**LIST OF PEER-REVIEWED PUBLICATIONS: RICHARD N. ZARE**

1. R. N. Zare, W. R. Cook, Jr., and L. R. Shiozawa, "X-Ray Correlation of the A-B Layer Order of Cadmium Selenide with the Sign of the Polar Axis," Nature **189**, 217-219 (1961).

2.   R. N. Zare and D. R. Herschbach, "Angular Distribution of Products in Molecular Photodissociation," *Bull. Am. Phys. Soc.* **7**, 458 (1962).

3.   R. N. Zare and D. R. Herschbach, "Doppler Line Shape of Atomic Fluorescence Excited by Molecular Photodissociation," Proc. I.E.E.E. 51, 173-182 (1963).  This also appeared as University of California Radiation Laboratory Report UCRL-10411, 173-182 (1962).

4.   R. N. Zare and J. K. Cashion, "The IBM Share Program D2 NU SCHR 1072 for Solution of the Schrodinger Radial Equation, by J. W. Cooley. Necessary and Useful Modifications for its Use on an IBM-7090," University of California Radiation Laboratory Report UCRL-10881 (1963).

5.   R. N. Zare, "Calculation of the Intensity of Molecular Fluorescence Spectra for Na2, RbH, and I2," University of California Radiation Laboratory 1962 Annual Report, UCRL-10706, 84-88 (1963).

6.   R. N. Zare and D. R. Herschbach, "Mechanics of Molecular Photodissociation, "University of California Radiation Laboratory Report UCRL-10438, 1-57 (1963).

7.   R. N. Zare, "Programs for Calculating Relative Intensities in the Vibrational Structure of Electronic Band Systems," University of California Radiation Laboratory Report UCRL-10925, 1-57 (1963).

8.   R. N. Zare, "Calculation of Intensity Distribution in the Vibrational Structure of an Electronic Transition.  The B 3Πo+u - X 1Σo+g Resonance Series of Molecular Iodine," *J. Chem. Phys.* **40**, 1934-1944 (1964). This also appears as University of California Radiation Laboratory Report *UCRL-11110* (1963).

9.   R. N. Zare and D. R. Herschbach, "Proposed Molecular Beam Determination of Energy Partition in the Photodissociation of Polyatomic Molecules," University of California Radiation Laboratory Report *UCRL-11359*, 1-51 (1964).

10.   R. N. Zare, *Molecular Fluorescence and Photodissociation.*  Ph.D. Thesis.  Harvard University: Cambridge, MA, 1964.

11.   J. L. Steinfeld, R. N. Zare, L. Jones, M. Lesk, and W. Klemperer, "Spectroscopic Constants and Vibrational Assignment for the B 3Πou+ State of Iodine," *J. Chem. Phys.* **42**, 25-33 (1965).

12.   G. H. Dunn, B. Van Zyl, and R. N. Zare, "Dissociation of H2+ by Electron Impact," *Phys. Rev. Lett.* **15**, 610-612 (1965).

13. R. N. Zare, E. O. Larsson, and R. A. Berg, "Franck-Condon Factors for Electronic Band Systems of Molecular Nitrogen," *J. Mol. Spectrosc.* **51**, 117-139 (1965).

14.   R. N. Zare and D. R. Herschbach, "Atomic and Molecular Fluorescence Excited by Photodissociation," *Applied Optics* Supplement 2 of Chemical Lasers, pp. 193-200 (1965).

15.   R. N. Zare and D. R. Herschbach, "Charge Transfer Model for Alkali Halide Electronic Transition Strengths," *J. Mol. Spectrosc.* **15**, 462- 472 (1965).

16.   R. N. Zare and P. L. Bender, "Cross Section for Na (2Π1/2, 2Π3/2) Intramultiplet Transitions Induced by Collisions with Hydrogen Atoms," *Bull. Am. Phys. Soc.* **11**, 1183-1184 (1965).

17.   R. N. Zare, "Programs for Configuration Interaction Calculations Using a Hartree-Fock-Slater Basis Set," *JILA Report* No. 80, August 12, 1966.

18.   R. N. Zare, "Correlation Effects in Complex Spectra I. Term Energies for the Magnesium Isoelectronic Sequence," *J. Chem. Phys.* **45**, 1966-1978 (1966). This also appeared as JILA Report No. 82, August 18, 1966.

19.   R. N. Zare, "Molecular Level-Crossing Spectroscopy," *J. Chem. Phys.* **45**, 4510-4518 (1966).

20.   D. R. Crosley and R. N. Zare, "Molecular Level-Crossing Spectroscopy:  The g Value for an Excited State of Nitric Oxide," *Phys. Rev. Lett.* **18**, 942-944 (1967).

21.   R. N. Zare, "Dissociation of H2+ by Electron Impact:  Calculated Angular Distribution," *J. Chem. Phys.* **47**, 204-215 (1967).

22.   P. L. Bender, D. R. Crosley, D. R. Palmer, and R. N. Zare, "Collision Mixing of Alkali n P1/2 and n P3/2 Levels," V ICPEAC, Abstract of Papers, p. 510 (Nauka Pub. House, Leningrad, 1967).

23.   D. R. Crosley and R. N. Zare, "Molecular Level Crossings in Nitric Oxide," *Bull. Am. Phys. Soc.* **12**, (FC9)1147 (1967).

24.   M. H. Ornstein, J. K. Link, and R. N. Zare, "Excitation Transfer Between Potassium and Rubidium Atoms," *Bull. Am. Phys. Soc.* **12**, (FC10)1147 (1967).

25.   W. J. Tango, J. K. Link, and R. N. Zare, "K2 Fluorescence Excited by the 6328 Å He-Ne Laser Line," *Bull. Am. Phys. Soc.* **12**, (FC12)1147 (1967).

26.   R. N. Zare, "Correlation Effects in Complex Spectra. II. Transition Probabilities for the Magnesium Isoelectronic Sequence," *J. Chem. Phys.* **47**, 3561-3572 (1967).

27.   J. Cooper and R. N. Zare, "Angular Distribution of Photoelectrons," *J. Chem. Phys.* **48**, 942-943 (1968); Erratum:  *J. Chem. Phys.* **49**, 4252 (1968).

28.   R. J. Van Brunt and R. N. Zare, "Polarization of Atomic Fluorescence Excited by Molecular Dissociation," *J. Chem. Phys.* **48**, 4304-4308 (1968).

29.   W. J. Tango, J. K. Link, and R. N. Zare, "Spectroscopy of K2 Using Laser-Induced Fluorescence," *J. Chem. Phys.* **49**, 4264-4268 (1968).

30.   D. R. Crosley and R. N. Zare, "Observation of Optical Radio-Frequency Double Resonance in Molecular Fluorescence," *J. Chem. Phys.* **49**, 4231-4232 (1968).

31.   R. Wolfgang, R. N. Zare, and L. M. Branscomb, "Chemical Accelerators," *Science* **162**, 818-822 (1968).

32.   D. R. Crosley, W. J. Tango, and R. N. Zare, "On Probing Cometary Magnetic Fields by Measuring Depolarization of Resonance Fluorescence," *Astrophys. J.* **154**, L153-L156 (1968).

33.   E. Trefftz and R. N. Zare, "Comparison of Calculated Oscillator Strengths for Si III," *J. Quant. Spectrosc. Radiat. Transfer* **9**, 643- 656 (1969).

34.   J. Cooper and R. N. Zare, "Photoelectron Angular Distributions," in Volume XI of *Lectures in Theoretical Physics*.  Gordon and Breach, Inc.: New York, pp. 317-337 (1969).

35.   M. H. Ornstein and R. N. Zare, "Measured Absolute Cross Sections for K\* + Rb Collisional Excitation Transfer," *Phys. Rev.* **181**, 214-229 (1969).

36.   M. H. Ornstein, V. Stacey, and R. N. Zare, "Measurement of K\* + Rb Electronic Energy Transfer Cross Sections," ICPEAC VI, July, 1969.

37.   R.E. Drullinger and R. N. Zare, "Optical Pumping of Molecules," *J. Chem. Phys.* **51**, 5532-5542 (1969).

38.   W. Demtröder, M. McClintock, and R. N. Zare, "Spectroscopy of Na2 Using Laser-Induced Fluorescence," *J. Chem. Phys.* **51**, 5495-5508 (1969).

39.   M. McClintock, W. Demtröder, and R. N. Zare, "Level-Crossing Studies of Na2 Using Laser-Induced Fluorescence," *J. Chem. Phys.* **51**, 5509-5521 (1969).

40.   D. R. Beck and R. N. Zare, "Relativistic and Non-Relativistic Configuration Interaction Calculations for Atoms having a Closed Core and Two Valence Spin-Orbitals," *Computer Physics Communications* **1**, 113-134 (1969).

41.   R. Velasco, Ch. Ottinger, and R. N. Zare, "Dissociation Energy of Li2 from Laser Excited Fluorescence," *J. Chem. Phys.* **51**, 5522-5532 (1969).

42.   K. R. German, and R. N. Zare, "Measurement of the Hanle Effect for the OH Radical," *Phys. Rev.* **186**, 9-13 (1969).

43.   D. L. Albritton, A. L. Schmeltekopf, and R. N. Zare, "Evidence in Support of the Vibrational Renumbering of the O2+ 2∏g Ground State," *J. Chem. Phys.* **51**, 1667-1668 (1969).

44.   K. R. German, and R. N. Zare, "Optical Radio-Frequency Double Resonance in Molecules:  The OH Radical," *Phys. Rev. Lett.* **23**, 1207-1209 (1969).

45.   J. W. Mills, and R. N. Zare, "Magnetic Depolarization of CS2 Vapor Fluorescence," *Chem. Phys. Lett.* **5**, 37-41 (1970).

46.   Ch. Ottinger and R. N. Zare, "Crossed Beam Chemiluminescence," *Chem. Phys. Lett.* **5**, 243-248 (1970).

47.   Ch. Ottinger, R. Velasco, and R. N. Zare, "Some Propensity Rules in Collision-Induced Rotational Quantum Jumps," *J. Chem. Phys.* **52**, 1636-1643 (1970).

48.   V. Stacey and R. N. Zare, "Cross Section Ratios for K\* + Rb Electronic Excitation Transfer," *Phys. Rev. A* **1**, 1125-1131 (1970).

49.   W. J. Tango and R. N. Zare, "Radiative Lifetime of the B 1Πu State of K2," *J. Chem. Phys.* **53**, 3094-3100 (1970).

50.   H. M. Poland and R. N. Zare, "Level Crossing Study of Sulfur Dioxide," presented at the 1970 March Meeting of the American Physical Society.

51.   A. W. Mantz, J. K. G. Watson, K. N. Rao, D. L. Albritton, A. L. Schmeltekopf, and R. N. Zare, "Rydberg-Klein-Rees Potential for the X 1Σ+ State of the CO Molecule,” *J. Mol. Spectrosc*. **39**, 180-184 (1971).

52.   C. D. Jonah and R. N. Zare, "Formation of Group IIA Dihalides by Two-Body Radiative Association," *Chem. Phys. Lett*. **9**, 65-67 (1971).

53.   K. R. German, R. N. Zare, and D. R. Crosley, "Reinvestigation of the Hanle Effect for the NO A 2Σ+ State," *J. Chem. Phys.* **54**, 4039-4044 (1971).

54.   R. N. Zare, "Interference Effects in Molecular Fluorescence," *Acc. Chem. Res.* **4**, 361-367 (1971).

55.   R. N. Zare, "Chemical Dynamics," in *Science Year 1972* (The World Book Science Annual).  Field Enterprises Education Corp.: Chicago, 1971.

56.   C. D. Jonah, R. N. Zare, and Ch. Ottinger, "Crossed-Beam Chemiluminescence Studies of Some Group IIa Metal Oxides," *J. Chem. Phys.* **56**, 263-274 (1972).

57.   R. N. Zare, "Rotational Line Strengths:  -- Band System," in *Molecular Spectroscopy:  Modern Research*, edited by K. N. Rao and C.W. Mathews.  Academic Press: New York, pp. 207-221 (1972).

58.   E.M. Weinstock, R. N. Zare, and L. A. Melton, "Lifetime Determination of the NO *A* 2Σ+ State," *J. Chem. Phys.* **56**, 3456-3462 (1972).

59.   R. N. Zare, Review of *Resonance Radiation and Excited Atoms*, by A.C.G. Mitchell and M.W. Zemansky (Cambridge University Press: London, 1934, reprinted 1961, 1971), in *Applied Optics* **11**, A18 (1972).

60.   R. N. Zare, "Photoejection Dynamics," *Mol. Photochem.* **4**, 1-37 (1972).

61.   T. H. Bergeman and R. N. Zare, "Hyperfine Structure of the A 2Σ+ State of Nitric Oxide," *Bull. Am. Phys. Soc*. **17**, 149 (1972).

62.   A. Schultz, H. W. Cruse, and R. N. Zare, "Laser-Induced Fluorescence:  A Method to Measure the Internal State Distribution of Reaction Products," *J. Chem. Phys.* **57**, 1354-1355 (1972).

63.   P. Pechukas and R. N. Zare, "Elementary Derivation of Some of the Wigner-Witmer Rules," *Am. J. Phys*. **40**, 1687-1688 (1972).

64.   J. L. Gole and R. N. Zare, "Determination of D0from Crossed- Beam Chemiluminescence of Al + O3," *J. Chem. Phys.* **57**, 5331-5335 (1972).

65.   M. P. Sinha, A. Schultz, and R. N. Zare, "The Internal State Distribution of Alkali Dimers in Supersonic Nozzle Beams," *J. Chem. Phys.* **58**, 549-556 (1973).

66.   K. R. German, T. H. Bergeman, E.M. Weinstock, and R. N. Zare, "Zero-Field Level Crossing and Optical Radio-Frequency Double Resonance Studies of the A 2Σ+ States of OH and OD," *J. Chem. Phys.* **58**, 4304-4318 (1973).

67.   E.M. Weinstock and R. N. Zare, "High-Field Level-Crossing and Stark Studies of the A 2Σ+ State of OD," *J. Chem. Phys.* **58,** 4319-4326 (1973).

68.   C.G. Stevens, M.W. Swagel, R. Wallace, and R. N. Zare, "Analysis of Polyatomic Spectra Using Tunable Laser-Induced Fluorescence:  Applications to the NO2 Visible Band System," *Chem. Phys. Lett.* **18**, 465-469 (1973).

69.   D. L. Albritton, W. J. Harrop, A.L. Schmeltekopf, and R. N. Zare, "Calculation of Centrifugal Distortion Constants for Diatomic Molecules from RKR Potentials," *J. Mol. Spectrosc.* **46**, 25-36 (1973).

70.   R. N. Zare, A. L. Schmeltekopf, W. J. Harrop, and D. L. Albritton, "A Direct Approach for the Reduction of Diatomic Spectra to Molecular Constants for the Construction of RKR Potentials," *J. Mol. Spectrosc.* **46**, 37-66 (1973).

71.   D. L. Albritton, W. J. Harrop, A.L. Schmeltekopf, R. N. Zare, and E.L. Crow, "A Critique of the Term Value Approach to Determining Molecular Constants from the Spectra of Diatomic Molecules," *J. Mol. Spectrosc.* **46**, 67-88 (1973).

72.   D. L. Albritton, W. J. Harrop, A.L. Schmeltekopf, and R. N. Zare, "Rotational Analysis of the A 2Πu - X 2Πg Second Negative Band System of O2," *J. Mol. Spectrosc.* **46**, 89-102 (1973).

73.   D. L. Albritton, W. J. Harrop, A.L. Schmeltekopf, and R. N. Zare, "Resolution of the Discrepancies Concerning the Optical and Microwave Values for B*o* and D*o* of the X 3Σg State of O2," *J. Mol. Spectrosc.* **46**, 103-118 (1973).

74.   R. N. Zare, "Chemical Dynamics," in *Science Year 1974* (The World Book Science Annual).  Field Enterprises Education Corp.: Chicago, 1973, pp. 257-260.

75.   R. N. Zare, A. L. Schmeltekopf, D. L. Albritton, and W. J. Harrop, "Calculation of High-Order Rotational Centrifugal-Distortion Matrix Elements for a Hund's Case (a) Basis Set," *J. Mol. Spectrosc.* **48**, 174-180 (1973).

76.   H. W. Cruse, P. J. Dagdigian, and R. N. Zare, "Crossed-Beam Reactions of Barium with Hydrogen Halides:  Measurement of Internal State Distributions by Laser-Induced Fluorescence," *Faraday Disc. Chem. Soc*. **55**, 277-292 (1973).

77.   R. E. Drullinger and R. N. Zare, "Optical Pumping of Molecules II.  Relaxation Studies," *J. Chem. Phys.* **59**, 4225-4234 (1973).

78.   R. N. Zare, "Optical Pumping of Molecules," *Colloques Internationaux du C.N.R.S*. **217**, 29-40 (1973).

79.   L. E. Wilson, S. Benson, T. Cool, A. Javan, A. Kupperman, A. L. Schawlow, S. Suchard, and R. N. Zare, "New Gas Lasers Committee Report on Electronic Transition Chemically and Electrically Excited Lasers," Air Force Weapons Laboratory Technical Report No. AFWL-TR-73-60 (1973), pp. 1-36.

80.   R. N. Zare, "Fluorescence of Free Radicals:  A Method for Determining Dissociation Energy Limits," *Ber. Bunsenges. Physik. Chem.* **78**, 153-157 (1974).

81.   J. A. Cruse and R. N. Zare, "Fluorescence of the KH Molecule," *J. Chem. Phys.* **60**, 1182 (1974).

82.   P. J. Dagdigian, H. W. Cruse, and R. N. Zare, "Radiative Lifetimes of the Alkaline Earth Monohalides," *J. Chem. Phys.* **60**, 2330-2339 (1974).

83.   R. C. Oldenborg, J. L. Gole, and R. N. Zare, "Chemiluminescent Spectra of Alkali-Halogen Reactions," *J. Chem. Phys.* **60**, 4032-4042 (1974).

84.   A. Schultz and R. N. Zare, "Comparison of Ba + O3 and Ba + N2O Chemiluminescence," *J. Chem. Phys.* **60**, 5120-5121 (1974).

85.   M. P. Sinha, C. D. Caldwell, and R. N. Zare, "Alignment of Molecules in Gaseous Transport:  Alkali Dimers in Supersonic Nozzle Beams," *J. Chem. Phys.* **61**, 491-503 (1974).

86.   R. N. Zare and P. J. Dagdigian, "Tunable Laser Fluorescence Method for Product State Analysis," *Science* **185**, 739-747 (1974).

87.   P. J. Dagdigian and R. N. Zare, "Primitive Angular Distribution Studies of Internal States in Crossed-Beam Reactions Using Laser Fluorescence Detection," *J. Chem. Phys.* **61**, 2464-2465 (1974).

88.   R. N. Zare, "Possible Applications of Laser-Induced Fluorescence to the Detection of Mycotoxins," *Cereal Science Today* (September, 1974) p. 404.

89.   R. N. Zare, "The Laser Revolution in Chemistry," *IEEE J. Quantum Electron.* **QE-10**, 763 (1974).

90.   T. Bergeman and R. N. Zare, "Fine Structure, Hyperfine Structure, and Stark Effect in the NO *A* 2Σ+ State by Optical Radio-Frequency Double Resonance," *J. Chem. Phys.* **61**, 4500-4514 (1974).

91.   D. L. Albritton, A. L. Schmeltekopf, J. Tellinghuisen, and R. N. Zare, "Least-Squares Equivalence of Different Representations of Rotational Constants," *J. Mol. Spectrosc.* **53**, 311-314 (1974).

92.   H.U. Lee and R. N. Zare, "Flame Emission Studies of Ozone with Metal Alkyls:  Zn(CH3)2 and Zn(C2H5)2," *Combustion and Flame* **24**, 27-34 (1975).

93.   P. J. Dagdigian, H. W. Cruse, A. Schultz, and R. N. Zare, "Product State Analysis of BaO from the Reactions of Ba + CO2 and Ba + O2," *J. Chem. Phys.* **61**, 4450-4465 (1974).

94.   S. Green and R. N. Zare, "Mechanism for Collision-Induced Transitions between Λ-Doublets in 1Π Molecules:  Reduction to a Single Scattering Potential," *Chem. Phys*. **7**, 62-72 (1975).

95.   C. C. Stevens and R. N. Zare, "Rotational Analysis of the 5933 Å Band of NO2," *J. Mol. Spectrosc.* **56**, 167-187 (1975).

96.   P. J. Dagdigian, H. W. Cruse, and R. N. Zare, "Laser Fluorescence Study of AlO formed in the Reaction Al + O2:   Product State Distribution, Dissociation Energy, and Radiative Lifetime," *J. Chem. Phys.* **62**, 1824-1833 (1975).

97.   J. M. Brown, J. T. Hougen, K.-P. Huber, J. W. C. Johns, I. Kopp, H. Lefebvre-Brion, A. J. Merer, D. A. Ramsay, J. Rostas, and R. N. Zare, "The Labeling of Parity Doublet Levels in Linear Molecules," *J. Mol. Spectrosc.* **55**, 500-503 (1975).

98.   J. G. Pruett and R. N. Zare, "Lifetime-Separated Spectroscopy:  Observation and Rotational Analysis of the BaO A' 1P State," *J. Chem. Phys.* **62**, 2050-2059 (1975).

99.   C. R. Dickson and R. N. Zare, "Beam-Gas Chemiluminescent Reactions of Eu and Sm with O3, N2O, NO2 and F2," *Chem. Phys.* **7**, 361-370 (1975).

100.   G. P. Smith and R. N. Zare, "Facile Spin-Forbidden Reactions.  Ba + SO2 → BaO + SO," *J. Am. Chem. Soc.* **97**, 1985-1986 (1975).

101.   M. R. Berman and R. N. Zare, "Laser Fluorescence Analysis of Chromatograms:  Sub-Nanogram Detection of Aflatoxins," *Anal. Chem*. **47**, 1200-1201 (1975).

102.   D. D.-S. Liu, S. Datta, and R. N. Zare, "Laser Separation of Chlorine Isotopes. The Photochemical Reaction of Electronically Excited Iodine Monochloride with Halogenated Olefins," *J. Am. Chem. Soc.* **97**, 2557-2558 (1975).

103.   D. L. Albritton, A. L. Schmeltekopf, and R. N. Zare, "An Introduction to the Least-Squares Fitting of Spectroscopic Data," in *Molecular Spectroscopy:  Modern Research, Vol. II,* edited by K. N. Rao.  Academic Press: New York, 1976, pp. 1-67.

104.   R. C. Oldenborg, C. R. Dickson, and R. N. Zare, "A New Electronic Band System of PbO," *J. Mol. Spectrosc.* **58**, 283-300 (1975).

105.   F. Engelke and R. N. Zare, "Chemi-Ionization of Ca, Sr, Ba Atoms with ClO2 and Cl2O," in *Electronic and Atomic Collisions:  Abstracts of Papers of the IXth International Conference on the Physics of Electronic and Atomic Collisions, Vol. II*, edited by J. S. Risley and R. Geballe.  University of Washington Press: Seattle, 1975, pp. 928-929.

106.   R. N. Zare, "Laser Fluorimetry," *Lecture Notes in Physics*, Vol. 43, Springer-Verlag, New York, NY, pp. 112-120 (1975).

107.   A. B. Bradley and R. N. Zare, "Laser Fluorimetry.  Sub-Part-Per- Trillion Detection of Solutes," *J. Am. Chem. Soc.* **98**, 620-621 (1976).

108.   S. Datta, R. W. Anderson, and R. N. Zare, "Laser Isotope Separation Using an Intracavity Absorption Technique," *J. Chem. Phys.* **63**, 5503-5505 (1975).

108a. J. I. Steinfeld and R. N. Zare, “Tunable Lasers and their Application in Analytical Chemistry,” *C R C Critical Reviews in Analytical Chemistry*, **5**, 225-241 (1975).

109.   C. R. Dickson, H. U. Lee, R. C. Oldenborg, and R. N. Zare, "Efforts to Develop a Prototype Electronic-Transition Laser from the Chemical Reactions of Laser-Generated Metal Vapors," in *Electronic Transition Lasers*, edited by J. I. Steinfeld.  MIT Press: Cambridge, MA, 1976, pp. 43-47.

110.   H. U. Lee and R. N. Zare, "A Low Temperature Source for the Generation of Uranium Vapor," *J. Chem. Phys.* **64**, 431-432 (1976).

111.   J. G. Pruett and R. N. Zare, "State-to-State Reaction Rates:  Ba + HF(v=0,1) → BaF(v=0-12) + H," *J. Chem. Phys.* **64**, 1774-1783 (1976).

112.   G. P. Smith and R. N. Zare, "Angular Distribution of Product Internal States using Laser Fluorescence Detection:  The Ba + KCl Reaction," *J. Chem. Phys.* **64**, 2632-2640 (1976).

113.   K. L. Saenger, R. N. Zare, and C. W. Mathews, "A Reexamination of the Spin-Rotation Constant for 2Π States:  The A-X Band System of HCl+," *J. Mol. Spectrosc.* **61**, 216-230 (1976).

114.   F. Engelke, R. K. Sander, and R. N. Zare, "Crossed-Beam Chemiluminescent Studies of Alkaline Earth Atoms with ClO2," *J. Chem. Phys.* **65**, 1146-1155 (1976).

115.   D. L. Albritton, A. L. Schmeltekopf, W. J. Harrop, R. N. Zare, and J. Czarny, "An Analysis of the O2+ b 4Σg- - a 4Πu First Negative Band System," *J. Mol. Spectrosc.* **67**, 157-184 (1977).

116.   R. K. Sander, B. Soep, and R. N. Zare, "Observation of Radiationless Processes in a Molecular Beam," *J. Chem. Phys.* **64**, 1242-1243 (1976).

117.   D. L. Albritton, A. L. Schmeltekopf, and R. N. Zare, "A Method for Merging the Results of Separate Least-Squares Fits and Testing for Systematic Errors," *J. Mol. Spectrosc.* **67**, 132-156 (1977).

118.   C. R. Dickson, J. B. Kinney, and R. N. Zare, "Determination of D0 from the Chemiluminescent Reaction Ba + I2," *Chem. Phys.* **15**, 243-248 (1976).

119.   P. J. Dagdigian, H. W. Cruse, and R. N. Zare, "Vibrational State Analysis of Unrelaxed BaI from the Reactions Ba + CH3I and Ba + CH2I2," *Chem. Phys.* **15**, 249-260 (1976).

120.   S. Datta and R. N. Zare, "Laser Separation of Chlorine Isotopes by Photochemical Reactions of Iodine Monochloride," in *Proceedings of the Technical Program*, Electro-Optical Systems Design Conference, International Laser Exposition.  Industrial and Scientific Conf. Management, Inc.: Anaheim, CA, 1975, pp. 196-201.

121.   D. L. Feldman and R. N. Zare, "Evidence for Predissociation of Rb into Rb\* (2Π3/2) and Rb(2Σ1/2)," *Chem. Phys*. **15**, 415-420 (1976).

122.   C. D. Caldwell and R. N. Zare, "Optical Pumping by Photoionization:  Alignment of the Cd II 2D Ion," *Bull. Am. Phys. Soc.* **21**, 85 (1976).

123.   F. Engelke, J.C. Whitehead, and R. N. Zare, "The Four-Centre Reaction I2\* + F2 Studied by Laser-Induced Chemiluminescence in Molecular Beams," *Faraday Disc. Chem. Soc*. **62**, 222-231 (1977).

124.   A. Bergman, C. R. Dickson, S. D. Lidofsky, and R. N. Zare, "Laser Generation of Transient Photocurrents in Liquids without the Application of an Electric Field,” *J. Chem. Phys.* **65**, 1186-1191 (1976).

125.   F. Engelke and R. N. Zare, "Crossed-Beam Chemiluminescence:  The Alkaline Earth Rearrangement Reaction M + S2Cl2" *Chem. Phys.* **19**, 327-340 (1977).

126.   C. D. Caldwell and R. N. Zare, "Alignment of Target Atoms by Photoionization," in *Abstracts, Fifth International Conf. on Atomic Physics*, edited by R. Marrus, M. H. Prior, and H. A. Shugart.  Berkeley, CA, 1976, pp. 425-426.

127.   D. M. Brenner, G. P. Smith, and R. N. Zare, "Rearrangement of the *o*-Tolyl Radical to the Benzyl Radical at Zero Pressure," *J. Am. Chem. Soc.* **98**, 6707-6708 (1976).

128.   S. Green and R. N. Zare, "*Ab Initio* Calculation of the Spin-Rotation Constant for 2Π Diatomics:  Test of the Van Vleck Approximation," *J. Mol. Spectrosc.* **64**, 217-222 (1977).

129.   A. Bergman, C. R. Dickson, and R. N. Zare, "Observation of Laser- Generated Transient Diffusion Currents in Liquids and Solids," in *Proceedings of the Technical Program*, Electro-Optical Systems Design Conf. Industrial and Scientific Conf. Management, Inc.: New York, 1976, pp. 320-327.

130.   R. N. Zare, "Chemical Dynamics," in *Science Year 1976* (The World Book Science Annual).  Field Enterprises Education Corp.: Chicago, 1975.

131.   H. U. Lee and R. N. Zare, "Chemiluminescent Spectra of YbF and YbCl," *J. Mol. Spectrosc.* **64**, 233-243 (1977).

132.   R. N. Zare, "Laser Separation of Isotopes," *Sci. Am.* **236**, 86-98 (1977).

133.   G. J. Diebold, F. Engelke, H. U. Lee, J. C. Whitehead, and R. N. Zare, "Chemi-Ionization Reactions of Ca, Sr, Ba, and Yb Atoms with the Halogen and Interhalogen Molecules," *Chem. Phys.* **20**, 265-269 (1977).

134.   G. J. Diebold and R. N. Zare, "Laser Fluorimetry:  Subpicogram Detection of Aflatoxins using High-Pressure Liquid Chromatography," *Science* **196**, 1439-1441 (1977).

135.   D. M. Brenner, S. Datta, and R. N. Zare, "Laser Isotope Separation:  Photochemical Scavenging of Chlorine-37 by Bromobenzene," *J. Am. Chem. Soc.* **99**, 4554-4561 (1977).

136.   D. L. Monts and R. N. Zare, "Resolution of the Discrepancy Concerning the A' Values of the NO2 5933 Å Band," *J. Mol. Spectrosc.* **65**, 167-168 (1977).

137.   C. R. Dickson, S. M. George, and R. N. Zare, "Determination of Absolute Photon Yields under Single-Collision Conditions," *J. Chem. Phys.* **67**, 1024-1030 (1977).

138.   C. D. Caldwell and R. N. Zare, "Alignment of Cd Atoms by Photoionization," *Phys. Rev. A* **16**, 255-262 (1977).

139.   Z. Karny and R. N. Zare, "Infrared Laser Photochemistry:  Evidence for Heterogeneous Decomposition," *Chem. Phys.* **23**, 321-325 (1977).

140.   C. R. Dickson and R. N. Zare, "Spectroscopic Study of Pb + F2 Chemiluminescence," *Optica Pura y Aplicada* **10(3),** 157-168 (1977).

141.   G. J. Diebold, F. Engelke, D. M. Lubman, J. D. Whitehead, and R. N. Zare, "Infrared Multiphoton Dissociation of SF6 in a Molecular Beam:  Observation of F Atoms by Chemi-ionization Detection," *J. Chem. Phys.* **67**, 5407-5409 (1977).

142.   G. P. Smith, J. C. Whitehead, and R. N. Zare, "Bimodal Distribution of BaI Vibrational States from the Reaction Ba + CF3I," *J. Chem. Phys.* **67**, 4912-4916 (1977).

143.   H. Figger, D. L. Monts, and R. N. Zare, "Anomalous Magnetic Depolarization of Fluorescence from the NO2 2B2 State," *J. Mol. Spectrosc.* **68**, 388-398 (1977).

