.* **75 (1998)** 406-412.
144. Vibrational Spectrum of the Lumi Intermediate in the Room Temperature Rhodopsin Photo-Reaction, L. Ujj, F. Jäger, and **G.H. Atkinson**, *Biophys. J.* **74 (1998)** 1492-1501.
143. Vibrational Spectroscopy of a Picosecond, Structurally-restricted Intermediate Containing a Seven-Membered Ring in the Room-Temperature Photoreaction of an Artificial Rhodopsin, F. Jäger, J. Lou, K. Nakanishi, L. Ujj, and **G.H. Atkinson**, *J. Am. Chem. Soc.* **120 (1998)** 3739-3747.
142. Vibrational Spectrum of Bathorhodopsin in the Room Temperature Rhodopsin Photoreactions, F. Jäger, L. Ujj, and **G.H. Atkinson**, *J. Am. Chem. Soc.* **119 (1997)** 12610-12618.
141. Evidence for a Long-Lived 13-*cis*-Containing Intermediate in the Photocycle of the Leu-93-Ala Bacteriorhodopsin Mutant, J. Delaney, P. Schmidt, **G.H. Atkinson**, and S. Subramanian, *J. Phys. Chem. B* **101 (1997)** 5619-5621.
140. Nanosecond Retinal and Protein Structure Changes in K-590 during the Room Temperature BR Photocycle: Picosecond Time-Resolved Coherent Anti-Stokes Raman Spectroscopy, O. Weidlich, L. Ujj, F. Jäger, and **G.H. Atkinson**, *Biophysical J.* **72 (1997)** 2329-2341.
139. Vibrational Spectra of Blue-Membrane Bacteriorhodopsin: Picosecond Resonance Coherent Anti-Stokes Raman Spectroscopy, E. Ligon, L. Ujj, O. Weidlich, A. Popp, and **G.H. Atkinson**, *J. Raman Spectr.* **28 (1997)** 347-353.

138. Picosecond Time Resolved Resonance CARS Spectroscopy: The Vibrational Spectra of the Deionized Form of Bacteriorhodopsin (Blue Membrane) , R. Ligon, A. Popp, L. Ujj, F. Jäger, and **G.H. Atkinson**, in *Time-Resolved Vibrational Spectroscopy*, Springer-Verlag, (1997) (W. Woodruff, et al. eds.), p. 283.
137. A Picosecond Time-Resolved CARS Investigation on the Isotopically Labeled $^{13}\text{C}_{14}$ - $^{13}\text{C}_{15}$ Bacteriorhodopsin, F. Jäger, L. Ujj, A. Popp, J. Popp, **G.H. Atkinson**, and M Sheves, in *Time-Resolved Vibrational Spectroscopy*, Springer-Verlag, (1997) (W. Woodruff, et al. eds.), pp. 285-286.
136. Picosecond Time-Resolved Resonance Coherent Anti-Stokes Raman Spectroscopy of Bacteriorhodopsin: Experimental Challenges and the K-590 Spectrum, L. Ujj, A. Popp, F. Jäger, R. Ligon, and **G.H. Atkinson**, in *Time-Resolved Vibrational Spectroscopy*, Springer-Verlag, (1997) (W. Woodruff, et al. eds.), pp. 281-282.
135. Picosecond Time-Resolved Coherent Anti-Stokes Raman Spectroscopy: Studies in the Room-Temperature BR and Rhodopsin Photo-Reactions, **G.H. Atkinson**, L. Ujj, A. Popp, J. Delaney, F. Jäger, and R. Ligon, in *Time-Resolved Vibrational Spectroscopy*, Springer-Verlag, (1997) (W. Woodruff, et al. eds.), pp. 15-19.
134. Reexamining the Primary Light-Induced Events in Bacteriorhodopsin Using a Synthetic C13-C14 Locked Chromophore, Q. Zhong, S. Ruhman, M. Ottolenghi, M. Sheves, N. Friedman, **G.H. Atkinson**, and J.K. Delaney, *J. Am. Chem. Soc.* **118** (1996) 12828-12829.
133. Vibrational Spectrum of K-590 Containing a $^{13}\text{C}_{14}$ - $^{13}\text{C}_{15}$ Retinal: Picosecond Time-Resolved Coherent Anti-Stokes Raman Spectroscopy of the Room Temperature Bacteriorhodopsin Photocycle, F. Jäger, L. Ujj, **G.H. Atkinson**, M. Sheves, N. Livnah, and M. Ottolenghi, *J. Phys. Chem.* **100** (1996) 12066-12075.
132. Vibrational Spectrum of the K-590 Intermediate in the Bacteriorhodopsin Photocycle at Room-temperature: Picosecond Time-resolved Resonance Coherent Anti-Stokes Raman Spectroscopy, L. Ujj, F. Jäger, A. Popp, and **G.H. Atkinson**, *Chem. Phys.* **212** (1996) 421-436.
131. Vibrational Analysis of Coherent Anti-Stokes Resonance Raman Spectra from Bacteriorhodopsin Containing Isotopically Substituted Retinal Chromophores, J. Popp, A. Popp, L. Ujj, **G.H. Atkinson**, M. Sheves, and M. Ottolenghi, *J. Raman Spectr.* **27** (1996) 87-95.
