

Publications of Hai-Lung Dai

Published as part of the *Journal of Physical Chemistry* virtual special issue "Hai-Lung Dai Festschrift"

■ REFERENCES

- (1) K. C. Lin, and H. L. Dai Comment on Maximum Interaction Model of Force Constant Calculation of $ML_x(CO)_{6-x}$ Type Molecules. *J. Chinese Chem. Soc.*, **23**, 75 (1976)
- (2) H. L. Dai, A. H. Kung, and C. B. Moore Resonant Multiphoton Dissociation and Mechanism of Excitation for Ethyl Chloride. *Phys. Rev. Lett.*, **43**, 761 (1979)
- (3) A. H. Kung, H. L. Dai, M. R. Berman, and C. B. Moore Resonant Multiphoton Dissociation of Small Molecules. *Laser Spectroscopy IV*, Ed. H. Walther and K. W. Rothe (Springer-Verlag, New York, 1979), p.309
- (4) A. H. Kung and H. L. Dai Resonant Multiphoton Dissociation of Ethyl Chloride at 3.3 μm . *Proc. of the Electro-optics/Laser Conf.* (Ind. and Sci. Conf. Management Inc., Chicago, Illinois, 1979), p.291
- (5) H. L. Dai, A. H. Kung, and C. B. Moore Multiphoton Dissociation of Ethyl Chloride at 3.3 μm : Excitation Mechanism and Rate Equations Analysis. *J. Chem. Phys.*, **73**, 6124 (1980)
- (6) H. L. Dai, E. Specht, M. R. Berman, and C. B. Moore Determination of Arrhenius Parameters for Unimolecular Reactions of Chloroalkanes by IR Laser Pyrolysis. *J. Chem. Phys.*, **77**, 4494 (1982)
- (7) D. E. Reisner, P. H. Vaccaro, C. Kittrell, R. W. Field, J. L. Kinsey, and H. L. Dai Selective Vibrational Excitation of Formaldehyde X1A2 by Stimulated Emission Pumping. *J. Chem. Phys.*, **77**, 573 (1982)
- (8) P. H. Vaccaro, J. L. Kinsey, R. W. Field, and H. L. Dai Electric Dipole Moments of Excited Vibrational Levels in the X1A1 State of Formaldehyde by Stimulated Emission Spectroscopy. *J. Chem. Phys.*, **78**, 3659 (1983)
- (9) H. L. Dai Rate Equations Analysis of Vibrational Quenching in IR Multiphoton Dissociation of Pure SF₆. *Chem. Phys. Lett.*, **96**, 324 (1983)
- (10) H. L. Dai, E. Abramson, R. W. Field, D. Imre, J. L. Kinsey, C. L. Korpa, D. E. Reisner and P. H. Vaccaro Single Eigenstate Polyatomic Molecule Vibrational Spectroscopy at 1-4 eV in *Laser Spectroscopy VI*, Ed. H. P. Weber and W. Luthy (Spring-Verlag, New York, 1983), p.74
- (11) D. E. Reisner, R. W. Field, J. L. Kinsey, and H. L. Dai Stimulated Emission Spectroscopy: A Complete Set of Vibrational Constants for X1A1 Formaldehyde. *J. Chem. Phys.*, **80**, 5968 (1984)
- (12) H. L. Dai, C. L. Korpa, J. L. Kinsey, and R. W. Field Rotation Induced Vibrational Mixing in X1A1 Formaldehyde; Nonnegligible Dynamical Consequences of Rotation. *J. Chem. Phys.*, **82**, 1688 (1985)
- (13) H. L. Dai, R. W. Field, and J. L. Kinsey Intramolecular Vibrational Dynamics Including Rotational Degrees of Freedom: Chaos and Quantum Spectra. *J. Chem. Phys.*, **82**, 2161 (1985)
- (14) H. L. Dai, R. W. Field, and J. L. Kinsey State-Specific Rates of $H_2CO(S0) \rightarrow H_2 + CO$ at Energies Near the Barrier Height: A Violation of RRKM Theory? *J. Chem. Phys.*, **82**, 1606 (1985)
- (15) E. Abramson, H.L. Dai, R.W. Field, D. Imre, J.L. Kinsey, C.L. Korpa, D.E. Reisner, and P.H. Vaccaro Laser Population of Highly Excited Vibrational Levels of Molecules. *Reactants and Probes in Chemistry*, 393-404 (1985)
- (16) D. Heskett, K. J. Song, A. W. Burns, E. W. Plummer, and H. L. Dai Coverage Dependent Phase Transition of Pyridine on Ag(110) Observed by Second Harmonic Generation. *J. Chem. Phys.*, **85**, 7490 (1986)
- (17) D. Frye, H. T. Liou, and H. L. Dai Stimulated Emission Polarization Spectroscopy of v2=2 X1Ag Glyoxal. *Chem. Phys. Lett.*, **133**, 249 (1987)
- (18) D. Heskett, K. J. Song, L. Urbach, E. W. Plummer, A. Burns, and H. L. Dai Second Harmonic Generation of Adsorbates/Ag(110). *J. Vac. Sci. Tech. A*, **5**, 690 (1987)
- (19) K. J. Song, D. Heskett, L. E. Urbach, H. L. Dai, and E. W. Plummer Second Harmonic Generation from Alkali Thin Films on Ag(110). *Materials Research Society Symp. Proc.*, **83**, 259 (1987)
- (20) D. Heskett, L. Urbach, K. J. Song, E. W. Plummer, and H. L. Dai Oxygen and Pyridine on Ag(110) Studied by Second Harmonic Generation: Coexistence of Two Phases Within Monolayer Pyridine Coverage. *Surf. Sci.*, **197**, 225 (1988)
- (21) D. Frye, P. Arias, and H. L. Dai Stimulated Emission Spectroscopy of van der Waals Vibrational Levels of Glyoxal (X1Ag)*Ar. *J. Chem. Phys.*, **88**, 7240 (1988)
- (22) D. Frye, L. Lapierre, and H. L. Dai Vibration-Rotation Spectroscopy by Stimulated Emission Pumping in a Supersonic Beam: a-Axis Coriolis Coupled v4=1 and v8=1 Levels of (X1Ag) Glyoxal. *J. Chem. Phys.*, **89**, 2609 (1988)
- (23) S. H. Lin, A. Boeglin, H. L. Dai, and E. W. Schlag Study of the Stark Effect on Dynamics and Spectroscopy of Isolated Molecules. *J. Phys. Chem.*, **92**, 5398 (1988)
- (24) K. J. Song, D. Heskett, H. L. Dai, A. Liebsh, and E. W. Plummer Dynamical Screening at a Metal Surface Probed by Second Harmonic Generation. *Phys. Rev. Lett.*, **61**, 1380 (1988)
- (25) W. Xie, A. Ritter, C. Harkin, K. Kasturi, and H. L. Dai Transient Vibrational Spectroscopy by Flash Photolysis Stimulated Emission Pumping: 3v₂ of Singlet Methylene. *J. Chem. Phys.*, **89**, 7033 (1988)

- (26) J. M. Hicks, L. E. Urbach, E. W. Plummer, and H. L. Dai Can Pulsed Laser Excitation of Surfaces be Described by a Thermal Model? *Phys. Rev. Lett.*, **61**, 2588 (1988)
- (27) L. E. Urbach, D. Heskett, J. M. Hicks, J. K. Song, E. W. Plummer, and H. L. Dai Second Harmonic Generation Probe of Adsorbate Structural Transition and Energy Transfer Dynamics on a Metal Surface. *SPIE Proc. on "Photochemistry in Thin Films"* (The Int. Soc. Opt. Eng., Bellingham, Washington, 1989), Vol. 1056, p.86-96.