144.   R. N. Zare, "Laser Techniques for Determining State-to-State Reaction Rates," *ACS Symposium Series* **56**, 50-71 (1977).

145.   D. L. Feldman, R. K. Lengel, and R. N. Zare, "Multiphoton Ionization:  A Method for Characterizing Molecular Beams and Beam Reaction Products," *Chem. Phys. Lett.* **52**, 413-417 (1977).

146.   R. C. Estler and R. N. Zare, "Determinations of Bond Energies by Time-of-Flight Single-Collision Chemiluminescence," *Chem. Phys.* **28**, 253-263 (1978).

147.   R. C. Estler and R. N. Zare, "Laser-Induced Chemiluminescence:  Variation of Reactions Rate with Reagent Approach Geometry," *J. Am. Chem. Soc.* **100**, 1323-1324 (1978).

148.   Z. Karny and R. N. Zare, "Effect of Vibrational Excitation on the Molecular Beam Reactions of Ca and Sr with HF and DF," *J. Chem. Phys.* **68**, 3360-3365 (1978).

149.   D. K. Hsu, D. L. Monts, and R. N. Zare, *Spectral Atlas of Nitrogen Dioxide:  5530 to 6480 Å,* Academic Press, Inc.: New York, 1978.

150.   R. Naaman, D. M. Lubman, and R. N. Zare, "Radiationless Processes in a Molecular Beam:  Time Resolved Emission from Benzophenone," *Chem. Phys.* **32**, 17-22 (1978).

151.   G. L. Catchen, J. Husain, and R. N. Zare, "Scattering Kinematics:  Transformation of Differential Cross Sections between Two Moving Frames," *J. Chem. Phys.* **69**, 1737-1741 (1978).

152.   G. J. Diebold, N. Karny, R. N. Zare, and L. M. Seitz, "Laser Fluorimetric Determination of Aflatoxin B1 in Corn," *J. Assoc. Off. Anal. Chem.* **62**, 564-569 (1979).

153.   G. J. Diebold and R. N. Zare, "Laser Fluorimetry:  Detection of Aflatoxin B1 in Contaminated Corn," in *New Applications of Lasers to Chemistry,* G. Hieftje ed., ACS Symposium Series 85, pp. 80-90 (1978).

154.   R.K. Lengel and R. N. Zare, "Experimental Determination of the Singlet-Triplet Splitting in Methylene," *J. Am. Chem. Soc.* **100**, 7495-7499 (1978).

155.   R. Naaman, D. M. Lubman, and R. N. Zare, "Time Resolved Emission from Benzophenone in a Molecular Beam," in *Advances in Laser Chemistry*, Springer Series in Chemical Physics, edited by A. H. Zewail.  Springer: New York, 1978.

156.   H. Schor, S. Chapman, S. Green, and R. N. Zare, "Theoretical Study of Collinear Be + FH(v1) → BeF(v2) + H," *J. Chem. Phys.* **69**, 3790-3806 (1978).

157.   H. G. Weber, P. J. Brucat, W. Demtröder, and R. N. Zare, "Measurement of NO2 2B2 State g Values by Optical Radio Frequency Double Resonance," *J. Mol. Spectrosc.* **75**, 58-63 (1979).

158.   Z. Karny, A. Gupta, R. N. Zare, S. T. Lin, J. Nieman, and A. M. Ronn "Collisionless Infrared Multiphoton Production of Electronically Excited Parent Molecules," *Chem. Phys.* **37**, 15-20 (1979).

159.   Z. Karny, R. Naaman, and R. N. Zare, "Production of Excited Metal Atoms by UV Multiphoton Dissociation of Metal Alkyl and Metal Carbonyl Compounds," *Chem. Phys. Lett.* **59**, 33-37 (1978).

160.   H. G. Weber, P. J. Brucat, and R. N. Zare, "A Simple Model for the Difference between Coherence Time and Radiative Lifetime in NO2," *Chem. Phys. Lett.* **60**, 179-183 (1979).

161.   S. Datta, J. I. Brauman, and R. N. Zare, "Isotope Enrichment and Stereochemistry of the Products from the Reaction of Electronically Excited Iodine Monochloride with *cis-* and *trans-*1,2-Dibromoethylene," *J. Am. Chem. Soc.* **101**, 7173-7176 (1979).

162.   J. Allison and R. N. Zare, "Study of Excited Fragment Emission from the Electron Impact Dissociation of Volatile Mercury(II) Halides," *Chem. Phys.* **35**, 263-267 (1978).

163.   Z. Karny, R.C. Estler, and R. N. Zare, "Effect of Reagent Orientation and Rotation upon Product State Distribution in the Reaction Sr + HF(v=1,J) → SrF(v',J') + H," *J. Chem. Phys.* **69**, 5199-5201 (1978).

164.   H. Schor, S. Chapman, S. Green, and R. N. Zare, "Dynamics of the Collinear Be + FH → BeF + H Reaction," *J. Phys. Chem.* **83**, 920-922 (1979).

165.   G. J. Diebold, N. Karny, and R. N. Zare, "Determination of Zearalenone in Corn by Laser Fluorimetry," *Anal. Chem.* **51**, 67-69 (1979).

166.   R. N. Zare, "Laser-Induced Chemical Processes:  Reactions with Oriented Reagents," in *Laser-Induced Processes in Molecules, Springer Series in Chemical Physics,* Vol. 6, edited by K. L. Kompa and S. D. Smith.  Springer: New York, 1978, pp. 225-231.

167.   R. N. Zare, "A New Light on Chemistry," in *Science Year 1979.*  World Book--Childcraft International, Inc.: Chicago, 1979, pp. 210-223.

168.   D. L. Monts, B. Soep, and R. N. Zare, "Rotational Analysis of the NO2 6125 Å Region," *J. Mol. Spectrosc.* **77**, 402-428 (1979).

169.   T. Kiang, R. C. Estler, and R. N. Zare, "Upper and Lower Bounds on the F5S-F Bond Energy," *J. Chem. Phys.* **70**, 5925-5926 (1979).

170.   H. G. Weber, P. J. Brucat, and R. N. Zare, "Evidence for the Preparation of a Nonstationary State from the Optical Double Resonance Spectrum of NO2," *Chem. Phys. Lett.* **63**, 217-220 (1979).

171.   R. Naaman, D. M. Lubman, and R. N. Zare, "Vibrational Energy Redistribution in Glyoxal following Internal Conversion, *J. Chem. Phys.* **71**, 4192-4200 (1979).

172.   S. D. Lidofsky, T. Imasaka, and R. N. Zare, "Laser Fluorescence Immunoassay of Insulin," *Anal. Chem.* **51**, 1602-1605 (1979).

173.   E. D. Poliakoff, S. H. Southworth, D. A. Shirley, K. H. Jackson, and R. N. Zare, "Polarized Fluorescence from Photodissociation Fragments:  A Study of ICN Photolysis using Synchrotron Radiation," *Chem. Phys. Lett.* **65**, 407-409 (1979).

174.   R. N. Zare, "Polanyi Memorial Lecture" for Kinetics of State-Selected Species, *Faraday Disc.* **67**, 7-15 (1979).

175.   J. Allison, T. Kondow, and R. N. Zare, "Laser-Induced Fluorescence Measurement of the Nascent Rotational Distribution of N2+ (X 2Σg+) formed by Electron Impact on N2," *Chem. Phys. Lett.* **64**, 202-204 (1979).

176.   T. Imasaka and R. N. Zare, "Enzyme Amplification Laser Fluorimetry," *Anal. Chem.* **51**, 2082-2085 (1979).

177.   M. T. Macpherson, J. P. Simons, and R. N. Zare, "Polarized Photofluorescence Excitation Spectroscopy.  Calculation of the Degree of Polarization of the Fluorescence from Diatomic Molecular Fragments Produced through Photodissociation of Triatomic Molecules," *Mol. Phys.* **38,** 2049-2055 (1979).

178.   D. L. Albritton, A. L. Schmeltekopf, and R. N. Zare, "Potential Energy Curves for NO+," *J. Chem. Phys.* **71,** 3271-3279 (1979).

179.   J. Husain, J. R. Wiesenfeld, and R. N. Zare, "Photofragment Fluorescence Polarization Following Photolysis of HgBr2 at 193 nm," *J. Chem. Phys.* **72**, 2479-2483 (1980).

180.   D. M. Lubman, R. Naaman, and R. N. Zare, "Multiphoton Ionization of Azulene and Naphthalene," *J. Chem. Phys.* **72**, 3034-3040 (1980).

181.   A. Gupta, D. S. Perry, and R. N. Zare, "Effect of Reagent Translation on the Dynamics of the Exothermic Reaction Ba + HF," *J. Chem. Phys.* **72**, 6237-6249 (1980).

182.   A. Gupta, D. S. Perry, and R. N. Zare, "Comparison of Reagent Translation and Vibration on the Dynamics of the Endothermic Reaction Sr + HF," *J. Chem. Phys.* **72**, 6250-6257 (1980).

183.   R. N. Zare and R. B. Bernstein, "State-to-State Reaction Dynamics," *Physics Today* **33**, 43-50 (1980).

184.   T. Kiang and R. N. Zare, "Stepwise Bond Dissociation Energies in Sulfur Hexafluoride," *J. Am. Chem. Soc.* **102**, 4024-4029 (1980).

185.   C. M. Miller and R. N. Zare, "Time Dependence of CN Internal Energy Distribution Following IR Multiphoton Dissociation of Vinyl Cyanide," *Chem. Phys. Lett.* **71**, 376-380 (1980).

186.   R. Naaman, D. M. Lubman, and R. N. Zare, "Does Internal Conversion Result in the Statistical Redistribution of Energy?" *J. Molecular Structure* **59**, 225-235 (1980).   Also listed in *Spectroscopy in Chemistry and Physics: Modern Trends,* edited by F. J. Comes, A. Müller, and W.J. Orville-Thomas.  Elsevier Scientific Publishing Co.: Amsterdam, 1980, p. 225.

187.   W. F. Coleman, M. G. Prisant, and R. N. Zare, "A Laser-Induced Transient Photovoltaic Effect Using Blocked Electrodes," *J. Phys. Chem.* **84**, 2685-2688 (1980).

188.   T. Kiang and R. N. Zare, "Stepwise Bond Dissociation Energies for the Removal of Fluorine from Thionyl Fluoride and Sulphuryl Fluoride," *J. C. S. Chem. Comm.* 1228-1229 (1980).

189.   C. R. Webster, L. Woste, and R. N. Zare, "Generation of UV Radiation (250-260 nm) from Intracavity Doubling of a Single-Mode Ring Dye Laser," in *Lasers and Applications*. Springer Verlag, 1981.

190.   C. R. Webster, L. Woste, and R. N. Zare, "Narrow-Band UV Radiation (250-260 nm) from Intracavity Doubling a Single-Mode Ring Dye Laser," *Optics Commun.* **35**, 435-440 (1980).

191.   S. D. Lidofsky, W. D. Hinsberg III, and R. N. Zare, "Enzyme-Linked Sandwich Immunoassay for Insulin using Laser Fluorimetric Detection," *Proc. Natl. Acad. Sci.USA* **78,** 1901-1905 (1981).

192.   D. S. Perry, A. Gupta, and R. N. Zare, "Use of Lasers in the Study of State-to-State Reaction Dynamics: Ba, Sr + HF," *Proceedings Technical Program* - Electro-Optic/Laser Conference (1980).

193.   C. R. Webster and R. N. Zare, "Photochemical Isotope Separation of Hg-196 by Reaction with Hydrogen Halides," *J. Phys. Chem.* **85**, 1302-1305 (1981).

194.   E. D. Poliakoff, J. L. Dehmer, D. Dill, A. C. Parr, K. H. Jackson, and R. N. Zare, "Polarization of Fluorescence Following Molecular Photoionization," *Phys. Rev. Lett.* **46**, 907-910 (1981).

195.   G. M. McClelland, G. D. Kubiak, H. G. Rennagel, and R. N. Zare, "Determination of Internal-State Distributions of Surface Scattered Molecules:   Incomplete Rotational Accommodation of NO on Ag(111)," *Phys. Rev. Lett.* **46**, 831-834 (1981).

196.   C. T. Rettner, L. Woste, and R. N. Zare, "Origin of InI Emission in Laser Studies of the Crossed Beam Reaction In + I2," *Chem. Phys.* **58**, 371-383 (1981).

197.   C. T. Rettner, C. R. Webster, and R. N. Zare, "Laser Optogalvanic Effect in a Pure Iodine Discharge," *J. Phys. Chem.* **85**, 1105-1107 (1981).

198.   D. Proch, D. M. Rider, and R. N. Zare, "Unimolecular Fragmentation Kinetics by Multiphoton Ionization," *Chem. Phys. Lett.* **81**, 430-434 (1981).

199.   G. W. Loge and R. N. Zare, "Dependence of Diatomic Photofragment Fluorescence Polarization on Triatomic Predissociation Lifetime," *Mol. Phys.* **43**, 1419-1428 (1981).

200.   M. G. Prisant, C. T. Rettner, and R. N. Zare, "Measurement of Product Alignment in Beam-Gas Chemiluminescent Reactions," *J. Chem. Phys.* **75**, 2222-2230 (1981).

201.   W. D. Hinsberg, III, K. H. Milby, and R. N. Zare, "Determination of Insulin in Serum by Enzyme Immunoassay with Fluorimetric Detection," *Anal. Chem.* **53**, 1509-1512 (1981).

202.   M. G. Prisant, C. T. Rettner, and R. N. Zare, "Product Polarization in Reactive Scattering in Beam-Gas Systems," in *Physics of Electronic and Atomic Collisions*, a book of invited papers for the XII IPEAC 1981, edited by S. Datz.  North-Holland: Amsterdam, 1982, pp. 723-732.

203.   C. T. Rettner and R. N. Zare, "Effect of Atomic Reagent Approach Geometry on Electronic State Branching:  The Ca(1P1) + HCl Reaction," *J. Chem. Phys.* **75**, 3636-3637 (1981).

204.   W. D. Hinsberg, III, K. H. Milby, S. D. Lidofsky, and R. N. Zare, "Application of Laser Fluorimetry to Enzyme-Linked Immunoassay," *SPIE Proceedings* **286**, 132-138 (1981).

205.   J. M. Brown, D. J. Milton, J. K. G. Watson, R. N. Zare, D. L. Albritton, M. Horani, and J. Rostas, "Higher-Order Fine Structure of the *a*4Πu State of O2+," *J. Mol. Spectrosc.* **90**, 139-151 (1981).

206.   M. A. Johnson, C. R. Webster, and R. N. Zare, "Rotational Analysis of Congested Spectra: Application of Population Labeling to the BaI *C-X* System," *J. Chem. Phys.* **75**, 5575-5577 (1981).

207.   C. M. Miller, J. S. McKillop, and R. N. Zare, "Effect of Intensity on Fragment Internal State Distributions in the Infrared Multiphoton Dissociation of Vinyl Cyanide," *J. Chem. Phys.* **76**, 2390-2398 (1982).

208.   C. R. Webster, P. J. Brucat, and R. N. Zare, "Determination of the Electric Dipole Moment of the HSO Radical in its X̃2*A"*(000) and Ã2*A'*(003) Electronic States," *J. Mol. Spectrosc.* **92**, 184-202 (1982).

209.   C. H. Greene and R. N. Zare, "Photoionization-Produced Alignment of Cd," *Phys. Rev.* A **25**, 2031-2037 (1982).

210.   D. M. Lubman, C. T. Rettner, and R. N. Zare, "How Isolated are Molecules in a Molecular Beam?" *J. Phys. Chem.* **86**, 1129-1135 (1982).

211.   E. E. Marinero, C. T. Rettner, and R. N. Zare, "Quantum-State- Specific Detection of Molecular Hydrogen by Three-Photon Ionization," *Phys. Rev. Lett.* **48,** 1323-1326 (1982).

212.   M. G. Prisant, C. T. Rettner, and R. N. Zare, "Dependence of Product Alignment on Product Vibration for the Ca + F2 Chemiluminescent Reaction," *Chem. Phys. Lett.* **88**, 271-274 (1982).

213.   R. Vasudev and R. N. Zare, "Laser Optogalvanic Study of HCO State Predissociation," *J. Chem. Phys.* **76**, 5267-5270 (1982).

214.   R. N. Zare, "Optical Preparation of Aligned Reagents," *Ber. Bunsenges. Phys. Chem.* **86**, 422-425 (1982).

215.   C. T. Rettner and R. N. Zare, "Effect of Atomic Reagent Approach Geometry on Reactivity: Reactions of Aligned Ca(1P1) with HCl, Cl2 and CCl4," *J. Chem. Phys.* **77**, 2416-2429 (1982).

216.  J. S. McKillop, R. J. Gordon, and R. N. Zare, "Effect of Pulse Intensity Distributions on Fragment Internal Energy in the Infrared Multiphoton Dissociation of Vinyl Cyanide," *J. Chem. Phys.* **77**, 2895- 2901 (1982).

217.   D. M. Lubman and R. N. Zare, "Isotopic Analysis of Iodine by Multiphoton Ionization," *Anal. Chem.* **54**, 2117-2120 (1982).

218.   M. A. Johnson, J. Rostas, and R. N. Zare, "Optical-Optical Double Resonance on Cooled Molecular Ions: Rotational Assignments in the Perturbed CO2+B-X System," *Chem. Phys. Lett.* **92**, 225-231 (1982).

219.   D. W. Chandler, W. E. Farneth, and R. N. Zare, "A Search for Mode-Selective Chemistry: The Unimolecular Dissociation of *t*-Butyl Hydroperoxide Induced by Vibrational Overtone Excitation," *J. Chem. Phys.* **77**, 4447-4458 (1982).

220.   C. H. Greene and R. N. Zare, "Photofragment Alignment and Orientation," *Ann. Rev. Phys. Chem.* **33**, 119-150 (1982).

221.   S. L. Anderson, D. M. Rider, and R. N. Zare, "Multiphoton Ionization Photoelectron Spectroscopy: A New Method for Determining Vibrational Structure of Molecular Ions," *Chem. Phys. Lett.* **93**, 11-15 (1982).

222.   C. Noda and R. N. Zare, "Relation between Classical and Quantum Formulations of the Franck-Condon Principle: The Generalized *r*-Centroid Approximation," *J. Mol. Spectrosc.* **95**, 254-270 (1982).

223.   J. E. Hurst, Jr., G. D. Kubiak, and R. N. Zare, "Statistical Averaging in Rotationally Inelastic Gas-Surface Scattering: The Role of Surface Atom Motion,” *Chem. Phys. Lett.* **93**, 235-239 (1982).

224.   P. J. Brucat and R. N. Zare, "NO2 *`2B2* State Properties from Zeeman Quantum Beats," *J. Chem. Phys.* **78**, 100-111 (1983).

225.   E. E. Marinero, R. Vasudev, and R. N. Zare, "The *E, F* 1Σ+g Double-Minimum State of Hydrogen: Two-Photon Excitation of Inner and Outer Wells," *J. Chem. Phys.* **78**, 692-699 (1983).

226.   E. E. Marinero, C. T. Rettner, R. N. Zare, and A. H. Kung, "Excitation of H2 Using Continuously Tunable Coherent XUV Radiation (97.3 - 102.3 nm)," *Chem. Phys. Lett.* **95**, 486-491 (1983).

227.   R. Vasudev, R. N. Zare, and R. N. Dixon, "Dynamics of Photodissociation of HONO at 369 nm: Motional Anisotropy and Internal State Distribution of the OH Fragment," *Chem. Phys. Lett.* **96**, 399-402 (1983).

228.   E. E. Marinero, C. T. Rettner, and R. N. Zare, "Laser-Induced Photoionization of Molecular Hydrogen: A Technique to Measure Rovibrational Ground State Populations," in *Laser Techniques for Extreme Ultraviolet Spectroscopy*, edited by T. J. McIlrath and R. R. Freeman.  American Institute of Physics: New York, 1982, pp. 400-401.

229.   M.-C. Chuang, J. E. Baggott, D. W. Chandler, W. E. Farneth, and R. N. Zare, "Unimolecular Decomposition of *t*-Butylhydroperoxide by Direct Excitation of the 6-0 O-H Stretching Overtone," *Faraday Discuss. Chem. Soc.* **75**, 301-313 (1983).

230.   C. H. Greene and R. N. Zare, "Determination of Product Population and Alignment Using Laser-Induced Fluorescence," *J. Chem. Phys.* **78**, 6741-6753 (1983).

231.   R. Altkorn, F. E. Bartoszek, J. DeHaven, G. Hancock, D. S. Perry, and R. N. Zare, "Effect of Reagent Rotational Energy on Product-State Distribution in the Reaction Ca + HF → CaF + H," *Chem. Phys. Lett.* **98**, 212-216 (1983).

232.   B. H. Wells, E. B. Smith, and R. N. Zare, "The Stability of the RKR Inversion Procedure to Errors in the Spectroscopic Data: Origin of the Inner Wall Ripple," *Chem. Phys. Lett*. **99**, 244-249 (1983).

233.   A. H. Kung, C. T. Rettner, E. E. Marinero, and R. N. Zare, "Pulsed Supersonic Jets in VUV and XUV Generation," in *Laser Spectroscopy VI Proc. 6th Intern. Conf. Interlaken*, Springer Series in Optical Sciences, edited by H. P. Weber and W. Luthy.  Springer: New York, 1983.

234.   C. T. Rettner, E. E. Marinero, and R. N. Zare, "State-to-State Reaction Dynamics: H + D2 → HD + D," in *Electronic and Atomic Collisions*, a book of invited papers of the XIII International Conference on the Physics of Electronic and Atomic Collisions, edited by J. Eichler, I. V. Hertel, and N. Stolterfoht.  North-Holland Publishing Co.: Amsterdam, 1983, pp. 51-61.

235.   J. C. D. Brand, J. H. Callomon, K. K. Innes, J. Jortner, S. Leach, D. H. Levy, A. J. Merer, I. M. Mills, C. B. Moore, C. S. Parmenter, D. A. Ramsay, K. N. Rao, E. W. Schlag, J. K. G. Watson, and R. N. Zare, "The Vibrational Numbering of Bands in the Spectra of Polyatomic Molecules," *J. Phys. Chem.* **87**, 2636 (1983); *J. Mol. Spectrosc.* **99** 482-483 (1983); *J. Photochem.* **22**, 295-296 (1983).

236.   T. Nagata, T. Kondow, K. Kuchitsu, G. W. Loge, and R. N. Zare, "Photodissociation Dynamics of Triatomic Molecules: Effect of Predissociation on Diatomic Fragment Fluorescence Polarization," *Mol. Phys.* **50**, 49-63 (1983).

237.   J. A. Guest, K. H. Jackson, and R. N. Zare, "Determination of Rotational Alignment of N2+ 2Sand CO+ *B* 2Σ+ Following Photoionization of N2 and CO," *Phys. Rev. A* **28**, 2217-2228 (1983).

238.   G. D. Kubiak, J. E. Hurst, Jr., H. G. Rennagel, G. M. McClelland, and R. N. Zare, "Direct Inelastic Scattering of Nitric Oxide from Clean Ag(111): Rotational and Fine Structure Distributions," *J. Chem. Phys.* **79**, 5163-5178 (1983).

239.   J. A. Guest, M. A. O'Halloran, and R. N. Zare, "Influence of Electron and Nuclear Spin on Photofragment Alignment:  Application to ClCN Dissociation at 157.6 nm," *Chem. Phys. Lett.* **103**, 261-265 (1984).

240.   W. D. Grobman, R. Willoughby, and R. N. Zare, "Method for Determining Photoelectron Angular Distribution, Total Cross Section and Excitation Beam Polarisation from Measurement of the Integrated Flux into Selected Solid Angles," *J. Phys. B: At. Mol. Phys*. **16**, 4467-4480 (1983).

240.5.  G. D. Kubiak, G. O. Sitz, J. E. Hurst, Jr., and R. N. Zare, "The Exposure Dependence and Emission Spectrum of Chemiluminescence Produced During the Oxidation of Si(111) by O2," *J. Electron  Spectrosc. and Related Phenomena* **29**, 139 (1983).

241.   K. H. Milby and R. N. Zare, "Antibodies, Lasers, and Chromatography," *American Clinical Products Review* **3**, 12-19 (1984).

242.   S. L. Anderson, G. D. Kubiak, and R. N. Zare, "Resonance-Enhanced Multiphoton Ionization of Molecular Hydrogen via the E,F State: Photoelectron Energy and Angular Distributions," *Chem. Phys. Lett.* **105**, 22-27, (1984).

243.   J. L. Durant, D. M. Rider, S. L. Anderson, F. D. Proch, and R. N. Zare, "Unimolecular Dissociation Rates of the Chlorobenzene Cation Prepared by Multiphoton Ionization," *J. Chem. Phys.* **80**, 1817-1825 (1984).

244.   M. A. Johnson, R. N. Zare, J. Rostas, and S. Leach, "Resolution of the *Ã*/*B*~ Photoionization Branching Ratio Paradox for the 12CO2+ *B*~ (000) State," *J. Chem. Phys.* **80**, 2407-2428 (1984).

245.   R. Altkorn and R. N. Zare, "Effects of Saturation on Laser-Induced Fluorescence Measurements of Population and Polarization," *Ann. Rev. Phys. Chem.* **35**, 265-289 (1984).

246.   E. E. Marinero, C. T. Rettner, and R. N. Zare, "H + D2 Reaction Dynamics.  Determination of the Product State Distributions at a Collision Energy of 1.3 eV," *J. Chem. Phys.* **80**, 4142-4156 (1984).

247.   R. Vasudev, R. N. Zare, and R. N. Dixon, "State-Selected Photodissociation Dynamics:  Complete Characterization of the OH Fragment Ejected by the HONO State," *J. Chem. Phys.* **80**, 4863-4878 (1984).

248.   P. J. Brucat and R. N. Zare, "Collisional Quenching and Depolarization of NO2 2*B*2 State Fluorescence as Studied by Zeeman Quantum Beat Spectroscopy," *J. Chem. Phys.* **81**, 2562-2570 (1984).

249.   J. A. Guest, M. A. O'Halloran, and R. N. Zare, "Comparison of 12CO2+ and 13CO2+ Alignment Following Photoionization of Carbon Dioxide," *J. Chem. Phys.* **81**, 2689-2695 (1984).

250.   M. G. Prisant, C. T. Rettner, and R. N. Zare, "A Direct Interaction Model for Chemiluminescent Reactions," *J. Chem. Phys.* **81**, 2699-2712 (1984).

251.   C. T. Rettner, E. E. Marinero, R. N. Zare, and A.H. Kung, "Pulsed Free Jets:  Novel Nonlinear Media for Generation of Vacuum Ultraviolet and Extreme Ultraviolet Radiation," *J. Phys. Chem.* **88**, 4459-4465 (1984).

252.   M. G. Prisant and R. N. Zare, "On the Extraction of Population Information from the Chemiluminescence Spectra of Diatomic Molecules," in *Gas-Phase Chemiluminescence and Chemi-Ionization*, proceedings on ACS Symposium, 1984, edited by A. Fontijn.  North-Holland Publishing Co.: Amsterdam, 1985, pp. 189-202.

253.   R. N. Zare, "Laser Chemical Analysis," *Science* **226**, 298-303 (1984).  Also in *Frontiers in the Chemical Sciences,* AAAS, Spindel/Simon: 1986, pp. 117-128.

254.   A.H. Kung, N.A. Gershenfeld, C.T. Rettner, D. S. Bethune, E. E. Marinero, and R. N. Zare, "XUV Generation in Pulsed Free Jets:  Theory of Operation and Application of H2 Detection," in *Laser Techniques in the Extreme Ultraviolet*, AIP Conference Proceedings, edited by S. E. Harris and T. B. Lucetoro.  American Institute of Physics: Boulder, CO, 1984, pp. 10-22.

255.   M. A. Johnson, C. Noda, J. S. McKillop, and R. N. Zare, "Rotational Analysis of the BaI *C* 2Π - *X* 2Σ+ (0,0) Band," *Can. J. Phys*. **62**, 1467-1477 (1984).

256.   G. D. Kubiak, G. O. Sitz, and R. N. Zare, "Recombinative Desorption of H2 and D2 from Cu(110) and Cu(111):  Determination of Nonequilibrium Rovibrational Distributions," *J. Chem. Phys.* **81**, 6397-6398 (1984).

257.   W. E. Conaway, R. J. S. Morrison, and R. N. Zare, "Vibrational State Selection of Ammonia Ions Using Resonant 2 + 1 Multiphoton Ionization," *Chem. Phys. Lett.* **113**, 429-434 (1985).

258.   R. J. S. Morrison, W. E. Conaway, and R. N. Zare, "Effect of Internal and Translational Energy on the NH3+ (*v*) + D2 Ion-Molecule Reaction," *Chem. Phys. Lett*. **113**, 435-440 (1985).

259.   J. E. Kuo, K. H. Milby, W. D. Hinsberg, III, P.R. Poole, V. L. McGuffin, and R. N. Zare, "Direct Measurement of Antigens in Serum by Time-Resolved Fluoroimmunoassay," *Clin. Chem.* **31**, 50-53 (1985).

260.   M. C. Chuang and R. N. Zare, "Recording Opto-Acoustic Spectra with an Acousto-Optic Detection System," *Chem. Phys. Lett*. **115**, 47-50 (1985).

261.   J. E. Baggott, M. C. Chuang, R. N. Zare, H.R. Dubal, and M. Quack, "Structure and Dynamics of the Excited CH-Chromophore in (CF3)3CH," *J. Chem. Phys.* **82**, 1186-1194 (1985).

262.   M. A. Johnson and R. N. Zare, "Rotational Assignment Using Phase Relationships in Optical-Optical Double Resonance: The BaI *C* 2Π - *X* 2Σ+ System," *J. Chem. Phys.* **82**, 4449-4459 (1985).

263.   M. C. Chuang and R. N. Zare, "Evidence for Inhomogeneous Broadening in Vibrational Overtone Transitions:  Formation of 1,3-Cyclohexadiene from *cis*-1,3,5-Hexatriene," *J. Chem. Phys.* **82**, 4791-4801 (1985).

264.   G. D. Kubiak, G. O. Sitz, and R. N. Zare, "Dynamics of Recombinative Desorption of H2 and D2 from Cu(110), Cu(111), and Sulfur-covered Cu(111)," *J. Vac. Sci. Tech. A* **3**, 1649-1654 (1985).

265.   S. L. Anderson, L. Goodman, K. Krogh-Jespersen, A. G. Ozkabak, R. N. Zare, and C. F. Zheng, "Multiphoton Ionization Photoelectron Spectroscopy of Phenol: Vibrational Frequencies and Harmonic Force Field for the 2*B*1 Cation," *J. Chem. Phys.* **82**, 5329-5339 (1985).

266.   V. L. McGuffin and R. N. Zare, "Laser Fluorescence Detection in Microcolumn Liquid Chromatography:  Application to Derivatized Carboxylic Acids," *Appl. Spectrosc.* **39**, 847-853 (1985).

267.   R. Altkorn, R. N. Zare, and C.H. Greene, "Depolarization of Optically Prepared Molecules by Two Randomly Oriented Spins," *Mol. Phys.* **55**, 1-9 (1985).

268.   G. D. Kubiak, G. O. Sitz, and R. N. Zare, "Recombinative Desorption Dynamics: Molecular Hydrogen from Cu(110) and Cu(111)," *J. Chem. Phys.* **83**, 2538-2551 (1985).

269.   W.W. Harrison, D. M. Rider, and R. N. Zare, "Multiphoton Ionization Studies of Iron," *Intl. J. Mass Spectro. & Ion Proc.* **65,** 59-68 (1985).

270.   E. Gassmann, J. E. Kuo, and R. N. Zare, "Electrokinetic Separation of Chiral Compounds," *Science* **230**, 813-814 (1985).

271.   P. J. Brucat and R. N. Zare, "Determination of the Effective Electric Dipole Moments of Selected NO22B2Fine Structure Levels," *Mol. Phys.* **55**, 277-285 (1985).