130. Bathorhodopsin Structure in the Room Temperature Rhodopsin Photosequence: Picosecond Time-Resolved Coherent Anti-Stokes Raman Scattering, A. Popp, L. Ujj, and **G.H. Atkinson**, *Proceedings of the National Acad. Sci. USA* **93** (1996) 372-376.
129. Picosecond Time-Resolved Coherent Anti-Stokes Raman Spectroscopy: Studies in the Room Temperature Bacteriorhodopsin and Rhodopsin Photo-Reactions, **G.H. Atkinson**, L. Ujj, A. Popp, J. Delaney, F. Jäger, and R. Ligon, (Tokyo Symposium 1995) and (Pacific Chem Conf., Hawaii, 1995).
128. Picosecond Time-Resolved Absorption Dynamics in the Artificial Bacteriorhodopsin Pigment 6.9, J.K. Delaney, **G.H. Atkinson**, A. Albeck, M. Sheves, and M. Ottolenghi, *J. Phys. Chem.* **99** (1995) 7801-7805.
127. Vibrational Spectra of Room-Temperature Rhodopsin: Concentration Dependence in Picosecond Resonance Coherent Anti-Stokes Raman Scattering, A. Popp, L. Ujj, and **G.H. Atkinson**, *Biophys. Chem.* **56** (1995) 129-135.
126. Primary Picosecond Molecular Events in Photoreaction of BR5.12 Artificial Bacteriorhodopsin Pigment, J. Delaney, T.L. Brack, **G.H. Atkinson**, M. Ottolenghi, G. Steinberg, and M. Sheves, *Proc. Nat'l Acad. Sci. (USA)* **92** (1995) 2101-2105.

125. Line Intensities in the 647.5 nm Ammonia Band at Low Temperatures Determined by Intracavity Laser Spectroscopy, B. Radak, J.I. Lunine, D. Hunten, and **G.H. Atkinson**, *J. Quant. Spect. Radiat. Trans.* **53 (1995)** 519-526.
124. Picosecond Dynamics of the Batho Intermediate in the Room Temperature Rhodopsin Photosequence, A. Popp, L. Ujj, and **G.H. Atkinson**, *J. Phys. Chem.* **99 (1995)** 10043-10045.
123. Batho-rhodopsin: Picosecond Time-Resolved CARS Spectrum at Room-Temperature, A. Popp, L. Ujj, and **G.H. Atkinson**, *Proceedings XIV Intern. Conf. Raman Spect.* Hong Kong, John Wiley Pub. **(1994)** 141-142.
122. Picosecond Resonance Coherent Anti-Stokes Raman Spectroscopy of Bacteriorhodopsin: Quantitative Third-Order Susceptibility Analysis of the Dark-Adapted Mixture, L. Ujj, A. Popp, and **G.H. Atkinson**, *Chem. Phys.* **188 (1994)** 221-234.
121. The Intensity and Pressure Broadening of the 681.884-nm Methane Absorption Line at Low Temperatures Determined by Intracavity Laser Spectroscopy, B.B. Radak, J.I. Lunine, D.M. Hunten, and **G.H. Atkinson**, *J. Quant. Spect. of Radiat. Trans. (JQSRT)* **52 (1994)** 809-818.
120. Picosecond Time-Resolved Vibrational Spectrum of Batho-Rhodopsin at Room Temperature: Concentration Effect, A. Popp, L. Ujj, and **G.H. Atkinson**, in *Ultrafast Phenomena 7 (1994)* (P.F. Barbara, W.H. Knox, G.A. Mourou, A.H. Zewdic, eds) Springer Verlag, Berlin, 454-455.
119. Picosecond Resonance Coherent Anti-Stokes Raman Scattering in Biophysics: Power Dependence in the Bacteriorhodopsin Photocycle, **G.H. Atkinson**, A. Popp, and L. Ujj, in *Time-Resolved Vibrational Spectroscopy*, Springer-Verlag, Berlin, **(1994)** (A. Lau, et al, eds.), pp. 152-157.
118. Picosecond Resonance Coherent Anti-Stokes Raman Spectroscopy of Bacteriorhodopsin: Spectra and Quantitative Third-Order Susceptibility Analysis of the Light-Adapted BR-570, L. Ujj, B. Volodin, A. Popp, J. Delaney, and **G.H. Atkinson**, *Chem. Phys.* **182 (1994)** 291-311.
117. Picosecond Time-Resolved Resonance Raman Spectrum of the K-intermediates in the Photoreaction of the Artificial Bacteriorhodopsin Pigment BR6.11, J.K. Delaney, T.L. Brack, **G.H. Atkinson**, M. Ottolenghi, A. Albeck, and M. Sheves, *J. Phys. Chem.* **97 (1993)** 12416-12422.
116. Intracavity Laser Spectroscopy in 1.38-1.55 μm Spectral Region Using a Multimode Cr^{4+} :YAG Laser, P.V. Cvijin and D.A. Gilmore, and **G.H. Atkinson**, *Optics Comm.* **103 (1993)** 370-374.