- (28) W. Xie, C. Harkin, H. L. Dai, W. H. Green, Jr., Q. K. Zheng, and A. J. Mahoney Transient Vibrational Spectroscopy of a¹A₁ CH₂ v₂=2. *J. Mol. Spectr.*, **138**, 596-601 (1989)
- (29) P. D. Arias and H. L. Dai Preventing Rapid Decomposition of Rhodamine Dyes in Excimer-Pumped Pulsed Dye Lasers. *Rev. Sci. Instr.*, **61**, 191 -192(1990)
- (30) J. M. Hicks, L. E. Urbach, E. W. Plummer, and H. L. Dai Fast Time-Resolved Surface Temperature Measurements by Electronic Resonant Second Harmonic Generation. *SPIE Proc. on "Laser Photoionization and Desorption Surface Analysis Techniques"* (The Int. Soc. of Opt. Eng., Bellingham, Washington, 1990), Vol 1208, p.127-136
- (31) W. Xie, C. Harkin, and H. L. Dai Bending Overtones and Barrier Height of the a¹A₁ State of CH₂ by Flash Photolysis Stimulated Emission Pumping. *J. Chem. Phys.*, **93**, 4615-4623 (1990)
- (32) D. Frye, L. Lapierre, and H. L. Dai Structure and van der Waals Vibrational Frequencies of the Glyoxal-Ar₂ Complex Studied by Fluorescence Excitation and Stimulated Emission Spectroscopy. *J. Opt. Soc. Am. B*, **7**, 1905-1914 (1990)
- (33) H. L. Dai Introduction to Molecular Spectroscopy and Dynamics by Stimulated Emission Pumping. *J. Opt. Soc. Am. B*, **7**, 1802 (1990)
- (34) H. L. Dai Laser Vibrational Spectroscopy of Transient, Weakly Bound and Reactive Molecules. *Applied Spectr.*, **44**, 1595 -1604 (1990)
- (35) E. Borguet and H. L. Dai Time-Resolved Surface Kinetics by IR Diode Laser Reflection-Absorption Spectroscopy. *J. Electron Spectr. and Related Phenomena*, **54-55**, 573-580 (1990)
- (36) U. Brinkmann and H. L. Dai Vibration-Rotation Spectroscopy with Dye Lasers: Higher Sensitivity and Extended Frequency Range via Stimulated Emission Pumping. *Lambda Physik Highlights*, **23**, 1-4 (1990)
- (37) H. L. Dai The Chemical and Physical Properties of Vibration-Rotation Eigenstates of H₂CO (S0) at 28,300 cm⁻¹ in "Advances in Molecular Vibrations" Ed. J. M. Bowman, (JAI Press, Connecticut, 1991), pp. 305-327
- (38) H. L. Dai Vibrational Spectroscopy and Dynamics of Transient and Weakly Bound Molecules by Stimulated Emission Pumping in "Advances in Multi-Photon Processes and Spectroscopy", Ed. S. H. Lin, (World Scientific, Teaneck, New Jersey, 1991), Vol. 7, pp. 169-230
- (39) L. Fleck, W. Feehery, E. W. Plummer, Z. C. Ying, and H. L. Dai Laser Induced Polymerization of Submonolayer Formaldehyde on Ag(111). *J. Phys. Chem.*, **95**, 8428-8430 (1991)
- (40) H. L. Dai Van der Waals Complexes: A New Tool for Studying Molecular Dynamics. *Physics*, **13**, 421-424 (1991)
- (41) L. E. Urbach, K. Percival, J. M. Hicks, E. W. Plummer, and H. L. Dai Resonant Surface Second Harmonic Generation: Surface States on Ag(110). *Phys. Rev. B*, **45**, 3769-3772 (1992)
- (42) Luc Lapierre, Donald Frye, and H. L. Dai Isomeric Structures and van der Waals Vibrational Frequencies of the Glyoxal-Ar Complexes. I. Fluorescence Excitation Spectroscopy. *J. Chem. Phys.*, **96**, 2703-2716 (1992)
- (43) E. Borguet and H. L. Dai Strong Dynamical Dipole Coupling Between CO Molecules Adsorbed at Two Distinct Sites on Cu(100). *Chem. Phys. Lett.*, **194**, 57-61 (1992)
- (44) P. Y. Cheng, S. S. Ju, M. Y. Hahn, and H. L. Dai Intersystem Crossing of C₂H₂(S₁) Induced by Ar at Different Orientations: A van der Waals Complex Study. *Chem. Phys. Lett.*, **190**, 109-114 (1992)
- (45) G. Hartland, W. Xie, H. L. Dai, A. Simon, and M. J. Anderson Time-resolved Fourier Transform Spectroscopy with 0.25 cm⁻¹ Spectral and <10⁻⁷ s Time Resolution in the Visible Region. *Rev. Sci. Inst.*, **63**, 3261-3267 (1992)
- (46) L. Lapierre, P. Y. Cheng, S. S. Ju, M.Y. Hahn and H. L. Dai Orientation and Molecular Orbital Dependences in Electronic Relaxation Collisions Studied Through van der Waals Complexes. *SPIE Proc. (Int. Soc. Opt. Eng., Bellingham, WA, 1992)*, Vol. 1638, pp. 300-311
- (47) L. Lapierre and H. L. Dai Orientation and Molecular Orbital Dependence in the Spin Changing Collision C₂H₂O₂(S₁)+Ar → C₂H₂O₂(T₁)+Ar: A Study Through van der Waals Complexes. *J. Chem. Phys.*, **97**, 711-714 (1992)
- (48) H. L. Dai Measuring Transient Temperature Jump on Surfaces with Laser Pulses. *Opto News and Letters*, **34**, 20-22 (1992)
- (49) G. V. Hartland, W. Xie, D. Qin, and H. L. Dai Strong Asymmetry Induced ΔK_a=3 Transitions in the CH₂ b¹B₁ ← a¹A₁ Spectrum: A Study by Fourier Transform Emission Spectroscopy. *J. Chem. Phys.*, **97**, 7010-7912 (1992)
- (50) L. Fleck, Z. C. Ying, M. Feehery, and H. L. Dai The Geometry and Energetics of Formaldehyde Physisorbed on Ag(111). *Surf. Sci.*, **296**, 400-409 (1993)
- (51) G. V. Hartland, D. Qin, and H. L. Dai State-to-State Rotational Energy Transfer and Reaction with Ketene of Highly vibrationally excited b¹B₁ CH₂ by Time-Resolved

- Fourier Transform Emission Spectroscopy. *J. Chem. Phys.*, **98**, 6906-6916 (1993)
- (52) W. Xie and H. L. Dai Fluorescence Excitation Spectra of the $b^1B_1 \leftarrow a^1A_1 2(^n_n)$ ($n=18-23$) Bands of CD_2 . *J. Mol. Spectr.*, **158**, 162-169 (1993)
- (53) G. V. Hartland, D. Qin, and H. L. Dai Fourier Transform Dispersed Fluorescence Spectroscopy: Observations of New Vibrational Levels in the 5,000-8,000 cm^{-1} Region of $a^1A_1 \text{CH}_2$. *J. Chem. Phys.*, **98**, 2469-2472 (1993)
- (54) L. E. Fleck, Z. C. Ying and H. L. Dai Temperature-Controlled Laser-Induced Polymerization of Formaldehyde on Ag (111). *J. Vac. Sci. Tech. A*, **11**, 1942-1945 (1993)
- (55) G. V. Hartland, D. Qin, and H. L. Dai Highly Excited Vibrational Levels Studies Using Time-Resolved Fourier Transform Emission Spectroscopy. *SPIE Proc. on Laser Techniques for State-to-State Chemistry*, Vol. 1858, pp. 138-149 (Int. Soc. Opt. Eng., Bellington, WA, 1993).
