

Joseph Chaiken
Complete List of Publications

1. "Quantum Beats in Single Rovibronic State Fluorescence of Biacetyl", J. Chaiken, T. Benson, M. Gurnick, J. D. McDonald, *Chem. Phys. Lett.* **71**, pp. 195-198 (1979).
2. "Vibrational and Rotational Spectroscopy of the First Electronically Allowed Transition of the α -Dicarbonyls", M. Gurnick, J. Chaiken, T. Benson, J. D. McDonald, *J. Chem. Phys.* **74**, pp. 99-105 (1981).
3. "Average Singlet-Triplet Coupling Properties of Biacetyl and Methylglyoxal Using Quantum Beat Spectroscopy", J. Chaiken, M. Gurnick, J. D. McDonald, *J. Chem Phys.* **74**, pp. 106-116 (1981).
4. "Statistical Analysis of Polyatomic Quantum Beats Using the Properties of Random Matrices", J. Chaiken, M. Gurnick, J. D. McDonald, *J. Chem Phys.* **74**, pp. 117-122 (1981).
5. "Vibrational Relaxation and the Statistics of Triplet States and Matrix Elements in Methylglyoxal", M. Gurnick, J. Chaiken, J. D. McDonald, *J. Chem Phys.* **74**, pp. 123-6 (1981).
6. "Fluorescence Excitation and Quantum Beat Spectroscopy of Perdeuteromethylglyoxal", J. Chaiken, J. D. McDonald, *J. Chem Phys.* **77**, pp. 663 (1982).
7. "Quantum Beat Spectroscopy," J. Chaiken, J. D. McDonald, in "Advances in Laser Spectroscopy", *Vol. 1* pp. 177-195 (Ed. B. Garetz and J. Lombard) (Heyden, New York, 1982)
8. "The Competition Between Optical Pumping and Intramolecular Vibrational Relaxation in Organometallics: A New Chromium Rydberg Series", J. Hossenlopp, D. Rooney, B. Samoriski, G. Bowen, J. Chaiken, *Chem. Phys. Lett.* **116**, pp. 380-386 (1985).
9. "Intramolecular Vibrational Relaxation in n-Alkyl Benzene Chromium Tricarbonyls: State Selective Production of Chromium Atoms", J. Hossenlopp, B. Samoriski, D. Rooney, J. Chaiken, *J. Chem Phys.* **85**, pp. 3331-37 (1986).
10. "The Effect of Deuteration on the Multiphoton Dissociation of Benzene Chromium Tricarbonyl", Brian Samoriski, Jeanne M. Hossenlopp, Dan Rooney, J. Chaiken, *J. Chem Phys.* **85**, pp. 3326-3330 (1986).
11. "Collisional Effects in Organometallic MPD/MPI Experiments: The Modeling of Townsend Discharges", Jeanne M. Hossenlopp, J. Chaiken, *J. Phys. Chem.* **91**, pp. 2825-2831, (1987)
12. "Gas Phase Electronic Spectroscopy of Arene Chromium Tricarbonyls: Substituent Effects in Multiphoton Dissociation/Ionization Spectra", D. Driscoll, Dan Rooney, J. Chaiken, *Inorganic Chemistry*, **26**, pp. 3939-3945 (1987).