115. Picosecond Time-Resolved Absorbance and Fluorescence Dynamics in the Artificial Bacteriorhodopsin Pigment BR6.11, T.L. Brack, J. Delaney, **G.H. Atkinson**, A. Albeck, M. Sheves, and M. Ottolenghi, *Biophys. J.* **65 (1993)** 964-972.
114. Picosecond Resonance Coherent Anti-Stokes Raman Spectroscopy of Light- and Dark-Adapted Bacteriorhodopsin, L. Ujj and **G.H. Atkinson**, *Israel J. Chem.* **33 (1993)** 207-214.
113. Time-Resolved Absorption and Fluorescence from the Bacteriorhodopsin Photocycle in the Nanosecond Time Regime, J. Delaney, T.L. Brack, and **G.H. Atkinson**, *Biophys. J.* **64 (1993)** 1512-1519.
112. Analysis of Time-Resolved Single Vibronic Level Fluorescence Spectral of Propynal, J. Price, **G.H. Atkinson**, W. Pfeiffer, W.B. Strickland, and M. Schuh, *J. Molec. Spectroscopy* **159 (1993)** 42-61.

111. Determination of Line Intensity and Pressure Broadening of the 619.68 nm Methane Overtone Absorption Line at Low Temperatures Using Intracavity Laser Spectroscopy, P. Cvijin, K. Wells, I. Mendez, J. Delaney, J. Lunine, D. Hunten, and **G.H. Atkinson**, *J. Quant. Spectr. Rad. Trans.* **49** (1993) 639-650.
110. Picosecond Time-Resolved Coherent Raman Scattering from Biophysical Systems, **G.H. Atkinson**, Proceedings of the XIIIth Intern. Conf. on Raman Spectroscopy, Wurzburg, (W. Kiefer, et. al. eds.), (1992), (John Wiley & Sons, Chichester) pp. 192-193.
109. Fringe Pattern Suppression in Intracavity Laser Spectroscopy, P. Vujkovic Cvijin, K. Wells, D.A. Gilmore, J.Wu, W. Hunten, and **G.H. Atkinson**, *Applied Optics* **31** (1992) 5779-5784.
108. Pulsed Laser Photo acoustic Spectroscopy of Gases, P. Vujkovic Cvijin, M. Terzic, D.D. Markusev, A.Dj. Petrojic, J. Jovanovic-Kurepa, and **G.H. Atkinson**, *J. de Physique IV*, **1** (1991) C7-477-480.
107. Intracavity Laser Spectroscopy, **G.H. Atkinson**, Proc. SPIE-Int. Soc. Opt. Eng., **1637** (1992) 126-133.
106. Picosecond Time-Resolved Fluorescence Spectroscopy of 13-demethylretinal Bacteriorhodopsin, T.L. Brack, W. Gartner, and **G.H. Atkinson**, *Chem. Phys. Lett.* **190** (1992) 298-304.
105. Picosecond Time-Resolved Resonance CARS of Bacteriorhodopsin, **G.H. Atkinson** and L. Ujj, Adam. Hilger, IOP Publ., Ltd., England, (A. Laubereau, ed.), (1991), pp. 599-604.
104. Nanosecond Photolytic Interruption of the Bacteriorhodopsin Photocycle: K-590 \rightarrow BR-570 Reaction, V. Bazhenov, P. Schmidt, and **G.H. Atkinson**, *Biophys. J.* **61** (1992) 1630-1637.
103. Picosecond Time-Resolved Vibrational Spectroscopy, **G.H. Atkinson**, in *Time-Resolved Vibrational Spectroscopy*, Springer Verlag, Berlin, (H. Takahashi, ed.), (1991), pp. 36-40.
102. Vibrational Spectroscopy of Excited Electronic States in Carotenoids *in Vivo*: Picosecond Time-Resolved Resonance Raman Scattering, H. Hayashi, T. Noguchi, M. Tasumi, and **G.H. Atkinson** in *Time-Resolved Vibrational Spectroscopy*, Springer Verlag, Berlin, (H. Takahashi, ed.) (1991), pp. 74-75.
101. Molecular Beams of Polyenes: Retinal, and β -Carotene, M. Dey, F. Moritz, **G.H. Atkinson**, J. Grottemeyer, and E. Schlag, *J. Chem. Phys.* **95** (1991), 4584-4588.
100. Spironaphthopyran Photochromism: Picosecond Time-Resolved Spectroscopy, S. Aramaki, and **G.H. Atkinson**, *J. Am. Chem. Soc.* **114** (1992) 438-444.
99. Vibrational Relaxation in Carotenoids *in vivo* and *in vitro*: Picosecond Time-Resolved Anti-Stokes Resonance Raman Spectroscopy, H. Hayashi, T. Brack, T. Noguchi, M. Tasumi, and **G.H. Atkinson**, *J. Phys. Chem.* **95** (1991) 6797-6802.
98. Vibrationally-Excited States in Carotenoids: Picosecond Time-Resolved Anti-Stokes Resonance Raman Spectroscopy, H. Hayashi, M. Tasumi, and **G.H. Atkinson**, *Chem. Phys. Lett.* **178** (1991) 388-392.
97. Picosecond Reaction Dynamics in Photosynthetic and Proton Pumping Systems: Picosecond Time-Resolved Raman Spectroscopy of Electronic and Vibrationally Excited States, **G.H. Atkinson** in *Lasers in Biophysics and Biomedicine* S.A. Akhmanov and N.N. Koroteev eds. SPIE (1990).