- (56) P. Y. Cheng and H. L. Dai A Photoemitted Electron-Impact Ionization Method for Time-of-Flight Mass Spectrometers. *Rev. Sci. Instrument*, **64**, 2211-2214 (1993)
- (57) C. M. Li, L. E. Urbach, and H. L. Dai Second-Harmonic Generation from a Ag(111) Surface at the Interband Transition Region: Role of the Dielectric Function. *Phys. Rev. B*, **49**, 2104-2112 (1994)
- (58) P. Y. Cheng, L. Lapierre, S. S. Ju, P. DeRose, and H. L. Dai Orientation Dependence in Collision Induced Electronic Relaxation Studied through van der Waals Complexes with Isomeric Structures. *Z. Phys. D (Atoms, Molecules, and Clusters)*, **31**, 105-115 (1994)
- (59) E. Borguet and H. L. Dai Site-specific Properties and Dynamical Dipole Coupling of CO Molecules Adsorbed on a Vicinal Cu(100) Surface. *J. Chem. Phys.*, **101**, 9080-9095 (1994)
- (60) P. DeRose, H. L. Dai, and P.Y. Cheng Degenerate Four Wave Mixing Spectroscopy of the $(\text{Glyoxal})_2$ van der Waals Complex. *Chem. Phys. Lett.*, **220**, 207-213 (1994)
- (61) G. Hartland, D. Qin, and H. L. Dai Collisional Deactivation of Highly vibrationally Excited NO_2 Monitored by Time-resolved Fourier Transform Infrared Emission Spectroscopy. *J. Chem. Phys.*, **100**, 7832-7835 (1994)
- (62) C. M. Li, Z. C. Ying, and H. L. Dai Optical Interference in Second Harmonic Generation from a Metal Surface with Molecular Adlayers. *J. Chem. Phys.*, **101**, 7058-7063 (1994)
- (63) E. Borguet, J. Dvorak, and H. L. Dai Transient IR and Visible Laser Absorption-Reflection Spectroscopic Studies of Inter-adsorbate and Adsorbate/Substrate Interactions. *SPIE Proc. on Laser Techniques for Surface Science* (Int. Soc. Opt. Eng., Bellington, WA 1994), Vol. 2125, pp. 12-18
- (64) C. M. Li, Z. C. Ying, T. A. Sjodin, and H. L. Dai Photocarrier diffusion at a Si(111) surface studied by reflective two-color transient grating scattering. *SPIE Proc. on Laser Techniques for Surface Science* (Int. Soc. Opt. Eng., Bellington, WA 1994), Vol. 2125, pp. 107-110
- (65) H. L. Dai Stimulated Emission and Four-Wave Mixing Spectroscopies of Weakly Bound Molecular Complexes. *Proc. of the XIVth Int. Conf. on Raman Spectr.* (Wiley, New York, 1994), pp. 410-411
- (66) G. V. Hartland, D. Qin, and H. L. Dai Observation of large vibration-to-vibration energy transfer collisions ($\Delta E \geq 3500 \text{ cm}^{-1}$) in quenching of highly excited NO_2 by CO_2 and N_2O . *J. Chem. Phys.*, **101**, 8554-8563 (1994).
- (67) D. Qin, G. V. Hartland, and H. L. Dai A characterization of the $\text{CH}_2 a^1A_1 (1,2,0), (2,0,0), (0,5,0), (1,3,0)$ and $b^1B_1 (1,14^2,0), (0,18^0,0), (0,19^1,0)$ Vibronic Levels by Fourier Transform Dispersed Fluorescence Spectroscopy. *J. Mol. Spectr.*, **168**, 333-342 (1994)
- (68) Z. C. Ying, L. Fleck, and H. L. Dai Laser Induced Polymerization on Surfaces in "Laser Spectroscopy and Photochemistry on Metal Surfaces", ed. H. L. Dai and W. Ho, Vol. 5 *Adv. Series in Phys. Chem. (World Scientific, New Jersey 1995)* pp. 1387-1420.
- (69) G. Hartland and H. L. Dai Dispersed and Stimulated Emission Studies of the Excited Vibrational Levels of a Transient Molecule: Singlet Methylene in "Molecular Dynamics and Spectroscopy by Stimulated Emission Pumping", ed. H. L. Dai and R. W. Field, Vol. 4 *Adv. Ser. Phys. Chem. (World Scientific, River Edge, New Jersey 1995)* pp. 183-211.