13. "Multiphoton Dissociation/Ionization of Organometallics: The Effect of Intramolecular Vibrational Relaxation", J. Chaiken, J. M. Hossenlopp, B. Samoriski, D. Rooney, in "Laser Applications to Chemical Dynamics," *Proc. SPIE Vol. 742*, pp.102-109 (Ed. M. A. El-Sayed)
14. "Structure Dependent Competition Between Multiphoton Absorption and Intramolecular Energy Redistribution in Organomolybdenum Compounds: State Selective Production of Molybdenum Atoms", B. Samoriski, J. Chaiken, *J. Chem Phys.* **90**, pp. 4079-4090 (1989).
15. "Observation and Assignment of $7D$, $7P^0$ and $7S$ Rydberg Series of Molybdenum Atoms by Multiphoton Dissociation/Ionization Spectroscopy of Organometallic Molecules", Brian Samoriski and J. Chaiken, *Phys. Rev. A*, **38**, pp. 3498-3503 (1988).
16. "Characterization of Vitreous Carbon Having Ultra Low Friction and Wear", R.W. Vook, H. Brumberger, J. Chaiken, C.W. Park, R. Burton, Proceedings International Conference on Electrical Contacts and Electromechanical Components, Beijing (1989).
17. "Use of Laser Directed Chemical Vapor Deposition to Fabricate Durable, Optically Transparent, Platinum Thin Film Electrodes", Dan Rooney, D. Negrotti, T. Byasee, D. Macero and J. Chaiken, *J. Electrochem. Soc.* **137**, pp. 1162-1166 (1990).
18. "Observation of Collisional Ionization of Chromium Atoms in High Rydberg States and the N^4 Scaling Relation", Dan Rooney, J. Chaiken, *J. Chem. Phys.* **93**, pp. 466-478 (1990).
19. "Intracavity Laser Absorption Spectroscopic Investigation of Barium Desorption From Dispenser Cathodes", E. Daniszewski, J. McCalmont, A. Chrostowski, J. Chaiken *J. Appl. Phys.*, **70**, pp. 2812-2815 (1991).
20. "Metal Vapor Gain Media Based on Multiphoton Dissociation/Ionization of Organometallics", Brian Samoriski, S. Wiedeger, M. Villarica, J. Chaiken, *Gas and Metal Vapor Lasers and Applications*, Proc. SPIE Vol. **1412**, pp. 12-18 (1991), Editors, Jin J. Kim, Frank K. Tittel.
21. "Laser Chemistry of Organometallics as a General Synthetic Route to Metal Cluster Compounds", J. Chaiken, M.J. Casey, M. Villarica, *J. Phys. Chem.* **96**, pp. 3183-3186 (1992).
22. "VUV Emission Detection of Organometallic Multiphoton Ionization and Discharge Processes in Bulk Gases", J.M. Hossenlopp, Karen A. Storne, J. Chaiken, *J. Phys. Chem.*, **96**, pp. 2994-3000 (1992).
23. "Ultrafast Optical Switch Evaluation Facility", Joseph M. Osman, Joseph Chaiken and Brian DeVaul, *Ultrahigh- and High-Speed Photography, Videography, and Photonics '92*, SPIE, **1757**, pp. 74-81 (1992).
24. "Laser Chemistry of Organometallics", Vol. **530**, ACS Symposium Series, (American Chemical Society, Washington, 1993) J. Chaiken, Editor.

25. "Application of Fractals and Kinetic Equations to Cluster Growth", M. Villarica, M.J. Casey, J. Goodisman, J. Chaiken, *J. Chem. Phys.* **98**, pp. 4610-4625 (1993).
26. "Laser Chemistry of Organometallics: Conceptual Framework and Overview", J. Chaiken, ACS Symposium Series, **530**, pp. 1-24 (1993).
27. "Laser Chemical Synthesis of Cluster and Ultrafine Particles using Organometallics", J. Chaiken, *Applied Organometallic Chemistry*, **7**, pp. 163-172 (1993).
28. "Fabrication and Evaluation of Nonlinear Interface Optical Switches", J. Osman, M. Villarica, J. Chaiken, *Nonlinear Optics III Proc. SPIE*, **1626**, pp. 217-225 (1992).
29. "Application of Fractals and Kinetic Equations to Cluster Growth", *J. Photochem. Photobio. A.*, Jerry Goodisman and J. Chaiken, **80**, pp. 53-59 (1994).
30. "Laser Chemistry of Organometallics", *Chemistry in Industry*, J. Chaiken, 4 Oct. 1993, pp.751-757.
31. "Application of Fractals and Kinetic Equations in Modeling Cluster and Ultrafine Particle Size Distributions", J. Chaiken, Jerry Goodisman, *Mat. Res. Soc. Proc.* **351**, pp. 355-359 (1994).
32. "Application of Fractals and Kinetic Equations in Modeling Cluster and Ultrafine Particle Size Distributions", J. Chaiken, Jerry Goodisman, *J. Nanostructured Mat.*, **5**, (1995).
33. "Use of Fractals and Kinetic Equations to Model Thermally Induced Hillock Formation and Growth in Thin Metal Films", J. Chaiken and Jerry Goodisman, *Thin Solid Films*, **260**, pp. 243-251 (1995).
34. "Interpreting Magic Number and Evaporation Effects in Cluster Size Distributions", J. Chaiken and Jerry Goodisman, *J. Cluster Sci.*, **6**, pp. 319-342 (1995).
35. "AFM/SEM Study of Thermally Induced Hillock Coalescence", J. Chaiken, J. Goodisman, R.M. Villarica, J.V. Beasock, L.H. Walsh, *Proc. Mat. Res. Soc.*, **356**, pp. 489-494 (1995).
36. "Translational Energy Release Following Multiphoton Dissociation of Organometallics", R.M. Villarica, B. Samoriski, J. Chaiken, and S.E. Novick, *Appl. Surf. Sci.*, **106**, pp. 99-107 (1996).
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39. "Translational Energy Release Following Multiphoton Dissociation of Organometallics", R.M. Villarica, B. Samoriski, J. Chaiken, and S.E. Novick, *Appl. Surf. Sci.*, **106**, pp. 99-107 (1996).