96. Vibrational Spectroscopy of Excited Electronic States in Carotenoids *in vivo*: Picosecond Time-Resolved Resonance Raman Scattering, H. Hayashi, T. Noguchi, M. Tasumi, and **G.H. Atkinson**, *Biophys. J.* **60** (1991) 252-260.
95. Picosecond Time-Resolved Spectroscopy of Artificial Bacteriorhodopsin Pigments: Potential Nonlinear Optical Bioelectronics, **G.H. Atkinson**, W. Gartner, M. Ottolenghi, and M. Sheves in *Biological Material for Nonlinear Optics* (1990).

94. Picosecond Resonance Raman Spectroscopy of *Rhodobactersphaeroides* Reaction Centers, **G.H. Atkinson**, H. Hayashi, M. Tasumi, and S. Kolaczowski in *Reaction Centers* (Michele-Bayerle, ed.) Springer-Verlag, Berlin (1990), pp. 141-146.
93. Frequencies of the Franck-Condon Active a_g C=C Stretching Mode in the $2^1A_g^-$ Excited State of Carotenoids, T. Noguchi, H. Hayashi, M. Tasumi, and **G.H. Atkinson**, *Chem. Phys. Lett.* **175** (1990) 163-169.
92. Fluorescence from the Primary Products of the Bacteriorhodopsin Photocycle: Picosecond Time-Resolved Fluorescence Spectroscopy, **G.H. Atkinson**, and T.L. Brack, *J. Luminescence* **48-49** (1991) 410-414.
91. Solvent Effects on the a_g C=C Stretching Mode in the 2^1A_g Excited State of β -Carotene and Two Derivatives: Picosecond Time-Resolved Resonance Raman Spectroscopy, T. Noguchi, H. Hayashi, M. Tasumi, and **G.H. Atkinson**, *J. Phys. Chem.* **95** (1991) 3167-3172.
90. Picosecond Time-Resolved Absorption and Fluorescence in the Bacteriorhodopsin Photocycle: Vibrationally-Excited Species, D. Blanchard, D. Gilmore, T.L. Brack, H. Lemaire, D. Hughes, and **G.H. Atkinson**, *Chem. Phys.* **154** (1991) 155-170.
89. Vibrationally-Excited Retinal in the Bacteriorhodopsin Photocycle: Picosecond Time-Resolved Anti-Stokes Resonance Raman Scattering, T.L. Brack, and **G.H. Atkinson**, *J. Phys. Chem.* **95** (1991) 2352-2356.
88. Spirooxazine Photochromism: Picosecond Time-Resolved Raman and Absorption Spectroscopy, S. Aramaki, and **G.H. Atkinson**, *Chem. Phys. Lett.* **170** (1990) 181-186.
87. Intracavity Absorption Spectroscopy with a Titanium: Sapphire Laser, D.A. Gilmore, P. Vujkovic Cvijin, and **G.H. Atkinson**, *Opt. Comm.* **77** (1990) 385-389.
86. Resonance Raman Spectra of 13-Demethylretinal Bacteriorhodopsin and of a Picosecond Bathochromic Photocycle Intermediate, T. Noguchi, S. Kolaczowski, W. Gartner, and **G. H. Atkinson**, *J. Phys. Chem.* **94** (1990) 4920-4926.
85. Picosecond Time-Resolved Resonance Raman Scattering and Absorbance Changes of Carotenoids in Light Harvesting Systems of the Photosynthetic Bacterium *Chromatium vinosum*, H. Hayashi, S. V. Kolaczowski, T. Noguchi, D. Blanchard, and **G.H. Atkinson**, *J. Am. Chem. Soc.* **112** (1990) 4664-4670.
84. Picosecond Time-Resolved Resonance Raman Spectrum of the K-590 Intermediate in the Room Temperature Bacteriorhodopsin Photocycle, T.L. Brack and **G.H. Atkinson**, *J. Molec. Structure* **214** (1989) 289-303.
83. Resonance Raman Spectrum of the Excited 2^1A_g State of β -carotene, T. Noguchi, S. Kolaczowski, C. Arbour, S. Aramaki, **G.H. Atkinson**, H. Hayashi, and M. Tasumi, *Photochem. Photobiol.* **50** (1989) 603-609.
82. Methane Overtone Absorption by Intracavity Laser Spectroscopy, P. Vujkovic Cvijin, J.J. O'Brien, **G.H. Atkinson**, W.K. Wells, J.I. Lunine, and D.M. Hunten, *Chem. Phys. Lett.* **159** (1989) 331-336.
81. Picosecond Photo dissociation of Dibenzyl Ketone, C. Arbour and **G.H. Atkinson** *Chem. Phys. Lett.* **159** (1989) 520-525.
80. Picosecond Time-Resolved Spectroscopy of the Initial Events in the Bacteriorhodopsin Photocycle, **G.H. Atkinson** in *Photobiology* (E. Riklis, ed.) Plenum Publishers (New York, NY) (1989), pp. 547-559.