- (70) E. Borguet and H. L. Dai Time-Resolved Surface IR Reflection-Absorption Spectroscopy in "Laser Spectroscopy and Photochemistry on Metal Surfaces", ed. H. L. Dai and W. Ho, Vol. 5 *Adv. Series in Phys. Chem. (World Scientific, 1995)* pp. 243-274
- (71) J. S. Kim and H. L. Dai The Adsorption Energetics and Geometry of Ketene Physisorbed on Ag (111). *Bull. Korean Chem. Soc.*, **16**, 143-148 (1995)
- (72) G. V. Hartland, D. Qin, and H. L. Dai Renner-Teller Effect on the Highly Excited Bending Levels of $a^1A_1 \text{CH}_2$. *J. Chem. Phys.*, **102**, 6641-6645 (1995)
- (73) C. M. Li, Z. C. Ying, T. Sjodin, and H. L. Dai Measuring Photocarrier Diffusivity Near a Si(111) Surface by Reflective Two-Color Transient Grating Scattering. *Appl. Phys. Lett.*, **66**, 3501-3503 (1995)
- (74) H. L. Dai Probing Structure, Spectroscopy, Kinetics, and Dynamics on Metal Surfaces by Optical Second Harmonic Generation. *J. Chinese Chem. Soc. (Taipei)*, **42**, 461-469 (1995)
- (75) G. V. Hartland, D. Qin, and H. L. Dai Intramolecular Electronic Coupling Enhanced Collisional Deactivation of Highly vibrationally Excited Molecules. *J. Chem. Phys.*, **102**, 8677-8680 (1995)
- (76) S. S. Ju, P. Y. Cheng, Y. M. Hahn, and H. L. Dai Isomeric Structures of the Electronically Excited

- Acetylene-Ar Complex: Spectroscopy and Potential Calculations. *J. Chem. Phys.*, **103**, 2850-2862 (1995)
- (77) J. Dvorak, E. Borguet, and H. L. Dai Adsorbate Induced Reflectivity Changes in the Visible Region on a Metal Surface. *SPIE Proc.* **2547**, 30-39 (1995)
- (78) T. Sjodin, C. M. Li, and H. L. Dai Probing the Structure of Multilayer Molecular Adsorbates on Metal by Second Harmonic Generation. *SPIE Proc.* **2547**, 419-26 (1995)
- (79) C. M. Li, T. Sjodin, Z. C. Ying, and H. L. Dai Photoexcited Carrier Diffusion Near a Si(111) Surface and in the Si Bulk. *Appl. Surf. Sci.*, **104-105**, 57-60 (1996)
- (80) H. L. Dai Time-Resolved FT Emission Spectroscopy and its Application in Molecular Spectroscopy and Kinetics. *Mikrochim. Acta [Suppl.]*, **14**, 149-156 (1997)
- (81) P. DeRose, L. LaPierre, and H. L. Dai Transferability of Pairwise Atom Potential Parameters A Test on the Structural Calculation of the Glyoxal-Ar Complex Isomers. *Mol. Phys.*, **89**, 1223-1244 (1996)
- (82) L. Fleck, J. S. Kim, and H. L. Dai Zero-Kinetic-Energy Electron-Induced Reaction of Formaldehyde on Ag(111) and Its Significance for Surface Photochemistry. *Surf. Sci. Lett.*, **356**, L417-L422 (1996)
- (83) L. Fleck, P. T. Howe, J. S. Kim, and H. L. Dai Generation of Radicals on a Metal Surface from Photoinduced Dissociation of Physisorbed Molecules: CH₂ from H₂CO on Ag(111). *J. Phys. Chem.*, **100**, 8011-8014 (1996)
- (84) J. Dvorak, E. Borguet, and H. L. Dai Monitoring Adsorption and Desorption on a Metal Surface by Optical Non-Resonant Reflectivity Changes. *Surf. Sci. Lett.*, **369**, 122-130 (1996)
- (85) C. M. Li, T. Sjodin, and H. L. Dai Photo-excited Carrier Diffusion Near a Si(111) Surface: Non-negligible Consequence of Carrier-Carrier Scattering. *Phys. Rev. B*, **56**, 15252-15255 (1997)
- (86) B. Xue, H. L. Dai , and T. Troxler Structure, Electronic Relaxation and Vibrational Predissociation of the Electronically Excited SO₂ (C)-Ar Complex. *Chem. Phys. Lett.*, **265**, 154-160 (1997)
- (87) G. V. Hartland, D. Qin, H. L. Dai, and C. Chen Collisional Energy Transfer of Highly vibrationally Excited NO₂: The Role of Intramolecular Vibronic Coupling and the Transition Dipole Coupling Mechanism. *J. Chem. Phys.*, **107**, 2890-2902 (1997)
- (88) H. L. Dai Collisional Energy Transfer of Highly vibrationally Excited Molecules: The Role of Long Range Interaction and Intramolecular Vibronic Coupling. *Am. Chem. Soc. Symposium Series No. 678*, "Highly Excited Molecules", eds. A.S. Mullin and G. Flynn, pp. 266-274 (1997)
- (89) H. L. Dai Stimulated Emission Pumping (SEP) Spectroscopy in "Nonlinear Spectroscopy for Molecular Structure Determination", a monograph published by the Int. Union of Pure and App. Chem. (Blackwell Science, Malden, MA, 1998), Ed. S. Tsuchiya et al., Chapter 3, pp. 55-74
- (90) C. Pibel, E. Sirota, J. Brenner, and H. L. Dai Nanosecond Time-Resolved FTIR Emission Spectroscopy: Monitoring the Energy Distribution of Highly vibrationally Excited Molecules during Collisional Deactivation. *J. Chem. Phys.*, **108**, 1297-1300 (1998)
- (91) P. DeRose, P. Y. Cheng, B. Xue, S. S. Ju, and H. L. Dai Isomeric Structures, Large Amplitude Intermolecular Motions, and Electronic Relaxation of the Propynal-Ar Complex. *Chem. Phys.*, **239**, 235-251 (1998)
- (92) P. T. Howe and H. L. Dai Photodesorption of Physisorbed Molecules from a Ag(111) Surface: The Low Photon Energy Threshold and the Low Translational Temperature of Desorbed Molecules. *J. Chem. Phys.*, **108**, 7775-8775 (1998)
- (93) J. Dvorak and H. L. Dai Temporally and Spatially Resolved Linear Optical Probe of Adsorption and Reaction on a Metal Surface. *SPIE Proceeding on Laser Techniques for Surface Science*, Vol. 3272 (Int. Soc. Opt. Eng., Bellington, WA 1998), pp. 84-92
- (94) P. T. Howe and H. L. Dai Mechanism of Photo-Induced Desorption of Molecules Weakly Adsorbed on a Metal Surface. *SPIE Proceeding on Laser Techniques for Surface Science*, Vol. 3272 (Int. Soc. Opt. Eng., Bellington, WA 1998), pp. 143-151
- (95) A. H. Kung, P. J. Chen, J. Lee, J. Sharma, and H. L. Dai Compact Solid State UV Laser for Photochemistry and Materials Processing. *SPIE Proceeding on Laser Techniques for Surface Science*, Vol. 3272 (Int. Soc. Opt. Eng., Bellington, WA 1998), p. 100-104