272.   M. G. Prisant and R. N. Zare, "The Inversion of Diatomic Spectra to Estimates of Population Parameters," *J. Chem. Phys*. **83**, 5458-5467 (1985).

273.   R. N. Dixon, D. Field, and R. N. Zare, "Collisions of OH and Other Orbitally Degenerate Molecules:  A Consistent Treatment of the Azimuthal Dependence of the Interaction Potential," *Chem. Phys. Lett.* **122**, 310-314 (1985).

274.   V. L. McGuffin and R. N. Zare, "Femtomole Analysis of Prostaglandin Pharmaceuticals," *Proc. Natl. Acad. Sci. USA* **82**, 8315-8319 (1985).

275.   C. T. Rettner, E. E. Marinero, R. N. Zare, and A.H. Kung, "Generation of Coherent Extreme Ultraviolet and Vacuum Ultraviolet Radiation Using Pulsed Nozzles," in *Proceedings of S.P.I.E., Los Angeles Technical Symposium in New Lasers for Analytical and Industrial Chemistry*, edited by A. Bernhardt, **461**, 45-52 (1984).

276.   V. L. McGuffin and R. N. Zare, "Applications of Laser Fluorimetry to Microcolumn Liquid Chromatography," in *Chromatography and Separation Chemistry:  Advances and Developments*, ACS Symposium Series No. 297, edited by S. Ahuja.  American Chemical Society: Washington, DC, 1986, pp. 120-136.

277.   G. O. Sitz, R. S. Blake, T. A. Stephenson, R. N. Zare, and G. D. Kubiak, "Quantum-State Detection of Molecular Hydrogen in Gas-Gas and Gas-Surface Scattering Experiments," in *Dèveloppements Rècents en Dynamique Rèactionnelle: Colloque International du Centre National de la Recherche Scientifique*, edited by R. Vetter and J. Viguè, Aussois, 10-14 juin 1985, du CNRS: Paris, 1986, pp. 73-83.

278.   R. J. S. Morrison, W. E. Conaway, T. Ebata, and R. N. Zare, "Vibrationally State-Selected Reactions of Ammonia Ions.  I.  NH3+(*v*) + D2. *J. Chem. Phys.* **84**, 5527-5535 (1986).

279.   C. Noda, J. S. McKillop, M. A. Johnson, J.R. Waldeck, and R. N. Zare, "Information on the Impact Parameter Dependence of the Ba + HI → BaI(*v*=8) + H Reaction," *J. Chem. Phys.* **85**, 856-864 (1986).

280.   D. L. Snavely, R. N. Zare, J. A. Miller, and D. W. Chandler, "Methyl Isocyanide Isomerization Kinetics:  Determination of Collisional Deactivation Parameters Following C-H Overtone Excitation," *J. Phys. Chem.* **90**, 3544-3549 (1986).

281.   R. N. Zare, "The New Spectroscopies," *Physics at the Laser-Atomic Frontier*, Committee on Atomic and Molecular Science, National Academy Press, 1986, pp. 4-13.

282.   W. E. Ernst, J. Kändler, C. Noda, J. S. McKillop, and R. N. Zare, "Hyperfine Structure of the BaI *X* 2Σ+ and *C* 2Π States," *J. Chem. Phys.* **85**, 3735-3743 (1986); see also C. A. Leach, W. E. Ernst, J. Kändler, C. Noda, J. S. McKillop and R. N. Zare, "Erratum: Hyperfine Structure of the BaI *X* 2Σ+ and *C* 2Π States," *J. Chem. Phys.* **95**, 9433 (1991).

283.   H. Joswig, M. A. O'Halloran, R. N. Zare, and M.S. Child, "Photodissociation Dynamics of ICN:  Unequal Population of the CN *X* 2Σ+ Fine-Structure Components," *Faraday Discuss. Chem. Soc*. **82**, 79-88 (1986).

284.   D. Klenerman and R. N. Zare, "How Effective is Internal Excitation in Promoting the HCl + 1,3-Butadiene Addition Reaction?" *Chem. Phys. Lett.* **130**, 190-194 (1986).

285.   T. Ebata and R. N. Zare, "Vibrational Dependence of the NH3+(*v*2) + NO and NO+(v) + NH3 Charge Transfer Cross Sections," *Chem. Phys. Lett.* **130**, 467-472 (1986).

286.   D. C. Jacobs, R. J. Madix, and R. N. Zare, "Reduction of 1+1 Resonance Enhanced MPI Spectra to Population Distributions:  Application to the NO *A* 2Σ+ - *X* 2Π System," *J. Chem. Phys.* **85**, 5469-5479 (1986).

287.   D. C. Jacobs and R. N. Zare, "Reduction of 1+1 Resonance Enhanced MPI Spectra to Populations and Alignment Factors," *J. Chem. Phys.* **85**, 5457-5468 (1986).

288.   M. A. Johnson, J. Allison, and R. N. Zare, "BaI Product State Distribution from the Reaction Ba + CF3I," *J. Chem. Phys.* **85**, 5723-5732 (1986).

289.   D. C. Jacobs, R. J. Madix, and R. N. Zare, "Reduction of 1+1 REMPI Spectra to Population Distributions: Saturation and Intermediate State Alignment Effects," *ILS-II Proceedings Volume* (Advances in Laser Science - II) (1986).

290.   W. E. Ernst, T. P. Softley, L. Tashiro, and R. N. Zare, "XUV Laser Stark Spectroscopy of Xe Autoionizing Rydberg States," in *ILS-II Proceedings Volume* (Advances in Laser Science - II), 1986.

291.   P. Gozel, E. Gassmann, H. Michelsen, and R. N. Zare, "Electrokinetic Resolution of Amino Acid Enantiomers with Copper(II)-Aspartame Support Electrolyte," *Anal. Chem*. **59**, 44-49 (1987).

292.   A. C. Kummel, G. O. Sitz, and R. N. Zare, "Determination of Population and Alignment of the Ground State Using Two-Photon Nonresonant Excitation," *J. Chem. Phys.* **85**, 6874-6897 (1986).

293.   J. Segall, R. N. Zare, H.R. Dubal, M. Lewerenz, and M. Quack, "Tridiagonal Fermi Resonance Structure in the Vibrational Spectrum of the CH Chromophore in CHF3. II. Visible Spectra," *J. Chem. Phys.* **86**, 634-646 (1987).

294.   M. C. Chuang and R. N. Zare, "Rotation-Vibration Spectrum of HT:  Line Position Measurements of the 1-0, 4-0, and 5-0 Bands," *J. Mol. Spectrosc.* **121**, 380-400 (1987).

295.   F. Engelke, J. H. Hahn, W. Henke, and R. N. Zare, "Determination of Phenylthiohydantoin-Amino Acids by Two-Step Laser Desorption/Multiphoton Ionization," *Anal. Chem.* **59**, 909-912 (1987).

296.   M. C. Roach, L. W. Ungar, R. N. Zare, L. M. Reimer, D. L. Pompliano, and J. W. Frost, "Fluorescence Detection of Alkylphosphonic Acids Using p-(9-Anthroyloxy)Phenacyl Bromide," *Anal. Chem*. **59**, 1056-1059 (1987).

297.   C. Noda and R. N. Zare, "Dynamics of Kinematically Constrained Bimolecular Reactions Having Constant Product Recoil Energy," *J. Chem. Phys.* **86**, 3968-3977 (1987).

298.   R. N. Zare and R. D. Levine, "Mechanism for Bond-Selective Processes in Laser Desorption," *Chem. Phys. Lett.* **136**, 593-599 (1987).

299.   J. H. Hahn, R. Zenobi, and R. N. Zare, "Subfemtomole Quantitation of Molecular Adsorbates by Two-Step Laser Mass Spectrometry," *J. Am. Chem. Soc.* **109**, 2842-2843 (1987).

299.5   W. E. Ernst, T.P. Softley, L. M. Tashiro, and R. N. Zare, "Laser  Spectroscopy of Atoms and Molecules Below 100 nm," *Springer Ser. Opt. Sci.* **55**, 462-463 (1987).

300.   R. N. Zare, "Impact of Laser Spectroscopy on Chemistry," in *EICOLS Proceedings Volume*, Eighth International Conference on Laser Spectroscopy.  Springer-Verlag: Berlin, 1987.

301.   R.L. Jaffe, M.D. Pattengill, F.G. Mascarello, and R. N. Zare, "Ca + HF:  The Anatomy of a Chemical Insertion Reaction," *J. Chem. Phys*. **86**, 6150-6170 (1987).

302.   M. A. O'Halloran, H. Joswig, and R. N. Zare, "Alignment of CN from 248 nm Photolysis of ICN:  A New Model of the A Continuum Dissociation Dynamics," *J. Chem. Phys.* **87**, 303-313 (1987).

303.   G. O. Sitz, A. C. Kummel, and R. N. Zare, "Population and Alignment of N2 Scattered from Ag(111)," *J. Vac. Sci. Technol. A* **5**, 513-517 (1987).

304.   R. N. Zare, "Closing Remarks," *Faraday Discuss. Chem. Soc.* **82**, 391- 404 (1986).

305.   G. O. Sitz, A. C. Kummel, and R. N. Zare, "Alignment and Orientation of N2 Scattered from Ag(111), *J. Chem. Phys.* **87**, 3247-3249 (1987).

306.   T. P. Softley, W. E. Ernst, L. M. Tashiro, and R. N. Zare, "A General Purpose XUV Laser Spectrometer:  Some Applications to N2, O2, and CO2," *Chem. Phys*. **116**, 299-309 (1987).

307.   W. E. Conaway, T. Ebata, and R. N. Zare, "Vibrationally State-Selected Reactions of Ammonia Ions. II. NH3+(*v*) + CH4," *J. Chem. Phys.* **87**, 3447-3452 (1987).

308.   W. E. Conaway, T. Ebata, and R. N. Zare, "Vibrationally State- Selected Reactions of Ammonia Ions. III. NH3+(*v*) + ND3 and ND3+(v) + NH3," *J. Chem. Phys.* **87**, 3453-3460 (1987).

309.   K. G. McKendrick, D. J. Rakestraw, and R. N. Zare, "Product State Distributions from the Reaction O(3*P*) + HBr," *Faraday Discuss. Chem. Soc.* **84**, 39-52 (1987).

310.   M. D. Pattengill, R. N. Zare, and R. L. Jaffe, "Effects of Diatomic Reagent Alignment on the A + BC Reaction," *J. Phys. Chem.* **91**, 5489-5495 (1987).

311.   D. C. Jacobs, K. W. Kolasinski, R. J. Madix, and R. N. Zare, "Rotational Alignment of NO Desorbing from Pt(111)," *J. Chem. Phys.* **87**, 5038-5039 (1987).

312.   X. Huang, T.-K. J. Pang, M. J. Gordon, and R. N. Zare, "On-Column Conductivity Detector for Capillary Zone Electrophoresis," *Anal. Chem.* **59**, 2747-2749 (1987).

313.   D. J. Rakestraw, K. G. McKendrick, and R. N. Zare, "Rovibronic State to Rovibronic State Reaction Dynamics:  O(3*P*) + HCl(*v*=2,*J*) → OH(*v'*,*N'*) + Cl(*2P*)," *J. Chem. Phys.* **87**, 7341-7342 (1987).

314.   T. Ebata, W. E. Conaway, and R. N. Zare, "Vibrational Overlap Integrals Between the Neutral and Ion States of NH3 and ND3: Application to the Vibrational Dependence of the NH3+(*v*2) + NH3(O) Symmetric Charge Transfer Reaction," *Intl. J. Mass Spectro. & Ion Proc*. **80**, 51-62 (1987).

315.   R. N. Zare, J. H. Hahn, and R. Zenobi, "Mass Spectrometry of Molecular Adsorbates Using Laser Desorption/Laser Multiphoton Ionization," *Bull. Chem. Soc. Jpn.* **61**, 87-92 (1988).

316.   J. H. Gutow, D. Klenerman, and R. N. Zare, "Comparison of Overtone-Induced and Electronic Photochemistry of Liquid *tert*-Butyl Hydroperoxide:  Supporting Evidence for Vibrational Mode Selectivity," *J. Phys. Chem.* **92**, 172-177 (1988).

317.   X. Huang, M. J. Gordon, and R. N. Zare, "Bias in Quantitative Capillary Zone Electrophoresis Caused by Electrokinetic Sample Injection," *Anal. Chem.* **60**, 375-377 (1988).

318.   X. Huang, M. J. Gordon, and R. N. Zare, "Quantitation of Li+ in Serum by Capillary Zone Electrophoresis with an On-Column Conductivity Detector," *J. Chromatog., Biomed. Appl.* **425**, 385-390 (1988).

319.   J. H. Hahn, R. Zenobi, J. L. Bada, and R. N. Zare, "Application of Two-Step Laser Mass Spectrometry to Cosmogeochemistry:  Direct Analysis of Meteorites," *Science* **239**, 1523-1525 (1988).

320.   M. C. Roach, P. Gozel, and R. N. Zare, "Determination of Methotrexate and Its Major Metabolite, 7-Hydroxymethotrexate, Using Capillary Zone Electrophoresis and Laser-Induced Fluorescence Detection," *J. Chromatog., Biomed. Appl.* **426**, 129-140 (1988).

321.   B. Spencer and R. N. Zare, "Magnetic Susceptibility Measurements Using a Laser-Pendulum Apparatus," *J. Chem. Ed.* **65**, 277-279 (1988).

322.   R. Zenobi, J. H. Hahn, and R. N. Zare, "Zweistufige Laser- Massenspektrometrie fur die Direkte Analytik von Gemischen," *Chimia***42**, 147-149 (1988).

323.   A. C. Kummel, G. O. Sitz, and R. N. Zare, "Determination of Orientation of the Ground State Using Two-Photon Nonresonant Excitation," *J. Chem. Phys.* **88**, 6707-6732 (1988).

324.   A. C. Kummel, G. O. Sitz, and R. N. Zare, "Determination of Population, Alignment, and Orientation Using Laser Induced Fluorescence with Unresolved Emission," *J. Chem. Phys.* **88**, 7357-7368 (1988).

325.   W. E. Ernst, T.P. Softley, and R. N. Zare, "Stark-Effect Studies in Xenon Autoionizing Rydberg States Using a Tunable Extreme-Ultraviolet Laser Source," *Phys. Rev. A* **37**, 4172-4183 (1988).

326.   R. N. Zare.  *Angular Momentum - Understanding Spatial Aspects in Chemistry and Physics.*  John Wiley: New York, 1988.

327.   G. O. Sitz, A. C. Kummel, and R. N. Zare, "Direct Inelastic Scattering of N2 from Ag(111).  I.  Rotational Populations and Alignment," *J. Chem. Phys.* **89**, 2558-2571 (1988).

328.   G. O. Sitz, A. C. Kummel, R. N. Zare, and J.C. Tully, "Direct Inelastic Scattering of N2 from Ag(111).  II.  Orientation," *J. Chem. Phys.* **89**, 2572-2582 (1988).

329.   X. Huang, M. J. Gordon, and R. N. Zare, "Current-Monitoring Method for Measuring the Electroosmotic Flow Rate in Capillary Zone Electrophoresis," *Anal. Chem.* **60**, 1837-1838 (1988).

330.   P. Gozel and R. N. Zare, "Resolution of DL-Amino Acids by Capillary Zone Electrophoresis Using Chiral Electrolytes," *ASTM STP***1009**, 41-53 (1988).

331.   R. Zenobi, J. H. Hahn, and R. N. Zare, "Surface Temperature Measurement of Dielectric Materials Heated by Pulsed Laser Radiation," *Chem. Phys. Lett.* **150**, 361-365 (1988); see also the comment by S. Bauer, B. Ploss, and S. Schwer, *Chem. Phys. Lett.* **186**, 119-122 (1991), and the reply by R. Zenobi, J. H. Hahn, and R. N. Zare, *Chem. Phys. Lett.* **186**, 123-124 (1991).

332.   M. H. Alexander, et al., "A Nomenclature for Λ-Doublet Levels in Rotating Linear Molecules," *J. Chem. Phys.* **89**, 1749-1753 (1988).

333.   K. G. McKendrick, D. J. Rakestraw, R. Zhang, and R. N. Zare, "Dynamics of the Reaction O(3P) + HBr: Experimental Investigation and Theoretical Modeling," *J. Phys. Chem.* **92**, 5530-5540 (1988).

334.   M. J. Gordon, X. Huang, S. L. Pentoney, Jr., and R. N. Zare, "Capillary Electrophoresis," *Science* **242**, 224-228 (1988).

335.   E. Hasselbrink, J.R. Waldeck, and R. N. Zare, "Orientation of the CN X 2Σ+Fragment Following Photolysis of ICN by Circularly Polarized Light," *Chem. Phys.* **126**, 191-200 (1988).

336.   J. Segall and R. N. Zare, "Overtone-Induced Isomerization of Allyl Isocyanide," *J. Chem. Phys.* **89**, 5704-5714 (1988).

337.   R. Zhang, D. J. Rakestraw, K. G. McKendrick, and R. N. Zare, "Comparison of the Ca + HF(DF) and Sr + HF(DF) Reaction Dynamics," *J. Chem. Phys.* **89**, 6283-6294 (1988).

338.   S. L. Pentoney, Jr., X. Huang, D. S. Burgi, and R. N. Zare, "On-Line Connector for Microcolumns:  Application to the On-Column *o*-Phthaldialdehyde Derivatization of Amino Acids Separated by Capillary Zone Electrophoresis," *Anal. Chem.* **60**, 2625-2629 (1988).

339.   R. S. Blake, K.-D. Rinnen, D. A. V. Kliner, and R. N. Zare, "The H + D2 Reaction:  HD(*v*=1,*J*) and HD(*v*=2,*J*) Distributions at a Collision Energy of 1.3 eV," *Chem. Phys. Lett.* **153**, 365-370 (1988).

340.   K.-D. Rinnen, D. A. V. Kliner, R. S. Blake, and R. N. Zare, "The H + D2 Reaction: 'Prompt' HD Distributions at High Collision Energies," *Chem. Phys. Lett.* **153**, 371-375 (1988).

341.   A. C. Kummel, G. O. Sitz, R. N. Zare, and J.C. Tully, "Direct Inelastic Scattering of N2 from Ag(111). III. Normal Incident N2," *J. Chem. Phys.* **89**, 6947-6955 (1988).

342.   R. N. Zare, "Otto Stern and the Double Bank Shot," *Z. Phys. D* **10**, 377-382 (1988).

343.   M.W. Crofton, C.G. Stevens, D. Klenerman, J. H. Gutow, and R. N. Zare, "Overtone Spectra of C-H Oscillators in Cold Molecules," *J. Chem. Phys.* **89**, 7100-7111 (1988).

344.   D. Zhao and R. N. Zare, "Numerical Computation of 9-j Symbols," *Mol. Phys*. **65**, 1263-1268 (1988).

345.   W. Ubachs, L. Tashiro, and R. N. Zare, "Study of the N2 b1Πu State via 1+1 Multiphoton Ionization," *Chem. Phys.* **130**, 1-13 (1989).

346.   B. Spencer and R. N. Zare, "Laser-Based Measurement of Refractive Index Changes:  Kinetics of 2,3-Epoxy-1-Propanol Hydrolysis," *J. Chem. Ed.* **65**, 835-836 (1988).

347.   R. N. Zare, "Photofragment Angular Distributions from Oriented Symmetric-Top Precursor Molecules," *Chem. Phys. Lett.* **156**, 1-6 (1989).

348.   X. Huang, J. A. Luckey, M. J. Gordon, and R. N. Zare, "Quantitative Analysis of Low Molecular Weight Carboxylic Acids by Capillary Zone Electrophoresis/Conductivity Detection," *Anal. Chem*. **61**, 766-770 (1989).

349.   M. J. Bronikowski, R. Zhang, D. J. Rakestraw, and R. N. Zare, "Reaction Dynamics of H + O2 at 1.6 eV Collision Energy," *Chem. Phys. Lett.* **156**, 7-13 (1989).

350.   A. Amrein, H. Hollenstein, M. Quack, R. Zenobi, J. Segall, and R. N. Zare, "Fermi Resonance Structure in the CH Vibrational Overtones of CD3CHO," *J. Chem. Phys.* **90**, 3944-3951 (1989).

351.   J. R. Waldeck, A. C. Kummel, G. O. Sitz, and R. N. Zare, "Determination of Population, Alignment, and Orientation Using Laser Induced Fluorescence with Unresolved Emission. II," *J. Chem. Phys.* **90**, 4112-4114 (1989).

352.   K.-D. Rinnen, D. A. V. Kliner, R. S. Blake, and R. N. Zare, "Construction of a Shuttered Time-of-Flight Mass Spectrometer for Selective Ion Detection," *Rev. Sci. Instrum.* **60**, 717-719 (1989).

353.   D. A. V. Kliner, K.-D. Rinnen, and R. N. Zare, "Effect of Indistinguishable Nuclei on Product Rotational Distributions:  The H + HI → H2 + I Reaction," *J. Chem. Phys.* **90**, 4625-4627 (1989).

354.   J. M. Philippoz, R. Zenobi, and R. N. Zare, "Pulsed Heating of Surfaces:  Comparison between Numerical Simulation, Analytical Models, and Experiments," *Chem. Phys. Lett.* **158**, 12-17 (1989).

355.   D. C. Jacobs, K.W. Kolasinski, R. J. Madix, and R. N. Zare, "Rotational Dynamics of Desorption and Inelastic Scattering for the NO/Pt(111) System," *J. Vac. Sci. Technol. A* **7**, 1871-1877 (1989).

356.   J. Xie and R. N. Zare, "Rotationally State-Selected HBr+:  Preparation and Characterization," *Chem. Phys. Lett.* **159**, 399-405 (1989).

357.   S. L. Pentoney, Jr., R. N. Zare, and J. F. Quint, "On-Line Radioisotope Detection for Capillary Electrophoresis," *Anal. Chem.* **61**, 1642-1647 (1989).

358.   S. W. Allendorf, D. J. Leahy, D. C. Jacobs, and R. N. Zare, "High-Resolution Angle-and Energy-Resolved Photoelectron Spectroscopy of NO: Partial Wave Decomposition of the Ionization Continuum," *J. Chem. Phys.* **91**, 2216-2234 (1989).

358.5.  D. C. Jacobs, K. W. Kolasinski, and R. N. Zare, "Utilization of 1+1 REMPI as a Probe of Rotational Dynamics in Gas-Surface Scattering," *AIP Conference Proceedings* **191**, 426-429 (1989).

359.   D. C. Jacobs, K. W. Kolasinski, S. F. Shane, and R. N. Zare, "Rotational Population and Alignment Distributions for Inelastic Scattering and Trapping/Desorption of NO on Pt(111)," *J. Chem. Phys.* **91**, 3182-3195 (1989).

360.   D. C. Jacobs and R. N. Zare, "Simplified Trajectory Method for Modeling Gas-Surface Scattering:  The NO/Pt(111) System," *J. Chem. Phys.* **91**, 3196-3207 (1989).

361.   J. F. Black, J. R. Waldeck, E. Hasselbrink, and R. N. Zare, "Sub-Doppler Orientation," *J. Chem. Soc., Faraday Trans. 2* **85**, 1044-1047 (1989).

362.   J. F. Black, J. R. Waldeck, and R. N. Zare, "Sub-Doppler Polarisation Studies," *J. Chem. Soc., Faraday Trans. 2* **85**, 1312-1315 (1989).

363.   X. Huang, W. Coleman, and R. N. Zare, "Analysis of Factors Causing Peak Broadening in Capillary Zone Electrophoresis," *J. Chromatog.* **480**, 95-110 (1989).

364.   X. Huang, M. J. Gordon, and R. N. Zare, "Effect of Electrolyte and Sample Concentration on the Relationship between Sensitivity and Resolution in Capillary Zone Electrophoresis Using Conductivity Detection," *J. Chromatog.* **480**, 285-288 (1989).

365.   M. Aguilar, X. Huang, and R. N. Zare, "Determination of Metal Ion Complexes in Electroplating Solutions Using Capillary Zone Electrophoresis with UV Detection," *J. Chromatog.* **480**, 427-431 (1989).

366.   S. L. Pentoney, Jr., R. N. Zare, and J. F. Quint, "Semiconductor Radioisotope Detector for Capillary Electrophoresis," *J. Chromatog.* **480**, 259-270 (1989).

367.   L. M. Tashiro, W. Ubachs, and R. N. Zare, "The HF and DF *B*1Σ+ - *X*1Σ+ and *C*1Π - *X*1Σ+ Band Systems Studied by 1 XUV + 1 UV Resonance Enhanced Multiphoton Ionization," *J. Mol. Spectrosc.* **138**, 89-101 (1989).

368.   A. C. Kummel, G. O. Sitz, R. N. Zare, and J.C. Tully, "Direct Inelastic Scattering of N2 from Ag(111). IV:  Scattering from High Temperature Surface," *J. Chem. Phys.* **91**, 5793-5801 (1989).

369.   D. C. Jacobs, K. W. Kolasinski, R. J. Madix, and R. N. Zare, "Rotational Alignment of NO from Pt(111):  Inelastic Scattering and Molecular Desorption," *J. Chem. Soc., Faraday Trans. 2* **85**, 1325-1335 (1989).

370.   V. P. Burolla, S. L. Pentoney, Jr., and R. N. Zare, "High-Performance Capillary Electrophoresis," *American Biotech. Lab.* **7**, 20-26 (1989).

371.   C. H. Kuo, C. G. Beggs, P. R. Kemper, M. T. Bowers, D. J. Leahy, and R. N. Zare, "Experimental Measurement of the Radiative Lifetime of NO+(X 1Σ+, *v*=1, 2 and 3)," *Chem. Phys. Lett.* **163**, 291-296 (1989).

372.   K. D. Rinnen, D. A. V. Kliner, R. N. Zare, and W. M. Huo, "Quantitative Determination of HD Internal State Distributions via (2+1) REMPI," *Israel J. Chem.* **29**, 369-382 (1989).

373.   R. Zenobi, J. M. Philippoz, P.R. Buseck, and R. N. Zare, "Spatially Resolved Organic Analysis of the Allende Meteorite," *Science* **246**, 1026-1029 (1989).

374.   K. D. Rinnen, D. A. V. Kliner, and R. N. Zare, "The H + D2 Reaction: Quantum-State Distributions at Collision Energies of 1.3 and 0.55 eV," *J. Chem. Phys.* **91**, 7514-7529 (1989).

375.   D. A. V. Kliner and R. N. Zare, "D + H2 (*v*=1,*J*=1):  Rovibronic State to Rovibronic State Reaction Dynamics," *J. Chem. Phys.* **92**, 2107-2109 (1990).

376.   M. J. Bronikowski and R. N. Zare, "Simple Model for Λ-Doublet Propensities in Bimolecular Reactions," *Chem. Phys. Lett.* **166**, 5-10 (1990).

377.   D. A. V. Kliner, K. D. Rinnen, and R. N. Zare, "The D + H2 Reaction: Comparison of Experiment with Quantum-Mechanical and Quasiclassical Calculations," *Chem. Phys. Lett.* **166**, 107-111 (1990).

378.   X. Huang and R. N. Zare, "Use of an On-Column Frit in Capillary Zone Electrophoresis:  Sample Collection," *Anal. Chem.* **62**, 443-446 (1990).

379.   J. F. Black, J. R. Waldeck, and R. N. Zare, "Evidence for Three Interacting Potential Energy Surfaces in the Photodissociation of ICN at 249 nm," *J. Chem. Phys.* **92**, 3519-3538 (1990).

380.   R. G. Gilbert and R. N. Zare, "Possible Quantum Effects in Collisional Energy Transfer in Highly Excited Molecules," *Chem. Phys. Lett.* **167**, 407-411 (1990).

381.   J. Davidsson, J. H. Gutow, and R. N. Zare, "Experimental Improvements in Recording Gas-Phase Photoacoustic Spectra," *J. Phys. Chem.* **94**, 4069-4073 (1990).

382.   K. D. Rinnen, D. A. V. Kliner, M. A. Buntine, and R. N. Zare, "Effect of Indistinguishable Nuclei on Product Rotational Distributions: D + DI → D2 + I," *Chem. Phys. Lett*. **169**, 365-371 (1990).

383.   E. R. Williams and R. N. Zare, "Detection of Concealed Explosives" (Letter), *Science* **248**, 1471-1472 (1990).

384.   S. L. Pentoney, Jr., R. N. Zare, and J. F. Quint, "On-Column Radioisotope Detection for Capillary Electrophoresis," in *Analytical Biotechnology:  Capillary Electrophoresis and Chromatography*, ACS Symposium Series No. 434, edited by C. Horvàth and J. G. Nikelly.  American Chemical Society: Washington, DC, 1990, pp. 60-89.

385.   R. Huang, R. Zhang, and R. N. Zare, "Nature of the Red Emission in the Chemical Oxygen Iodine Laser System," *Chem. Phys. Lett.* **170**, 437-440 (1990).

386.   R. N. Zare, "The Future of Lasers in Analytical Chemistry," *Chromatography* **11**, 8-10 (1990).

387.   J. Xie and R. N. Zare, "Selection Rules for the Photoionization of Diatomic Molecules," *J. Chem. Phys.* **93**, 3033-3038 (1990).

388.   J. I. Brauman, R. N. Zare, and R. D. Levine, "Fragment Isotope Distribution as a Signature of Molecular Fluxionality," *Chem. Phys. Lett.* **172**, 231-234 (1990).

389.   X. Huang, J. B. Shear, and R. N. Zare, "Quantitation of Ribonucleotides from Base-Hydrolyzed RNA Using Capillary Zone Electrophoresis," *Anal. Chem*. **62**, 2049-2051 (1990).

390.   T. Nagata, T. Kondow, and R. N. Zare, "Fluorescence Polarization of a Diatomic Fragment Following Photodissociation of a Triatomic Precursor," *Mol. Phys.* **70**, 1159-1162 (1990).

391.   T. Tsuda, J. V. Sweedler, and R. N. Zare, "Rectangular Capillaries for Capillary Electrophoresis," *Anal. Chem.* **62**, 2149-2152 (1990).

392.   X. Huang and R. N. Zare, "Continuous Sample Collection in Capillary Zone Electrophoresis by Coupling the Outlet of a Capillary to a Moving Surface," *J. Chromatogr.* **516**, 185-189 (1990).

393.   T. Tsuda and R. N. Zare, "Split Injector for Capillary Zone Electrophoresis," *Journal of Chromatography* **559**, 103-110 (1991).

394.   W. J. van der Zande, R. Zhang, and R. N. Zare, "Collisional Energy Spread in Hot-Atom Reactions Caused by Thermal Motions of the Reagents," in *Spectral Line Shapes*, AIP Conference Proceedings No. 216, edited by L. Frommhold and J. W. Keto.  American Institute of Physics: New York, 1990, volume 6, pp. 301-310.

395.   R. N. Zare, "Laser Photochemistry," *1991 McGraw-Hill Yearbook of Science and Technology*, 213-214 (1990).

396.   P. H. Vaccaro, D. Zhao, A. A. Tsekouras, C. A. Leach, W. E. Ernst, and R. N. Zare, "Laser Spectroscopy of Crossed Molecular Beams:   The Dissociation Energy of BaI from Energy-Balance Measurements," *J. Chem. Phys.* **93**, 8544-8556 (1990).

397.   M. A. Hines, H. A. Michelsen, and R. N. Zare, "2+1 Resonantly Enhanced Multiphoton Ionization of CO via the *E* 1Π - *X*1Σ+Transition: From Measured Ion Signals to Quantitative Population Distributions," *J. Chem. Phys.* **93**, 8557-8564 (1990).

398.   M. J. Gordon, K.-J. Lee, A. A. Arias, and R. N. Zare, "Protocol for Resolving Protein Mixtures in Capillary Zone Electrophoresis," *Anal. Chem*. **63**, 69-72 (1991).