79. Time-Resolved Phosphorescence Spectroscopy of Propynal Vapor, **G.H. Atkinson**, S. Speiser, N. Goldstein, J. Price, and G. Rumbles, *J. Molec. Spectros.* **136** (1989) 356-358.
78. Chromatic Properties of Polydiacetylene Films, M. Wenzel and **G.H. Atkinson**, *J. Am. Chem. Soc.* **111** (1989) 6123-6127.

77. *In situ* Detection of BH₂ and Atomic Boron by Intracavity Laser Spectroscopy in the Plasma Dissociation of Gaseous B₂H₆, D.C. Miller, J.J. O'Brien, and **G.H. Atkinson**, *J. Appl. Phys* **65** (1989) 2645-2651.
76. Ultrasensitive Absorption Spectroscopy by Intracavity Laser Techniques, **G.H. Atkinson** and J. O'Brien (Prepr. Pap. Am. Chem. Soc., Div. Fuel Chem.) **34** (1989) 483-488.
75. Picosecond Time-Resolved Resonance Raman Spectroscopy of the Initial *trans* to *cis* Isomerization in the Bacteriorhodopsin Photocycle, **G.H. Atkinson**, T. L. Brack, D. Blanchard, and G. Rumbles, *Chem. Phys.* **131** (1989) 1-15.
74. Picosecond Time-Resolved Fluorescence Spectroscopy of K-590 in the Bacteriorhodopsin Photocycle, **G.H. Atkinson**, D. Blanchard, H. Lemaire, T.L. Brack, and H. Hayashi, *Biophys. J.* **55** (1989) 263-274.
73. Ultraviolet Laser Photo acoustic Spectrometric Determination of Sulfur Dioxide in Mixtures Containing Larger Amounts of Nitrogen Dioxide, D.A. Gilmore, N. Oliphant, M. Boutonnat, and **G.H. Atkinson**, *Analy. Chimica Acta* **218** (1989) 101-110.
72. Detection of SiH₂ Radical by Intracavity Laser Spectroscopy, J.J. O'Brien, D. Miller, **G.H. Atkinson**, and E. Wojtynska, *ANALUSIS* **16** (1988) 34-40.
71. Role of Silylene in the Pyrolysis of Silane and Organosilanes, J.J. O'Brien, and **G.H. Atkinson**, *J. Phys. Chem.* **92** (1988) 5782-5787.
70. Photoacoustic Detection of Formaldehyde as a Minority Component in Gas Mixtures, M. Boutonnat, D.A. Gilmore, K.A. Keilbach, N. Oliphant, and **G.H. Atkinson**, *Appl. Spectros.* **42** (1988) 1520-1524.
68. Intracavity Laser Spectroscopy of Reactive Intermediates in the CVD Containing Films, J.J. O'Brien, D.C. Miller, and **G.H. Atkinson** in *Lasers in Materials Diagnostics* (1987) Vol. **172**, pp. 42-45.
68. Determination of Gaseous Formic Acid and Acetic Acid by Pulsed Ultraviolet Photo acoustic Spectroscopy, P. Vujkovic Cvijin, D. Gilmore, and **G.H. Atkinson**, *Appl. Spectros.* **42** (1988) 770-774.
67. *Time-Resolved Vibrational Spectroscopy* (**G.H. Atkinson**, ed.) Gordon and Breach (New York, NY) (1987), pp. 1-197.
66. Intracavity Laser Spectroscopy: Propagation of Absorption Data Through Optical Fibers, J.J. O'Brien, W. Torruellas, and **G.H. Atkinson**, *Appl. Optics* **26** (1987) 4563-4569.
65. Electronic Raman Scattering from Terbium Gallium Garnet Excited with a Picosecond Laser, J.A. Koningstein, H. Lemaire, and **G.H. Atkinson**, *Chem. Phys. Lett.* **140** (1987) 154-156.
64. Picosecond Intermediates in the Bacteriorhodopsin Photocycle, **G.H. Atkinson**, in *Primary Processes in Photobiology* (T. Kobayashi, ed.) Springer Verlag, Berlin (1987), pp. 213-222.
63. Intracavity Laser Spectroscopy: Chemical Vapor Deposition and Supersonic Jet Expansions, J.J. O'Brien, N. Goldstein, and **G.H. Atkinson** in *Laser Applications to Chemical Dynamics* (M.A. El Sayed, ed.) SPIE (1987), pp. 87-95.
62. Picosecond Time-Resolved Resonance Raman Scattering from Bacteriorhodopsin Intermediates, **G.H. Atkinson**, T.L. Brack, I. Grieger, G., Rumbles, D. Blanchard, and L. Siemankowski in *Time Resolved Vibrational Spectroscopy* (**G.H. Atkinson**, ed.) Gordon and Breach, New York, N.Y. (1987), pp. 55-82.
61. *Time-Resolved Raman Spectroscopy*, in *Advances in Laser Spectroscopy*, Vol. 1, Chapter 8, Heyden and Son, Inc. (1982), pp. 155-175.

60. Determination of Sulfur Dioxide by Pulsed Ultraviolet Laser Photo acoustic Spectroscopy, P. Vujkovic Cvijin, D.A. Gilmore, M.A. Leugers, and **G.H. Atkinson**, *Anal. Chem.* **59** (1987) 300-304.
