


## John Brauman

J.G. Jackson and C.J. Wood Professor of Chemistry, Emeritus

 Curriculum Vitae available Online

### Bio

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#### BIO

John Brauman's research has advanced the understanding of the factors that determine the rates and products of chemical reactions. His primary areas of effort have involved the spectroscopy, photochemistry, reaction dynamics, and reaction mechanisms of gas-phase ions.

John I. Brauman was born in Pittsburgh, PA in 1937. He attended the Massachusetts Institute of Technology (S.B. 1959) and the University of California at Berkeley (Ph.D. 1963). Following a National Science Foundation Postdoctoral Fellowship at the University of California, Los Angeles, he accepted a position at Stanford University where he is now J. G. Jackson - C. J. Wood Professor of Chemistry Emeritus, and serves as Associate Dean of Research. He was previously Department Chair and Associate Dean for Natural Sciences.

Brauman's work has been recognized in the National Medal of Science, National Academy of Sciences Award in Chemical Sciences, Linus Pauling Medal, Dean's Award for Distinguished Teaching from Stanford University, among many other honors. He is a member of the National Academy of Sciences, American Academy of Arts and Sciences, American Philosophical Society, a Fellow of the American Association for the Advancement of Science, Fellow of the American Chemical Society, and Honorary Fellow of the California Academy of Sciences. He received the 2017 ACS Parsons Award in recognition of his service to public science communication and policy, which includes roles as Deputy Editor for Physical Sciences and Editorial Board Chair for Science magazine, and Home Secretary of the National Academy of Sciences.

Research in the Brauman Group centered on structure and reactivity. Brauman has studied ionic reactions in the gas phase, including acid-base chemistry, the mechanisms of proton transfers, nucleophilic displacement, and addition-elimination reactions. His work has explored the shape of the potential surfaces and the dynamics of reactions on these surfaces. He has made contributions to the field of electron photodetachment spectroscopy of negative ions, measurements of electron affinities, the study of dipole-supported electronic states, and multiple photon infrared activation of ions. He has also studied mechanisms of solution and gas phase organic reactions as well as organometallic reactions and the behavior of biomimetic organometallic species.

#### ACADEMIC APPOINTMENTS

- Emeritus Faculty, Acad Council, Chemistry

#### ADMINISTRATIVE APPOINTMENTS

- Associate Dean of Research, Dean of Research, Stanford University, (2005- present)
- Associate Dean for Natural Sciences, Humanities and Sciences, Stanford University, (1999-2003)
- Chair, Stanford University Department of Chemistry, (1995-1996)

- Chair, Stanford University Department of Chemistry, (1979-1983)

## HONORS AND AWARDS

- National Medal of Science, President of the United States (2002)
- Award in Chemical Sciences, National Academy of Sciences (2001)
- Charles Lathrop Parsons Award, American Chemical Society (2017)
- Willard Gibbs Medal, Chicago Section of the American Chemical Society (2003)
- Linus Pauling Award, Puget Sound, Oregon and Portland Sections of the American Chemical Society (2002)
- James Flack Norris Award in Physical Organic Chemistry, American Chemical Society (1986)
- Award in Pure Chemistry, American Chemical Society (1973)
- Member, National Academy of Sciences (1976)
- Member, American Philosophical Society (2004)
- Fellow, American Chemical Society (2011)
- D. Sc. Honoris Causa., The Scripps Research Institute (2009)
- Honorary Fellow, California Academy of Sciences (1991)
- Arthur C. Cope Scholar Award, American Chemical Society (1986)
- R.C. Fuson Award, University of Nevada, Reno (1986)
- Fellow, American Association for the Advancement of Science (1980)
- Guggenheim Fellow, John Simon Guggenheim Memorial Foundation (1978)
- Dean's Award for Distinguished Teaching, Stanford University (1976)
- Harrison Howe Award, Rochester Section of the American Chemical Society (1976)
- Member, American Academy of Arts and Sciences (1976)

## BOARDS, ADVISORY COMMITTEES, PROFESSIONAL ORGANIZATIONS

- Camille and Henry Dreyfus Foundation, Board of Directors (2006 - present)
- Committee of Selection, John Simon Guggenheim Memorial Foundation (2004 - 2014)
- Home Secretary, National Academy of Sciences (2003 - 2011)
- Chair, Senior Editorial Board, AAAS Science (2001 - 2011)
- Annual Reviews, Board of Directors (2000 - present)
- Board of Trustees, Gordon Research Conferences (1991 - 1995)
- Member of Council, Gordon Research Conferences (1989 - 1995)
- Deputy Editor for Physical Sciences, AAAS Science (1985 - 2000)