399.   J. F. Black, E. Hasselbrink, J. R. Waldeck, and R. N. Zare, "Photofragment Orientation as a Probe of Near-threshold Non-adiabatic Phenomena in the Photodissociation of ICN," *Mol. Phys.* **71**, 1143-1153 (1990).

400.   X. Huang, R. N. Zare, S. Sloss, and A. G. Ewing, "End-Column Detection for Capillary Zone Electrophoresis," *Anal. Chem.* **63**, 189-192 (1991).

401.   D. A. V. Kliner, D. E. Adelman, and R. N. Zare, "The H + para-H2 Reaction:  Influence of Dynamical Resonances on H2(*v*'=1, *j*'=1 and 3) Integral Cross Sections," *J. Chem. Phys.* **94**, 1069-1080 (1991).

402.   R. Zhang, W. J. van der Zande, M. J. Bronikowski, and R. N. Zare, "Effect of Reagent Rotation on Product Energy Disposal in the Light Atom Transfer Reaction O (3*P*) + HCl (*v*=2, *J*=1,6,9) → OH (*v*',*N*') + Cl (*2P*)," *J. Chem. Phys.* **94**, 2704-2712 (1991).

403.   B. H. Spencer and R. N. Zare, "Direct Visualization of Bragg Diffraction with a He-Ne Laser and an Ordered Suspension of Charged Microspheres," *J. Chem. Ed*. **68**, 97-100 (1991).

404.   J. V. Sweedler, J. B. Shear, H. A. Fishman, R. N. Zare, and R. H. Scheller, "Fluorescence Detection in Capillary Zone Electrophoresis Using a Charge-Coupled Device with Time-Delayed Integration," *Anal. Chem*. **63**, 496-502 (1991).

405.   L. J. Kovalenko, J. M. Philippoz, J. R. Bucenell, R. Zenobi, and R. N. Zare, "Organic Chemical Analysis on a Microscopic Scale Using Two-Step Laser Desorption/Laser Ionization Mass Spectrometry," *Space Science Reviews* **56**, 191-195 (1991).

406.   C. A. Leach, J. R. Waldeck, C. Noda, J. S. McKillop, and R. N. Zare, "Rotational Analysis of the BaI *C* 2Π - *X* 2Σ+ (8,8) Band," *J. Mol. Spectrosc.* **146**, 465-492 (1991).

407.   M. A. Buntine, D. P. Baldwin, R. N. Zare, and D. W. Chandler, "Application of Ion Imaging to the Atom-Molecule Exchange Reaction: H + HI → H2 + I," *J. Chem. Phys.* **94**, 4672-4675 (1991).

408.   J. Davidsson, J. H. Gutow, R. N. Zare, H. A. Hollenstein, R. R. Marquardt, and M. Quack, "Fermi Resonance in the Overtone Spectra of the CH Chromophore in CHBr3.  2.  Visible Spectra," *J. Phys. Chem.* **95**, 1201-1209 (1991).

409.   K. L. Reid, D. J. Leahy, S. W. Allendorf, and R. N. Zare, "Effect of Breaking Cylindrical Symmetry on Photoelectron Angular Distributions Resulting from Resonance-Enhanced Two-Photon Ionization," *Inst. Phys. Conf. Ser. No. 114; Section 8, RIS 90, Proceedings of the Fifth International Symposium on Resonance Ionization Spectroscopy and Its Applications*, 345-350 (1991).

410.   D. Zhao, P. H. Vaccaro, A. A. Tsekouras, C. A. Leach, and R. N. Zare, "Analysis of BaI *C* 2Π-*X* 2Σ+ (0,0) Band for High Rotational Levels," *J. Mol. Spectrosc.* **148**, 226-242 (1991).

411.   W. M. Huo, K.D. Rinnen, and R. N. Zare, "Rotational and Vibrational Effects in the *E* 1Σ- *X* 1Σ Two-Photon Transitions of H2, HD, and D2," *J. Chem. Phys.* **95**, 205-213 (1991).

412.   K.-D. Rinnen, M. A. Buntine, D. A. V. Kliner, R. N. Zare, and W. M. Huo, "Quantitative Determination of H2, HD, and D2 Internal-State Distributions by (2+1) REMPI," *J. Chem. Phys.* **95**, 214-225 (1991).

413.   D. A. V. Kliner, D. E. Adelman, and R. N. Zare, "Comparison of Experimental and Theoretical Integral Cross Sections for D + H2 (*v*=1, *j*=1) → HD (*v*'=1, *j*') + H," *J. Chem. Phys.* **95**, 1648-1662 (1991).

414.   D. A. V. Kliner, K. D. Rinnen, M. A. Buntine, D. E. Adelman, and R. N. Zare, "Product Internal-State Distribution for the Reaction H + HI → H2 + I," *J. Chem. Phys.* **95**, 1663-1670 (1991).

415.   K. L. Reid, D. J. Leahy, and R. N. Zare, "Effect of Breaking Cylindrical Symmetry on Photoelectron Angular Distributions Resulting from Resonance-Enhanced Two-Photon Ionization," *J. Chem. Phys.* **95**, 1746-1756 (1991).

416.   D. J. Leahy, K. L. Reid, and R. N. Zare, "Complete Description of Two-Photon (1+1') Ionization of NO Deduced from Rotationally Resolved Photoelectron Angular Distributions," *J. Chem. Phys.* **95**, 1757-1767 (1991).

417.   J. V. Sweedler, J. B. Shear, H. A. Fishman, R. N. Zare, and R. H. Scheller, "Analysis of Neuropeptides Using Capillary Zone Electrophoresis with Multichannel Fluorescence Detection," *Proceedings SPIE Vol. 1439, International Conference on Scientific Optical Imaging (12/90 Georgetown, GCI)*, 37-46.

418.   K. W. Kolasinski, S. F. Shane, and R. N. Zare, "Probing the Dynamics of Hydrogen Recombination on Si(100)," *J. Chem. Phys.* **95**, 5482-5485 (1991).

419.   R. Zenobi and R. N. Zare, "Two-Step Laser Mass Spectrometry," in *Advances in Multi-Photon Processes and Spectroscopy, Vol. 7*, edited by S. H. Lin. World Scientific Publishing: Teaneck, NJ, 1991, pp. 1-167.

420.   X. Huang and R. N. Zare, "Improved End-Column Detector for Capillary Zone Electrophoresis," *Anal. Chem.* **63**, 2193-2196 (1991).

421.   N. E. Shafer and R. N. Zare, "Through a Beer Glass Darkly," *Physics Today* **44**, 48-52 (1991).  This also appeared in *Parity* **7**, 8-13 (1992).

422.   D. J. Leahy, K. L. Reid, and R. N. Zare, "Determination of Molecular Symmetry Axis (z) Orientation via Photoelectron Angular Distribution Measurements," *J. Phys. Chem.* **95**, 8154-8158 (1991).

423.   W. J. van der Zande, R. Zhang, R. N. Zare, K. G. McKendrick, and J.J. Valentini., "Superthermal Widths of the Collision Energy Distributions in Hot Atom Reactions," *J. Phys. Chem.* **95**, 8205-8207 (1991).

424.   J. H. Gutow, J. Davidsson, and R. N. Zare, "Photoacoustic Measurement of Absolute Overtone Cross Sections," *Chem. Phys. Lett.* **185**, 120-124 (1991).

425.   T. Tsuda and R. N. Zare, "Split Injector for Capillary Zone Electrophoresis," *J. Chromatog*. **559**, 103-110 (1991).

426.   H. G. Rubahn, W. J. van der Zande, R. Zhang, M. J. Bronikowski, and R. N. Zare, "Fine-Structure Population Distributions of O(3*P*) in the H + O2 Reaction and the Photolysis of NO2," *Chem. Phys. Lett*. **186**, 154-160 (1991).

427.   M. J. Bronikowski, W. R. Simpson, B. Girard, and R. N. Zare, "Bond-Specific Chemistry: OD:OH Product Ratios for the Reactions H + HOD(100) and H + HOD(001)," *J. Chem. Phys.* **95**, 8647-8648 (1991).

428.   C.A. Leach, A.A. Tsekouras, P.H. Vaccaro, R. N. Zare, and D. Zhao, "Indirect Information on Reactive Transition States from Conservation of Angular Momentum," *Faraday Disc. Chem. Soc.* **91**, 183-190 (1991).

429.   S. J. Clemett, L. J. Kovalenko, C. R. Maechling, and R. N. Zare, "Two-Step Laser Mass Spectrometry:  Analysis at High Spatial Resolution of Cosmochemical Samples," *Meteoritics* **26**, 328-329 (1991).

430.   P. H. Vaccaro, A. A. Tsekouras, D. Zhao, C.A. Leach, and R. N. Zare, "Experimental Determination of the Specific Opacity Function for the Ba + HI → BaI(*v*=0) + H Reaction," *J. Chem. Phys.* **96**, 2786-2798 (1992).

431.   K. W. Kolasinski, S. F. Shane, and R. N. Zare, "Internal-State Distribution of Recombinative Hydrogen Desorption from Si(100)," *J. Chem. Phys.* **96**, 3995-4006 (1992).

432.   J. F. Black and R. N. Zare, "Observation of Perturbations in the Rotational Manifold of the CN *B* 2Σ+ *v*=1 Level Caused by Interaction with the CN *A* 2Πi *v*=12 Level," *J. Chem. Soc. Faraday Trans.*, **88**, 525-529 (1992).

433.   E. R. Williams, G. C. Jones, Jr., L. Fang, R. N. Zare, B. J. Garrison, and D. W. Brenner, "Ion Pickup of Large, Surface-Adsorbed Molecules:  A Demonstration of the Eley-Rideal Mechanism," *J. Am. Chem. Soc.* **114**, 3207-3210 (1992).

434.   L. J. Kovalenko, C. R. Maechling, S. J. Clemett, J. M. Philippoz, R. N. Zare, and C. M. O'D. Alexander, "Microscopic Organic Analysis Using Two-Step Laser Mass Spectrometry:  Application to Meteoritic Acid Residues," *Anal. Chem.* **64**, 682-690 (1992).

435.   C. A. Leach, A. A. Tsekouras, and R. N. Zare, "Rotational Analysis of the BaI *C* 2Π-*X* 2Σ+ Band System for the Δ*v*=0 Progression (*v*≤12)," *J. Mol. Spectrosc.* **153**, 59-72 (1992).

436.   L. A. Posey, R. D. Guettler, and R. N. Zare, "Investigation of the Roles of Vibrational Excitation and Collision Energy in the Ion-Molecule Reaction," *SPIE Vol. 1638, Optical Methods for Time-and State-Resolved Chemistry*, 431-440 (1992).

437.   J. H. Gutow and R. N. Zare, "Rotational Effects on the Overtone-Induced Isomerization Rate for CHD2NC → CHD2CN," *J. Phys. Chem.* **96**, 2534-2543 (1992).

438.   R. Dadoo, L. A. Colón, and R. N. Zare, "Chemiluminescence Detection in Capillary Electrophoresis," *J. High Res. Chromatog.* **15**, 133-135 (1992).

439.   J. Xie and R. N. Zare, "Determination of Absolute Thermal Rate Constants for the Charge-Transfer Reaction DBr+(2Π*i*,*v+*) + HBr  → HBr+ (2Π*i'*,*v'+*) + DBr," *J. Chem. Phys.* **96**, 4293-4302 (1992).

440.   E. R. Williams, G. C. Jones, Jr., L. Fang, T. Nagata, and R. N. Zare, "Laser-Desorption Tandem Time-of-Flight Mass Spectrometry with Continuous Liquid Introduction," *SPIE Vol. 1636 Appl. Spect. in Mat. Sci. II*, 172-181 (1992).

441.   B. Girard, G. O. Sitz, R. N. Zare, N. Billy, and J. Vigué, "Polarization Dependence of the AC Stark Effect in Multiphoton Transitions of Diatomic Molecules," *J. Chem. Phys.* **97**, 26-41 (1992).

442.   K. L. Reid, D. J. Leahy, and R. N. Zare, "Complete Description of Molecular Photoionization from Circular Dichroism of Rotationally Resolved Photoelectron Angular Distributions," *Phys. Rev. Lett.* **68**, 3527-3530 (1992).

443.   R. Zenobi, J. M. Philippoz, R. N. Zare, M. R. Wing, J. L. Bada, and K. Marti, "Organic Compounds in the Forest Vale H4 Ordinary Chondrite," *Geochimica et Cosmochimica Acta* **56**, 2899-2905 (1992).

444.   S. F. Shane, K.W. Kolasinski, and R. N. Zare, "State-Specific Study of Hydrogen Desorption from Si(111)-(2x1):  Comparison of Disilane and Hydrogen Adsorption," *J. Vac. Sci. Technol. A* **10**, 2287-2291 (1992).

445   M. Ng, A. A. Arias, T. F. Blaschke, and R. N. Zare, "Analysis of Free Intracellular Nucleotides Using High Performance Capillary Electrophoresis," *Anal. Chem.* **64**, 1682-1684 (1992).

446.   S. F. Shane, K. W. Kolasinski, and R. N. Zare, "Recombinative Desorption of H2 on Si(100)-(2x1) and Si(111)-(7x7):  Comparison of Internal State Distributions," *J. Chem. Phys.* **97**, 1520-1530 (1992).

447.   S. F. Shane, K. W. Kolasinski, and R. N. Zare, "Internal-State Distributions of H2 Desorbed from Mono- and Dihydride Species on Si(100)," *J. Chem. Phys.* **97**, 3704-3709 (1992).

448.   D. Neuhauser, R. S. Judson, D. J. Kouri, D. E. Adelman, N. E. Shafer, D. A. V. Kliner, and R. N. Zare, "State-to-State Rates for the D + H2 → HD + H Reaction: Predictions and Measurements," *Science* **257**, 519-522 (1992).

449.   D. J. Leahy, K. L. Reid, H. Park, and R. N. Zare, "Measurement of Circular Dichroism in Rotationally Resolved Photoelectron Angular Distributions Following the Photoionization of NO *A* 2Σ+," *J. Chem. Phys.* **97** 4948-4957 (1992).

450.   J. Xie and R. N. Zare, "Rotational Line Strengths for the Photoionization of Diatomic Molecules," *J. Chem. Phys.* **97**, 2891-2899 (1992).

451.   S. J. Clemett, C. R. Maechling, R. N. Zare, and C. M. O.-D. Alexander, "Analysis of Polycyclic Aromatic Hydrocarbons in Seventeen Ordinary and Carbonaceous Chondrites," *Lunar Planet. Sci. Conf.* XXIII, 233 (1992).

452.   D. Zhao and R. N. Zare, "Quasiclassical Trajectory Simulation of the Kinematically Constrained Reaction Ba + HI → BaI + H," *J. Chem. Phys.* **97**, 6208-6214 (1992).

453.   S. Williams, D. S. Green, and R. N. Zare, "Detection of Trace Species in Hostile Environments Using Degenerate Four-Wave Mixing:  CH in an Atmospheric Pressure Flame," *J. Am. Chem. Soc.* **114**, 9122-9130, (1992).

454.   D. E. Adelman, N. E. Shafer, D.A.V. Kliner, and R. N. Zare, "Measurement of Relative State-to-State Rate Constants for the Reaction D + H2(*v*, *j*) → HD(*v'*, *j'*) + H," *J. Chem. Phys.* **97**, 7323-7341, (1992).

455.   A. A. Tsekouras, C. A. Leach, K. S. Kalogerakis, and R. N. Zare, "Product Rotational Distributions and Specific Opacity Functions for the Reaction Ba + HI → BaI(v=0, 4, 8, 12, 16, 18) + H," *J. Chem. Phys.* **97**, 7220-7225 (1992).

456.   E. E. Nikitin, C. Noda, and R. N. Zare, "On the Quasiclassical Calculation of Fundamental and Overtone Intensities," *J. Chem. Phys.* **98**, 47-59 (1993).

457.   E. R. Williams, L. Fang, and R. N. Zare, "Surface Induced Dissociation for Tandem Time-of-Flight Mass Spectrometry," *Int'l. Jour. Mass Spect. and Ion Proc.* **123**, 233-241 (1993).

458.   M. J. Bronikowski, W. R. Simpson, and R. N. Zare, "Effect of Reagent Vibration on the H + HOD Reaction: An Example of Bond-Specific Chemistry," *J. Phys. Chem.* **97**, 2194-2203 (1993).

459.   M. J. Bronikowski, W. R. Simpson, and R. N. Zare, "Comparison of Reagent Stretch vs. Bend Excitation in the H + D2O Reaction: An Example of Mode-Selective Chemistry," *J. Phys. Chem.* **97**, 2204-2208 (1993).

460.   L. A. Colòn, R. Dadoo, and R. N. Zare, "Determination of Carbohydrates by Capillary Zone Electrophoresis with Amperometric Detection at a Copper Microelectrode," *Anal. Chem.* **65**, 476-481 (1993).

461.   D. E. Adelman, S. V. Filseth, and R. N. Zare, "Integral Rate Constant Measurements of the Reaction "H + D2O → HD(v',j') + OD," *J. Chem. Phys.* **98**, 4636-4643 (1993).

462.   D. E. Adelman, H. Xu, and R. N. Zare, "Integral Rate Constant Measurements of the Reaction H + D2 → HD(v'=1,j') + D at High Collision Energies," *Chem. Phys. Lett.* **203**, 573-577 (1993).

463.   D. S. Green, T. G. Owano, S. Williams, D. G. Goodwin, R. N. Zare, and C. H. Kruger, "Boundary Layer Profiles in Plasma Chemical Vapor Deposition," *Science* **259**, 1726-1729 (1993).

464.   E. Tsuda, M. Ikedo, G. Jones, R. Dadoo, and R. N. Zare, "Flow Profile of Electroosmosis," *J. Chromatog*. **632**, 201-207 (1993).

465.   W. R. Simpson, A. J. Orr-Ewing, and R. N. Zare, "State-to-State Dynamics and Doubly Differential Cross Sections of the Reaction of Chlorine Atoms with CH4 (v3=1,J)," *SPIE Conf.* **1858**, 476-487 (1993).

466.   H. A. Michelsen, C. T. Rettner, D. J. Auerbach, and R. N. Zare, "Effect of Rotation on the Translational and Vibrational Energy Dependence of the Dissociative Adsorption of D2 on Cu(111)," *J. Chem. Phys.* **98**, 8294-8307 (1993).

467.   M. A. Hines and R. N. Zare, "The Interaction of CO with Ni(111): Rainbows and Rotational Trapping," *J. Chem. Phys.* **98**, 9134-9147 (1993).

468.   T. G. Owano, C. H. Kruger, D. S. Green, S. Williams, and R. N. Zare, "Degenerate Four-Wave Mixing Diagnostics of Atmospheric Pressure Diamond Deposition," *Diamond and Related Materials* **2**, 661-666 (1993).

469.   T. N. Kitsopoulos, M. A. Buntine, D.P. Baldwin, R. N. Zare, and D. W. Chandler, "Reaction Product Imaging: The H + D2 Reaction," *Science* **260**, 1605-1610 (1993).

470.   N. E. Shafer, A. J. Orr-Ewing, W. R. Simpson, H. Xu, and R. N. Zare, "State-to-State Differential Cross Sections from Photoinitiated Bulb Reactions," *Chem. Phys. Lett*. **212**, 155-162 (1993).

471.   W. R. Simpson, A. J. Orr-Ewing, and R. N. Zare, "State-to-State Differential Cross Sections for the Reaction Cl(2P3/2) + CH4(*v*3=1,J=1) → HCl(*v'* =1,*J'*) + CH3," *Chem. Phys. Lett*. **212**, 163-171 (1993).

472.   H. Park and R. N. Zare, "Photoionization Dynamics of the NO A2Σ+ State Deduced from Energy- and Angle-Resolved Photoelectron Spectroscopy," *J. Chem. Phys.* **99**, 6537-6544 (1993).

473.   J. B. Shear, R. Dadoo, H. A. Fishman, R.H. Scheller, and R. N. Zare, "Optimizing Fluorescence Detection in Chemical Separations for Analyte Bands Traveling at Different Velocities," *Anal. Chem.* **65**, 2977-2982 (1993).

474.   S. J. Clemett, C. R. Maechling, R. N. Zare, P.D. Swan, and R. M. Walker, "Identification of Complex Aromatic Molecules in Individual Interplanetary Dust Particles," *Science* **262**, 721-725 (1993).

475.   S. J. Clemett, C. R. Maechling, R. N. Zare, P. D. Swan, and R. M. Walker, "Measurement of Polycyclic Aromatic Hydrocarbon (PAHs) in Interplanetary Dust Particles," *Lunar Planet. Sci. Conf. XXIV*, 309 (1993).

475.5. T. N. Kitsopoulos, M. A. Buntine, D. P. Baldwin, R. N. Zare, and D. W. Chandler, SPIE Conf. 1858, 2-14 (1993).

476.   R. Dadoo, A. G. Seto, L. A. Colòn, and R. N. Zare, "End-Column Chemiluminescence Detector for Capillary Electrophoresis," *Anal. Chem.* **66**, 303-306 (1994).

477.   J. B. Shear, L. A. Colòn, and R. N. Zare, "Automated Velocity Programming for Increased Detection Zone Residence Times in Capillary Electrophoresis," *Anal. Chem.* **65**, 3708-3712 (1993).

478.   S. Nie, R. Dadoo, and R. N. Zare, "Ultrasensitive Fluorescence Detection of Polycyclic Aromatic Hydrocarbons in Capillary Electrophoresis," *Anal. Chem.* **65**, 3571-3575 (1993).

479.   J. B. Shear, R. Dadoo, and R. N. Zare, "Field Programming to Achieve Uniform Sensitivity for On-Line Detection in Electrophoresis," *Electrophoresis* **15**, 225-227 (1994).

480.   N. E. Shafer, H. Xu, R. P. Tuckett, M. Springer, and R. N. Zare, "Direct Measurement of the Three-Dimensional Product Velocity Distribution from Photoinitiated Bulb Reactions," *J. Phys. Chem.* **98**, 3369-3378 (1994).

481.   E. E. Nikitin and R. N. Zare, "Correlation Diagrams for Hund’s Coupling Cases in Diatomic Molecules with High Rotational Angular Momentum," *Mol. Phys.* **82**, 85-100 (1994).

482.   A. J. Orr-Ewing, W. R. Simpson, T. P. Rakitzis, and R. N. Zare, "Preparing Reagents: Time Dependence of HCl(v=1,J) alignment following pulsed infrared excitation," *Isr. J. Chem*. **34**, 95-102 (1994).

483.   H. A. Fishman, N.M. Amudi, T. T. Lee, R.H. Scheller, and R. N. Zare, "Spontaneous Injection in Microcolumn Separations," *Anal. Chem.* **66**, 2318-2329 (1994).

484.   L. A. Posey, R. D. Guettler, N. J. Kirchner, and R. N. Zare, "Influence of Vibrational Excitation and Collision Energy on the Ion-Molecule Reaction NH3+(*v*2) + ND3," *J. Chem. Phys.* **101**, 3772-3786 (1994).

485.   K. L. Thomas, S. J. Clemett, G. J. Flynn, L. P. Keller, D. S. McKay, S. Messenger, A. O. Nier, D. J. Schlutter, S. R. Sutton, R. M. Walker, and R. N. Zare, "Anatomy of a Cluster IDP (II): Noble Gas Abundances, Trace Element Geochemistry, Isotopic Abundances and Trace Organic Chemistry of Several Fragments from L2008#5," *Lunar Planet. Sci. Conf. XXV*, 1391 (1994).

486.   T. T. Lee, R. Dadoo, and R. N. Zare, "Real-Time Measurement of Electroosmotic Flow in Capillary Zone Electrophoresis," *Anal. Chem.* **66**, 2694-2700 (1994).

487.   F. Merkt and R. N. Zare, "On the Lifetimes of Rydberg States Probed by Delayed Pulsed Field Ionization," *J. Chem. Phys.* **101**, 3495-3505 (1994).

488.   H. A. Fishman, R. H. Scheller, and R. N. Zare, "Microcolumn Sample Injection by Spontaneous Fluid Displacement," *J. Chromatog. A* **680**, 99-107 (1994).

489.   H. Park and R. N. Zare, "Evidence for a Cooper Minimum in the Photoionization Dynamics of the NO *D* 2Σ+ State," *Chem. Phys. Lett.* **225**, 327-334 (1994).

490.   A. J. Orr-Ewing and R. N. Zare, "Orientation and Alignment of Reaction Products," *Ann. Rev. of Phys. Chem.* **45**, 315-366 (1994).

491.   S. Williams, L. A. Rahn, P. H. Paul, J. W. Forsman, and R. N. Zare, "Laser-Induced Thermal Grating Effects in Flames," *Opt.* *Lett.* **19**, 1681-1683 (1994).

492.   R. D. Guettler, G. C. Jones, Jr., L. A. Posey, N. J. Kirchner, B. A. Keller, and R. N. Zare, "Guided Ion Beam Measurement of the Product Branching Ratios for the Ion-Molecule Reaction N+ + O2 as a Function of Collision Energy," *J. Chem. Phys.* **101**, 3763-3771 (1994).

493.   H. C. Tseng, R. Dadoo, and R. N. Zare, "Selective Determination of Adenine-Containing Compounds by Capillary Electrophoresis with Laser-Induced Fluorescence Detection," *Anal. Biochem.* **222**, 55-58 (1994).

494.   L. Fang, R. Zhang, E. R. Williams, and R. N. Zare, "Online Time-of-Flight Mass Spectrometric Analysis of Peptides Separated by Capillary Electrophoresis," *Anal. Chem.* **66**, 3696-3701 (1994).

495.   B. L. Lin, L. A. Colòn, and R. N. Zare, "Dual Electrochemical Detection of Cysteine and Cystine in Capillary Zone Electrophoresis," *J. Chromatog. A* **680**, 263-270 (1994).

496.   S. F. Bent, H. A. Michelsen, and R. N. Zare, "Hydrogen Recombinative Desorption Dynamics," *Laser Spectroscopy and Photochemistry on Metal Surfaces*, H. Dai, W. Ho, eds., Advanced Series in Physical Chemistry, Vol. 5, 977-1043 (1995).

497.   A. J. Orr-Ewing and R. N. Zare, "Orientation and Alignment of the Products of Bimolecular Reactions," in *The Chemical Dynamics and Kinetics of Small Radicals*, K. Liu and A. Wagner, eds., World Scientific: River Edge, NJ.  Advanced Series in Physical Chemistry Vol. 6, 936-1063 (1995).

498.   S. Williams, R. N. Zare, and L. A. Rahn, "Reduction of Degenerate Four-Wave Mixing Spectra to Relative Populations I:  Weak-Field Limit," *J. Chem. Phys.* **101**, 1072-1092 (1994).

499.   S. Williams, R. N. Zare, and L. A. Rahn, "Reduction of Degenerate Four-Wave Mixing Spectra to Relative Populations II:  Strong-Field Limit," *J. Chem. Phys.* **101**, 1093-1107 (1994).

500.   S. J. Clemett, C. R. Maechling, R. N. Zare, S. Messenger, C. M. O'D. Alexander, X. Gao, P. D. Swan, and R. M. Walker, "Measurements of Aromatic Hydrocarbons in Interstellar Graphite Grains: II. Molecular Measurements," Abstract in *Meteoritics* **29**, 457-458 (1994).

501.   S. Messenger, C. M. O'D. Alexander, X. Gao, P.D. Swan, R. M. Walker, S. J. Clemett, C. R. Maechling, and R. N. Zare, "Measurements of Aromatic Hydrocarbons in Interstellar Graphite Grains: I. Selection and Isotopic Measurement of Graphite," Abstract in *Meteoritics* **29**, 502 (1994).

502.   R. D. Guettler, G.C. Jones, Jr., L. A. Posey, and R. N. Zare, "Partial Control of an Ion-Molecule Reaction by Selection of the Internal Motion of the Polyatomic Reagent Ion," *Science* **266**, 259-261 (1994).

503.   S. Nie, D. T. Chiu, and R. N. Zare, "Probing Individual Molecules with Confocal Fluorescence Microscopy," *Science* **266**, 1018-1021 (1994).

504.   P. Zalicki and R. N. Zare, "Cavity Ring-Down Spectroscopy for Quantitative Absorption Measurements," *J. Chem. Phys.* **102**, 2708-2717 (1995).

505.   S. Messenger, S. J. Clemett, L. P. Keller, K. L. Thomas, X. D. F. Chillier, and R. N. Zare, "Chemical and Mineralogical Studies of an Extremely Deuterium-Rich IDP," *Meteoritics*, **30**, 546 (1995).

506.   K. L. Thomas, S. J. Clemett, C. S. Romanek, C. R. Maechling, E. K. Gibson, D. S. McKay, R. Score, and R. N. Zare, "Polycyclic Aromatic Hydrocarbons in the Martian (SNC) Meteorite Allan Hills 84001:  Hydrocarbons from Mars, Terrestrial Contaminants, or Both?" *Meteoritics*, **30**, 587 (1995).

507.   J. B. Shear, H. A. Fishman, N. L. Allbritton, D. Garigan, R. N. Zare, and R. H. Scheller, "Single Cells as Biosensors for Chemical Separations," *Science* **267**, 74-77 (1995).

508.   R. N. Zare, B. H. Spencer, D. S. Springer, and M.P. Jacobson. *Laser Experiments for Beginners*, University Science Books: Mill Valley, CA (1995).

509.   R. N. Zare, "Choreography of a Classical Reaction:  Watching Molecules Dance and Teaching Them New Steps," Jahrbuch der Göttinger Akademie der Wissenschaften.  Nov. 12, 1993.

510.   P. Zalicki, Y. Ma, R. N. Zare, E. H. Wahl, J. R. Dadamio, T. G. Owano, and C. H. Kruger, "Methyl Radical Measurement by Cavity Ring-Down Spectroscopy," *Chem. Phys. Lett.* **234**, 269-274 (1995).

511.   C. Yan, R. Dadoo, H. Zhao, D. J. Rakestraw, and R. N. Zare, "Capillary Electrochromatography:  Analysis of Polycyclic Aromatic Hydrocarbons," *Anal. Chem.* **67**,2026-2029 (1995).

512.   R. N. Zare and K. S. Kalogerakis.   "Competition between Abstraction and Insertion in the Reaction Family, M(Be, Mg, Ca, Sr, Ba) + HX(HF, HCl, HBr, HI) → MX + H." in *"Proceedings of the Robert A. Welch Foundation, 38th Conference on Chemical Research: chemical dynamics of transient species,"* Houston, Texas, 1994, pp. 45-76.

513.   N. E. Schafer-Ray, A. J. Orr-Ewing, and R. N. Zare, "Beyond State-to-State Differential Cross Sections:  Determination of Product Polarization in Photoinitiated Bimolecular Reactions," *J. Phys. Chem.* **99**, 7591-7603 (1995).

514.   P. Zalicki, Y. Ma, R. N. Zare, E. H. Wahl, T. G. Owano, and C. H. Kruger, "Measurement of the Methyl Radical Concentration Profile in a Hot Filament Reactor," *Appl. Phys. Lett*. **67**, 144-146 (1995).

515.   H. Xu, N. E. Shafer-Ray, F. Merkt, D. J. Hughes, M. Springer, R. P. Tuckett, and R. N. Zare, "Measurement of the State-Specific Differential Cross Section for the H+D2 → HD(v'=4,J'=3)+D Reaction at a Collision Energy of 2.2 eV," *J. Chem Phys.* **103**, 5157-5160 (1995).

516.   S. Nie, D. Chiu, and R. N. Zare, "Real-Time Detection of Single Molecules in Solution by Confocal Fluorescence Microscopy," *Anal. Chem.* **67**, 2849-2857 (1995).

517.   H. A. Fishman, O. Orwar, R. H. Scheller, and R. N. Zare, "Identification of Receptor Ligands and Receptor Subtypes Using Antagonists in a Capillary Electrophoresis Single-Cell Biosensor Separation System," *Proc. Nat. Acad. Sci. USA* **92**, 7877-7881 (1995).