59. Time-Resolved Resonance Raman Spectroscopy of Intermediates in the Bacteriorhodopsin Photocycle: Direct Photoconversion of Br₅₇₀ to M and M', I. Grieger and G. H. Atkinson in *Time-Resolved Raman Spectroscopy* (D. Phillips and **G.H. Atkinson**, eds.) Harwood Academic Pub., New York, New York (1987), pp. 143-158.
58. Time-Resolved Resonance Raman Spectroscopy of Sulfonated Anthraquinone Derivatives, J.N. Moore, D. Phillips, R.E. Hester, **G.H. Atkinson**, and P.M. Killough in *Time-Resolved Raman Spectroscopy* (D. Phillips and **G.H. Atkinson**, eds.), Harwood Academic Pub., New York, NY (1987), pp. 75-97.
57. Picosecond Conformational Intermediates in the Bacteriorhodopsin Photocycle, **G.H. Atkinson**, T.L. Brack, D. Blanchard, G. Rumbles, and L. Siemankowski in *Ultrafast Phenomena V* (G.R. Fleming and A.E. Siegman, eds.) Springer Verlag (1987) Vol. 46, pp. 409-412.
56. Detection of SiH₂ Radical by Intracavity Laser Absorption Spectroscopy, J.J. O'Brien, and **G.H. Atkinson**, *Chem. Phys. Lett.* **130** (1986) 321-329.
55. Quantitative Absorption Spectroscopy of Dissociation Dynamics of I₂ van der Waals Complexes with He, Ar, Kr, and Xe, N. Goldstein, T. Brack, and **G.H. Atkinson**, *J. Chem. Phys.* **85** (1986) 2684-2691.
54. Time-resolved Intracavity Laser Spectroscopy of Formyl Radical Photoproduct of Acetaldehyde, N. Goldstein, and **G.H. Atkinson** in *NBS Spec. Publ.* (U.S.), **716** (1986) 281-300.
53. Picosecond Time-Resolved Resonance Raman Spectroscopy of Bacteriorhodopsin Intermediates, **G.H. Atkinson**, T.L. Brack, I. Grieger, G. Rumbles, D. Blanchard, and L. Siemankowski in *Laser Applications in Chemistry Biophysics* (M.A. El Sayed, ed.) SPIE 620 (1986), pp. 82-88.
52. High Sensitivity, Time-Resolved Absorption Spectroscopy by Intracavity Laser Techniques, **G.H. Atkinson** in *Advances in Chemical Reaction Dynamics* (P. Rentzepis and C. Capellos, eds.), (1986), pp. 207-228.
51. Molecular Dynamics of Liquid Phase Reactions by Time-Resolved Resonance Raman Spectroscopy, **G.H. Atkinson** in *Advances in Chemical Reaction Dynamics* (P. Rentzepis and C. Capellos, eds.) **104** (1986), pp. 179-205.
50. Formation of Vibrationally-Excited HCO in the Photo dissociation of Acetaldehyde at 266 nm, N. Goldstein, and **G.H. Atkinson**, *Chem. Phys.* **105** (1986) 267-279.
49. Dynamics of Triplet State Formation and Decay of Gaseous Propynal, I. Oref, S. Speiser, and **G.H. Atkinson**, *J. Phys. Chem.* **90** (1986) 912-916.
48. Picosecond Time-Resolved Resonance Raman Spectroscopy of Bacteriorhodopsin Intermediates, **G.H. Atkinson**, I. Grieger, and G. Rumbles in *Time Resolved Vibrational Spectroscopy* (M. Stockburger and A. Laubereau, eds.) Springer-Verlag, (1985), Vol. 4, pp. 255-258.
47. Photolytic Interruptions of the Bacteriorhodopsin Photocycle Examined by Time-Resolved Resonance Raman Spectroscopy, I. Grieger, and **G.H. Atkinson**, *Biochemistry* **24** (1985) 5660-5665.
46. Time Evolution of a Broadband Quasi-c.w. Dye Laser: Limitations of Sensitivity in Intracavity Laser Spectroscopy, F. Stoeckel, and **G.H. Atkinson**, *Applied Optics* **24** (1985) 3591-3597.

45. Quantitative Absorption Spectroscopy of NO₂ in a Supersonically Cooled Jet by Intracavity Laser Techniques, N. Goldstein, T. Brack, and **G.H. Atkinson**, *Chem. Phys. Lett.* **116 (1985)** 223-230.
44. Time-Resolved Intracavity Laser Spectroscopy: 266 nm Photo dissociation of Acetaldehyde Vapor to Form HCO, F. Stoeckel, M.D. Schuh, N. Goldstein, and G. H. Atkinson, *Chem. Phys.* **95 (1985)** 135-144.
43. Time-Resolved Resonance Raman Spectroscopy of the Radical Anion of Disodium Anthraquinone-2,6-Disulphonate, J.N. Moore, **G.H. Atkinson**, D. Phillips, P.M. Killough, and R.E. Hester, *Chem. Phys. Lett.* **107 (1984)** 381-384.
42. Time-Resolved Phosphorescence Spectra of Acetaldehyde and Perdeuteroacetaldehyde Vapor, M.D. Schuh, S. Speiser, and **G.H. Atkinson**, *J. Phys. Chem.* **88 (1984)** 2224-2228.