## PROFESSIONAL EDUCATION

- SB, Massachusetts Institute of Technology , Chemistry (1959)
- PhD, University of California at Berkeley , Chemistry (1963)
- NSF Postdoctoral Fellow, University of California at Los Angeles , Chemistry (1963)

## Publications

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### PUBLICATIONS

- **Geometry Dependence of the Ring-Opening E2 Reaction in Lactones** *JOURNAL OF PHYSICAL CHEMISTRY A*

- 
- Chen, X., Walthall, D. A., Brauman, J. I.  
2010; 114 (3): 1392-1397
- **Steric and Solvation Effects in Ionic S(N)2 Reactions** *JOURNAL OF THE AMERICAN CHEMICAL SOCIETY*  
Chen, X., Regan, C. K., Craig, S. L., Krenske, E. H., Houk, K. N., Jorgensen, W. L., Brauman, J. I.  
2009; 131 (44): 16162-16170
  - **Hydrogen Bonding Lowers Intrinsic Nucleophilicity of Solvated Nucleophiles** *JOURNAL OF THE AMERICAN CHEMICAL SOCIETY*  
Chen, X., Brauman, J. I.  
2008; 130 (45): 15038-15046
  - **Chemistry - Not so simple** *SCIENCE*  
Brauman, J. I.  
2008; 319 (5860): 168-168
  - **Vinyl hydrogen acidities of two stereoisomers** *JOURNAL OF PHYSICAL CHEMISTRY A*  
Walthall, D. A., Brauman, J. I.  
2007; 111 (7): 1362-1367
  - **Kinetics of (porphyrin)manganese(III)-catalyzed olefin epoxidation with a soluble iodosylbenzene derivative** *EUROPEAN JOURNAL OF ORGANIC CHEMISTRY*  
Collman, J. P., Zeng, L., Wang, H. J., Lei, A., Brauman, J. I.  
2006; 2707-2714
  - **Enolate structure and electron affinity** *JOURNAL OF PHYSICAL CHEMISTRY A*  
Walthall, D. A., Karty, J. M., Romer, B., Ursini, O., Brauman, J. I.  
2005; 109 (39): 8785-8793
  - **Molecular rotations and dipole-bound state lifetimes** *JOURNAL OF PHYSICAL CHEMISTRY A*  
Walthall, D. A., Karty, J. M., Brauman, J. I.  
2005; 109 (39): 8794-8799
  - **Proton exchange and transesterification reactions of acetate enolates with alcohols in the gas phase** *JOURNAL OF PHYSICAL CHEMISTRY A*  
Chen, X., Brauman, J. I.  
2005; 109 (38): 8553-8559
  - **Acidities in cyclohexanediols enhanced by intramolecular hydrogen bonds** *JOURNAL OF THE AMERICAN CHEMICAL SOCIETY*  
Chen, X., Walthall, D. A., Brauman, J. I.  
2004; 126 (39): 12614-12620
  - **Radical autoxidation and autogenous O-2 evolution in manganese-porphyrin catalyzed alkane oxidations with chlorite** *INORGANIC CHEMISTRY*  
Slaughter, L. M., Collman, J. P., Eberspacher, T. A., Brauman, J. I.  
2004; 43 (17): 5198-5204
  - **Steric retardation of S(N)2 reactions in the gas phase and solution** *JOURNAL OF THE AMERICAN CHEMICAL SOCIETY*  
Vayner, G., Houk, K. N., JORGENSEN, W. L., Brauman, J. I.  
2004; 126 (29): 9054-9058
  - **Donor ligand effect on the nature of the oxygenating species in Mn-III(salen)-catalyzed epoxidation of olefins: Experimental evidence for multiple active oxidants** *INORGANIC CHEMISTRY*  
Collman, J. P., Zeng, L., Brauman, J. I.  
2004; 43 (8): 2672-2679
  - **Dynamics of competitive reactions: Endothermic proton transfer and exothermic substitution** *JOURNAL OF THE AMERICAN CHEMICAL SOCIETY*  
Ren, J. H., Brauman, J. I.  
2004; 126 (8): 2640-2646
  - **Determination of the acidity of long chain alcohols using infrared multiple photon dissociation** *JOURNAL OF PHYSICAL CHEMISTRY A*  
Wong, J., Walthall, D. A., Brauman, J. I.  
2002; 106 (51): 12299-12304