518.   Y. Guo, L. A. Colòn, R. Dadoo, and R. N. Zare, "Analysis of Underivatized Amino Acids by Capillary Electrophoresis Using Constant Amperometric Detection," *Electrophoresis* **16**, 493-497 (1995).

519.   S. J. Clemett, C. R. Maechling, Y. Chen, R. N. Zare, S. Messenger, S. Amari, X. Gao, R. M. Walker, and R. Lewis, "Organic Molecules in Interstellar Graphite Grains II," *Lunar Planet. Sci. Conf. XXVI*, 259 (1995).

520.   S. Messenger, S. Amari, X. Gao, R. M. Walker, S. J. Clemett, C. R. Maechling, Y. Chen, R. N. Zare, and R. Lewis, "Organic Molecules in Interstellar Graphite Grains I*," Lunar Planet. Sci. Conf. XXVI*, 957 (1995).

521.   K. L. Thomas, L. P. Keller, S. J. Clemett, D. S. McKay, S. Messenger, and R. N. Zare, "Hydrated Cluster Particles:  Chemical and Mineralogical Analyses of Fragments from Two Interplanetary Dust Particles," *Lunar Planet. Sci. Conf. XXVI*, 1407 (1995).

522.   K. L. Thomas, C. S. Romanek, S. J. Clemett, E. K. Gibson, D. S. McKay, C. R. Maechling, and R. N. Zare, "Preliminary Analysis of Polycyclic Aromatic Hydrocarbons in the Martian (SNC) Meteorite ALH84001," *Lunar Planet. Sci. Conf. XXVI*, 1409 (1995).

523.   C. R. Maechling, S. J. Clemett, and R. N. Zare, "13C/12C Ratio Measurements of Aromatic Molecules Using Photoionization with TOF Mass Spectrometry," *Chem. Phys. Lett.* **241**, 301-310 (1995).

524.   W. R. Simpson, A. J. Orr-Ewing, T.P. Rakitzis, S.A. Kandel, and R. N. Zare, "Core Extraction for Measuring State-to-State Differential Cross Sections of Bimolecular Reactions," *J. Chem. Phys.* **103**, 7299-7312 (1995).

525.   W. R. Simpson, T. P. Rakitzis, S. A. Kandel, A. J. Orr-Ewing, and R. N. Zare, "Reaction of Cl with Vibrationally Excited CH4 and CHD3:  State-to-State Differential Cross Sections and Steric Effects for the HCl Product," *J. Chem. Phys.* **103**, 7313-7335 (1995).

526.   A. J. R. Heck, D. W. Neyer, R. N. Zare, and D. W. Chandler, "Photofragment Imaging of Kr2 and ArKr van der Waals Molecules Following Two-Photon Excitation," *J. Phys. Chem.* **99**, 17700-17710 (1995).

527.   O. Orwar, H. A. Fishman, M. Sundahl, V. Banthia, R. Dadoo, and R. N. Zare, "Determination of Photodestruction Quantum Yields Using Capillary Electrophoresis:  Application to *o*-Phthalaldehyde/*B*-Mercaptoethanol-Labeled Amino Acids," *J. Liquid Chromatog.* **18**, 3833-3846 (1995).

528.   O. Orwar, H. A. Fishman, N.E. Ziv, R.H. Scheller, and R. N. Zare, "Use of 2,3-Naphthalenedicarboxaldehyde Derivatization for Single-Cell Analysis of Glutathione by Capillary Electrophoresis and Histochemical Localization by Fluorescence Microscopy," *Anal. Chem*. **67**, 4261-4268 (1995).

529.   M. T. Dulay, C. Yan, D. J. Rakestraw, and R. N. Zare, "Automated Capillary Electrochromatography:  Reliability and Reproducibility Studies,"*J. Chromatog. A***725**, 361-366 (1996).

530.   K. L. Thomas, G.E. Blanford, S. J. Clemett, G. J. Flynn, L. P. Keller, W. Klock, C. R. Maechling, D. S. McKay, S. Messenger, A.O. Nier, D. J. Schlutter, S.R. Sutton, J. L. Warren, and R. N. Zare, "An Asteroidal Breccia:  The Anatomy of a Cluster IDP," *Geochimica et Cosmochimica Acta* **59**, 2797-2815 (1995).

531.   F. Lelièvre, C. Yan, R. N. Zare and P. Gariel, "Capillary Electrochromatography:  Operating Characteristics and Enantiomeric Separations," *J. Chromatog. A***723**, 145-156 (1996).

532.   F. Merkt, H. Xu, and R. N. Zare, "Preparation and Characterization of Long-lived Molecular Rydberg States:  Application to HD," *J. Chem. Phys.***104**, 950-961 (1996).

533.   A. J. R. Heck, W. M. Huo, R. N. Zare, and D. W. Chandler, "D2 E, F 1Σ+g (v'=0 and 1) - X 1Σ+g (v"=0-5) transition energies for J'=J"=0-26: comparison of experiment and theory," *J. Molec. Spectroscp.* **173**, 452-462 (1995).

534.   W. R. Simpson, T. P. Rakitzis, S. A. Kandel, T. Lev-On, and R. N. Zare, "Picturing the Transition-State Region and Understanding Vibrational Enhancement for the Cl+CH4  → HCl+CH3 Reaction," *J. Phys. Chem.* **100**, 7938-7947 (1996).

535.   T. N. Kitsopoulos, D. P. Baldwin, D. W. Chandler, A. J. R. Heck, R. I. McKay, M. A. Buntine, and R. N. Zare, "Reaction Product Imaging:  The H + HI Reaction," *Proceedings of Gas Phase Chemical Reaction Systems:  Experiments & Models 100 years after Max Bodenstein,* J. Wolfrum, H.R. Volpp, T. Rannacher, and J. Warnatz, eds., July 25-28, 1995, Springer-Verlag: Berlin Heidelberg, Germany, Chemical Physics Series, Vol. 61, 42-66 (1996).

536.   S. J. Clemett, S. Messenger, X. D. F. Chillier, X. Gao, R. M. Walker, and R. N. Zare, "Indigenous Polycyclic Aromatic Hydrocarbon Molecules in Circumstellar Graphite Grains," *Lunar Planet. Sci. Conf.* *XXVII*, 229 (1996).

537.   S. Messenger, R. M. Walker, S. J. Clemett, and R. N. Zare, "Deuterium Enrichments in Cluster IDPs," *Lunar Planet. Sci. Conf. XXVII*, 867 (1996).

538.   H. Park and R. N. Zare, "Molecular-Orbital Decomposition of the Ionization Continuum for a Diatomic Molecule by Angle- and Energy-Resolved Photoelectron Spectroscopy: I.  Formalism," *J. Chem. Phys.* **104**, 4554-4567 (1996).

539.   H. Park and R. N. Zare, "Molecular-Orbital Decomposition of the Ionization Continuum for a Diatomic Molecule by Angle- and Energy-Resolved Photoelectron Spectroscopy: II.  Ionization continuum of NO," *J. Chem. Phys.* **104**, 4568-4580 (1996).

540.   S. Williams, L. A. Rahn, and R. N. Zare, "Effects of Different Population, Orientation, and Alignment Relaxation Rates in Resonant Four-Wave Mixing," *J. Chem. Phys.* **104**, 3947-3955 (1996).

541.   H. Park, D. J. Leahy, and R. N. Zare, "Extensive electron-nuclear angular momentum exchange in vibrational autoionization of *np* and *nf* Rydberg states of NO," *Phys. Rev. Lett.* **76**, 1591-1594 (1996).

542.   C. Carlsson, M. T. Dulay, R. N. Zare, J. Noolandi, B. Nordén, P.N. Nielsen, J. Zielenski, L. Tsui, and M. Jonsson, "Screening for genetic mutations," *Nature***380**, 207 (1996).

543.   H. A. Fishman, O. Orwar, N. L. Allbritton, B. P. Modi, J. B. Shear, R. H. Scheller, and R. N. Zare, "Cell-to-Cell Scanning in Capillary Electrophoresis," *Anal. Chem.* **68**, 1181-1186 (1996).

544.   K. Kalogerakis and R. N. Zare, "Energy and Angular Momentum Control of the Specific Opacity Functions in the BaHI → BaI + H Reaction," *J Chem. Phys.* **104**, 7947-7964 (1996).

545.   C. R. Maechling, S. J. Clemett, F. Engelke, and R. N. Zare, "Evidence for Thermalization of Surface-Desorbed Molecules at Heating Rates of 108 K/s," *J. Chem. Phys.* **104**, 8768-8776 (1996).

546.   S. Falcinelli, F. Fernà­¤ez-Alonso, K.S. Kalogerakis, and R. N. Zare, "Mass Spectrometric Detection of Alkaline Earth Monohalide Dications," *Mol. Phys.* **88**, 663-672 (1996).

547.   A. J. R. Heck, R. N. Zare, and D.W. Chandler, "Photofragment Imaging of Methane," *J. Chem Phys* **104**, 4019-4030 (1996).

548.   A. J. R. Heck, R. N. Zare, and D.W. Chandler, "H/D Fragment Ratio in Lyman-α Photolysis of CH2D2," *J. Chem. Phys.* **104**, 3399-3402 (1996).

549.   O. Orwar, K. Jardemark, I. Jacobson, A. Moscho, H. A. Fishman, R.H. Scheller, and R. N. Zare, "Patch Clamp Detection of Neurotransmitters in Capillary Electrophoresis," *Science* **272**, 1779-1782 (1996).

550.   D. T. Chiu and R. N. Zare, "Biased Diffusion, Optical Trapping, and Manipulation of Single Molecules in Solution," *J. Am. Chem. Soc.***118**, 6512-6513 (1996).

551.   C. Yan, R. Dadoo, D. J. Rakestraw, D. Anex, and R. N. Zare, "Gradient Elution in Capillary Electrochromatography," *Anal. Chem*. **68**, 2726-2730 (1996).

552.   J. Martin, B. A. Paldus, P. Zalicki, E. H. Wahl, T. G. Owano, J. S. Harris, Jr., C. H. Kruger, and R. N. Zare, "Cavity Ring-Down Spectroscopy with Fourier-Transform-Limited Light Pulses," *Chem. Phys. Lett.* **258**, 63-70 (1996).

553.   S. A. Kandel, T. P. Rakitzis, T. Lev-On, and R. N. Zare, "Dynamics for the Cl+C2H6 → HCl+C2H5 Reaction Examined Through State-Specific Angular Distributions," *J. Chem. Phys.* **105**, 7550-7559 (1996).

554.   A. Moscho, O. Orwar, D. T. Chiu, B. P. Modi, and R. N. Zare, "Rapid Preparation of Giant Unilamellar Vesicles," *Proc. Natl. Acad. Sci. USA* **93**, 11443-11447 (1996).

555.   E.H. Wahl, T.G. Owano, C. H. Kruger, Y. Ma, P. Zalicki, and R. N. Zare, "Spatially Resolved Measurements of Absolute CH3 Concentration in a Hot-Filament Reactor," *Diamond and Related Materials***6,** 476-480 (1997).

556.   D. S. McKay, E.K. Gibson, Jr., K.L. Thomas-Keprta, H. Vali, C.S. Romanek, S. J. Clemett, X.D.F. Chillier, C.R. Maechling, and R. N. Zare, "Search for Past Life on Mars:  Possible Relic Biogenic Activity in Martian Meteorite ALH84001," *Science* **273**, 924-930 (1996).

557.   N.E. Shafer-Ray and R. N. Zare, "Measurement of Rapidly Varying Electric Fields Through Parity Oscillations in the Rydberg States of Hydrogenic Atoms," *App. Phys. Lett.* **69**, 3749-3751 (1996).

558.   H. Park and R. N. Zare, "Rotationally Resolved Photoelectron Spectra from Vibrational Autoionization of NO Rydberg Levels," *J. Chem Phys* **106**, 2239-2247 (1997).

559.   S. Williams, E. A. Rohlfing, L. A. Rahn, and R. N. Zare, "Two-Color Resonant Four-Wave Mixing: Analytical Expressions for Signal Intensity," *J. Chem. Phys.* **106**, 3090-3102 (1997).

560.   S. A. Kandel, T. P. Rakitzis, T. Lev-On, and R. N. Zare, "Dynamical Effects of Reagent Vibrational Excitation in the Cl+C2H6(v5=1) → HCl+C2H5 Reaction," *Chem. Phys. Lett.* **265,** 121-128 (1997).

561.   S. J. Clemett and R. N. Zare, "Microprobe Two-Step Laser Mass Spectrometry as an Analytical Tool for Meteoritic Samples," *Proceedings of the IAU Symposium 178:  Molecules in Astrophysics: Probes & Processes.* *E. F. Van Dishoeck (ed.),* 305-320 (1997).

562.   A. J. Orr-Ewing, W. R. Simpson, T.P. Rakitzis, S.A. Kandel, and R. N. Zare, "Scattering-Angle Resolved Product Rotational Alignment for the Reaction of Cl with Vvibrationally Excited Methane," *J. Chem. Phys.* **106**, 5961-5971 (1997).

563.   D. T. Chiu and R. N. Zare, "Optical Detection and Manipulation of Single Molecules in Room-Temperature Solutions," *Chem. Eur. J.* **3**, 335-339 (1997).

564.   D. T. Chiu, A. Hsiao, A. Gaggar, R.A. Garza-Lopez, O. Orwar, and R. N. Zare, "Injection of Ultrasmall Samples and Single Molecules into Tapered Capillaries," *Anal. Chem*.**69**, 1801-1807 (1997).

565.   R. J. Green and R. N. Zare, "Measurement of the Rotational Distribution for the OD Product from the Reaction ND3++D2O → ND4++OD Under Translationally Thermal Conditions," *J. Chem. Phys*. **107**, 772-778 (1997).

566.   K. Jardemark, O. Orwar, I. Jacobsen, A. Moscho, and R. N. Zare, "Patch Clamp Detection in Capillary Electrophoresis," *Anal. Chem.* **69**, 3427-3434 (1997).

567.   S. Nie and R. N. Zare, "Optical Detection of Single Molecules*," Annu. Rev. Biophys. Biomol. Struct.* **26**, 567-596 (1997).

568.   T. Tsuda, S. Kitagawa, R. Dadoo, and R. N. Zare, "Formation of a Reverse Parabolic Flow Profile with Electroosmosis in Capillary Zone Electrophoresis and the Behavior of Zone Progress Related to the Application of a Pulsed Electric Field," *Bunseki Kagaku*, **46**, 409-414 (1997).

569.   B. A. Paldus, J. S. Harris, Jr., J. Martin, J. Xie, and R. N. Zare, "Laser Diode Cavity Ring-Down Spectroscopy Using Acousto-Optic Modulator Stabilization," *J. Appl. Phys.* **82**, 3199-3204 (1997).

570.   R. Dadoo, C. Yan, R. N. Zare, D. S. Anex, D. J. Rakestraw, and G. A. Hux, "Advances Towards the Routine Use of Capillary Electrochromatography," *LC GC International* **15**, 630-635 (1997).

571.   R. J. Green, J. Xie, R. N. Zare, A. A. Viggiano, R. A. Morris, "Rate Constants and Products for the Reaction of HBr+ with HBr and DBr," *Chem. Phys. Lett.* **277**, 1-5 (1997).

572.   T. P. Rakitzis, S. A. Kandel, and R. N. Zare, "Determination of Differential-Cross-Section Moments from Polarization-Dependent Product Velocity Distributions of Photoinitiated Bimolecular Reactions," *J. Chem. Phys.* **107**, 9382-9391 (1997).

573.   T. P. Rakitzis, S. A. Kandel, T. Lev-On, and R. N. Zare, "Differential Cross Section Polarization Moments:  Location of the D-Atom Transfer in the Transition-State Region for the Reactions Cl + C2D6 → DCl (v'=0, J'=1) + C2D5 and Cl + CD4 → DCl (v'=0, J'=1) + CD3*," J. Chem. Phys.* **107**, 9392-9405 (1997).

574.   O. Orwar, K. Jardemark, C. Farre, I. Jacobson, A. Moscho, J. B. Shear, H. A. Fishman, S. J. Lillard, and R. N. Zare, "Voltage Clamp Biosensors for Capillary Electrophoresis," *Methods in Enzymology* **294**, 189-208 (1998).

575.   H. A. Fishman, D. R. Greenwald, and R. N. Zare, "Biosensors in Chemical Separations," *Annu. Rev. Biophys. Biomol. Struct.* **27**, 165-198 (1998).

576.   J. Xie, B. A. Paldus, E. H. Wahl, J. Martin, T. G. Owano, C. H. Kruger, J. S. Harris, and R. N. Zare, "Near-Infrared Cavity Ringdown Spectroscopy of Water Vapor in an Atmospheric Flame," *Chem. Phys. Lett.***284**, 387-395 (1998).

577.   B. A. Paldus, C. C. Harb, T. G. Spence, B. Willke, J. Xie, J. S. Harris, and R. N. Zare, "Cavity-Locked Ring-Down Spectroscopy." *J. App. Phys.* **83**, 3991-3997 (1998).

578.   D. T. Chiu, S. J. Lillard, R. H. Scheller, R. N. Zare, S. E. Rodriguez-Cruz, E. R. Williams, O. Orwar, M. Sandberg, and J. A. Lundqvist, "Probing Single Secretory Vesicles with Capillary Electrophoresis," *Science* **279**, 1190-1193 (1998).

579.   S. Messenger, S. J. Clemett, S. Amari, X. Gao, R. M. Walker, X. D. F. Chillier, and R. N. Zare, "Indigenous Polycyclic Aromatic Hydrocarbons in Circumstellar Graphite Grains from Primitive Meteorites," *Astrophysical Journal* **502**, 284-295 (1998).

580.   S. A. Kandel, T. Peter Rakitzis, T. Lev-On, and R. N. Zare, "Angular distributions for the Cl+C2H6 → HCl+C2H5 reaction observed via multiphoton ionization of the C2H5 radical," *J. Phys. Chem. A* **102**, 2270-2273 (1998).

581.   R. N. Zare, "Laser Control of Chemical Reactions," *Science* **279**, 1875-1879 (1998).

582.   H. Zhao, R. Dadoo, R. J. Reay, G. T. A. Kovacs, and R. N. Zare, "Electrically Floating Conductivity Detection System for Capillary Electrophoresis," *J. Chromatog. A* **813**, 205-208 (1998).

583.   S. J. Clemett, X. D. F. Chillier, S. Gillette, R. N. Zare, M. Maurette, C. Engrand, and G. Kurat, "Observation of Indigenous Polycyclic Aromatic Hydrocarbons in ‘Giant ’ Carbonaceous Antarctic Micrometeorites," *Origins of Life and Evolution of the Biosphere* **28**, 425-448 (1998).

584.   B. A. Paldus and R. N. Zare, "Historical Overview of Spectral Studies:  From Sunlight to Lasers," pp. 1-6, and "Absorption Spectroscopies:  From Early Beginnings to Cavity Ring-Down Spectroscopy," pp. 49-70, in *Cavity Ring-down Spectroscopy--An Ultratrace-Absorption Measurement Technique* *ACS Symposium Series 720*, edited by K. W. Busch and M. A. Busch, American Chemical Society: Washington, DC, 1999.

585.   T. P. Rakitzis, S. A. Kandel, and R. N. Zare, "Photolysis of ICl Causes Mass-Dependent Interference in the Cl(2Π3/2) Photofragment Angular Momentum Distributions,” *J. Chem. Phys.* **108**, 8291-8294 (1998).

586.   K. Jardemark, C. Farre, I. Jacobson, R. N. Zare, and O. Orwar, "Screening of Receptor Antagonists Using Agonist-Activated Patch Clamp Detection in Chemical Separations." *Anal. Chem.* **70**, 2468-2474 (1998).

587.   S. J. Clemett, M. T. Dulay, J. S. Gillette, X. D. F. Chillier, T. B. Mahajan, and R. N. Zare, "Evidence for the Extraterrestrial Origin of Polycyclic Aromatic Hydrocarbons in the Martian Meteorite ALH84001," *Faraday Discuss*. **109**, 417-436 (1998).

588.   M. D. Levenson, B. A. Paldus, T. G. Spence, C. C. Harb, J. S. Harris, Jr., and R. N. Zare, "Optical Heterodyne Detection in Cavity Ring-Down Spectroscopy." *Chem. Phys. Lett.* **290**, 335-340 (1998).

589.   D. T. Chiu and R. N. Zare, "Assaying for Peptides in Individual *Aplysia* Neurons with Mass Spectrometry." *Proc. Natl. Acad. Sci. USA* **95**,3338-3340 (1998).

590.   A. Brock, N. Rodriguez, and R. N. Zare, "Hadamard Transform Time-of-Flight Mass Spectrometry (HT-TOFMS) *Anal Chem*. **70**, 3735-3741 (1998).

591.   A. J. Alexander and R. N. Zare, "Anatomy of Elementary Chemical Reactions," *J. Chem. Ed.* **75**, 1105-1118 (1998).

592.   T. P. Rakitzis, S. A. Kandel, A. J. Alexander, Z. H. Kim, and R. N. Zare, "Photofragment Helicity Caused by Matter-Wave Interference from Multiple Dissociative States," *Science* **281**, 1346-1349 (1998).

593.   S. J. Lillard, D. T. Chiu, R. H. Scheller, R. N. Zare, S. E. Rodriguez-Cruz, E. R. Williams, O. Orwar, M. Sandberg, J. A. Lundqvist, "Separation and Characterization of Amines from Individual Atrial Gland Vesicles of *Aplysia californica*," *Anal. Chem.* **70**, 3517-3524 (1998).

594.   M. A. Everest, J. C. Poutsma, and R. N. Zare, "Vibrational and Translational Energy Effects in the Reaction of Ammonia Ions with Water Molecules," *J. Phys. Chem*. **102**, 9593-9598 (1998).

595.   S. A. Kandel and R. N. Zare, "Reaction Dynamics of Atomic Chlorine with Methane:  Importance of Methane Bending and Torsional Excitation in Controlling Reactivity," *J. Chem. Phys.* **109**, 9719-9727 (1998).

596.   V. D. Kleiman, H. Park, R. J. Gordon, and R. N. Zare, *Companion to Angular Momentum*, John Wiley & Sons: New York 1998.

597.   M. T. Dulay, R. P. Kulkarni, and R. N. Zare, "Preparation and Characterization of Monolithic Porous Capillary Column Loaded with Chromatographic Particles," *Anal. Chem.* **70**, 5103-5107 (1998).

598.   T. P. Rakitzis and R. N. Zare, "Photofragment Angular Momentum Distributions in the Molecular Frame: Determination and Interpretation," *J. Chem. Phys* **110**, 3341-3350 (1999).

599.   T. P. Rakitzis, S. A. Kandel, A. J. Alexander, Z. H. Kim, and R. N. Zare, "Measurement of Cl-Atom Photofragment Angular Momentum Distributions in the Photodissociation of Cl2 and ICl," *J. Chem. Phys.* **110**, 3351-3359 (1999).

600.   E. R. Crosson, P. Haar, G. A. Marcus, H. A. Schwettman, B. A. Paldus, T. G. Spence, and R. N. Zare, "Pulse-Stacked Cavity Ring-down Spectroscopy," *Rev. Sci. Inst.* **70**, 1-7 (1999).

601.   B. A. Paldus, T. G. Spence, R. N. Zare, J. Oomens, F. J. M Harren, D. H Parker, C. Gmachl, F. Cappasso, D. L. Sivco, J. N. Baillargeon, A. L. Hutchinson, and A. Y. Cho, "Photoacoustic Spectroscopy Using Quantum-Cascade Lasers," *Optics Letters* **24**, 178-180 (1999).

602.   R. Dadoo, R. N. Zare, C. Yan, and D. S. Anex. "Advances in Capillary Electrochromatography:  Rapid and High-Efficiency Separations of PAHs," *Anal. Chem*. **70**, 4787-4792 (1998).

603.   J. S. Gillette, R. G. Luthy, S. J. Clemett, and R. N. Zare, "Direct Observation of Polycyclic Aromatic Hydrocarbons on Geosorbents at the Sub-Particle Scale," *Environ. Sci. Technol*. **33**, 1185-1192 (1999).

604.   M. P. Bernstein, S. A. Sandford, L. J. Allamandola, J. S. Gillette, S. J. Clemett, and R. N. Zare, "UV Irradiation of Polycyclic Aromatic Hydrocarbons in Ices: Production of Alcohols, Quinones, and Ethers," *Science* **283**, 1135-1138 (1999).

605.   D. T. Chiu, C. F. Wilson, F. Sahlin, A. Strömberg, C. Farre, A. Karlsson, S. Nordholm, A. Gaggar, B. P. Modi, A. Moscho, R. A. Garza-Lopez, O. Orwar, and R. N. Zare, "Chemical Transformations in Individual Ultrasmall Biomimetic Containers," *Science* **283**, 1892-1895 (1999).

606.   F. Fernández-Alonso, B. D. Bean, and R. N. Zare, "Measurement of the HD(v'=2, J'=3) Product Differential Cross Section for the H + D2 Exchange Reaction at 1.55 ± 0.05 eV Using the Photoloc Technique," *J. Chem. Phys.* **111**, 1022-1034 (1999).

607.   D. T. Chiu, C. F. Wilson, A. Karlsson, A. Danielsson, A. Lundqvist, A. Strömberg, F. Ryttsén, M. Davidson, S. Nordholm, O. Orwar, and R. N. Zare, "Manipulating the Biochemical Nanoenvironment Around Single Molecules Contained Within Vesicles," *Chem. Phys.* **247**, 133-139 (1999).

608.   J. C. Poutsma, M. A. Everest, J. E. Flad, G. C. Jones, Jr., and R. N. Zare, "State-Selected Studies of the Reaction of NH3+(*v*1, *v*2) with D2," *Chem. Phys. Lett.* **305**, 343-347 (1999).

609.   F. Fernández-Alonso, B. D. Bean, and R. N. Zare, "Differential Cross Sections for H + D2 → HD (v'=1, J'=1,5,8) + D at 1.7 eV," *J. Chem. Phys.* **111**, 1035-1042 (1999).

610.   F. Fernández-Alonso, B. D. Bean, and R. N. Zare, "Differential Cross Sections for H + D2 → HD (v'=2, J'=0,3,5) + D at 1.55 eV," *J. Chem. Phys.* **111**, 2490-2498 (1999).

611.   M. A. Everest, J. C. Poutsma, J. E. Flad, and R. N. Zare, "Reaction of State-Selected Ammonia Ions with Methane," *J. Chem. Phys.* **111**, 2507-2512 (1999).

612.   T. P. Rakitzis, G. E. Hall, M. L. Costen, and R. N. Zare, "Relationship Between Bipolar Moments and Molecule-Frame Polarization Parameters in Doppler Photofragment Spectroscopy," *J.* *Chem. Phys.* **111**, 8751-8754 (2000).

613.   Z. H. Kim, A. J. Alexander, and R. N. Zare, "Speed-Dependent Photofragment Helicity in the Photodissociation of OCS at 223 nm," *J. Phys. Chem. A.* **103**, 10144-10148 (1999).

614.   S. M. Mahurin, R. N. Compton, and R. N. Zare, "Demonstration of Optical Rotatory Dispersion of Sucrose," *J. Chem. Ed.* **76**, 1234-1236 (1999).

615.   S. A. Kandel, A. J. Alexander, Z. H. Kim, R. N. Zare, F. J. Aoiz, L. Bañares, J. F. Castillo, and V. S. Rábanos, "Cl + HD (v=1; J=1,2) Reaction Dynamics: Comparison Between Theory and Experiment," *J. Chem. Phys.* **112**, 670-685 (2000).

616.   M. D. Ellison, C. M. Matthews, and R. N. Zare, "Scattering of Xenon from Ni(111): Collision-Induced Corrugation and Energy Transfer Dynamics," *J. Chem. Phys.* **112**, 1975-1983 (2000).

617.   A. Stromberg, F. Ryttsen, D. T. Chiu, M. Davidson, P. S. Eriksson, C. F. Wilson, O. Orwar, and R. N. Zare, "Manipulating the Genetic Identity and Biochemical Surface Properties of Individual Cells with Electric-Field-Induced Fusion," *Proc. Natl. Acad. Sci. USA* **97**, 7-11 (2000).

618.   A. J. Alexander and R. N. Zare, "Molecular tennis--flat smashes and wicked cuts," *Accts of Chem. Research* **33**, 199-205 (2000).

619.   T. G. Spence, C. C. Harb, B. A. Paldus, R. N. Zare, B. Willke, and R. L. Byer, "A Laser-Locked Cavity Ring-Down Spectrometer Employing an Analog Detection Scheme," *Rev. Sci. Instrum.* **71**, 347-353 (2000).

620.   A. Brock, N. Rodriguez, and R. N. Zare, "Characterization of a Hadamard Transform Time-of-Flight Mass Spectrometer," *Rev. Sci. Instrum*. **71**, 1306-1318 (2000).

621.   J. -T. Lim, R. N. Zare, C. G. Bailey, D. J. Rakestraw, and C. Yan, "Separation of Related Opiate Compounds Using Capillary Electrochromatography," *Electrophoresis* **21**, 737-742 (2000).

622.   Z. H. Kim, A. J. Alexander, S. A. Kandel, T. P. Rakitzis, and R. N. Zare, "Orientation as a Probe of Photodissociation Dynamics," *Faraday Discuss.* **113**, 27-36 (2000).

623.   M. Zhao, E. H. Wahl, T. G. Owano, C. C. Largent, R. N. Zare, and C. H. Kruger, "Near-Surface Reduction of Cavity Ring-Down Spectroscopy Detection Sensitivity," *Chem. Phys. Lett.* **318**, 555-560 (2000).

624.   J.-R. Chen, M. T. Dulay, and R. N. Zare, "Macroporous Photopolymer Frits for Capillary Electrochromatography," *Anal. Chem.* **72**, 1224-1227 (2000).

625.   J.-R. Chen, M. T. Dulay, and R. N. Zare, "Softening of Fused-Silica Capillaries during Particle Packing," *Electrophoresis* **21**, 1430-1431 (2000).

626.   J. M. Greenberg, J. S. Gillette, G. Muñoz Caro, T. B. Mahajan, R. N. Zare, A. Li, W. Schutte, M. de Groot, C. Mendoza-Gómez, "Ultraviolet Photoprocessing of Interstellar Dust Mantles as a Source of Polycyclic Aromatic Hydrocarbons and Other Conjugated Molecules," *Astrophys. J.* **531**, L71-73 (2000).

627.   B. A. Paldus, C. C. Harb, T. G. Spence, R. N. Zare, C. Gmachl, F. Capasso, D. L. Sivco, J. N. Baillargeon, A. L. Hutchinson, and A. Y. Cho, "Cavity Ring-down Spectroscopy using Mid- Infrared Quantum Cascade Lasers," *Optics Letters* **25**, 666-668 (2000).

628.   U. Ghosh, R. G. Luthy, J. S. Gillette, and R. N. Zare, "Microscale Location, Characterization, and Association of Polycyclic Aromatic Hydrocarbons on Harbor Sediment Particles," *Env. Sci. Tech.* **34**, 1729-1736 (2000).

629.   S. A. Sandford, M. P. Bernstein, L. J. Allamandola, J. S. Gillette, and R. N. Zare, "Deuterium Enrichment of PAHs by Photochemically Induced Exchange with Deuterium-rich Cosmic Ices," *Astrophys. J.* **538**, 691-697 (2000).

630.   U. Lommatzsch, E. H. Wahl, T. G. Owano, C. H. Kruger, and R. N. Zare, "Spatial Concentration and Temperature Distribution of CH Radicals Formed in a Diamond Thin Film Hot-Filament Reactor," *Chem. Phys. Lett.* **320**, 339-344 (2000).

631.   M. D. Levenson, B. A. Paldus, C. C. Harb, T. G. Spence, R. N. Zare, M. J. Lawrence, and R. L. Byer, "Frequency-Switched Heterodyne Cavity Ringdown Spectroscopy," *Optics Letters* **25**, 920-922 (2000).