- (96) T. Sjodin, H. L. Dai and H. Petek Ultrafast Carrier Dynamics near a Si Surface: A Reflective Transient Grating Study. *SPIE Proceeding on Laser Techniques for Surface Science*, Vol. 3272 (Int. Soc. Opt. Eng., Bellington, WA 1998), p. 238-247
- (97) T. Sjodin, H. Petek and H. L. Dai Ultrafast Carrier Dynamics in Silicon: A Two-Color Transient Reflection Grating Study on a (111) Surface. *Phys. Rev. Lett.*, **81**, 5664-5667 (1998)
- (98) L. Letendre, H. L. Dai , I. A. McLaren, and T. J. Johnson Interfacing a Transient Digitizer to a Step-Scan Fourier Transform Spectrometer for Nanosecond Time Resolved Spectroscopy. *Rev. Sci. Inst.*, **70**, 18-22 (1999)
- (99) J. Sharma, D. H. Berry, R. J. Composto, and H. L. Dai Ultraviolet Laser-Induced Formation of Thin Silicon Oxide Thin Film from the Precursor β-Chloroethyl Silsesquioxane. *J. of Materials Research*, **14**, 990-994 (1999)
- (100) M. Y. Shelley, H. L. Dai, and T. Troxler Electronic Relaxation and Vibrational Predissociation of Benzene-Acetylene van der Waals Complexes. *J. Chem. Phys.*, **110**, 9081-9087 (1999)
- (101) L. Letendre, D. K. Liu, C. D. Pibel, J. B. Halpern, and H. L. Dai Structure and Dynamics of Highly Excited

- Molecules from Time-Resolved FTIR Emission Spectroscopy. *Proceedings of the 12th International Conference on FT Spectroscopy*, eds. K. Itoh and M. Tasumi (Waseda University Press, Tokyo, Japan, 1999), pp. 115-118
- (102) J. Dvorak and H. L. Dai Optical Reflectivity Changes Induced by Adsorption on Metal Surfaces: The Origin and Applications to Monitoring Adsorption Kinetics. *J. Chem. Phys.*, **112**, 923-934 (2000)
- (103) T. Sjodin, T. Troxler, and H. L. Dai *In Situ* Observation of a Phase Transition in a Thin Molecular Film by Optical Second Harmonic Generation. *Langmuir*, **16**, 2832-2838 (2000)
- (104) T. Sjodin, C. M. Li, H. Petek and H. L. Dai Ultrafast Transient Grating Scattering Studies of Carrier Dynamics at a Silicon Surface. *Chem. Phys.*, **251**, 205-213 (2000)
- (105) H. Wang, T. Troxler, A. G. Yeh, and H. L. Dai *In Situ*, Nonlinear Optical Probe of Surfactant Adsorption on the Surface of Micro-Particles in Colloids. *Langmuir*, **16**, 2475-2481 (2000)
- (106) B. Xue, Y. Chen, and H. L. Dai Observation of the Singlet-Triplet Pair of the 4p Rydberg State and Assignment of the Rydberg Series of SO₂. *J. Chem. Phys.*, **112**, 2210-2217 (2000)
- (107) B. Xue, J. Han, and H. L. Dai Collision Relaxation Cross Section of Highly vibrationally Excited Molecules. *Phy. Rev. Lett.*, **84**, 2606-2609 (2000)
- (108) P. T. Howe and H. L. Dai Translational Energy Distribution in Hot Electron Mediated Photodesorption: A One Dimensional Quantum Mechanical Calculation of NO/Pt(111) and SO₂/Ag(111). *Surf. Sci.*, **451**, 12-21 (2000)
- (109) L. Letendre, D. K. Liu, C. D. Pibel, J. B. Halpern, and H. L. Dai Vibrational Spectroscopy of a Transient Species through Time-Resolved Fourier Transform Infrared Emission Spectroscopy: The Vinyl Radical. *J. Chem. Phys.*, **112**, 9209-9212 (2000)
- (110) D. Qin, G. V. Hartland, and H. L. Dai V-V Energy Transfer from Highly vibrationally Excited Molecules through Transition Dipole Coupling: A Quantitative Test on Energy Transfer from SO₂ ($\nu \gg 0$) to SF₆ (3₁). *J. Phys. Chem. A*, **104**, 10460-10463 (2000)
- (111) D. Qin, G. V. Hartland, C. L. Chen, and H. L. Dai Collisional Deactivation of Highly vibrationally Excited SO₂: A Time-Resolved FTIR Emission Spectroscopy Study. *Z. Phys. Chem.*, **214**, 1501-1519 (2000)
- (112) C. Blasie, C. Milne, and H. L. Dai Inquiring into the teaching and learning of science: An initiative from a research university. *University of Pennsylvania Almanac*, **47**, 8 (2001)
- (113) D. K. Liu, L. Letendre and H. L. Dai 193 nm Photolysis of Vinyl Bromide: Nascent Product Distribution of the C₂H₃Br → C₂H₂(vinylidene) + HBr Channel. *J. Chem. Phys.* **115**, 1734-1741 (2001)
- (114) M. C. Yang, T. J. Rockey, D. Pursell, and H. L. Dai Layer by Layer Structure in Ultrathin Aniline and Pyridine Films on Ag(111). *J. Phys. Chem. B*, **105**, 11945 (2001)
- (115) L. Letendre and H. L. Dai Structure and Vibrational Modes of the Cyanovinyl Radical: A Study by Time-Resolved Fourier Transform IR Emission Spectroscopy. *J. Phys. Chem. A*, **106**, 12035-12040 (2002)
- (116) C. H. Chang, C. L. Huang, C. K. Ni, H. L. Dai, M. Hayashi, K. K. Liang, A. Kung, I. C. Chen, and S. H. Lin Experimental and Theoretical Studies of the Effects of Collisions and Magnetic Fields on Quantum Beat. *Mol. Phys.*, **100**, 1117-1128 (2002)
- (117) S. M. Dounce, M. Yang, and H. L. Dai Surface-State Relaxation Dynamics on Ag(110) Probed by Temperature Dependent Resonantly Enhanced Second Harmonic Generation. *Phys. Rev. B*, **67**, 205410 (2003)
- (118) D. P. Pursell, M. L. Bocquet, J. M. Vohs, and H. L. Dai Adsorption Structure, Energetics, and Thermal Reactions of Vinyl Chloride on Ag(111). *Surf. Sci.*, **522**, 90-104 (2003)
- (119) M. Yang and H. L. Dai Heterogeneous Nucleation and Wetting of Water Thin Films on a Metal Surface: A Study by Optical Second Harmonic Generation. *J. Chem. Phys.*, **118**, 5106-5114 (2003)
- (120) M. Yang and H. L. Dai Crystallization and premelting in thin films of weakly interacting molecules: A study of pyridine films on Ag by optical second harmonic generation. *J. Phys. Chem. B*, **107**, 12233-12238 (2003)
- (121) M. Zhang, J. Han, P. Liu, D. Muller, and H. L. Dai Collision Induced Dephasing in Fluorescence Quantum Beat of SO₂(C¹B₂). *J. Phys. Chem. A*, **107**, 10845-10850 (2003)