- **Conformation-dependent reaction thermochemistry: Study of lactones and lactone enolates in the gas phase** *JOURNAL OF THE AMERICAN CHEMICAL SOCIETY*  
Karty, J. M., Janaway, G. A., Brauman, J. I.  
2002; 124 (18): 5213-5221
- **Energy deposition in S(N)2 reaction products and kinetic energy effects on reactivity** *JOURNAL OF PHYSICAL CHEMISTRY A*  
Ren, J. H., Brauman, J. I.  
2002; 106 (15): 3804-3813
- **Steric effects and solvent effects in ionic reactions** *SCIENCE*  
Regan, C. K., Craig, S. L., Brauman, J. I.  
2002; 295 (5563): 2245-2247
- **Mechanism of dihydrogen cleavage by high-valent metal oxo compounds: Experimental and computational studies** *INORGANIC CHEMISTRY*  
Collman, J. P., Slaughter, L. M., Eberspacher, T. A., Strassner, T., Brauman, J. I.  
2001; 40 (24): 6272-6280
- **The RS-center dot HSR hydrogen bond: Acidities of alpha,omega-dithiols and electron affinities of their monoradicals** *JOURNAL OF THE AMERICAN CHEMICAL SOCIETY*  
Karty, J. M., Wu, Y. S., Brauman, J. I.  
2001; 123 (40): 9800-9805
- **Multiple active oxidants in cytochrome P-450 model oxidations** *JOURNAL OF THE AMERICAN CHEMICAL SOCIETY*  
Collman, J. P., Chien, A. S., Eberspacher, T. A., Brauman, J. I.  
2000; 122 (45): 11098-11100
- **Energetics and mechanism of alkyl cleavage transition states: Relative gas-phase acidities of alkanes** *JOURNAL OF THE AMERICAN CHEMICAL SOCIETY*  
Wong, J., Sannes, K. A., Johnson, C. E., Brauman, J. I.  
2000; 122 (44): 10878-10885
- **Twist and fluoresce** *SCIENCE*  
Brauman, J. I.  
2000; 290 (5490): 286-287
- **Competitive reaction of axial ligands during biomimetic oxygenations** *INORGANIC CHEMISTRY*  
Collman, J. P., Chien, A. S., Eberspacher, T. A., Zhong, M., Brauman, J. I.  
2000; 39 (20): 4625-4629
- **Unusual ionic hydrogen bonds: Complexes of acetylides and fluoroform** *JOURNAL OF THE AMERICAN CHEMICAL SOCIETY*  
Chabinyk, M. L., Brauman, J. I.  
2000; 122 (36): 8739-8745
- **Hydrogen-bonded complexes of methanol and acetylides. Structure and energy correlations** *JOURNAL OF THE AMERICAN CHEMICAL SOCIETY*  
Chabinyk, M. L., Brauman, J. I.  
2000; 122 (22): 5371-5378
- **Direct observation of spin forbidden proton-transfer reactions: (NO)-N-3+HA ->(HNO)-H-1+A(-)** *JOURNAL OF PHYSICAL CHEMISTRY A*  
Janaway, G. A., Brauman, J. I.  
2000; 104 (9): 1795-1798
- **Negative ion electron photodetachment from a near-blackbody photon source** *JOURNAL OF PHYSICAL CHEMISTRY A*  
Janaway, G. A., Brauman, J. I.  
2000; 104 (6): 1117-1120
- **Translational energy dependence and potential energy surfaces of gas phase S(N)2 and addition-elimination reactions** *JOURNAL OF THE AMERICAN CHEMICAL SOCIETY*  
Craig, S. L., Zhong, M. L., Brauman, J. I.  
1999; 121 (50): 11790-11797
- **A quantitative UV-VIS probe of enantioselectivity in metalloporphyrin catalyzed oxygenation using aluminium model complexes** *CHEMICAL COMMUNICATIONS*