632.   C. M. Matthews, F. Balzer, A. J. Hallock, M. D. Ellison, and R. N. Zare, "Scattering of N2 from Ni(111)," *Surface Science* **460**, 12-20 (2000).

633.   H. Park, I. Konen, and R. N. Zare, "Partial-Wave Decomposition of the Ionization Continuum Accessed by Vibrational Autoionization of the NO 14*s* (*v*=1, *N*=20, *NR*+=20) level," *Phys. Rev. Lett* **84**, 3819-3822 (2000).

634.   J. C. Poutsma, M. A. Everest, J. E. Flad, and R. N. Zare, "Mode Selectivity in Ion-Molecule Reactions of NH3+," *Appl. Phys. B* **71**, 623-625 (2000).

635.   F. Fernandez-Alonso, B. D. Bean, J. D. Ayers, A. E. Pomerantz, R. N. Zare, L. Bañares, and F. J. Aoiz, "Evidence for Scattering Resonances in the H + D2 Reaction," *Angew. Chemie Int. Ed.* **39**, 2748-2752 (2000).

636.   M. Kato, M. T. Dulay, B. Bennett, J.-R. Chen, and R. N. Zare, "Enantiomeric separation of amino acids and non-protein amino acids using a particle-loaded monolithic column," *Electrophoresis* **21**, 3145-3151 (2000).

637.   A. J. Alexander, Z.-H. Kim, S. A. Kandel, R. N. Zare, T. P. Rakitzis, Y. Asano, and S. Yabushita, "Oriented chlorine atoms as a probe of the nonadiabatic photodissociation dynamics of molecular chlorine," *J. Chem. Phys.* **113**, 9022-9031 (2000).

638.   H. Vali, M. D. McKee, N. Ciftcioglu, S. K. Sears, F. L. Plows, E. Chevet, P. Ghiabi, M. Plavsic, E. O. Kajander, and R. N. Zare, "Nanoforms: A New Type of Protein-Associated Mineralization," *Geochimica et Cosmochimica Acta* **65**, 63-74 (2001).

639.   Lommatzsch, E. H. Wahl, D. Aderhold, T. G. Owano, C. H. Kruger, and R. N. Zare, "Cavity Ring-Down Spectroscopy of CH and CD Radicals in a Diamond Thin Film Chemical Vapor Deposition Reactor," *App. Phys. A.* **73**, 27-33 (2001).

640.   F. Fernandez-Alonso, B. D. Bean, J. D. Ayers, A. E. Pomerantz, and R. N. Zare, "New Scheme for Measuring the Angular Momentum Spatial Anisotropy of Vibrationally Excited H2 via the *I*1Πg State," *Zeitschrift fur Phys. Chem.* **214**, 1167-1186 (2000).

641.   M. Gupta and R. N. Zare, "Spinning Molecules to Bits," *Nature* **407**, 33-34 (2000).

642.   J. M. Brown, R. J. Buenker, A. Carrington, C. diLauro, R. N. Dixon, R. W. Field, J. T. Hougen, W. Huttner, K. Kuchitsu, M. Mehring, A. J. Merer, T. A. Miller, M. Quack, D. A. Ramsay, L. Veseth, and R. N. Zare, "Remarks on the Signs of g-Factors in Atomic and Molecular Zeeman Spectroscopy," *Mol. Phys.* **98**, 1597-1601 (2000).

643.   A. M. Shaw, R. N. Zare, C. V. Bennett, and B. H. Kolner, "Bounce-by-Bounce Cavity Ring-Down Spectroscopy: Femtosecond Temporal Imaging," *ChemPhysChem* **2**, 118-121 (2001).

643.5  P. Frank, W. A. Bonner, and R. N. Zare, "On the One Hand but Not the Other: The Challenge of the Origin and Survival of Homochirality in Prebiotic Chemistry," in *Chemistry for the 21st Century*, edited by E. Keinan and I. Schechter. Wiley-VCH Gmbh: Weinheim, Germany, 2001, pp. 175-208.

644.   B. D. Bean, F. Fernandez-Alonso, and R. N. Zare, "Distribution of rovibrational product states for the 'prompt' reaction H+D2(v=0, j=0-4) → HD (v'=1,2, j') + D near 1.6 eV collision energy," *J. Phys. Chem.* **105**, 2228-2233 (2001).

645.   C. F. Wilson, G. J. Simpson, D. T. Chiu, A. Stromberg, O. Orwar, N. Rodriguez, and R. N. Zare, "Nanoengineered Structures for Holding and Manipulating Liposomes and Cells," *Anal.* *Chem.* **73**, 787-791 (2001).

646.  J.-G. Choi, M. Kim, R. Dadoo, and R. N. Zare, "Electrophoretron: A New Method for Enhancing Resolution in Electrokinetic Separations," *J. Chromatogr. A.* **924**, 53-58 (2001).

647.   J.-R. Chen, R. N. Zare, E. C. Peters, F. Svec, and J. J. Frechet, "Semipreparative Capillary Electrochromatography," *Anal. Chem.* **73**, 1987-1992 (2001).

648.   M. Kato, M. T. Dulay, B. D. Bennett, J. P. Quirino, and R. N. Zare, "Photopolymerized Sol-Gel Frits for Packed Columns in Capillary Electrochromatography," *J. Chromatogr. A.* **924**, 187-195 (2001).

649.   J. E. Flad, M. A. Everest, J. C. Poutsma, and R. N. Zare, "Vibrational and Collisional Energy Effects in the Reaction of Ammonia Ions with methylamine," *J. Chem. Phys.* **115**, 124-132 (2001).

650.   Z. H. Kim, A. J. Alexander, H. A. Bechtel, and R. N. Zare, "Comparison of Near-Threshold Reactivity of Ground-State and Spin-Orbit Excited Chlorine Atoms with Methane," *J. Chem. Phys.* **115**, 179-183 (2001).

651.   T. B. Mahajan, G. A. Logan, F. L. Plows, J. S. Gillette, and R. N. Zare, "Comparison of Microprobe Two-Step Laser Desorption/Laser Ionization Mass Spectrometry and Gas Chromatography/Mass Spectrometry Studies of Polycyclic Aromatic Hydrocarbons in Ancient Terrestrial Rocks," *J. Am. Soc. Mass Spec.* **12**, 989-1001 (2001).

652.   M. T. Dulay, J. P. Quirino, B. D. Bennett, M. Kato, and R. N. Zare, "Photopolymerized Sol-Gel Monoliths for Capillary Electrochromatography," *Anal. Chem.* **73**, 3921-3926 (2001).

653.   A. J. Hallock, C. M. Matthews, F. Balzer, and R. N. Zare, "N2 Product Internal-State Distributions for the Steady-State Reactions of NO with H2 and NH3 on the Pt(100) Surface," *J. Phys. Chem.* **105**, 8725-8728 (2001).

654.   T. B. Mahajan, U. Ghosh, R. N. Zare, and R. G. Luthy, "Microscale Detection of Polychlorinated Biphenyls Using Two-Step Laser Mass Spectrometry," *Int. J. Mass Spec.* **212**, 41-48 (2001).

655.   F. Fernandez-Alonso, B. D. Bean, and R. N. Zare, "Forward Scattering in the H+D2 → HD + D Reaction: Comparison Between Photoloc Experiments and Theoretical Predictions," *J. Chem. Phys.* **115**, 4534-4545 (2001).

656.   G. Peleg, P. Ghanouni, B. K. Kobilka, and R. N. Zare, "Single-Molecule Spectroscopy of the b2 Adrenergic Receptor: Observation of Conformational Substates in a Membrane Protein," *Proc. Natl. Acad. Sci. USA* **98**, 8469-8474 (2001).

657.   J. P. Quirino, M. T. Dulay, B. D. Bennett, and R. N. Zare, "Strategy for On-Line Preconcentration in Chromatographic Separations," *Anal. Chem.* **73**, 5539-5543 (2001).

658. K. Morishima, D. W. Arnold, A. R. Wheeler, D. J. Rakestraw, and R. N. Zare, "Novel Separation Method on a Chip Using Capillary Electrophoresis in Combination with Dielectrophoresis," *Micro Total Analysis Sys.* 269-272 (2000).

659.   J. P. Quirino, M. T. Dulay, and R. N. Zare, "On-line Preconcentration in Capillary Electrochromatography Using a Porous Monolith, Solvent Gradient, and Sample Stacking," *Anal. Chem.* **73**, 5557-5563 (2001).

660.   F. M. Fernandez, N. Rodriguez, J. M. Vadillo, M. Wetterhall, K. Markides, F. Engelke, J. R. Kimmel, and R. N. Zare, "Effect of Sequence Length, Sequence Frequency, and Data Acquisition Rate on the Performance of a Hadamard Transform Time-of-Flight Mass Spectrometer," *J. Am. Soc. Mass Spec.* **12**, 1302-1311 (2001).

661.   J. R. Kimmel, F. Engelke, and R. N. Zare, "Novel Method for the Production of Finely Spaced Bradbury-Nielson Gates," *Rev. Sci. Instru.* **72**, 4354-4357 (2001).

662.   C. F. Wilson, D. T. Chiu, R. N. Zare, A. Stromberg, A. Karlsson, and O. Orwar, "Confining and Probing Single Molecules in Synthetic Liposomes," in *Single-Molecule Spectroscopy: Nobel Conference Lectures*, edited R. Rigler, M. Orrit, and T. Basche, Springer-Verlag: Berlin Heidelberg, (2001).

663.   S. Zeng, C.-H Chen, J. G. Santiago, J.-R Chen, R. N. Zare, J. A. Tripp, F. Svec, and J. M. J. Frechet, "Electroosmotic Flow Pumps with Large Flow Rates," *Sensors & Actuators B* **82**, 209-212 (2002).

664.   L. M. Wilhelmsson, B. Norden, K. Mukherjee, M. T. Dulay, and R. N. Zare, "Genetic Screening Using the Colour Change of a PNA-DNA Hybrid Binding Cyanine Dye," *Nucleic Acids Research* **30**, U19-U22 (2002).

665.   M. T. Dulay, J. P. Quirino, B. D. Bennett, and R. N. Zare, "Bonded-Phase Photopolymerized Sol- Gel Monoliths for Reversed Phase Capillary Electrochromatography," *J. Sep. Sci* **25**, 3-9 (2002).

666.   Z. H. Kim, H. A. Bechtel, and R. N. Zare, "Vibrational Control in the Reaction of Methane with Atomic Chlorine," *J. Am. Chem. Soc.* **123**, 12714-12715 (2001).

667.   F. Fernandez-Alonso, and R. N. Zare, "Scattering Resonances in the Simplest Chemical Reaction," *Annu. Rev. Phys. Chem.* **53**, 67 - 99 (2002).

668.   G. J. Simpson, T. Wohland, and R. N. Zare, "Irradiation of Dye-Doped Microspheres with a Strongly Focused Laser Beam Results in Alignment upon Optical Trapping," *Nano Letters* **2**, 207-210 (2002).

669.   G. J. Simpson, C. F. Wilson, K.-H Gericke, and R. N. Zare, "Coupled Electrorotation: Two Proximate Microspheres Spin in Registry with an AC Electric Field," *ChemPhysChem* **3**, 416-423 (2002).

670.   J. S. Gillette, U. Ghosh, T. B. Mahajan, R. N. Zare, and R. G. Luthy, "Microprobe Laser Mass Spectrometry Studies of Polycyclic Aromatic Hydrocarbon Distributions on Harbor Sediments and Coals," *Israeli Journal of Chemistry* **41**, 105-110 (2001).

671.   F. M. Fernandez, J. M. Vadillo, J. R. Kimmel, M. Wetterhall, K. Markides, N. Rodriguez, and R. N. Zare, "Hadamard Transform Time-of-Flight Mass Spectrometry: A High-Speed Detector for Capillary-Format Separations," *Anal. Chem.* **74**, 1611-1617 (2002).

672.   B. D. Bean, J. D. Ayers, F. Fernandez-Alonso, and R. N. Zare, "State-resolved differential and integral cross sections for the reaction H + D2 → HD (v'=3, j'=0-7) + D at 1.64 eV collision energy," *J. Chem. Phys.* **116**, 6634-6639 (2002).

673.   A. J. Hallock, E. S. F. Berman, and R. N. Zare, "Direct Monitoring of Absorption in Solution by Cavity Ring-Down Spectroscopy," *Anal. Chem.* **74**, 1741-1743 (2002).

674.   S. C. Althorpe, F. Fernandez-Alonso, B. D. Bean, J. D. Ayers, A. E. Pomerantz, R. N. Zare, and E. Wrede, "Observation and Interpretation of a Time-Delayed Mechanism in the Hydrogen Exchange Reaction," *Nature* **416**, 67-70 (2002).

675.   E. R. Crosson, K. N. Ricci, B. A. Richman, F. C. Chilese, T. G. Owano, R. A. Provencal, M. W. Todd, J. Glasser, A. A. Kachanov, B. A. Paldus, T. G. Spence, and R. N. Zare, "Stable Isotope Ratios Using Cavity Ring-Down Spectroscopy: Determination of 13C/12C for Carbon Dioxide in Human Breath," *Anal. Chem.* **74**, 2003-2007 (2002).

676.   M. P. Bernstein, J. P. Elsila, J. P Dworkin, S. A. Sandford, L. J. Allamandola, and R. N. Zare, "Side Group Addition to the Polycyclic Aromatic Hydrocarbon Coronene by UV Photolysis in Cosmic Ice Analogs," *Astrophys. Journal* **576**, 1115-1120 (2002).

677.   T. B. Mahajan, J. E. Elsila, D. W. Deamer, and R. N. Zare, "Formation of Carbon-Carbon bonds in Photochemical Alkylation of Polycyclic Aromatic Hydrocarbons," *The Origins and Early Evolution of Life* **139**, (2002).

678.   C. F. Wilson, M. I. Wallace, K. Morishima, G. J. Simpson, and R. N. Zare, "Coupled Electrorotation of Polymer Microspheres for Microfluidic Sensing and Mixing," *Anal. Chem.* **74**, 5099-5104 (2002).

679.   J. P. Quirino, M. T. Dulay, L. Fu, T. D. Mody, R. N. Zare, "Capillary Electrophoresis separation and native laser-induced fluorescence detection of metallotexaphyrins," *J. Separation Science* **25**, 819-824 (2002).

680.   L. Neumann, T. Wohland, R. J. Whelan, R. N. Zare, and B. K. Kobilka, "Functional Immobilization of a Ligand-Activated G-Protein-Coupled Receptor," *ChemBioChem* **3**, 101-106 (2002).

681.   M. Kato, K. Sakai-Kato, T. Toyo'oka, M. T. Dulay, J. P. Quirino, B. D. Bennett, R. N. Zare, "Effect of Preparatory Conditions on the Performance of Photopolymerized Sol-Gel Monoliths for Capillary Electrochromatography," *J. Chromatogr. A* **961**, 45-51 (2002).

682.   G. J. Simpson, C. F. Wilson, K.-H. Gericke, and R. N. Zare, "Coupled Electrorotation: Two Proximate Microspheres Spin in Registry with an AC Electric Field," *ChemPhysChem* **3**, 416-423 (2002).

683.   Z.-H. Kim, H. A. Bechtel, and R. N. Zare, "Channel-Specific Angular Distributions of HCl and CH3 Products from the Reaction of Atomic Chlorine with Stretch-Excited Methane," *J. Chem. Phys.* **117**, 3232-3241 (2002).

684.   K. Morishima, B. D. Bennett, M. T. Dulay, J. P. Quirino, and R. N. Zare, "Toward Sol-Gel Electrochromatographic Separations on a Chip," *J. Separation Science* **25**, 1226-1230 (2002).

685.   G. J. Simpson, T. Wohland, and R. N. Zare, "Irradiation of Dye-Doped Microspheres with a Strongly Focused Laser Beam Results in Alignment upon Optical Trapping," *Nano Lett.* **2**, 207-210 (2002).

686.   R. N. Zare, J. R. Kimmel, F. M. Fernandez, "Hadamard Transform Time-of-Flight Mass Spectrometry: More Signal, More of the Time," *Angew. Chemie Int. Ed.* **42**, 30-35 (2003).

687.   R. J. Whelan, T. Wohland, L. Neumann, B. Huang, B. K. Kobilka and R. N. Zare, "Analysis of Biomolecular Interactions Using a Miniaturized Plasmon Resonance Sensor," *Anal. Chem.* **74**, 4570-4576 (2002).

688.   M. P. Bernstein, M. H. Moore, J. E. Elsila, S. A. Sandford, L. J. Allamandola, and R. N. Zare, "Side Group Addition to the Polycyclic Aromatic Hydrocarbon Coronene by Proton Irradiation in Cosmic Ice Analogs," *Astrophys. J.* **582,** L25-L29 (2003).

689.   R. N. Zare, "Visualizing Chemistry," *J. Chem. Ed.* **79**, 1290-1291 (2002).

690.   A. P. Yalin, C. O. Laux, C. H. Kruger, and R. N. Zare, "Spatial Profiles of N2+ Concentration in an Atmospheric Pressure Nitrogen Glow Discharge," *Plasma Sources Sci. Technol.* **11**, 248-253 (2002).

691.   A. P. Yalin, R. N. Zare, C. O. Laux, and C. H. Kruger, "Temporally resolved cavity ring-down spectroscopy in a pulsed nitrogen plasma," *Appl. Phys. Lett.* **81**, 1408-1410 (2002).

692.   A. P. Yalin, R. N. Zare, "Effect of Laser Lineshape on the Quantitative Analysis of Cavity Ring-Down Signals," *Laser Physics* **12**, 1065-1072 (2002).

693.   F. J. Aoiz, L. Bañares, J. F. Castillo, D. Sokolovski, F. Fernandez-Alonso, B. D. Bean, J. D. Ayers, A. E. Pomerantz, and R. N. Zare, "Observation of Scattering Resonances in the H+D2 Reaction: Direct Probe of the HD2 Transition-State Geometry," *Femtochemistry and Femtobiology: Ultrafast Dynamics in Molecular Science*, World Scientific Press 61-72, (2002).

694.   R. J. Whelan and R. N. Zare, "Teaching Effective Communication in a Writing Intensive Analytical Chemistry Course," *J. Chem. Ed.* **80**, 904-906 (2003).

695.   A. M. Leach, A. R. Wheeler, and R. N. Zare, "Flow Injection Analysis in a Microfluidic Format," *Anal. Chem.* **75**, 967-972 (2003).

696.   A. J Hallock, E. Berman, and R. N. Zare, "Ultratrace Kinetic Measurements of the Reduction of Methylene Blue," *J. Am. Chem. Soc.* **125**, 1158-1159 (2003).

697.   J. R. Kimmel, F. M. Fernandez and R. N. Zare, "Effects of Modulation Defects on Hadamard Transform Time-of-Flight Mass Spectrometry (HT-TOFMS)," *J. Am. Soc. Mass Spec.* **14**, 278- 286 (2003).

698.   B. J. Kirby, A. R. Wheeler, J. A. Fruetel, T. J. Shepodd and R. N. Zare, "Programmable Modification of Cell Adhesion and Zeta Potential in Silica Microchips," *Lab on a Chip* **3**, 5-10 (2003).

699.   A. J. Hallock, E. S. F. Berman, and R. N. Zare, "Use of Broadband Continuous-Wave Diode Lasers in Cavity Ring-Down Spectroscopy for Liquid Samples," *Applied Spectroscopy* **57**, 571-573 (2003).

700.   R. J. Whelan and R. N. Zare, "Surface Plasmon Resonance Detection for Capillary Electrophoresis Separations," *Anal. Chem.* **75**, 1542-1547 (2003).

701.   A. Pomerantz, and R. N. Zare, "Doppler-Free Multi-Photon Ionization for Enhancing Ion Images," *Chem. Phys. Lett.* **370**, 515-521 (2003).

702.   C. O. Laux, T. G. Spence, C. H. Kruger, and R. N. Zare, "Optical Diagnostics of Atmospheric Pressure Air Plasmas," *Plasma Sources Science & Technology* **12**, 125-138 (2003).

703.   M. Kato, H.-M. Jin, K. Sakai-Kato, T. Toyo'oka, M. T. Dulay, and R. N. Zare, "Determination of Glutamine and Serine in Rat Cerebrospinal Fluid Using Capillary Electrochromatography with a Modified Photopolymerized Sol-Gel Column," *J. Chromatogr. A* **1004**, 209-215 (2003).

704.   A. J. Alexander, Z. H. Kim, and R. N. Zare, "Photodissociation of O2 *via* the Herzberg Continuum: Measurements of O-Atom Alignment and Orientation," *J. Chem. Phys.* **118**, 10566-10574 (2003).

705.   K. Snyder and R. N. Zare, "Cavity Ring-Down Spectroscopy as a Detector for Liquid Chromatography," *Anal. Chem.* **75**, 3086-3091 (2003).

706.   F. L. Plows, J. E. Elsila, R. N. Zare, and P. R. Buseck, "Evidence That Polycyclic Aromatic Hydrocarbons in Two Carbonaceous Chondrites Predate Parent-Body Formation," *Geochimica et Cosmochimica* **67**, 1429-1436 (2003).

707.   R. J. Whelan and R. N. Zare, "Single Cell Immunosensors for Protein Detection," *Biosensors and Bioelectronics* **19**, 331-336 (2003).

708.   J. D. Ayers, A. E. Pomerantz, F. Fernandez-Alonso, F. Ausfelder, B. D. Bean, and R. N. Zare, "Measurement of the Cross Section for H + D2 → HD(v'=3, j'=0) + D as a Function of Angle and Energy," *J. Chem. Phys.* **119**, 4662-4670 (2003).

709.   L. Hong, U. Ghosh, T. Mahajan, R. N. Zare, and R. G. Luthy, "PAH Sorption Mechanism and Partitioning Behavior in Lampblack-Impacted Soils from Former Oil-Gas Plant Sites," *Environ. Sci. Technol.* **37**, 3625-3634 (2003).

710.   A. M. Shaw, T. E. Hannon, F. Li, and R. N. Zare, "Adsorption of Crystal Violet to the Silica-Water Interface Monitored by Evanescent Wave Cavity Ring-Down Spectroscopy," *J. Phys. Chem. B* **107**, 7070-7075 (2003).

711.   A. R. Wheeler, W. R. Throndset, R. J. Whelan, A. M. Leach, R. N. Zare, Y. H. Liao, K. Farrell, I. D. Manger, and A. Daridon, "Microfluidic Device for Single-Cell Analysis," *Anal. Chem.* **75**, 3581-3586 (2003).

712.   T. D. Perroud, B. Huang, M. I. Wallace, and R. N. Zare, "Photon Counting Histogram for One-Photon Excitation," *ChemPhysChem* **4**, 1121-1123 (2003). Corrigendum: *ChemPhysChem* **4**, 1280 (2003).

713.   J. P. Camden, H. A. Bechtel, and R. N. Zare, "Dynamics of the Simplest Reaction at a Tetrahedral Carbon," *Angew. Chemie Int. Ed.* **42**, 5227-5230 (2003).

714.   A. R. Wheeler, S. Chah, R. J. Whelan, and R. N. Zare, "Poly(dimethylsiloxane) Microfluidic Flow Cells for Surface Plasmon Resonance Spectroscopy," *Sensors & Actuators B* **98**, 208-214 (2004).

715.   H. A. Bechtel, Z-H. Kim, J. P. Camden, and R. N. Zare, "Bond and Mode Selectivity in the Reaction of Atomic Chlorine with Vibrationally Excited CH2D2," *J. Chem. Phys*. **120**, 791-799 (2004).

716.   R. J. Whelan, T. E. Hannon, D. J. Rakestraw, and R. N. Zare, "Application of Ion Chromatography to the Investigation of Real-World Samples," *J. Chem. Ed.* **81**, 1299-1302 (2004).

717.   S. Chah, J. Yi, and R. N. Zare, "Surface Plasmon Resonance Analysis of Aqueous Mercuric Ions," *Sensors and Actuators B* **99**, 216-222 (2004).

718.   F. Ausfelder, A. E. Pomerantz, R. N. Zare, S. C. Althorpe, F. J. Aoiz, L. Bañares, and J. F. Castillo, "Collision Energy Dependence of the HD(v'=2) Product Rotational Distribution of the H + D2 Reaction in the Range 1.30-1.89 eV," *J. Chem. Phys.* **120**, 3255-3264 (2004).

719.   A. E. Pomerantz, F. Ausfelder, R. N. Zare, S. C. Althorpe, F. J. Aoiz, L. Bañares, and J. F. Castillo, "Disagreement Between Theory and Experiment in the Simplest Chemical Reaction: Collision Energy Dependent Rotational Distributions for H + D2 → HD(v'=3,j') + D," *J. Chem. Phys.* **120**, 3244-3254 (2004).

720.   J. P. Camden, H. A. Bechtel, and R. N. Zare, "Design and Characterization of a Late-Mixing Pulsed Nozzle," *Rev. Sci. Instrum.* **75**, 556-558 (2004).

721.   H. Imanaka, B. N. Khare, J. E. Elsila, E. L. O. Bakes, C. P. McKay, D. P. Cruikshank, S. Sugita, T. Matsui, and R. N. Zare, "Laboratory Experiments of Titan Tholin Formed in Cold Plasma at Various Pressures: Implications for Nitrogen-Containing Polycyclic Aromatic Compounds in Titan Haze," *Icarus* **168**, 344-366 (2004).

722.   H. A. Bechtel, J. P. Camden, D. J. A. Brown, and R. N. Zare, "Comparing the Dynamical Effects of Symmetric and Antisymmetric Stretch Excitation of Methane in the Cl + CH4 Reaction," *J.* *Chem. Phys.* **120**, 5096 (2004).

723.   A. R. Wheeler, G. Trapp, O. Trapp, and R. N. Zare, "Electroosmotic Flow in a Poly(dimethylsiloxane) Channel Does Not Depend on Percent Curing Agent," *Electrophoresis* **25**, 1120-1124 (2004).

724.   S. Chah, V. J. Kumar, M. Hammond, and R. N. Zare, "Denaturation and Renaturation of Self-Assembled Yeast iso-1-Cytochrome *c* on Au," *Anal. Chem.* **76**, 2112-2117 (2004).

725.   C. O. Laux, T. G. Spence, C. H. Kruger and R. N. Zare, "Optical Diagnostics of Atmospheric Pressure Air Plasmas," *Plasma Sources Sci. Technol.* **12**, 125-138 (2003).

726.   J. E. Elsila, N. de Leon, and R. N. Zare, "Factors Affecting Quantitative Analysis in Laser-Desorption Laser-Ionization Mass Spectrometry," *Anal. Chem.* **76**, 2430-2437 (2004).

727.   J. P. Dworkin, J. S. Gillette, M. P. Bernstein, S. A. Sanford, L. J. Allamandola, J. E. Elsila, D. R. McGlothlin, and R. N. Zare, "An Evolutionary Connection Between Interstellar Ices and IDPs? Clues from Mass Spectroscopy Measurements of Laboratory Simulations," *Adv. In Space Res.* **33**, 67-71 (2004).

728.   H. A. Bechtel, J. P. Camden, and R. N. Zare, "State-to-State Dynamics of the Cl + CH3OH → HCl + CH2OH Reaction," *J. Chem. Phys.* **120**, 4231 (2004).

729.   J. P. Camden, H. A. Bechtel, D. J. A. Brown, A. E. Pomerantz, R. J. Le Roy, and R. N. Zare, "Probing Excited Electronic States Using Vibrationally Mediated Photolysis: Application to Hydrogen Iodide," *J. Phys. Chem. A* **108**, 7806-7813 (2004).

730.   A. E. Pomerantz, F. Ausfelder, R. N. Zare, and W. M. Huo, "Line Strength Factors for the E,F1Σg+(v'=0,J'=J") - X1Σg+(v",J") 2+1 REMPI Transitions in Molecular Hydrogen," *Can. J. Chem.* **82**, 723-729 (2004).

731.   B. Huang, T. D. Perroud, and R. N. Zare, "Photon Counting Histogram: One-Photon Excitation," *ChemPhysChem* **5**, 1523-1531 (2004).

732.   H. Wu, A. R. Wheeler, and R. N. Zare, "Chemical Cytometry on a Picoliter-Scale Integrated Microfluidic Chip," *Proc. Natl. Acad. Sci. USA* **101**, 12809-12813 (2004).

733.   H. A. Rypkema, M. R. Martin, and R. N. Zare, "Walk-Off Ring-Down Spectroscopy: Attaining Ultrafast Resolution by Converting Time into Space," *Mol. Phys.* **102**, 1501-1508 (2004).

734.   R. Zhao, I. M. Konen, and R. N. Zare, "Optical-Optical Double Resonance Photoionization Spectroscopy of *nf* Rydberg States of Nitric Oxide," *J. Chem. Phys.* **121**, 9938-9947 (2004).

735.   O. Trapp, J. R. Kimmel, O. K. Yoon, I. Zuleta, F. M. Fernandez, and R. N. Zare, "Continuous Two-Channel Time-of Flight Mass Spectrometric Detection of Electrosprayed Ions," *Angew. Chem. Int. Ed.* **43**, 6541-6544 (2004).

736.   A. E. Pomerantz, F. Ausfelder, R. N. Zare, J. C. Juanes-Marcos, S. C. Althorpe, V. S. Rábanos, F. J. Aoiz, L. Bañares, and J. F. Castillo, "Rovibrational Product State Distribution for Inelastic H + D2 Collisions," *J. Chem. Phys.* **121**, 6587-6590 (2004).

737.   J. E. Elsila, N. P. de Leon, P. R. Buseck, and R. N. Zare, "Alkylation of Polycyclic Aromatic Hydrocarbons in Carbonaceous Chondrites," *Geochimica et Cosmochimica Acta* **69**, 1349-1357 (2005).

738.   G. Trapp, K. Sydow, M. T. Dulay, T. Chou, J. P. Cooke, and R. N. Zare, "Capillary Electrophoretic and Micellar Electrokinetic Separations of Asymmetric Dimethyl-L-arginine and Structurally Related Amino Acids: Quantitation in Human Plasma," *J. Sep. Sci.* **27**, 1483-1490 (2004).

739.   Z.-H. Kim, H. A. Bechtel, J. P. Camden and R. N. Zare, "Effect of Bending and Torsional Mode Excitation on the Reaction Cl + CH4 → HCl + CH3," *J. Chem. Phys.* **122**, 084303-1-6 (2005).

740.   K. L. Bechtel, R. N. Zare, A. A. Kachanov, S. S. Sanders, and B. A. Paldus, "Moving Beyond Traditional UV-Vis Absorption Detection: Cavity Ring-Down Spectroscopy for HPLC," *Anal. Chem.* **77**, 1977-1182 (2005).

741.   A. Bardos, K. Markides, and R. N. Zare, "Inductive Behavior of Electrolytes in AC Conductance Measurements," *Chem. Phys. Lett.* **402**, 274-278 (2005).

742.   H. A. Bechtel, Z.- H. Kim, J. P. Camden, and R. N. Zare, "Correlated Energy Disposal and Scattering Dynamics of the Cl + CD4(v3=2) Reaction," *Mol. Phys.* **103**, 1837-1846 (2005).

743.   F. Li and R. N. Zare, "Molecular Orientation Study of Methylene Blue at an Air/Fused-Silica Interface," *J. Phys. Chem. B* **109**, 3330-3333 (2005).

744.   B. N. Ganguly, W. R. Lampert, K. Akhtar, J. E. Scharer, F. Leipold, C. O. Laux, R. N. Zare, and A.  P. Yalin, "Plasma Diagnostics," in *Non-Equilibrium Air Plasmas at Atmospheric Pressure* (K. H. Becker, U. Kogelschatz, K. H. Schoenbach, and R. J. Barker, eds.) Institute of Physics Publishing: Bristol, 446-536 (2005).

745.   O. Trapp, E. W. Pearce, J. R. Kimmel, O. K. Yoon, I. A. Zuleta and R. N. Zare, "A Soft On-Column Metal Coating Procedure for Robust Sheathless Electrospray Emitters Used in Capillary Electrophoresis/Mass Spectrometry," *Electrophoresis* **26**, 1358-1365 (2005).