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41. "Material for Optical Memory", J. Chaiken, R. Bussjager, J. Osman, *Nonlinear Optics IV Proc. SPIE*, **3075**, pp. 34-46 (1997).
42. "Photo Redox Laser Chemistry of Transition Metal Oxides", J.M. Osman, R.J. Bussjager, F. Nash, J. Chaiken, R.M. Villarica, *Appl. Phys.*, **A. 66**, pp. 223-238 (1998).
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45. "A Nonlinear Interface Optical Switch Structure for Dual-Mode Switching Revisited", R. Bussjager, J. Osman, J. Chaiken, *Proc. SPIE*, **3384**, 137-147 (1998).
46. "Using Tungsten Oxide Based Thin Films for Optical Memory and the Effects of Using IR combined with Blue/Blue-Green Wavelengths", R. Bussjager, J. Chaiken, M. Getbehead, D. Grucza, Capt. D. Hinkel, T. McEwen, J. Osman, E. Voss, *Jpn. J. Appl. Phys.*, **Vol. 39**, 789-796 (2000).
47. "Noninvasive, in-vivo, near infrared vibrational spectroscopic study of lipid and aqueous phases of skin and near surface tissues", J. Chaiken, W.F. Finney, K. Peterson, C. Peterson, P.E. Knudson, R.S. Weinstock, P. Lein, *Proc. SPIE*, **Vol. 3907**, 89-97 (2000).
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50. "Progress in the noninvasive, in-vivo, tissue modulated Raman spectroscopy of human blood", J. Chaiken, W.F. Finney, Xiaoke Yang, K. Peterson, C. Peterson, P.E. Knudson, R.S. Weinstock, Douglas Hagrman, *Proc. SPIE*, **Vol. 4254**, 216-227 (2001).
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54. "The effect of hemoglobin concentration variation on the accuracy and precision of glucose analysis using tissue modulated, noninvasive, in vivo Raman spectroscopy of human blood: a small clinical study", J. Chaiken, W. F. Finney, P. E. Knudson, R. S. Weinstock, M. Khan, R. J. Bussjager, D. Hagrman, P.Hagrman, Y. Zhao, C. M. Peterson, K. P. Peterson, *J. Biomed. Opt.*, **Vol. 10(3)**, 31111 (2005).
55. "Application of Scaling and Kinetic Equations to Helium Cluster Size Distributions: Homogeneous Nucleation of a Nearly Ideal Gas", J. Chaiken, J. Chaiken*, J. Goodisman, Anton Kalinine, Oleg Kornilov and J. P. Toennies, *J. Chem. Phys.* Manuscript in preparation.
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