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- Collman, J. P., Wang, Z., Linde, C., Fu, L., Dang, L., Brauman, J. I.  
1999; 1783-1784
- **Intramolecular microsolvation of S(N)2 transition states** *JOURNAL OF THE AMERICAN CHEMICAL SOCIETY*  
Craig, S. L., Brauman, J. I.  
1999; 121 (28): 6690-6699
  - **Intrinsic structure-reactivity relationships in gas-phase transacylation reactions: Identity exchange of substituted benzoyl chlorides with chloride ion** *JOURNAL OF THE AMERICAN CHEMICAL SOCIETY*  
Zhong, M. L., Brauman, J. I.  
1999; 121 (11): 2508-2515
  - **Nonstatistical reactivity in a vibrationally excited S(N)2 intermediate** *JOURNAL OF THE AMERICAN CHEMICAL SOCIETY*  
Craig, S. L., Zhong, M. L., Brauman, J. I.  
1998; 120 (46): 12125-12126
  - **Fulvio Cacace: Note of appreciation** *INTERNATIONAL JOURNAL OF MASS SPECTROMETRY*  
Brauman, J. I.  
1998; 180: XIX-XIX
  - **Acidity, basicity, and the stability of hydrogen bonds: Complexes of RO<sup>-</sup>+HCF<sub>3</sub>** *JOURNAL OF THE AMERICAN CHEMICAL SOCIETY*  
Chabinyk, M. L., Brauman, J. I.  
1998; 120 (42): 10863-10870
  - **alpha-stabilization by silyl and phosphino substitution** *JOURNAL OF THE AMERICAN CHEMICAL SOCIETY*  
Romer, B., Gatev, G. G., Zhong, M. L., Brauman, J. I.  
1998; 120 (12): 2919-2924
  - **Gas-phase ionic reactions: Dynamics and mechanism of nucleophilic displacements** *SCIENCE*  
Chabinyk, M. L., Craig, S. L., Regan, C. K., Brauman, J. I.  
1998; 279 (5358): 1882-1886
  - **An agostic alternative to the P-450 rebound mechanism** *JOURNAL OF THE AMERICAN CHEMICAL SOCIETY*  
Collman, J. P., Chien, A. S., Eberspacher, T. A., Brauman, J. I.  
1998; 120 (2): 425-426
  - **[FHNO](-): An intermediate in a spin-forbidden proton transfer reaction** *JOURNAL OF THE AMERICAN CHEMICAL SOCIETY*  
Janaway, G. A., Zhong, M. L., Gatev, G. G., Chabinyk, M. L., Brauman, J. I.  
1997; 119 (48): 11697-11698
  - **Gas-phase ionic reactions of benzyl and methoxide anions** *JOURNAL OF PHYSICAL ORGANIC CHEMISTRY*  
Gatev, G. G., Zhong, M. L., Brauman, J. I.  
1997; 10 (7): 531-536
  - **Phase-shifting acceleration of ions in an ion cyclotron resonance spectrometer: Kinetic energy distribution and reaction dynamics** *JOURNAL OF PHYSICAL CHEMISTRY A*  
Craig, S. L., Brauman, J. I.  
1997; 101 (26): 4745-4752
  - **Perturbed equilibria and statistical energy redistribution in a gas-phase S(N)2 reaction** *SCIENCE*  
Craig, S. L., Brauman, J. I.  
1997; 276 (5318): 1536-1538
  - **Aza-crown-capped porphyrin models of myoglobin: Studies of the steric interactions of gas binding** *JOURNAL OF THE AMERICAN CHEMICAL SOCIETY*  
Collman, J. P., Herrmann, P. C., Fu, L., Eberspacher, T. A., Eubanks, M., Boitrel, B., Hayoz, P., Zhang, X. M., Brauman, J. I., Day, V. W.  
1997; 119 (15): 3481-3489
  - **Cyclopentadienyl, indenyl, and fluorenyl anions: Gas-phase and solvation energy contributions to electron detachment energies** *JOURNAL OF THE AMERICAN CHEMICAL SOCIETY*  
Romer, B., Janaway, G. A., Brauman, J. I.  
1997; 119 (9): 2249-2254