746.   R. N. Zare, "Fizzical Attraction," *Nature* **432**, 954 (2004); book review of "Uncorked: The Science of Champagne," by G. Liger-Belair.

747.   R. N. Zare, "Bursting Bubbles," *The Nucleus* **83**, 9-10 (2005).

748.   R. N. Zare, "Strange Fizzical Attraction," *J. Chem. Ed.* **82**, 673-675 (2005).

749.   S. Ahn, D. Werner, H. K. Karapanagioti, D. R. McGlothlin, R. N. Zare, and R. G. Luthy, "Phenanthrene and Pyrene Sorption and Intraparticle Diffusion in Polyoxymethylene, Coke, and Activated Carbon," *Environ. Sci. Technol.* **39**, 6516-6526 (2005).

750.   S. Chah, M. Hammond, and R. N. Zare, "Gold Nanoparticles as a Colorimetric Sensor for Protein Conformational Changes," *Chemistry & Biology* **12**, 323-328 (2005).

751.   T. E. Hannon, S. Chah, and R. N. Zare, "Evanescent-Wave Cavity Ring-Down Investigation of Polymer/Solvent Interactions," *J. Phys. Chem. B* **109**, 7435-7442 (2005).

752.   J. R. Kimmel, O. K. Yoon, I. A. Zuleta, O. Trapp, and R. N. Zare, "Peak Height Precision in Hadamard Transform Time-of-Flight Mass Spectra," *J. Am. Soc. Mass Spectrom.* **16**, 1117-1130 (2005).

753.   T. D. Perroud, B. Huang, and R. N. Zare, "Effect of Bin Time on the Photon Counting Histogram for One-Photon Excitation," *ChemPhysChem* **6**, 905-912 (2005).

754.   H. A. Bechtel, J. P. Camden, D. J. Ankeny Brown, M. R. Martin, K. Vodopyanov, and R. N. Zare, "Effects of Bending Excitation on the Reaction of Chlorine Atoms with Methane," *Angew. Chem. Int. Ed.* **44**, 2382-2385 (2005).

755.   J. E. Elsila, N. P. de Leon, F. L. Plows, P. R. Buseck, and R. N. Zare, "Extracts of Impact Breccia Samples from Sudbury, Gardnos, and Ries Impact Craters and the Effects of Aggregation on C60 Detection," *Geochimica et Cosmochimica Acta* **69**, 2891-2899 (2005).

756.   B. Huang, H. Wu, S. Kim, and R. N. Zare, "Coating of Poly(dimethylsiloxane) with *n*-Dodecyl-beta-D-maltoside to Minimize Nonspecific Protein Adsorption," *Lab on a Chip* **5**, 1005-1007 (2005).

757.   H. Wu, B. Huang, and R. N. Zare, "Construction of Microfluidic Chips Using Polydimethylsiloxane Adhesive Bonding," *Lab on a Chip* **5**, 1393-1398 (2005).

758.   K. Koszinowski, N. T. Goldberg, A. E. Pomerantz, R. N. Zare, J. C. Juanes-Marcos, and S.  C.  Althorpe, "Collision-Energy Dependence of the HD(v'=1,j') Product Rotational Distributions for the H + D2 Reaction," *J. Chem. Phys.* **123**, 054306-1-11 (2005).

759.   M. T. Dulay, Q. J. Baca, and R. N. Zare, "Enhanced Proteolytic Activity of Covalently Bound Enzymes in Photopolymerized Sol Gel," *Anal. Chem.* **77**, 4604-4610 (2005).

760.   T. D. Perroud, M. P. Bokoch, and R. N. Zare, "Cytochrome *c* Conformations Resolved by the Photon Counting Histogram: Watching the Alkaline Transition with Single-Molecule Sensitivity," *Proc. Natl. Acad. Sci. USA* **102**, 17570-17575 (2005).

761.   J. P. Camden, H. A. Bechtel, D. J. A. Brown, and R. N. Zare, "Effects of C-H Stretch Excitation on the H + CH4 Reaction," *J. Chem. Phys.* **123**, 134301-1-9 (2005).

762.   J. P. Camden, H. A. Bechtel, D. J. A. Brown, M. R. Martin, R. N. Zare, W. Hu, G. Lendvay, D. Troya, and G. C. Schatz, "A Reinterpretation of the Mechanism of the Simplest Reaction at an sp3-Hybridized Carbon Atom: H + CD4 → CD3 + HD," *J. Am. Chem. Soc.* **127**, 11898-11899 (2005).

763.   J. P. Camden, W. Hu, H. A. Bechtel, D. J. A. Brown, M. R. Martin, R. N. Zare, G. Lendvay, D. Troya, and G. C. Schatz, "H + CD4 Abstraction Reaction Dynamics: Excitation Function, and Angular and Translational Energy Distributions," *J. Phys. Chem. A* **110**, 677-686 (2006).

764.   W. Hu, G. Lendvay, D. Troya, G. C. Schatz, J. P. Camden, H. A. Bechtel, D. J. A. Brown, M.  R.  Martin, and R. N. Zare, "H + CD4 Abstraction Reaction Dynamics: Product Energy Partitioning," *J. Phys. Chem. A* **110**, 3017-3027 (2006).

765.   A. E. Pomerantz, J. P. Camden, A. S. Chiou, F. Ausfelder, N. Chawla, W. L. Hase, and R. N. Zare, "Reaction Products with Internal Energy beyond the Kinematic Limit Result from Trajectories Far from the Minimum Energy Path: an Example from H + HBr → H2 + Br," *J.*  *Am. Chem. Soc.* **127**, 16368-16369 (2005).

766.   J. P. Camden, H. A. Bechtel, D. J. A. Brown, and R. N. Zare, "Comparing reactions of H and Cl with C-H stretch-excited CHD3," *J. Chem. Phys.* **124**, 034311 (2006).

767.   S. Chah, J. Noolandi, and R. N. Zare, "Undulatory Delamination of Thin Polymer Films from Gold Surfaces," *J. Phys. Chem. B* **109**, 19416-19421 (2005).

768.   O. K. Yoon, I. A. Zuleta, J. R. Kimmel, M. D. Robbins, and R. N. Zare, "Duty Cycle and Modulation Efficiency of Two-Channel Hadamard Transform Time-of-Flight Mass Spectrometry," *J. Am. Soc. Mass Spectrom.* **16**, 1888-1901 (2005).

769.   B. Huang, H. Wu, S. Kim, B. K. Kobilka, and R. N. Zare, "Phospholipid Biotinylation of Polydimethylsiloxane (PDMS) for Protein Immobilization," *Lab on a Chip* **6**, 369-373 (2006).

770.   R. N. Zare, "Tribute to Professor S. Terabe," *J. Chromatogr. A* **1106**, 4 (2006).

771.   J. E. Elsila, M. R. Hammond, M. P. Bernstein, S. A. Sandford, and R. N. Zare, "UV Photolysis of Quinoline in Interstellar Ice Analogs," *Meteoritics & Planetary Science* **41**, 785-796 (2006).

772.   H. Wu, B. Huang, and R. N. Zare, "Generation of Complex, Static Solution Gradients in Microfluidic Channels," *J. Am. Chem. Soc.* **128**, 4194-4195 (2006).

773.   R. N. Zare, "Resonances in Reaction Dynamics," *Science* **311**, 1383-1385 (2006).

774.   Y. Luo, B. Huang, H. Wu, and R. N. Zare, "Controlling Electroosmotic Flow in Polydimethylsiloxane (PDMS) Separation Channels by Means of Prepolymer Additives," *Anal. Chem.* **78**, 4588-4592 (2006).

775.   K. Koszinowski, N. T. Goldberg, A. E. Pomerantz, and R. N. Zare, "Construction and Calibration of an Instrument for Three-Dimensional Ion Imaging," *J. Chem. Phys.* **125**, 133503 (2006).

776.   J. P. Camden and R. N. Zare, "Cl + CH4 Reaction Dynamics," Vector Correlation and Alignment in Chemistry (G. G. Balint-Kurti and M. P. de Miranda, eds.) Collaborative Computational Project on Molecular Quantum Dynamics (CCP6), Daresbury Laboratory, Daresbury, UK (2006).

777.   D. Brownlee, P. Tsou, J. Aléon, C. M. O'D. Alexander, T. Araki, S. Bajt, G. A. Baratta, R. Bastien, P. Bland, P. Bleuet, J. Borg, J. P. Bradley, A. Brearley, F. Brenker, S. Brennan, J. C. Bridges, N. D.  Browning, J. R. Brucato, E. Bullock, M. J. Burchell, H. Busemann, A. Butterworth, M.  Chaussidon, A. Cheuvront, M. Chi, M. J. Cintala, B. C. Clark, S. J. Clemett, G. Cody, L. Colangeli, G. Cooper, P. Cordier, C. Daghlian, Z. Dai, L. D'Hendecourt, Z. Djouadi, G. Dominguez, T. Duxbury, J. P. Dworkin, D. S. Ebel, T. E. Economou, S. Fakra, S. A. J. Fairey, S. Fallon, G. Ferrini, T. Ferroir, H. Fleckenstein, C. Floss, G. Flynn, I. A. Franchi, M. Fries, Z. Gainsforth, J.-P. Gallien, M. Genge, M. K. Gilles, P. Gillet, J. Gilmour, D. P. Glavin, M. Gounelle, M. M. Grady, G. A. Graham, P. G. Grant, S. F. Green, F. Grossemy, L. Grossman, J. N. Grossman, Y. Guan, K. Hagiya, R. Harvey, P. Heck, G. F. Herzog, P. Hoppe, F. Hörz, J. Huth, I. D. Hutcheon, K. Ignatyev, H. Ishii, M. Ito, D. Jacob, C. Jacobsen, S. Jacobsen, S. Jones, D. Joswiak, A. Jurewicz, A. T. Kearsley, L. P. Keller, H. Khodja, A. L. D. Kilcoyne, J. Kissel, A. Krot, F. Langenhorst, A. Lanzirotti, L. Le, L. A. Leshin, J. Leitner, L. Lemelle, H. Leroux, M.-C. Liu, K. Luening, I. Lyon, G. MacPherson, M. A. Marcus, K. Marhas, B. Marty, G. Matrajt, K. McKeegan, A. Meibom, V. Mennella, K. Messenger, S. Messenger, T. Mikouchi, S. Mostefaoui, T. Nakamura, T. Nakano, M. Newville, L. R. Nittler, I. Ohnishi, K. Ohsumi, K. Okudaira, D. A. Papanastassiou, R. Palma, M. E. Palumbo, R. O. Pepin, D. Perkins, M. Perronnet, P. Pianetta, W. Rao, F. J. M. Rietmeijer, F. Robert, D. Rost, A. Rotundi, R. Ryan, S. A. Sandford, C. S. Schwandt, T. H. See, D. Schlutter, J. Sheffield-Parker, A. Simionovici, S. Simon, I. Sitnitsky, C. J. Snead, M. K. Spencer, F. J.  Stadermann, A. Steele, T. Stephan, R. Stroud, J. Susini, S. R. Sutton, Y. Suzuki, M. Taheri, S. Taylor, N. Teslich, K. Tomeoka, N. Tomioka, A. Toppani, J. M. Trigo-Rodríguez, D. Troadec, A. Tsuchiyama, A. J. Tuzzolino, T. Tyliszczak, K. Uesugi, M. Velbel, J. Vellenga, E. Vicenzi, L. Vincze, J. Warren, I. Weber, M. Weisberg, A. J. Westphal, S. Wirick, D. Wooden, B. Wopenka, P. Wozniakiewicz, I. Wright, H. Yabuta, H. Yano, E. D. Young, R. N. Zare, T. Zega, K. Ziegler, L. Zimmerman, E. Zinner, and M. Zolensky, "Comet 81P/Wild2 Under a Microscope," *Science* **314**, 1711-1716 (2006).

778.   S. A. Sandford, J. Aléon, C. M. O’D. Alexander, T. Araki, S. Bajt, G. A. Baratta, J. Borg, J. R. Brucato, M. J. Burchell, H. Busemann, A. Butterworth, S. J. Clemett, G. Cody, L. Colangeli, G. Cooper, L. D'Hendecourt, Z. Djouadi, J. P. Dworkin, G. Ferrini, H. Fleckenstein, G. J. Flynn, I. A. Franchi, M. Fries, M. K. Gilles, D. P. Glavin, M. Gounelle, F. Grossemy, C. Jacobsen, L. P. Keller, A. D.  Kilcoyne, J. Leitner, G. Matrajt, A. Meibom, V. Mennella, S. Mostefaoui, L. R. Nittler, M. E.  Palumbo, F. Robert, A. Rotundi, C. J. Snead, M. K. Spencer, A. Steele, T. Stephan, T. Tyliszczak, A. J. Westphal, S. Wirick, B. Wopenka, H.Yabuta, R. N. Zare, and M. Zolensky, "Organics Captured from Comet Wild 2 by the Stardust Spacecraft," *Science* **314**, 1720-1724 (2006).

779.   N. Johannesson, E. W. Pearce, M. T. Dulay, R. N. Zare, J. Bergquist, and K. E. Markides, "On- Line Biological Sample Cleanup for Electrospray Mass Spectrometry using Sol-Gel Columns," *J.* *Chromatogr. B* **842**, 70-74 (2006).

780.   B. Huang, H. Wu, D. Bhaya, A. Grossman, S. Granier, B. K. Kobilka, and R. N. Zare, "Counting Low-Copy-Number Proteins in a Single Cell," *Science* **315**, 81-84 (2007). (Supporting Material).

781.   M. R. Martin, D. J. A. Brown, A. S. Chiou, and R. N. Zare, "Reaction of Cl with CD4 excited to the second C-D stretching overtone," *J. Chem. Phys.* **126**, 044315 (2007).

782.   B. Huang, F. Yu, and R. N. Zare, "Surface Plasmon Resonance Imaging Using a High Numerical Aperture Microscope Objective," *Anal. Chem.* **79**, 2979-2983 (2007).

783.   N. T. Goldberg, K. Koszinowski, A. E. Pomerantz, and R. N. Zare, "Doppler-Free Ion Imaging of Hydrogen Molecules Produced in Bimolecular Reactions," *Chem. Phys. Lett.* **433**, 439-443 (2007).

784.   S. Granier, S. Kim, A. M. Shafer, V. R. P. Ratnala, J. J. Fung, R. N. Zare, and B. K. Kobilka, "Structure and Conformational Changes in the C-terminal Domain of the beta 2- Adrenoceptor: Insights from Fluorescence Resonance Energy Transfer Studies," *J. Biol. Chem.* **282**, 13895 (2007).

785.   H.-F. Fan, F. Li, R. N. Zare, and K.-C. Lin, "Characterization of Two Types of Silanol Groups on Fused Silica Surfaces Using Evanescent-Wave Cavity Ring-Down Spectroscopy," *Anal. Chem.* **79**, 3654-3661 (2007).

786.   M. R. Whorton, M. P. Bokoch, S. G. F. Rasmussen, B. Huang, R. N. Zare, B. Kobilka, and R.  K.  Sunahara, "A Monomeric G Protein Coupled Receptor Isolated in an HDL Particle Efficiently Activates its G Protein," *Proc. Natl. Acad. Sci. USA* **104**, 7682-7687 (2007).

787.   F. Li, A. A. Kachanov, and R. N. Zare, "Detection of Separated Analytes in Subnanoliter Volumes Using Coaxial Thermal Lensing," *Anal. Chem.* **79**, 5264-5271 (2007).

788.   K. Koszinowski, N. T. Goldberg, J. Zhang, R. N. Zare, F. Bouakline, and S. C. Althorpe, "Differential Cross Section for the H + D2 → HD (v' = 1, j' = 2, 6, 10) + D Reaction as a Function of Collision Energy" *J. Chem. Phys.* **127**, 124315 (2007).

789.   D. Sofikitis, L. Rubio-Lago, M. R. Martin, D. J. Ankeny Brown, N. C.-M. Bartlett, R. N. Zare, and T. P. Rakitzis, "Preparation of Highly Polarized Nuclei: Observation and Control of Time- Dependent Polarization Transfer from H35Cl Molecular Rotation to 35Cl Nuclear Spin," *Phys. Rev. A* **76**, 012503 (2007).

790.   O. K. Yoon, I. A. Zuleta, M. D. Robbins, G. K. Barbula, and R. N. Zare, "Simple Template-Based Method to Produce Bradbury-Nielsen Gates," *J. Am. Soc. Mass Spectrom.* **18**, 1901-1908 (2007). (Supporting Information, Cover Article)

791.   M. K. Spencer, and R. N. Zare, "Comment on 'Organics Captured from Comet 81P/Wild2 by the Stardust Spacecraft'," *Science* **317**, 1680c (2007).

792.   I. A. Zuleta, G. K. Barbula, M. D. Robbins, O. K. Yoon, and R. N. Zare, "Micromachined Bradbury-Nielsen Gates," *Anal. Chem.* **79**, 9160-9165 (2007).

793.   R. N. Zare, "Afterword" in *Chemical Evolution across Space and Time: From the Big Bang to Prebiotic Chemistry*, Lori Zaikowski and Jon M. Friedrich, eds, ACS Symposium Series 981, pp. 389-390, American Chemical Society, Washington, DC (2008).

794.   B. Huang, S. Kim, H. Wu, and R. N. Zare, "Use of a Mixture of n-Dodecyl-β-D-Maltoside and Sodium Dodecyl Sulfate in Poly(dimethylsiloxane) Microchips to Suppress Adhesion and Promote Separation of Proteins," *Anal. Chem.* **79**, 9145-9149 (2007).

795.   S. Kim, B. Huang, and R. N. Zare, "Microfluidic Separation and Capture of Analytes for Single-Molecule Spectroscopy," *Lab on a Chip* **7**, 1663-1665 (2007).

796.   D. Sofikitis, L. Rubio-Lago, M. R. Martin, D. J. Ankeny Brown, N. C.-M. Bartlett, A. J. Alexander, R. N. Zare, and T. P. Rakitzis, "Optical Control of Ground-State Atomic Orbital Alignment: Cl(2P3/2) Atoms from HCl(v=2,J=1) Photodissociation," *J. Chem. Phys.* **127**, 144307 (2007).

797. M. T. Dulay, H. N. Choi, and R. N. Zare, “Visible Light-Induced Photopolymerization of an in situ Macroporous Sol-Gel Monolith,” *J. Sep. Sci.* **30**, 2979-2985 (2007).

798.   M. D. Robbins, O. K. Yoon, I. A. Zuleta, G. K. Barbula, and R. N. Zare, "Computer-Controlled, Variable-Frequency Power Supply for Driving Multipole Ion Guides," *Rev. Sci. Instrum.* **79**, 034702 (2008).

799.   Y. Luo, F. Yu, and R. N. Zare, "Microfluidic Device for Immunoassays Based on Surface Plasmon Resonance Imaging," *Lab on a Chip* **8**, 694-700 (2008).

800.   N. T. Goldberg, J. Zhang, D. J. Miller, and R. N. Zare, "Corroboration of Theory for H + D2 → D + HD (v'=3,j'=0) Reactive Scattering Dynamics," *J. Phys. Chem. A* **112**, 9266-9268 (2008).

801.   S. Chah and R. N. Zare, "Surface Plasmon Resonance Study of Vesicle Rupture by Virus-Mimetic Attack," *Phys. Chem. Chem. Phys.* **10**, 3203-3208 (2008).

802.   A. E. Pomerantz, M. R. Hammond, A. L. Morrow, O. C. Mullins, and R. N. Zare, "Two-Step Laser Mass Spectrometry of Asphaltenes," *J. Am. Chem. Soc.* **130**, 7216-7217 (2008).

803.   A. Bhambhani, S. Chah, E. Hvastkovs, G. Jenson, J. Rusling, R. N. Zare, and C. Kumar, "Folding Control and Unfolding Free Energy of Yeast Iso-1-cytochrome c Bound to Layered Zirconium Phosphate Materials Monitored by Surface Plasmon Resonance," *J. Phys. Chem. B* **112**, 9201-9208 (2008).

804.   S. J. Greaves, E. Wrede, N. T. Goldberg, J. Zhang, D. J. Miller, and R. N. Zare, "Vibrational Excitation Through Tug-of-War Inelastic Collisions," *Nature* **454**, 88-91 (2008).

805.   S. Xu, J. Whitin, T. Yu, H. Zhou, D. Sun, H.-J. Sue, H. Zou, H. Cohen, and R. N. Zare, "Capture of Phosphopeptides Using α-zirconium Phosphate Nanoplatelets," *Anal. Chem.* **80**, 5542-5549 (2008).

806.   M. K. Spencer, M. Hammond, and R. N. Zare, "Laser Mass Spectrometric Detection of Extraterrestrial Aromatic Molecules: Mini Review and Examination of Pulsed Heating Effects," *Proc. Natl. Acad. Sci. USA* **105**, 18096-18101 (2008). Supporting Information

807.   F. Yu, A. A. Kachanov, A. Wainright, and R. N. Zare, "Ultraviolet Thermal Lensing Detection of Amino Acids," *J. Chromatography A* **1216**, 3423-3430 (2009).

808.   Y. Luo and R. N. Zare, "Perforated Membrane Method for Fabricating Three-Dimensional Polydimethylsiloxane Microfluidic Devices," *Lab on a Chip* **8**, 1688-1694 (2008).

809.   G. B. Jacobson, R. Shinde, C. H. Contag, and R. N. Zare, "Drugs Dispersed in Polymer Nanoparticles for Sustained Release," *Angew. Chem. Int. Ed.* **47**, 7880-7882 (2008).

810.   M. K. Spencer, S. J. Clemett, S. A. Sandford, D. S. McKay, and R. N. Zare, "Organic Compound Alteration during Hypervelocity Collection of Carbonaceous Materials in Aerogel," *Meteoritics and Planetary Science* **44**, 15-24 (2009).

811.   N. C. M. Bartlett, D. J. Miller, R. N. Zare, D. Sofikitis, T. P. Rakitzis, and A. J. Alexander. "Preparation of Oriented and Aligned H2 and HD by Stimulated Raman Pumping," *J. Chem. Phys.* **129**, 084312 (2008).

812.   M. R. Hammond and R. N. Zare, "Identifying the Source of a Strong Fullerene Envelope Arising from Laser Desorption Mass Spectrometric Analysis of Meteoritic Insoluble Organic Matter," *Geochimica et Cosmochimica Acta* **72**, 5521-5529 (2008).

813.   O. K. Yoon, M. Robbins, I. Zuleta, G. Barbula, and R. N. Zare, "Continuous Time-of-Flight Ion Imaging: Application to Fragmentation," *Anal. Chem.* **80**, 8299-8306 (2008).

813.5. M. K. Spencer and R. N. Zare, "Generation of Complex Aromatic Hydrocarbons during Atmospheric Entry of an Artificial Meteor," Lunar and Planetary Science XXXIX, 2508 (2008).

814.   A. Pomerantz, M. Hammond, A. Morrow, and R. N. Zare, "Asphaltene Molecular Mass Distribution Determined by Two-Step Laser Mass Spectrometry," *Energy & Fuels* **23**, 1162-1168 (2009).

815.   N. C. M. Bartlett, D. J. Miller, A. J. Alexander, D. Sofikitis, T. P. Rakitzis, and R. N. Zare, "Time-Dependent Depolarization of Aligned HD Molecules," *Phys. Chem. Chem. Phys.* **11**, 142-147 (2008).

816.   N. T. Goldberg, J. Zhang, K. Koszinowski, F. Bouakline, S. C. Althorpe, and R. N. Zare, "Vibrationally Inelastic H + D2 Collisions Are Forward Scattered," *Proc. Natl. Acad. Sci. USA* **105**, 18194-18199 (2008). Supporting Information

817.  J. A. Beswick and R. N. Zare, "On the Quantum and Quasiclassical Angular Distributions of Photofragments," *J. Chem. Phys.* **129**, 164315-1-9 (2008).

818.   R. N. Zare, D. S. Kuramoto, C. Haase, S. M. Tan, E. R. Crosson, and N. M. R. Saad, "High-Precision Optical Measurements of 13C/12C Isotope Ratios in Organic Compounds at Natural Abundance," *Proc. Natl. Acad. Sci. USA* **106**, 10928-10932 (2009).

819.   R. N. Zare, "Questions to Chemical Educators from the Chemistry Community," Chapter 2, pp 11–18 in *ACS Symposium Series* **976**, "Nuts and Bolts of Chemical Education Research", Eds. D. M. Bunce and R. S. Cole, Oxford University Press, Oxford, UK (2008).

820.   G. K. Barbula, M. D. Robbins, O. K. Yoon, I. Zuleta, and R. N. Zare, "Desorption Electrospray Ionization: Achieving Rapid Sampling Rates," *Anal. Chem.* **81**, 9035–9040 (2009).

821.   G. B. Jacobson, R. Shinde, R. L. McCullough, N. J. Chen, A. Creasman, A. Beyene, R. P. Hickerson, C. Quan, C. Turner, R. L. Kaspar, C. H. Contag, and R. N. Zare, "Nanoparticle Formation of Organic Compounds with Retained Biological Activity," *J. Pharm. Sci.* **99**, 2750-2755 (2010).

822.   S. A. Sandford, S. Bajt, S. J. Clemett, G. D. Cody, G. Cooper, B. T. DeGregorio, V. DeVera, J.  P.  Dworkin, J. E. Elsila, G. J. Flynn, D. P. Glavin, A. Lanzirotti, T. Limero, M. P. Martin, C.  J.  Snead, M. K. Spencer, T. Stephan, A. Westphal, S. Wirick, R. N. Zare, and M. E. Zolensky, "Assessment and control of organic and other contaminants associated with the Stardust sample return from Comet 81P/Wild 2," *Meteoritics & Planetary Science* **45**, 406–433 (2010).

823.   J. Zhang, J. Jankunas, N. C.-M. Bartlett, N. T. Goldberg, and R. N. Zare, "Search for Br\* Production in the D + DBr Reaction," *J. Chem. Phys.* **132**, 084301-1-7 (2010).

824.   N. Mukherjee and R. N. Zare, "Preparation of Polarized Molecules Using Coherent Infrared Multicolor Ladder Excitation," *J. Chem. Phys.* **132**, 154302-1-9 (2010).

825.   G. B. Jacobson, E. G-Gonzalez, R. Spitler, R. Shinde, D. Leake, R. L. Kaspar, C. H. Contag, and R.  N. Zare, "Biodegradable Nanoparticles with Sustained Release of Functional siRNA in Skin," *J. Pharm. Sci.* **99**, 4261-4266 (2010).

826.   S. Kim and R. N. Zare, "Microfluidic Platforms for Single-Cell Analysis," *Annu. Rev. Biomed. Eng.* **12**, 187-201 (2010).

827.   S. Kim and R. N. Zare, "Single-Molecule Spectroscopy Using Microfluidic Platforms," *Methods in Enzymology* **472**, 119-132 (2010).

828.   P. Guo, C. R. Martin, Y. Zhao, J. Ge, and R. N. Zare, "General Method for Producing Organic Nanoparticles Using Nanoporous Membranes," *Nano Lett.* **10**, 2202-2206 (2010).

829.   H. Sabbah, A. L. Morrow, A. E. Pomerantz, O. C. Mullins, X. Tan, M. R. Gray, K. Azyat, R.  R.  Tykwinski, and R. N. Zare, "Comparing Laser Desorption Laser Ionization Mass Spectra of Asphaltenes and Model Compounds," *Energy Fuels* **24**, 3589-3594 (2010).

830.   H. Sabbah, A. L. Morrow, P. Jenniskens, M. Shaddad, and R. N. Zare, "Polycyclic Aromatic Hydrocarbons in Asteroid 2008 TC3: Dispersion of Organic Compounds Inside Asteroids," *Meteoritics & Planetary Science* **45**, 1710-1717 (2010).

831.   N. C.-M. Bartlett, J. Jankunas, R. N. Zare, and J. A. Harrison, "Time-Dependent Depolarization of Aligned D2 Caused by Hyperfine Coupling," *Phys. Chem. Chem. Phys.* **12**, 15689-15694 (2010).

832.   N. Mukherjee and R. N. Zare, "Polarization of Molecular Targets Using Infrared Stimulated Raman Adiabatic Passage," *J. Chem. Phys.* **133**, 094301-1-8 (2010).

833.   M. Robbins, O. K. Yoon, G. Barbula, and R. N. Zare, "Stopped-Flow Kinetic Analysis Using Hadamard Transform Time-of-Flight Mass Spectrometry," *Anal. Chem.* **82**, 8650-8657 (2010).

834.   R. H. Perry, M. Splendore, A. Chien, N. K. Davis, and R. N. Zare, "Detecting Reaction Intermediates in Liquids on the Millisecond Time Scale Using Desorption Electrospray Ionization," *Angew. Chemie Int. Ed.* **50**, 250-254 (2011).

835.   H. Wei, B.-H. Chueh, H. Wu, E. W. Hall, C.-W. Li, R. Schirhagl, J.-M. Lin, and R. N. Zare, "Particle Sorting Using a Porous Membrane in a Microfluidic Device," *Lab on a Chip* **11**, 238-245 (2011).

836.   J. Ge, G. B. Jacobson, T. Lobovkina, K. Holmberg, and R. N. Zare, "Sustained Release of Nucleic Acids from Polymeric Nanoparticles using Microemulsion Precipitation in Supercritical Carbon Dioxide," *Chem. Comm.* **46**, 9034-9036 (2010).

837.   N. C.-M. Bartlett, J. Jankunas, T. Goswami, R. N. Zare, F. Bouakline and S. C. Althorpe, "Differential Cross Sections for H + D2 → HD( v'=2, j'=0,3,6,9) + D at Center-of-Mass Collision Energies of 1.25, 1.61, and 1.97 eV," *Phys. Chem. Chem. Phys.* **13**, 8175-8179 (2011).

838.   S.-M. Wu, D. C. Radenovic, W. J. van der Zande, G. C. Groenenboom, D. H. Parker, C. Vallance, and R. N. Zare, "Control and imaging of O(1D2) precession," *Nature Chem.* **3**, 28-33 (2011).

839.   B.-H. Chueh, C.-W. Li, H. Wu, M. Davsion, H. Wei, D. Bhaya, and R. N. Zare, "Whole Gene Amplification and Protein Separation from a Few Cells," *Anal. Biochem.* **411**, 64-70 (2011).

840.   J. Ge, R. Schirhagl, and R. N. Zare, "Glucose-Driven Fuel Cell Constructed from Enzymes and Filter Paper," *J. Chem. Ed*. **88**, 1283–1286 (2011).

841.   G. Barbula, S. Safi, K. Chingin, R. H. Perry, and R. N. Zare, "Interfacing Capillary-Based Separations to Mass Spectrometry Using Desorption Electrospray Ionization," *Anal. Chem.* **83**, 1955-1959 (2011).

842.   M. Maas, P. Guo, M. Keeney, F. Yang, T. Hsu, G. Fuller, C. Martin, and R. N. Zare, "Preparation of Mineralized Nanofibers: Collagen Fibrils Containing Calcium Phosphate," *Nano Lett.* **11**, 1383-1388 (2011).

843.   J. V. Jokerst, T. Lobovkina, R. N. Zare, and S. S. Gambhir, "Nanoparticle PEGylation for Imaging and Therapy," *Nanomedicine* **6**, 715-728 (2011).

844.   H. Sabbah, A. L. Morrow, A. Pomerantz, and R. N. Zare, "Evidence for Island Structures as the Dominant Architecture of Asphaltenes," *Energy Fuels* **25**, 1597-1604 (2011).

845.   J. Ge, J. Lei, and R. N. Zare, "Bovine Serum Albumin-Poly(methyl methacrylate) Nanoparticles: An Example of Frustrated Phase Separation," *Nano Lett.* **11**, 2551-2554 (2011).