- (122) M. Yang, S. Dounce, S. H. Jen, and H. L. Dai Nonlinear Optical Probe of Structures and Phase Transitions in Ultrathin Molecular Films. *SPIE Proceeding on Physical Chemistry of Interfaces and Nanomaterials*, Vol. 5223 (Int. Soc. Opt. Eng., Bellington, WA 2003), pp. 49-54
- (123) C. H. Chang, C. L. Huang, C. K. Ni, H. L. Dai, M. Hayashi, K. K. Liang, A. Kung, I. C. Chen, and S. H. Lin Experimental and theoretical studies of quantum beats in fluorescence. *J. Chin. Chem. Soc. (Taipei, Taiwan)* **50**, 631-9 (2003)
- (124) M. Yang and H. L. Dai Determination of Molecular Ordering at a Buried Interface and the Effect of Interfacial Ordering on Thin Film Crystallization by Second Harmonic Generation. *Langmuir*, **20**, 37-40 (2004)
- (125) W. McNavage, W. Dailey, and H. L. Dai The ν_1 and ν_2 Vibrational Bands of The OCCN Radical Detected Through Time-Resolved Fourier Transform IR Emission Spectroscopy. *Can. J. Chem.*, **82**, 925-933 (2004)
- (126) H. M. Eckenrode and H. L. Dai Nonlinear Optical Probe of Biopolymer Adsorption on Colloidal Particle Surface: Poly-L-Lysine on Polystyrene Sulfate Microspheres. *Langmuir*, **20**, 9202-9209 (2004)

- (127) S. M. Dounce, M. Yang, and H. L. Dai Physisorption on a Metal Surface Probed by Surface State Resonant Second Harmonic Generation. *Surf. Sci.*, **565**, 27-36 (2004)
- (128) W. McNavage and H. L. Dai Two-dimensional cross-spectral correlation analysis and its application to time-resolved Fourier transform emission spectra of transient radicals. *J. Chem. Phys.*, **123**, 184104 (2005)
- (129) M. L. Bocquet, A. M. Rappe and H. L. Dai A Density Functional Theory Study of Adsorbate-Induced Work Function Change and Binding Energy: Olefins on Ag(111). *Mol. Phys.*, **103**, 883-890 (2005)
- (130) E. Borguet and H. L. Dai Probing Surface Short Range Order and Inter-Adsorbate Interactions through IR Vibrational Spectroscopy: CO on Cu(100). *J. Phys. Chem. B*, **109**, 8509-8512 (2005)
- (131) H. M. Eckenrode, S. H. Jen, J. Han, A. g. Yeh, and H. L. Dai Adsorption of a Cationic Dye Molecule on Polystyrene Microspheres in Colloids: Effect of Surface Charge and Composition Probed by Second Harmonic Generation. *J. Phys. Chem. B.*, **109**, 4646-4653 (2005)
- (132) S. M. Dounce and H. L. Dai The effect of adsorption of Na on Cu(110) surface states probed by second harmonic generation. *Surf. Sci.*, **583**, 310-4 (2005)
- (133) S. M. Dounce, S. H. Jen, M. Yang, and H. L. Dai The wetting-dewetting transition of monolayer water on a hydrophobic metal surface observed by surface-state resonant second-harmonic generation. *J. Chem. Phys.* **122**, 204703 (2005)
- (134) T. Rockey, M. Yang, and H. L. Dai Aniline on Ag(111): Adsorption Configuration, Adsorbate-Substrate Bond, and Inter-Adsorbate Interactions. *Surf. Sci.*, **589**, 42-51 (2005)
- (135) L. Letendre, W. McNavage, C. Pibel, D. K. Liu, and H. L. Dai Time-Resolved FTIR Emission Spectroscopy of Transient Radicals. *J. Chinese Chem. Soc. (Taipei)*, **52**, 677-686 (2005)
- (136) J. Ma, P. Liu, M. Zhang, and H. L. Dai Nanosecond Time-Resolved IR Emission from Molecules Excited in A Supersonic Jet: Intramolecular Dynamics of NO₂ near Dissociation. *J. Chem. Phys.*, **123**, 154306 (2005)
- (137) M. Zhang, J. Ma, J. Han, and H. L. Dai Collision Relaxation of Highly vibrationally Excited SO₂ by CO in A Supersonic Beam. *J. Chinese Chem. Soc. (Taipei)* **53**, 25-31(2005)
- (138) D. P. Pursell and H. L. Dai Photochemistry of Vinyl Chloride Physisorbed on Ag(111) through Molecular Anion Formation Induced by Substrate Electron Attachment. *J. Phys. Chem. B*, **110**, 10374-10382 (2006)
- (139) T. J. Rockey, M. Yang, and H. L. Dai Adsorption Energies, Inter-Adsorbate Interactions, and the Two Binding Sites within Monolayer Benzene on Ag(111). *J. Phys. Chem. B*, **110**, 19973-8 (2006)
- (140) G. Gonella, M. Yang, S. M. Dounce, and H. L. Dai Structure and Growth of Thin Films of Aniline on Silver: Nucleation and Premelting of Nanocrystallites, Porosity, and Crystallization. *J. Phys. Chem. B*, **110**, 23424-23432 (2006)
- (141) D. P. Pursell, J. M. Vohs, and H. L. Dai Chlorine Adsorption Induced Structure and Energetics Change of Vinyl Chloride Physisorbed on Ag(111). *Chem. Phys. Lett.*, **432**, 431-435 (2006)
- (142) T. Rockey and H. L. Dai Adsorbate-Substrate Bonding and the Growth of Naphthalene Thin Films on Ag(111). *Surf. Sci.*, **610**, 2307-2314 (2007)
- (144) H. F. Wang, T. Troxler, A. G. Yeh, and H. L. Dai Adsorption at Carbon Black Microparticle Surface in Aqueous Colloids Probed by Optical Second Harmonic Generation. *J. Phys. Chem. C*, **111**, 8708-8715 (2007)
- (144) S. Dounce, J. Mundy, and H. L. Dai Crystallization at the Glass Transition of Supercooled Thin Films of Methanol. *J. Chem. Phys.*, **126**, 191111 (2007)
- (145) M. Zhang and H. L. Dai Quantum State-Resolved Collision Relaxation of Highly vibrationally Excited SO₂. *J. Phys. Chem. A*, **111**, 9632-9639 (2007)
- (146) G. Gonella, H. L. Dai , and T. J. Rockey Tetracene Monolayer and Multilayer Thin Films on Ag(111): Substrate-Adsorbate Charge-Transfer Bonding and Inter-Adsorbate Interaction. *J. Phys. Chem. C*, **112**, 4696-4703 (2008)
- (147) M. J. Wilhelm, W. McNavage, R. Groller, and H. L. Dai The v₁ CH Stretching Mode of the Ketenyl (HCCO) Radical. *J. Chem. Phys.*, **128**, 064313 (2008)
- (148) M. J. Wilhelm, M. Nikow, and H. L. Dai Signal-to-Noise Enhancement in Time-Resolved IR Emission Spectra through Two-Dimensional Correlation Analysis. *J. Mol. Struct.*, **883-884**, 242-248 (2008)
- (149) M. J. Wilhelm, M. Nikow, L. Letendre, and H. L. Dai Photodissociation of vinyl cyanide at 193 nm: Nascent product distributions of the molecular elimination channels. *J. Chem. Phys.*, **130**, 044307 (2009)