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- **Unimolecular dynamics in bimolecular ion-molecule reactions** *Discussion Meeting of the Deutsche-Bunsen-Gesellschaft on Unimolecular Reactions*  
Craig, S. L., Brauman, J. I.  
WILEY-VCH VERLAG GMBH.1997: 510-15
- **Electron photodetachment spectroscopy of (E)- and (Z)-propionaldehyde enolate anions. Electron affinities of the stereoisomers of propionaldehyde enolate radicals** *JOURNAL OF THE AMERICAN CHEMICAL SOCIETY*  
Romer, B. C., Brauman, J. I.  
1997; 119 (8): 2054-2055
- **Branching ratios in activated systems** *JOURNAL OF PHYSICAL CHEMISTRY A*  
Craig, S. L., Zhong, M. L., Choo, B., Brauman, J. I.  
1997; 101 (1): 19-24
- **Generation and chemistry of fluorinated acetoxy and oxyallyl biradical anions (distonic radical anions) in the gas phase** *JOURNAL OF THE AMERICAN CHEMICAL SOCIETY*  
Zhong, M. L., Chabinyc, M. L., Brauman, J. I.  
1996; 118 (49): 12432-12436
- **Electron photodetachment spectroscopy of solvated anions: RO center dot HF- or ROH center dot F-?** *JOURNAL OF THE AMERICAN CHEMICAL SOCIETY*  
Mihalick, J. E., Gatev, G. G., Brauman, J. I.  
1996; 118 (49): 12424-12431
- **Catalytic activation of H-2 and C-H bonds by electron-deficient ruthenium(II) porphyrins** *INORGANIC CHEMISTRY*  
Collman, J. P., FISH, H. T., Wagenknecht, P. S., TYVOLL, D. A., Chng, L. L., Eberspacher, T. A., Brauman, J. I., Bacon, J. W., PIGNOLET, L. H.  
1996; 35 (23): 6746-6754
- **Intramolecular microsolvation of thermoneutral gas-phase S(N)2 reactions** *JOURNAL OF THE AMERICAN CHEMICAL SOCIETY*  
Craig, S. L., Brauman, J. I.  
1996; 118 (28): 6786-6787
- **Alkyl substituent effect in the deprotonation of unsymmetrical ketones** *JOURNAL OF PHYSICAL CHEMISTRY*  
Johnson, C. E., Sannes, K. A., Brauman, J. I.  
1996; 100 (21): 8827-8835
- **Rearrangement and fragmentation mechanisms of vibrationally activated enolate ions in the gas phase** *JOURNAL OF PHYSICAL CHEMISTRY*  
Sannes, K. A., Brauman, J. I.  
1996; 100 (18): 7471-7479
- **Ambident reactivity of enolate anions in the gas phase. Experimental determination of carbon vs oxygen acylation with CF3COCl** *JOURNAL OF THE AMERICAN CHEMICAL SOCIETY*  
Zhong, M. L., Brauman, J. I.  
1996; 118 (3): 636-641
- **Gas-phase nucleophilic displacement reactions** *JOURNAL OF MASS SPECTROMETRY*  
Olmstead, W. N., Brauman, J. I.  
1995; 30 (12): 1653-1662
- **1,3-HYDROGEN REARRANGEMENTS OF VIBRATIONALLY ACTIVATED ENOLATE IONS IN THE GAS-PHASE** *JOURNAL OF THE AMERICAN CHEMICAL SOCIETY*  
Sannes, K. A., Brauman, J. I.  
1995; 117 (40): 10088-10092
- **ELECTRON-AFFINITIES AND GAS-PHASE ACIDITIES OF ORGANOGermanium AND ORGANOTIN COMPOUNDS** *JOURNAL OF THE AMERICAN CHEMICAL SOCIETY*  
BRINKMAN, E. A., Salomon, K., Tumas, W., Brauman, J. I.  
1995; 117 (17): 4905-4910
- **THROUGH THE GLASS LIGHTLY** *SCIENCE*  
Weintraub, H., Ashburner, M., Goodfellow, P. N., Lodish, H. F., ARNTZEN, C. J., ANDERSON, P. W., Rice, T. M., Geballe, T. H., Means, A. R., Ranney, H. M., Cech, T. R., COLWELL, R. R., Bourne, et al