41. Quantitative Determination of Acetaldehyde by Pulsed Laser Photo acoustic Spectroscopy, M.A. Leugers, and **G.H. Atkinson**, *Anal. Chem.* **56 (1984)** 925-929.
40. *Time-Resolved Vibrational Spectroscopy* (**G.H. Atkinson**, ed.), Academic Press (**1983**).
39. Time-Resolved Resonance Raman Spectroscopy of Excited Triplet State All-Trans-Retinal: Excitation Profiles, Intersystem Crossing Kinetics, and O₂ Quenching, **G.H. Atkinson**, and J.B. Pallix, *Laser Chem.* **3 (1983)** 321-332.
38. Electron Transfer Reactions in Stilbene Isomers, H. Shindo, and **G.H. Atkinson** in *Time-Resolved Vibrational Spectroscopy*, (**G.H. Atkinson**, ed.) Academic Press (**1983**), pp. 191-194.
37. Ortho-Fluorophenyl Radical: Analysis of the n-π* Vibronic Spectrum and the Formation Kinetics in Ortho-Fluorobromobenzene Photo lysis, M.A. Leugers, R.J. Gill, and **G.H. Atkinson**, *Chem. Phys. Lett.* **94 (1983)** 393-397.
36. Influence of Excitation Wavelength on the Time-Resolved Resonance Raman Spectroscopy of Deoxy Heme Proteins, M.J. Irwin, and **G.H. Atkinson** in *Time-Resolved Vibrational Spectroscopy*, (**G.H. Atkinson**, ed.) Academic Press (**1983**), pp. 287-296.
35. Time-Resolved Resonance Raman Spectroscopy of the Excited ³B₂ Phenanthrene, D.A. Gilmore and **G.H. Atkinson** in *Time-Resolved Vibrational Spectroscopy* (**G.H. Atkinson**, ed.) Academic Press (**1983**), pp. 161-166.
34. *Time-Resolved Vibrational Spectroscopy*, National Science Foundation Workshop Report (**G.H. Atkinson**, ed.) (**1982**), pp. 1-36.
33. Time-Resolved Raman Spectroscopy, **G.H. Atkinson** in *Advances in Infrared and Raman Spectroscopy*, Chapter 1 (R.J.H. Clark and R.E. Hester, eds.) North-Holland Publishers, London (**1982**) Vol. IX, pp. 1-62.
32. Nonexponential Fluorescence Decay in Gas Phase Acetaldehyde, Shammai Speiser, W.F. Pfeiffer, and **G.H. Atkinson**, *Chem. Phys. Lett.* **93 (1982)** 480-484.
31. Determination of Nitrogen Dioxide by Visible Photo acoustic Spectroscopy, O. Poizat and **G.H. Atkinson**, *Anal. Chem.* **54 (1982)** 1485-1489.
30. Time-Resolved Raman Spectroscopy, **G.H. Atkinson** in *Advances in Laser Spectroscopy*, Vol. I. Chapter 8 (B.A. Garetz and J.R. Lombardi, eds.), Heyden and Sons, Inc. (**1982**), pp. 155-175.
29. Kinetic Analysis of Time-Resolved Resonance Raman Spectra: Time-Dependent Population of Electronically Excited ³B_u Chrysenes, **G.H. Atkinson**, D.A. Gilmore, L.R. Dosser, and J.B. Pallix, *J. Phys. Chem.* **86 (1982)** 2305-2310.
28. Time-Resolved Raman Spectroscopy, **G.H. Atkinson**, *J. Photochem.* **17 (1981)** 164-168.

27. Low Frequency Resonance Raman Spectroscopy of the Deoxyhemoglobin Transient of Photolysed Carboxyhaemoglobin, M.J. Irwin and **G.H. Atkinson**, *Nature* **293** (1981) 317-318.
26. Resonance Raman Spectra of Excited Triplet State *all-trans*-Retinal, **G.H. Atkinson**, J.B. Pallix, T.B. Freedman, D.A. Gilmore, and R. Wilbrandt, *Am. Chem. Soc.* **103** (1981) 5069.
25. The Formation and Decay Mechanisms of HCO in the Photo dissociation of Gas Phase Acetaldehyde, R.J. Gill, W.D. Johnson, and **G.H. Atkinson**, *Chem. Phys.* **58** (1981) 29-44.
24. Time-Resolved Raman Spectroscopy, **G.H. Atkinson** in *Raman Spectroscopy* (W.F. Murphy, ed.), North-Holland (1980), pp. 182-184.
23. Vibrational Raman Scattering from Excited Triplet State Chrysene by Time-Resolved Resonance Raman Spectroscopy, **G.H. Atkinson** and L.R. Dosser, *J. Chem. Phys.* **72** (1980) 2195-2197.
22. Wavelength Dependence of HCO Formation in the Photo lysis of Acetaldehyde, R.J. Gill and **G.H. Atkinson**, *Chem. Phys. Lett.* **64** (1979) 426-430.
21. Vibronic Analysis of TRSVL Fluorescence Spectra of Glyoxal: Activity in ν_6 , **G.H. Atkinson**, R.A. Malstrom, and M.E. McIlwain, *J. Mol. Spectros.* **76** (1979) 182-190.