- (150) M. Nikow, M. J. Wilhelm, and H. L. Dai Vibrational Modes of the Vinyl and Deuterated Vinyl Radicals. *J. Phys. Chem. A*, **113**, 8857-8870 (2009)
- (151) S. H. Jen, G. Gonella, and H. L. Dai The Effect of Particle Size in Second Harmonic Generation from the Surface of Spherical Colloidal Particles I: Experimental Observations. *J. Phys. Chem. A*, **113**, 4758-4762 (2009)
- (152) S. H. Jen, H. L. Dai, and G. Gonella The Effect of Particle Size in Second Harmonic Generation from the Surface of Spherical Colloidal Particles II: The Nonlinear Rayleigh-Gans-Debye Model. *J. Phys. Chem. C*, **114**, 4302–4308 (2010)
- (153) M. Nikow, M. J. Wilhelm, J. M. Smith, and H. L. Dai Strong Combination-Band IR Emission from Highly vibrationally Excited Acetylene. *Phys. Chem. Chem. Phys.*, **12**, 2915-2922 (2010)

- (154) G. Gonella, H. L. Dai, H. C. Fry, M. J. Therien, V. Krishnan, A. Tronin, and J. K. Blasie Control of the Orientational Order and Nonlinear Optical Response of the "Push-Pull" Chromophore RuPZn via Specific Incorporation into Densely-Packed Monolayer Ensembles of an Amphiphilic 4-Helix Bundle Peptide: Second Harmonic Generation at High Chromophore Densities. *J. Am. Chem. Soc.*, **132**, 9693–9700 (2010)
- (155) W. Gan, G. Gonella, M. Zhang, and H. L. Dai Reactions and Adsorption at the Surface of Silver Nanoparticles probed by Second Harmonic Generation. *J. Chem. Phys.*, **134**, 041104 (2011)
- (156) W. Gan, B. Xu, and H. L. Dai Activation of Thiols at a Ag Nanoparticle Surface. *Angewandte Chemie Int. Ed.*, **50**, 6622-25 (2011)
- (157) G. Gonella and H. L. Dai Determination of Adsorption Geometry on Spherical Particles from Nonlinear Mie Theory Analysis of Surface Second Harmonic Generation. *Phys. Rev. B*, **84**, 121402(R) (2011)
- (158) J. Ma, M. J. Wilhelm, J. M. Smith, and H. L. Dai Photolysis (193 nm) of SO₂: Nascent product energy distribution examined through IR emission. *J. Phys. Chem. A*, **116**, 166-173 (2012)
- (159) L. A. Burke, G. Gonella, F. Heirtzler, H. L. Dai, S. Jones, J. Zubieta, and A. J. Roche A self-assembled, metallo-organic supramolecular frequency doubler. *Chem. Comm.*, **48**, 1000-1002 (2012)
- (160) G. Gonella, W. Gan, B. Xu, and H. L. Dai Effect of Composition, Morphology, and Susceptibility on Nonlinear Light Scattering from Metallic and Dielectric Nanoparticles. *J. Phys. Chem. Lett.*, **3**, 2877–2881 (2012)
- (161) J. Zeng, H. M. Eckenrode, S. Dounce, and H. L. Dai Time-Resolved Molecular Transport across Living Cell Membranes. *Biophys. J.*, **104**, 139-145 (2013)
- (162) M. J. Wilhelm, M. Nikow, J. M. Smith, and H. L. Dai Collisional energy transfer from highly vibrationally excited radicals is very efficient. *J. Phys. Chem. Lett.*, **4**, 23-29 (2013)
- (163) M. J. Wilhelm, W. McNavage, J. Smith and H. L. Dai The lowest quartet-state of the ketenyl (HCCO) radical: Collision-induced intersystem crossing and the v₂ vibrational mode. *Chem. Phys.*, **422**, 290-296 (2013)
- (164) G. Maidecchi, G. Gonella, R. Moroni, L. Anghinolfi, A. Giglia, S. Nannarone, L. Mattera, H. L. Dai, M. Canepa, F. Bisio Deep Ultraviolet Plasmon Resonance in Aluminum Nanoparticle Arrays. *ACS Nano*, **7**, 5834-5841 (2013)
- (165) G. Maidecchi, G. Gonella, R. Proietti Zaccaria, R. Moroni, L. Anghinolfi, A. Giglia, S. Nannarone, L. Mattera, H. L. Dai, et al. Deep Ultraviolet plasmonics in Aluminum Nanoparticle arrays. *Elettra*, 2012/2013, 38-9
- (166) H. L. Dai New Paradigms for Educating Chemistry Professionals in a Globalized World in "Vision 2025 - How to Succeed in the Global Chemistry Enterprise Sponsoring Group", (ACS Books, 2014)
- (167) G. Gonella and H. L. Dai Second Harmonic Light Scattering from the Surface of Colloidal Objects: Theory and Applications. *Langmuir*, **30**, 2588-2599 (2014)
- (168) J. M. Smith, M. Nikow, J. Ma, M. J. Wilhelm, Y. C. Han, A. R. Sharma, J. M. Bowman, and H. L. Dai Chemical Activation through Super Energy Transfer Collisions. *J. Am. Chem. Soc.*, **136**, 1682–1685 (2014)
- (169) M. J. Wilhelm, J. B. Sheffield, G. Gonella, Y. Wu, C. Spahr, J. Zeng, B. Xu, and H. L. Dai Real-Time Molecular Uptake and Membrane-Specific Transport in Living Cells by Optical Microscopy and Nonlinear Light Scattering. *Chem. Phys. Lett.*, **605-606**, 158-163 (2014)
- (170) J. Zeng, H. M. Eckenrode, H. L. Dai, and M. J. Wilhelm Adsorption and transport of charged vs. neutral hydrophobic molecules at the membrane of murine erythroleukemia (MEL) cells. *Colloid Surf B: Biointerfaces*, **127**, 122-129 (2015)
- (171) M. J. Wilhelm, J. B. Sheffield, M. Sharifian Gh., Y. Wu, C. Spahr, G. Gonella, B. Xu, and H. L. Dai Gram's stain does not cross the bacterial cytoplasmic membrane. *ACS Chemical Biology*, **10**, 1711-1717, (2015)
- (172) B. Xu, G. Gonella, B. G. DeLacy, and H. L. Dai Adsorption of Anionic Thiols on Silver Nanoparticles. *J. Physical Chemistry C*, **119**, 5454-5461 (2015)
- (173) G. H. Imler, X. Li, B. Xu, G. E. Dobereiner, H. L. Dai, Y. Rao, and B. B. Wayland Solid state transformation of the crystalline monohydrate (CH₃NH₃)PbI₃(H₂O)) to the (CH₃NH₃)PbI₃ perovskite. *Chem. Comm.*, **51**, 11290-11292 (2015)
- (174) M. J. Wilhelm, M. Sharifian Gh., and H. L. Dai Chemically induced changes to membrane permeability in living cells probed with nonlinear light scattering. *Biochemistry*, **54**, 4427-4430 (2015)
- (175) B. Xu, Y. Wu, D. Sun, H. L. Dai, and Y. Rao Stabilized Phase Detection of Heterodyne Sum Frequency Generation for Interfacial Studies. *Opt. Lett.*, **40**, 4472-4475 (2015)