1995; 267 (5204): 1609-1618

- **THREITOL-STRAPPED MANGANESE PORPHYRINS AS ENANTIOSELECTIVE EPOXIDATION CATALYSTS OF UNFUNCTIONALIZED OLEFINS** *JOURNAL OF THE AMERICAN CHEMICAL SOCIETY*  
Collman, J. P., Lee, V. J., KELLENYUEN, C. J., Zhang, X. M., Ibers, J. A., Brauman, J. I.  
1995; 117 (2): 692-703
- **THE S(N)2 IDENTITY EXCHANGE-REACTION F+CH3F- $\rightarrow$ FCH3+F- - DEFINITIVE AB-INITIO PREDICTIONS** *JOURNAL OF PHYSICAL CHEMISTRY*  
Wladkowski, B. D., Allen, W. D., Brauman, J. I.  
1994; 98 (51): 13532-13540
- **DIRECT EXPERIMENTAL-EVIDENCE FOR A MULTIPLE WELL POTENTIAL-ENERGY SURFACE IN A GAS-PHASE EXOTHERMIC CARBONYL ADDITION-ELIMINATION REACTION** *JOURNAL OF THE AMERICAN CHEMICAL SOCIETY*  
Wilbur, J. L., Brauman, J. I.  
1994; 116 (20): 9216-9221
- **ALPHA-SILYL-SUBSTITUENT STABILIZATION OF CARBANIONS AND SILYL ANIONS** *JOURNAL OF THE AMERICAN CHEMICAL SOCIETY*  
BRINKMAN, E. A., Berger, S., Brauman, J. I.  
1994; 116 (18): 8304-8310
- **DIOXYGEN BINDING IN IRON AND COBALT PICNIC BASKET PORPHYRINS** *JOURNAL OF THE AMERICAN CHEMICAL SOCIETY*  
Collman, J. P., Zhang, X. M., Wong, K., Brauman, J. I.  
1994; 116 (14): 6245-6251
- **INTERMEDIATES AND POTENTIAL-ENERGY SURFACES IN THERMONEUTRAL CARBONYL ADDITION-ELIMINATION REACTIONS** *JOURNAL OF THE AMERICAN CHEMICAL SOCIETY*  
Wilbur, J. L., Brauman, J. I.  
1994; 116 (13): 5839-5846
- **INTRINSIC STRUCTURE-REACTIVITY RELATIONSHIPS IN GAS-PHASE S(N)2 REACTIONS - IDENTITY EXCHANGE OF SUBSTITUTED BENZYL CHLORIDES WITH CHLORIDE-ION** *JOURNAL OF THE AMERICAN CHEMICAL SOCIETY*  
Wladkowski, B. D., Wilbur, J. L., Brauman, J. I.  
1994; 116 (6): 2471-2480
- **BOUND EXCITED ELECTRONIC STATES OF ANIONS** *JOURNAL OF CHEMICAL PHYSICS*  
BRINKMAN, E. A., Gunther, E., Schafer, O., Brauman, J. I.  
1994; 100 (3): 1840-1848
- **THE PROTON-TRANSFER SURFACE OF CH3OH $\cdot$ -** *JOURNAL OF CHEMICAL PHYSICS*  
Wladkowski, B. D., East, A. L., Mihalick, J. E., Allen, W. D., Brauman, J. I.  
1994; 100 (3): 2058-2088
- **APPLICATION OF MARCUS THEORY TO GAS-PHASE SN2 REACTIONS - EXPERIMENTAL SUPPORT OF THE MARCUS THEORY ADDITIVITY POSTULATE** *JOURNAL OF PHYSICAL CHEMISTRY*  
Wladkowski, B. D., Brauman, J. I.  
1993; 97 (50): 13158-13164
- **GAS-PHASE PROTON-TRANSFER AND SUBSTITUTION-REACTIONS - ENERGY-DEPENDENCE AND DISSOCIATION DYNAMICS** *JOURNAL OF THE AMERICAN CHEMICAL SOCIETY*  
Wilbur, J. L., Wladkowski, B. D., Brauman, J. I.  
1993; 115 (23): 10823-10829
- **MOLECULAR ROTATION AND THE OBSERVATION OF DIPOLE-BOUND STATES OF ANIONS** *JOURNAL OF CHEMICAL PHYSICS*  
BRINKMAN, E. A., Berger, S., Marks, J., Brauman, J. I.  
1993; 99 (10): 7586-7594
- **REGIOSELECTIVE AND ENANTIOSELECTIVE EPOXIDATION CATALYZED BY METALLOPORPHYRINS** *SCIENCE*  
Collman, J. P., Zhang, X. M., Lee, V. J., Uffelman, E. S., Brauman, J. I.  
1993; 261 (5127): 1404-1411