20. Vibronic Analysis of TRSVL Fluorescence Spectra from Glyoxal: General Activity, **G.H. Atkinson**, R.A. Malstrom, and M.E. McIlwain, *J. Mol. Spectros.* **76** (1979) 164-181.
19. Time-Resolved Resonance Raman Spectroscopy: Structural Identification of an Intermediate in the Photo lysis of Trans-Stilbene Dianions, L.R. Dosser, J.B. Pallix, **G.H. Atkinson**, H.C. Wang, G. Levin, and M. Szwarc, *Chem. Phys. Lett.* **62** (1979) 555-561.
18. Mode-to-Mode Vibrational Energy Flow in S_1 Benzene II. V-V Resonant Energy Transfer, Microscopic Reversibility and the Role of Level Degeneracies, **G.H. Atkinson**, C.S. Parmenter, and K.Y. Tang, *J. Chem. Phys.* **71** (1979) 68-72.
17. The Vibronic Dependence of Glyoxal Photo dissociation, **G.H. Atkinson** and C.G. Venkatesh in *National Bureau of Standards Special Publication* (U.S.), **526** (1978) 311-313.
16. Resonance Raman Spectra of Cytochrome c and Oxyhemoglobin Using Pulsed Laser Excitation Optical Multichannel Detection, R. Srivastava, M.W. Schuyler, L.R. Dosser, F. Purcell, and **G.H. Atkinson**, *Chem. Phys. Lett.* **56** (1978) 595-601.
15. The 260 nm Absorption Spectrum of Benzene III: Vibronic Analysis, **G.H. Atkinson** and C.S. Parmenter, *J. Mol. Spectros.* **73** (1978) 52-95.
14. The 260 nm Absorption Spectrum of Benzene II: Selection Rules and Band Contours of Vibrational Angular Momentum Components, **G.H. Atkinson** and C.S. Parmenter, *J. Mol. Spectros.* **73** (1978) 31-51.
13. The 260 nm Absorption Spectrum of Benzene I: Remeasured Band Positions and Refined Assignments, **G.H. Atkinson** and C.S. Parmenter, *J. Mol. Spectros.* **73** (1978) 20-30.
12. Laser Bandwidth and Wavelength Stability Measurements Using Self-Scanning Linear Diode Arrays, T.H. Shake, M.E. McIlwain, and **G.H. Atkinson**, *Appl. Spectros.* **32** (1978) 507-508.
11. Absolute Quantum Yields of CO for Selected State Photo dissociation, **G.H. Atkinson**, M.E. McIlwain, C.G. Venkatesh, and D.M. Chapman, *J. Photochem.* **8** (1978) 307-319.
10. Selected-State Photo dissociation of Glyoxal: Vibronic Effects in the Quantum Yields of CO, **G.H. Atkinson**, M.E. McIlwain, and C.G. Venkatesh, *J. Chem. Phys.* **68** (1978) 726-734.

9. Quantitative Intracavity Laser Detection of NO₂ by Optical Multichannel Analysis, **G.H. Atkinson**, T. Heimlich and M.W. Schuyler, *J. Chem. Phys.* **66 (1977)** 5005-5012.
8. Vidicon Detection of Resonance Raman Spectra: Cytochrome c, W.H. Woodruff and **G.H. Atkinson**, *Anal. Chem.* **48 (1976)** 186-189.
7. Time-Resolved Single Vibronic Level Fluorescence Spectroscopy: Glyoxal, E. Photos and **G.H. Atkinson**, *Chem. Phys. Lett.* **36 (1975)** 34-40.
6. A Simple, Fast-Pulsed Laser System Tunable in the Ultraviolet, **G.H. Atkinson** and M.W. Schuyler, *Appl. Phys. Lett.* **27 (1975)** 285-287.
5. Dye Laser-Induced Photo detachment of Electrons from SH⁻ Studied by Ion Cyclotron Resonance Spectroscopy, J.R. Eyler and **G.H. Atkinson**, *Chem. Phys. Lett.* **28 (1974)** 217-220.
4. Single Vibronic Level Fluorescence, **G.H. Atkinson**, C.S. Parmenter, and M.W. Schuyler in *Creation and Detection of the Excited State* (W. Ware, ed.) **(1974)**, Vol. II, pp. 71-126.
3. Detection of Free Radicals by an Intracavity Dye Laser Technique, **G.H. Atkinson**, A.H. Laufer, and M.J. Kurylo, *J. Chem. Phys.* **59 (1973)** 350-354.
2. Single Vibronic Level Fluorescence IV. Its Application to the Analysis of Resonance Fluorescence from Benzene Excited by the 2536 Å Mercury Line, **G.H. Atkinson**, C.S. Parmenter, and M.W. Schuyler, *J. Phys. Chem.* **75 (1971)** 1572-1584.
1. The Absorption Spectrum of Benzene Vapor near 2537 Å, **G.H. Atkinson** and C.S. Parmenter, *J. Phys. Chem.* **75 (1971)** 1564-1572.

George H. Atkinson's *curriculum vitae* is available at:

http://www.chem.arizona.edu/faculty/profile/profile.php?fid_call=atki