- (176) N. Hestand, H. Yamagata, B. Xu, D. Sun, Y. Zhong, A. Harutyunyan, G. Chen, H. L. Dai, Y. Rao, and F. Spano Polarized Absorption in Crystalline Pentacene: Theory vs Experiment. *J. Phys. Chem. C.*, **119**, 22137–22147 (2015)
- (177) M. J. Wilhelm, J. M. Smith, and H. L. Dai Spectral Reconstruction Analysis for Enhancing Signal-to-Noise in Time-Resolved Spectroscopies. *J. Chem. Phys.*, **143**, 124204 (2015)
- (178) J. Ma, M. J. Wilhelm, J. M. Smith, and H. L. Dai Large cross section for super energy transfer from hyperthermal atoms to ambient molecules. *Phys. Rev. A*, **93**, 040702(R) (2016)

- (179) M. Sharifian Gh., M. J. Wilhelm, and H. L. Dai Label-free optical method for quantifying molecular transport across cellular membranes in vitro. *J. Phys. Chem. Lett.*, **7**, 3406-3411 (2016)
- (180) Y. Wu, W. Li, B. Xu, X. Li, H. Wang, V. F. McNeill, Y. Rao, and H. L. Dai Observation of Organic Molecules at the Aerosol Surface. *J. Phys. Chem. Lett.*, **7**, 2294–2297 (2016)
- (181) B. Xu, Z. Luo, W. Gao, A. J. Wilson, C. He, X. Chen, G. Yuan, H. L. Dai, Y. Rao, K. Willets, Z. Dauter, and S. Ren Solution-Processed Molecular Opto-Ferroic Crystals. *Chemistry of Materials*, **28**, 2441–2448 (2016)
- (182) Z. Zhang, B. Xu, B. Xu, L. Jin, H. L. Dai, Y. Rao, and S. Ren External stimuli responsive 2D charge transfer polymers, *Advanced Materials Interfaces*, **4**, 1600769 (2016)
- (183) M. J. Wilhelm, J. M. Smith, and H. L. Dai Note: Reconstructing Interferograms Improves Spectral SNR, *J. Chem. Phys.*, **145**, 036101 (2016)
- (184) J. Han, E. Mei, M. P. Kung, H. F. Kung, J. M. Yuan, and H. L. Dai Single-Molecule Fluorescence Resonance Energy Transfer Studies of β -amyloid clusters in physiological solutions in “Biophysics and Biochemistry of Protein Folding and Aggregation”, Eds. J. M. Yuan and X. H. Zhou, Chapter 8, pp. 297-311, World Scientific (2016)
- (185) W. Li, X. Li, S. Jockusch, H. Wang, B. Xu, Y. Wu, W. Tsui, H. L. Dai, et al. Photoactivated Production of Secondary Organic Species from Isoprene in Aqueous Systems. *J. Phys. Chem. A*, **120**, 9042–9048 (2016)
- (186) N. R. Monahan, D. Sun, K. W. Williams, B. Xu, Y. Zhong, B. Kumar, A. R. Harutyunyan, et al. Dynamics of the triplet-pair state reveals the likely coexistence of coherent and incoherent singlet fission in crystalline hexacene. *Nature Chemistry*, **9**, 341–346 (2017)
- (187) W. Tsui, Y. Rao, H. L. Dai, and V. F. McNeill Modeling Photosensitized Secondary Organic Aerosol Formation in Laboratory and Ambient Aerosols. *Environ. Sci. Technol.*, **51**, 7496-7501 (2017)
- (188) H. Fang, B. Xu, X. Li, D. Kuhn, Z. Zander, G. Tian, V. Chen, R. Chu, B. DeLacy, et al. Effects of Molecular Structure and Solvent Polarity on Adsorption of Carboxylic Anchoring Dyes onto TiO₂ Particles in Aprotic Solvents. *Langmuir*, **33**, 7036-7042 (2017)
- (189) M. J. Wilhelm, E. Martínez-Núñez, J. González-Vázquez, S. A. Vázquez, J. M. Smith, and H. L. Dai Is photolytic production a viable source of HCN and HNC in astrophysical environments? A laboratory-based feasibility study of methyl cyanoformate. *Astrophys. J.*, **849**, 15 (2017)
- (190) M. Sharifian Gh., M. J. Wilhelm, and H. L. Dai Azithromycin-Induced Changes to Bacterial Membrane Properties Monitored in Vitro by Second-Harmonic Light Scattering. *ACS Med. Chem. Lett.*, **9**, 569-574 (2018)
- (191) H. Fang, Y. Wu, D. L. Kuhn, Z. Zachary, B. G. DeLacy, Y. Rao, and H. L. Dai Electron Injection from a Carboxylic Anchoring Dye to TiO₂ Nanoparticles in Aprotic Solvents. *Chem. Phys.*, **512**, 93-97 (2018)
- (192) W. Gan, B. Xu, and H. L. Dai Super Bright Luminescent Metallic Nanoparticles. *J. Phys. Chem. Lett.*, **9**, 4155-4159 (2018)
- (193) H. Yin, L. Jin, X. Li, Y. Wu, M. Bowen, D. Kaan, C. He, D. Wozniak, B. Xu, A. Lewis, W. Shen, K. Chen, et al. Excitonic and Confinement Effects of 2D Layered (C₁₀H₂₁NH₃)₂PbBr₄ Single Crystals. *ACS Appl. Energy Mater.*, **1**, 1476-1482 (2018)
- (194) H. Fang, J. Ma, M. J. Wilhelm, Y. Rao, D. L. Kuhn, Z. Zander, B. G. DeLacy, and H. L. Dai Carboxylic Anchoring Dye p-Ethyl Red Does Not Adsorb Directly onto TiO₂ Particles in Protic Solvents. *J. Phys. Chem. C*, **123**, 8265-8272 (2019)
- (195) M. J. Wilhelm, G. A. Petersson, J. M. Smith, D. Behrendt, J. Ma, L. Letendre, and H. L. Dai UV Photolysis of Pyrazine and the Production of Hydrogen Isocyanide. *J. Phys. Chem. A*, **122**, 9001-9013 (2018)
- (196) M. J. Wilhelm, M. Sharifian Gh., and H. L. Dai Influence of Molecular Structure on Passive Membrane Transport: A Case Study by Second Harmonic Light Scattering. *J. Chem. Phys.*, **150**, 104705 (2019)
- (197) M. Sharifian Gh., M. J. Wilhelm, M. Moore, and H. L. Dai Spatially Resolved Membrane Transport in a Single Cell Imaged by Second Harmonic Light Scattering. *Biochemistry*, **58**, 1841-1844 (2019)
- (198) M. J. Wilhelm and H. L. Dai Collisional Energy Transfer from vibrationally excited Hydrogen Isocyanide. *J. Phys. Chem. A*, **123**, 6927-6936 (2019)
- (199) D. Sun, G. H. Deng, B. Xu, E. Xu, X. Li, Y. Wu, et al. Anisotropic Singlet Fission in Single Crystalline Hexacene. *iScience*, **19**, 1079-1089 (2019)
- (200) D. L Kuhn, Z. Zander, A. M. Kulisevicz, S. M. Debow, C. Haffey, H. Fang, et al. Fabrication of Anisotropic Silver Nanoplatelets on the Surface of TiO₂ Fibers for Enhanced Photocatalysis of a Chemical Warfare Agent Simulant, Methyl Paraoxon. *J. Phys. Chem. C*, **123**, 19579-19587 (2019)
- (201) M. J. Wilhelm and H. L. Dai Molecule-Membrane Interactions in Biological Cells Studied with Second Harmonic Light Scattering. *Chem. Asian J.*, **15**, 200-213 (2020)