- **ASYMMETRIC EPOXIDATION CATALYZED BY AN IRON BINAP CAPPED PORPHYRIN** *JOURNAL OF THE CHEMICAL SOCIETY-CHEMICAL COMMUNICATIONS*  
Collman, J. P., Zhang, X. M., Lee, V. J., Brauman, J. I.  
1992; 1647-1649
- **THE SN2 IDENTITY EXCHANGE-REACTION CLCH2CN + CL--JCL- + CLCH2CN - EXPERIMENT AND THEORY** *JOURNAL OF THE AMERICAN CHEMICAL SOCIETY*  
Wladkowski, B. D., Lim, K. F., Allen, W. D., Brauman, J. I.  
1992; 114 (23): 9136-9153
- **INFRARED MULTIPLE PHOTON STUDIES OF ALKOXIDE ALCOHOL COMPLEXES** *JOURNAL OF THE AMERICAN CHEMICAL SOCIETY*  
BAER, S., Brauman, J. I.  
1992; 114 (14): 5733-5741
- **ELECTRON PHOTODETACHMENT FROM ORGANOPHOSPHIDE IONS - ELECTRON-AFFINITIES AND SUBSTITUENT EFFECTS IN ORGANOPHOSPHINES AND THEIR CONJUGATE RADICALS** *JOURNAL OF THE AMERICAN CHEMICAL SOCIETY*  
Berger, S., Brauman, J. I.  
1992; 114 (12): 4737-4743
- **KINETIC-MODELS FOR GAS-PHASE ELECTRON-TRANSFER REACTIONS BETWEEN NITROBENZENES** *JOURNAL OF THE AMERICAN CHEMICAL SOCIETY*  
Han, C. C., Wilbur, J. L., Brauman, J. I.  
1992; 114 (3): 887-893
- **SHAPE-SELECTIVE OLEFIN EPOXIDATION CATALYZED BY METALLO PICNIC-BASKET PORPHYRINS** *ADVANCES IN CHEMISTRY SERIES <D>*  
Collman, J. P., Zhang, X., Lee, V., HEMBRE, R. T., Brauman, J. I.  
1992: 153-162
- **SHAPE-SELECTIVE OLEFIN EPOXIDATION CATALYZED BY METALLO PICNIC-BASKET PORPHYRINS** *SYMP ON HOMOGENEOUS TRANSITION METAL CATALYZED REACTIONS, AT THE 199TH NATIONAL MEETING OF THE AMERICAN CHEMICAL SOC*  
Collman, J. P., Zhang, X., Lee, V., HEMBRE, R. T., Brauman, J. I.  
AMER CHEMICAL SOC.1992: 153-162
- **ADDITION AND DEPROTONATION IN REACTIONS OF HYDROXIDE ION WITH A BETA-HYDROXYSILANE** *INTERNATIONAL JOURNAL OF MASS SPECTROMETRY*  
Angelini, G., Johnson, C. E., Brauman, J. I.  
1991; 109: 1-14
- **GAS-PHASE PROTON-TRANSFER REACTIONS BETWEEN ALKOXIDE ANIONS** *JOURNAL OF THE AMERICAN CHEMICAL SOCIETY*  
Dodd, J. A., BAER, S., Moylan, C. R., Brauman, J. I.  
1991; 113 (16): 5942-5949
- **REACTION DYNAMICS ON BARRIERLESS REACTION SURFACES - A MODEL FOR ISOERGIC GAS-PHASE PROTON-TRANSFER REACTIONS** *JOURNAL OF CHEMICAL PHYSICS*  
Lim, K. F., Brauman, J. I.  
1991; 94 (11): 7164-7180
- **ROTATIONAL ENHANCEMENT OF THE PROTON-TRANSFER BARRIER FOR ION-MOLECULE REACTIONS ON A DOUBLE-MINIMUM SURFACE** *CHEMICAL PHYSICS LETTERS*  
Lim, K. F., Brauman, J. I.  
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- **HEMIACETAL ANIONS - A MODEL FOR TETRAHEDRAL REACTION INTERMEDIATES** *JOURNAL OF THE AMERICAN CHEMICAL SOCIETY*  
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## PRESENTATIONS

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