846.   N. Mukherjee and R. N. Zare, "Stark-Induced Adiabatic Raman Passage for Preparing Polarized Molecules," *J. Chem. Phys.* **135**, 024201-1-10 (2011).

847.   R. Schirhagl, I. Fuereder, E. W. Hall, B. C. Medeiros, and R. N. Zare, "Microfluidic Purification and Analysis of Hematopoietic Stem Cells from Bone Marrow," *Lab on a Chip* **11**, 3130-3135 (2011).

848.   W. R. Heineman, R. N. Zare, Ed. P. A. Mabrouk. "Collaborative Research: The Good, the Bad, and the Beautiful," *ACS Symp.Series 970, Active Learning Models from the Analytical Sciences,* **Chapt. 19**, 259-270 (2007).

849. N. Mukherjee and R. N. Zare, "Can Stimulated Raman Pumping Cause Large Population Transfers in Isolated Molecules?" *J. Chem. Phys.* **135**, 184202 (2011).

850. T. Lobovkina, G. B. Jacobson, E. G. Gonzalez, R. Hickerson, D. Leake, R. Kaspar, C. Contag, and R. N. Zare, "In Vivo Sustained Release of siRNA from Solid Lipid Nanoparticles," *ACS Nano* **5**, 9977-9983 (2011).

851. R. H. Perry, K. R. Brownell, K. Chingin, T. J. Cahill III, R. M. Waymouth, and R. N. Zare, “Transient Ru–Methyl Formate Intermediates Generated with Bifunctional Transfer Hydrogenation Catalysts,” *Proc. Natl. Acad. Sci. USA* **109**, 2246-2250 (2012).

852. P. Guo, E. W. Hall, R. Schirhagl, H. Mukaibo, C. R. Martin, and R. N. Zare, "Microfluidic Capture and Release of Bacteria in a Conical Nanopore Array," *Lab on a Chip* **12**, 558-561 (2011).

853. N. C.-M. Bartlett, J. Jankunas, and R. N. Zare, "False Estimates of Stimulated Raman Pumping Efficiency Caused by the Optical Stark Effect," *J. Chem. Phys.* **134**, 234310-1-4 (2011).

854. J. Ge, E. Neofytou, T. J. Cahill, III, R. E. Beygui, and R. N. Zare, "Drug Release from Electric-Field-Responsive Nanoparticles," *ACS Nano* **6**, 227-233 (2012).

855. R. N. Zare, "My Life with LIF: A Personal Account of Developing Laser-Induced Fluorescence," *Annu. Rev. Anal. Chem*. **5**, 1–14 (2012).

856. K. Chingin, R. H. Perry, S. Chambreau, G. Vaghjiani, and R. N. Zare, "Generation of Melamine Polymer Condensates upon Hypergolic Ignition of Dicyanamide Ionic Liquids," *Angew. Chem. Int.* *Ed.* **50**, 8634–8637 (2011).

857. R. Schirhagl, K. Ren, and R. N. Zare, "Surface-Imprinted Polymers in Microfluidic Devices," *Science China Chemistry* **55**, 1-15 (2012). Chinese Version

858. M. Kato, K. Sakai-Kato, HM. Jin, K. Kubota, H. Miyano, T. Toyo’oka, M.T. Dulay, and R. N. Zare, “Integration of On-Line Protein Digestion, Peptide Separation, and Protein Identification Using Pepsin-Coated Photopolymerized Sol-Gel Columns and Capillary Electrophoresis/Mass Spectrometry,” *Anal. Chem.* **76**, 1896-1902 (2004).

859. Y.-Q. Li, Y-B. Zheng, and R. N. Zare, “Electrical, Optical, and Docking Properties of Conical Nanopores,” *ACS Nano*, **6**, 993-997 (2012).

860. R. N. Zare, “Ultrasensitive Radiocarbon Detection,” *Nature* **482**, 312-313 (2012).

861. R. Schirhagl, E. W. Hall, I. Fuereder and R. N. Zare, "Separation of Bacteria with Imprinted Polymeric Films," *Analyst* **137**, 1495-1499 (2012).

862. J. Jankunas, N. C.-M. Bartlett, R. N. Zare, L. Liu, X. Xu, and D. H. Zhang, "D + C(CH3)4→ HD (*v'*, *j'*) + C(CH3)3CH2:  Possible Concerted Flow of Vibration Energy into Translation," *Mol. Phys.* **110**, 1713-1720 (2012).

863. K. Ren and R. N. Zare, "Chemical Recognition in Cell-Imprinted Polymers," *ACS Nano* **6**, 4314- 4318 (2012).

864. O. C. Mullins, H. Sabbah, J. Eyssautier, A. E. Pomerantz, L. Barre, A. B. Andrews, Y.  Ruiz- Morales, F. Mostowfi, R. McFarlane, L. Goual, R. Lepkowicz, T. Cooper, J. Orbulescu, R. M. Leblanc, J. Edwards, and R. N. Zare, "Advances in Asphaltene Science and the Yen- Mullins Model," *Energy & Fuels* **26**, 3986-4003 (2012).

865. H. Sabbah, A. E. Pomerantz, M. Wagner, K. Mullen, and R. N. Zare, "Laser Desorption Single-Photon Ionization of Asphaltenes: Mass Range, Compound Sensitivity, and Matrix Effects," *Energy & Fuels* **26**, 3521-3526 (2012).

866. J. Ge. J. Lei, and R. N. Zare, "Protein–Inorganic Hybrid Nanoflowers," *Nature Nanotech.* **7**, 428- 432 (2012).

867. A. Steele, F. M. McCubbin, M. Fries, L. Kater, N. Z. Boctor, M. L. Fogel, P. G. Conrad, M.  Glamoclija, M. Spencer, A. L. Morrow, M. R. Hammond, R. N. Zare, E. P. Vicenzi, S.  Siljeström, R. Bowden, C. D. K. Herd, B. O. Mysen, S. B. Shirey, H. E. F. Amundsen, A.  H.  Treiman, E. S. Bullock, and A. J. T. Jull, "A Reduced Organic Carbon Component in Martian Basalts," *Science* **337**, 212-215 (2012).

868. J. Jankunas, R. N. Zare, F. Bouakline, S. C. Althorpe, D. Herráez-Aguilar, and F. J. Aoiz, "Seemingly Anomalous Angular Distributions in H + D2 Reactive Scattering," *Science* **336**, 1687-1690 (2012).

869. M. Eftekhari, A. Ismail, and R. N. Zare, "Isomeric Differentiation of Polycyclic Aromatic Hydrocarbons Using Silver Nitrate Reactive Desorption Electrospray Ionization Mass Spectrometry," *Rapid Commun. Mass Spectrom.* **26**, 1985–1992 (2012).

870. J. Ge, E. Neofytou, J. Lei, R. E. Beygui, and R. N. Zare, "Protein-Polymer Hybrid Nanoparticles for Drug Delivery," *Small* **8**, 3573-3578 (2012).

871. P. Guo, T. Hsu, Y. Zhao, C. Martin, and R. N. Zare, "Preparing Amorphous Hydrophobic Drug Nanoparticles by Nanoporous Membrane Extrusion," *Nanomedicine* **8**, 333-341 (2013).

872. R. N. Zare, "Reaction Dynamics: Concluding Remarks," *Faraday Discussions* **157**, 501-504 (2012).

873. R. N. Zare, "The Hydrogen Games and Other Adventures in Chemistry," *Annu. Rev. Phys. Chem.* **64**, 1-19 (2013).

874. R. H. Perry, T. J. Cahill III, J. L. Roizen, J. Du Bois, and R. N. Zare, "Capturing Fleeting Intermediates in a Catalytic C-H Amination Reaction Cycle," *Proc. Natl. Acad. Sci. USA* **109**, 18295-18299 (2012).

875. J. Aldegunde, D. Herráez-Aguilar, P. G. Jambrina, F. J. Aoiz, J. Jankunas, and R. N. Zare, "H  +  D2  Reaction Dynamics in the Limit of the Low Product Recoil Energy," *J. Phys. Chem. Lett.* **3**, 2959-2963 (2012).

876. [R. Wang, Y. Zhang, D. Lu, J. Ge, Z. Liu, and R. N. Zare, "Functional Protein-Organic/Inorganic Hybrid Nanomaterials," *Nanomedicine and Nanobiotechnology* **5**, 320-328 (2013).](http://www.stanford.edu/group/Zarelab/publinks/875.pdf)

877. [N. Mukherjee, W. Dong, J. A. Harrison and R. N. Zare, "Transfer of More than Half the Population to a Selected Rovibrational State of H2 by Stark-Induced Adiabatic Raman Passage," *J. Chem. Phys.* **138**, 051101-1-4 (2013).](http://www.stanford.edu/group/Zarelab/publinks/876.pdf)

878. L. Zhu, L. Gong, Y. Zhang, R. Wang, J. Ge, Z. Liu, and R. N. Zare, "Rapid Detection of Phenol Using a Membrane Containing Laccase Nanoflowers," *Chemsitry - An Asian Journal*, **8**, 051101-1-4 (2013).

879. J. Jankunas, M. Sneha, R. N. Zare, F. Bouakline, and S. C. Althorpe, "Disagreement Between Theory and Experiment Grows with Increasing Rotational Excitation of HD(v', j') Product for the H + D2 Reaction," *J. Chem. Phys.* **138**, 094310-1-10 (2013).

880. Q. Wu, A. E. Pomerantz, O. C. Mullins, and R. N. Zare, “Minimization of Fragmentation and Aggregation by Laser Desorption Laser Ionization Mass Spectrometry,” *J. Am. Soc. Mass Spectrom.* **24**, 1116-1122 (2013).

881. R. H. Perry, D. I Bellovin, E. H. Shroff, A. I. Ismail, T. Zabuawala, D. W. Felsher, and R. N. Zare, “Characterization of MYC-Induced Tumorigenesis by in situ Lipid Profiling,” *Analytical Chemistry* **85**, 4259-4262 (2013).

882. K. Chung, S. Banik, A. De Crisci, D. Pearson, T. Blake, J. Olsson, A. J. Ingram, R. N. Zare, R.  M.  Waymouth, “Chemoselective Pd-catalyzed Oxidation of Polyols: Synthetic Scope and Mechanistic Studies,” *J. Am. Chem. Soc.* **135**, 7593-7602 (2013).

883. J. Jankunas, M. Sneha, R. N. Zare, R. N. Zare, F. Bouakline, and S. C. Althorpe, “Simultaneous Measurement of Reactive and Inelastic Scattering: Differential Cross Section of the H + D 🡪 HD(v’, j’) + H Reaction,” *Zeitschrift für Physikalische Chemie* **227**, 1281-1290 (2013).

884. J. Zhu, Y. Zhang, D. Lu, R. N. Zare, J. Ge, and Z. Liu, “Temperature-Responsive Enzyme-Polymer Nanoconjugates with Enhanced Catalytic Activities in Organic Solvents” *ChemComm* **49**, 6090-6092 (2013).

885. K. Ren, N. Banaei, and R. N. Zare, “Sorting Inactivated Celss Using Cell-Imprinted Polymer Thin Films,” *ACS Nano* **7**, 6031-6036 (2013).

886. W. Dong, N. Mukherjee, and R. N. Zare, “Optical Preparation of H2 Rovibrational Levels with Almost Complete Population Transfer,” *J. Chem. Phys.* **139**, 074204-1-6(2013).

887. E. Hall, S. Kim, V. Appadoo, and R. N. Zare, “Lysis of a Single Cyanobacterium for Whole Genome Amplification,” *Micromachines* **4**, 321-332 (2013).

888. J. Jankunas, M. Sneha. R. N. Zare, F. Bouakline, and S. Althorpe, “Hunt for Geometric Phase Effects in H + HD → HD(v’, j’) + H,” *J. Chem. Phys.* **139**, 144316-1-6 (2013).

889. A. J. Ingram, A. B. Wolk, C. Flender, J. Zhang, C. J. Johnson, U. Hintermair, R. H. Crabtree, M.  A.  Johnson, and R. N. Zare, “Modes of Activation of Organometallic Iridium Complexes for Catalytic Water and C-H Oxidation,” *Inorganic Chemsitry* **53**, 423-433 (2014).

890. K. R. Brownell, C. L. C. McCrory, C. E. D. Chidsey, R. H. Perry, R. N. Zare, and R. M. Waymouth, “Electrooxidation of Alcohols Catalyzed by Amino Alcohol Ligated Ruthenium Complexes,” *J.*  *Am. Chem. Soc.*, **135**, 14299-14305 (2013).

891. J. Jankunas, M. Sneha, R. N. Zare, F. Bouakline, S.C. Althorpe, D. Herraez-Aguilair, and F. J. Aoiz, “Is the Simplest Chemical Reaction Really So Simple?” *Proc. Nat. Acad. Sci. (USA)* **111**, 15-20 (2014).

892. Q. Wu, A. E. Pomerantz, O. C. Mullins, and R. N. Zare, “Laser-Based Mass Spectrometric Determination of Aggregation Numbers for Petroleum- and Coal-Derived Asphaltenes,” *Energy & Fuels* **28**, 475-482 (2014).

893. L. S. Eberlin, R. Tibshirani, J. Zhang, T. A. Longacre, G. Berry, D. B. Bingham, J. A. Norton, R.  N.  Zare, and G. A. Poultsides, “Molecular Assessment of Gastric Cancer Surgical Resection Margins by Mass Spectrometric Imaging,” *Proc. Nat. Acad. Science (USA)* **111**, 2436-2441 (2014).

894. J. Jankunas and R. N. Zare, “Why Some Pool Shots Are More Difficult Than Others,” *Resonance* **19**, 116-122 (2014).

895. N. Mukherjee, W. Dong, and R. N. Zare, “Coherent Superposition of M-States in a Single Rovibrational Level of H2 by Start-Induced Adiabatic Raman Passage,” *J. Chem. Phys.* **140**, 074201 (2014).

896. L. S. Eberlin, J. V. Mulcahy, A. Tzabazis, J. Zhang, H. Liu, M. M. Logan, H. J. Roberts, G. K. Lee, D.  C. Yeomans, J. Du Bois and R. N. Zare, "Visualizing Dermal Permeation of Sodium Channel Modulators by Mass Spectrometric Imaging, " *J. Am. Chem. Soc.* **136**, 6401-6405 (2014).

897. Q. Wu, D. J. Seifert, A. E. Pomerantz, O. C. Mullins, and R. N. Zare, "Constant Asphaltene Molecular and Nanoaggregate Mass in a Gravitationally Segregated Reservoir," *Energy & Fuels* **28**, 3010-3015 (2014).

898. A. J. Ingram, D. Solis-Ibarra, R. N. Zare, and R. M. Waymouth, "Trinuclear Pd3O2 Intermediate in Aerobic Oxidation Catalysis," *Angew. Chemie* *Int. Ed.* **53**, 5648-5652 (2014).

899. M. Maas, T. Bollhorst, R. N. Zare, and K. Rezwan, “Diamondosomes: Submicron Colloidosomes with Nanodiamond Shells,” *Part. Part. System. Charact.* **31**, 1067-1071(2014).

900. P. Jenniskens, A. E. Rubin, Q. Yin, D. W. G. Sears, S. A. Sandford, M. E. Zolensky, A. N. Krot, L. Blair, D. Kane, J. Utas, R. Verish, J. M. Friedrich, J. Wimpenny, G. R. Eppich, K. ZIiegler, K. L.  Verosub, D. J. Rowland, J. Albers, P. S. Gural, B. Grigsby, M. D. Fries, R. Matson, M. Johnston, E. Silber, P. Brown, A. Yamakawa, M. E. Sanborn, M. Laubenstein, K. C. Welton, K. Nishizumi, M. M. M. Meier, H. Busemann, P. Clay, M. W. Caffee, P. Schmitt-Kopplin, N. Hertkorn, D. P. Glavin, M. P. Callahan, J. P. Dworkin, Q. Wu, R. N. Zare, M. Grady, S. Verchovsky, V. Emel'yanenko, S. Naroenkov, D. Clark, B. Girten, and P. S. Worden, "Fall, Recovery and Characterization of the Novato L6 Chondrite Breccia," *Meteorics & Planetary Science* 1-38 (2014).

901. C. W. Williams, R. N. Zare, and E. Arunan, “Do Identical Polar Diatomic Molecules Form Stacked or Linear Dimers?” *Resonance* 704-712 (2014).

902. J. Wehling, R. Dringen, R. N. Zare, M. Maas, and K. Rezwan, “Bactericidal Activity of Partially Oxidized Nanodiamonds,” *ACS Nano* **8**, 6475-6483 (2014).

903. C. Flender, A. M. Adams, J. L. Roizen, E. McNeill, J. Du Bois, and R. N. Zare, “Speciation and Decomposition Pathways of Ruthenium Catalysts Used for Selective C-H Hydroxylation,” *Chem. Sci.* **5**, 3309-3314 (2014).

904. L. S. Eberlin, M. Gabay, A. C. Fan, A. M. Gouw, R. Tibshirani, D. Felsher, and R. N. Zare, “Alteration of the Lipid Profile in Lymphomas Induced by MYC Overexpression,” *Proc. Natl. Acad. Sci. USA* **111**, 10450-10455 (2014).

905. F. Lyu, Y. Zhang, R. N. Zare, J. Ge, and Z. Liu, "One-Pot Synthesis of Protein-Embedded Metal−Organic Frameworks with Enhanced Biological Activities," *Nano Lett.* **14**, 5761-5765 (2014).

906. R. L. Gaur, K. Ren, A. Blumenthal, S. Bhamidi, S. Gibbs, M. Jackson, R. N. Zare, S. Ehrt, J. D. Ernst, and N. Banaei, “LprG-mediated Surface Expression of Lipoarabinomanna is Essential for Virulence of *Mycobacterium tuberculosis*,” *PLoS Pathogens* **10**, e1004376 1-14 (2014).

907. R. N. Zare, "In questo modo io scrivo," Aracne editrice, pp.1-34 (2014).

908. Q. Wu and R. N. Zare, "Laser Desorption Lamp Ionization Source for Ion Trap Mass Spectrometry," *Journal of Mass Spectrometry* **50**, 160-164 (2015).

909. F. Lyu, Y. Zhang, R. N. Zare, J. Ge, and Z. Liu, "Direct Synthesis of Protein-Incorporated Metal- Organic Framework Hybrid Materials," *Nano Lett.* **14**, 5761-5765 (2014).

910. C. L. Boeser, J. C. Holder, B. L. H. Taylor, K. N. Houk, B. M. Stoltz and R. N. Zare, "Mechanistic Analysis of an Asymmetric Palladium-Catalyzed Conjugate Addition of Arylboronic Acids to ß-substituted Cyclic Enones," *Chem. Sci.* **6**, 1917-1922 (2015).

911. S. Kim, R. A. R. Bowen, and R. N. Zare, "Transforming Plastic Surfaces with Electrophilic Backbones from Hydrophobic to Hydrophilic," *ACS Applied Materials & Interfaces* **7**, 1925-1931 (2015).

912. M. Zheng, H. Zhang, D. L. Dill, J. D. Clark, S. Tu, A. L. Yablonovitch, M. H. Tan, R. Zhang, D.  Rujescu, M. Wu, L. Tessarollo, W. Vieira, M. M. Gottesman, S. Deng, L. S. Eberlin, R. N. Zare, J. M. Billard, J. P. Gillet, J. B. Li, G. Peltz, “Abcb5 Alleles Affect Susceptibility to Haloperidol-Induced Toxicity in Mice and Humans,” *PLoS Med* 12: e1001782 1-29 (2015).

913. M. Davison, E. Hall, R. N. Zare, and D. Bhaya, "Challenges of Metagenomics and Single-Cell Genomics Approaches for Exploring Cyanobacterial Diversity," *Photosynth. Res.* **126**, 135- 146 (2015).

914. J. K. Lee, S. Banerjee, H. G. Nam, and R. N. Zare, "Acceleration of Reaction in Charged Microdroplets," *Quarterly Reviews of Biophysics* **48**, 437-444 (2015).

915. A. Pomerantz, Q. Wu, O. Mullins, and R. N. Zare, "Laser-Based Mass Spectrometric Assessment of Asphaltene Molecular Weight, Molecular Architecture and Nanoaggregate Number," *Energy & Fuels* **29**, 2833-2842 (2015).

916. J. K. Lee, S. Kim, H. G. Nam, and R. N. Zare "Microdroplet Fusion Mass Spectrometry for Fast Reaction Kinetics" *Proc. Natl. Acad. Sci. (USA)* **112**, 3898-3903 (2015).

917. D. Samanta, J. L. Meiser and R. N. Zare, "Polypyrrole Nanoparticles for Tunable, pH-Sensitive and Sustained Drug Release," *Nanoscale* **7**, 9497-9504 (2015).

918. E. H. Shroff, L. S. Eberlin, V. M. Dang, A. M. Gouw. M. Gabay, S. J. Adam, D. I. Bellovin, P. T. Tran, W. M. Philbrick, A. Garcia-Ocana, S. C. Casey, Y. Li, C. V. Dang, R. N. Zare, and D. W. Felsher, "MYC Oncogene Overexpression Drives Renal Cell Carcinoma in a Mouse Model through Glutamine Metabolism," *Proc. Natl. Acad. Sci. (USA)* **112**, 6539-6544 (2015).

919. P. Jambrina, D. Herráez-Aguilar, F. J. Aoiz, M. Sneha, J. Jankunas, and R. N. Zare, "Quantum Interference Between H + D2Quasiclassical Reaction Mechanisms," *Nature Chemistry* **7**, 661-667 (2015).

920. T. A. Brown, H. Chen, and R. N. Zare," Identification of Fleeting Electrochemical Reaction Intermediates Using Desorption Electrospray Ionization Mass Spectrometry." *J. Am. Chem. Soc.* **137**, 7274-7277 (2015).

921. H. Gao, M. Sneha, F. Bouakline, S. A. Althorpe, and R. N. Zare, "Differential Cross Sections for the H + D2 → HD(v'=3, j'=4-10) + D Reaction Above the Conical Intersection," *J. Phys. Chem. A* **119**, 12036-12042 (2015).

922. T. A. Brown, H. Chen, and R. N. Zare, "Mass Spectrometric Detection of Short-Lived Radical Cation Intermediate in the Electrooxidation of N,N-Dimethylanaline," *Angew. Chem. Intl. Ed.* **127**, 11335-11337 (2015).

923. J. Jiang, H. Zhang, M. Li, M. T. Dulay, A. J. Ingram, N. Li, H. You, R. N. Zare, "Droplet Spray Ionization from a Glass Microscope Slide: Real-Time Monitoring of Ethylene Polymerization," *Anal. Chem.* **87**, 8057-8062 (2015).

924. R. A. R. Bowen, S. C. Kim, A. Sattayapiwat, V. Austria-Esguerra, and R. N. Zare, "Performance of Chemically Modified Plastic Blood Collection Tubes," *Clin. Biochem.* **49**, 90-99 (2016).

925. S. Banerjee and R. N. Zare, "Syntheses of Isoquinoline and Quinoline in Charged Microdroplets," *Angew. Chem. Int. Ed.* **54**, 14795-14799 (2015).

926. A. J. Ingram, C. Boeser, and R. N. Zare, "Going Beyond Electrospray: Mass Spectrometric Studies of Chemical Reactions in and On Liquids," *Chem. Sci.* **7**, 39-55 (2016).

927. T. A. Brown, N. Hosseini-Nassab, H. Chen, and R. N. Zare, "Observation of Electrochemically Generated Nitrenium Ions by Desorption Electrospray Ionization Mass Spectrometry," *Chem. Sci.* **7**, 329-332 (2016).

928. A. J. Ingram, K. L. Walker, R. N. Zare, and R. M. Waymouth, "Catalytic Role of Multinuclear Palladium-Oxygen Intermediates in Aerobic Oxidation Followed by Hydrogen Peroxide Disproportionation," *J. Am. Chem. Soc.* **137**, 13632-13656 (2015).

929. A. Karthik, K. Margulis, K. Ren, R. N. Zare, and L. Leung, "Rapid and Selective Detection of Viruses Using Virus-Imprinted Polymer Films," *Nanoscale* **7**, 18998-19003 (2015).

930. S. Kim, S. Cestellos Blanco, K. Inoue, and R. N. Zare, "Miniaturized Antimicrobial Susceptibility Test by Combining Concentration Gradient Generation and Rapid Cell Culturing," *Antibiotics* **4**, 455-466 (2015).

931. R. Baxter, Y. Liang, X. Hong, T. A. Brown, R. N. Zare, K. N. Houk, P. S. Baran, and D. G.  Blackmond, "Mechanistic Insights into Two- Phase Radical C- H Arylations," *ACS Central Science* **1**, 456-462 (2015).

932. P. G. Jambrina, J. Aldegunde, F. J. Aoiz, M. Sneha and R. N. Zare, "Effects of Reagent Rotation on Interferences in the Product Angular Distributions of Chemical Reactions," *Chem. Sci.* **7**, 642-649 (2016).

933. C-C. Hsu, P-T. Chou, and R. N. Zare, "Imaging of Proteins in Tissue Samples Using Nanospray Desorption Electrospray Ionization Mass Spectrometry," *Anal. Chem.* **87**, 11171-11175 (2015).

934. M. T. Dulay, L. S. Eberlin, and R. N. Zare, "Protein Analysis by Ambient Ionization Mass Spectrometry using Trypsin-Immobilized Organosiloxane Polymer Surfaces," *Anal. Chem.* **87**, 12324-12330 (2015).

935. K. Margulis, E. A. Neofytou, R. E. Beygui, and R. N. Zare, "Celecoxib Nanoparticles for Therapeutic Angiogenesis," *ACS Nano* **9**, 9416-9426 (2015).

936. R. N. Zare, "Better Practices in Scientific Publishing," *Angewandte Chemie Int. Ed.* **55**, 2-4 (2016).

937. R. N. Zare, "Wissenschaftliches Publizieren – neue Ideen für ein faires System," *Angew. Chemie* **128**, 2652-2653 (2016).

938. D. Samanta, N. Hosseini-Nassab, and R. N. Zare, "Electroresponsive Nanoparticles for Drug Delivery on Demand," *Nanoscale* **8**, 9310-9317 (2016).

939. M. Keeney, M. T. Chung, E. R. Zielins, K. J. Paik, A. McArdle, S. D. Morrison, R. C. Ransom, N. Barbhaiya, D. Atashroo, G. Jacobson, R. N. Zare, M. T. Longaker, D. C. Wan, and F. Yang, "Scaffold-Mediated BMP-2 Minicircle DNA Delivery Accelerated Bone Repair in a Mouse Critical-Size Calvarial Defect Model," *Journal of Biomedical Materials Research: Part A* **104A**, 2099-2107 (2016).

940. Z. Zhou, J. K. Lee, S. C. Kim, and R. N. Zare, "Nanotip Ambient Ionization Mass Sectrometry,"*Anal. Chem.* **88**, 5542-5548 (2016).

941. J. K. Lee, E. T. Jansson, H. G. Nam, and R. N. Zare, "High-Resolution Live-Cell Imaging and Analysis by Laser Desorption/Ionization Droplet Delivery Mass Spectrometry," *Anal. Chem.* **88**, 5453-5461 (2016).

942. U. Maitra and R. N. Zare, "Fall and Rise of a D2O Ice Cube in Liquid H2O," *Resonance* **21**, 933- 935 (2016).

943. W. E. Perreault, N. Mukherjee, and R. N. Zare, "Angular and Internal State Distributions of H2+ Generated by (2+1) Resonance Enhanced Multiphoton Ionization of H2 using Time-of-flight Mass Spectrometry," *J. Chem. Phys.* **144**, 214201 (2016).

944. E. T. Jansson, M. T. Dulay, and R. N. Zare, "Monitoring Enzymatic Reactions in Real Time using Venturi Easy Ambient Sonic-Spray Ionization Mass Spectrometry," *Anal. Chem.* **88**, 6195-6198 (2016).

945. M. Sneha, H. Gao, R. N. Zare, P. Jambrina, M. Menéndez, and F. Aoiz, "Multiple Scattering Mechanisms Causing Interference Effects in the Differential Cross Sections of H + D2→ HD(v'=4, j') + D at 3.26 eV Collision Energy," *J. Chem. Phys.* **145**, 024308 (2016).

946. Q. Wu, A. Li, Y. Tian, R. N. Zare, and D. E. Austin, "Miniaturized Linear Wire Ion Trap Mass Analyzer," *Anal. Chem.* **88**, 7800-7806 (2016).

947. B. Gary, C. Citek, T. A. Brown, R. N. Zare, E. C. Wasinger, and T. D. P. Stack, "Direct Copper(III) Formation from O2 and Copper(I) with Histamine Ligation,” *J. Am. Chem. Soc.* **138**, 9986-9995 (2016).

948. R. N. Zare, C. T. Cox Jr., C. Bayas, and K. Murphy, "Implementation of Peer-Reviewed Homework Assignments," *J. Col. Sci. Teach.* **46**, 40-46 (2017).

949. D. C. Davis, K. L. Walker, C. Hu, R. N. Zare, R. M. Waymouth, and M. Dai, "Catalytic Carbonylative Spirolactonization of Hydroxycyclopropanols: Mechanistic Studies and Total Synthesis of Levantenolides," *J. Am. Chem. Soc.* **138**, 10693-10699 (2016).

950. A. E. Pomerantz, T. Van Le Doan, P. R. Craddock, K. D. Bake, R. L. Kleinberg, A. Burnham, Q. Wu, R. N. Zare, G. Brodnik, W. Chung-Hei Lo, M. Grayson, S. Mitra-Kirtley, T. B. Bolin, and T. Wu, "Impact of Laboratory-Induced Thermal Maturity on Asphaltene Molecular Structure,” *Energy & Fuels* **30**, 7025-7036 (2016).

951. L. S. Eberlin, K. Margulis, I. Planell-Mendez, R. N. Zare, R. Tibshirani, T. A. Longacre, M. Jalali, J. A. Norton, and G. A. Poultsides, "Pancreatic Cancer Surgical Resection Margins: Molecular Assessment by Mass Spectrometry Imaging," *PLOS Medicine*, **13**(8) e1002108, 1-21 (2016).

952. S. Banerjee, C. Basheer, and R. N. Zare, "Study of Heterogeneous Catalysis by Nanoparticle-Embedded Paper-Spray Mass Spectrometry," *Angew. Chemie Int. Ed.* **55**, 12807-12811 (2016).

953. M. Sneha, M. T. Dulay, and R. N. Zare, "Introducing Mass Spectrometry to First-Year Undergraduates: Analysis of Caffeine and Other Components in Energy Drinks Using Paper-Spray Mass Spectrometry," International Journal of Mass Spectrometry 418, 156–161 (2017) .

954. W. E. Perreault, N. Mukherjee, and R. N. Zare, "Preparation of a Selected High Vibrational Energy Level of Isolated Molecules," J. Chem. Phys. 145, 154203 (2016).

955. O. C. Mullins, A. E. Pomerantz, A. B. Andrews, R. D. Majumdar, P. Hazendonk, Y. RuizMorales, L. Goual, and R. N. Zare, "Asphaltenes," Chapter 6, in Springer Handbook of Petroleum Technology, C.S. Hsu, and P.R. Robinson (Eds.), 2nd ed. Heidelberg, Germany pp. 221-247 (2017) .

956. N. Hosseini-Nasssab, D. Samanta, Y. Abdolazimi, J. P. Annes and R. N. Zare, "Electrically Controlled Release of Insulin using Polypyrrole Nanoparticle," Nanoscale 9, 143-149 (2017).

957. J. K. Lee, H. Gil Nam, and R. N. Zare, "Microdroplet Fusion Mass Spectrometry: Accelerated Kinetics of Acid-Induced Chlorophyll Demetallation," Quarterly Reviews of Biophysics 50, 1- 7 (2017).

958. J. Charthad, S. Baltsavias, D. Samanta, T. C. Chang, M. J. Weber, N. Hosseini-Nassab, R. N. Zare, and A. Arbabian, "An Ultrasonically Powered Implantable Device for Targeted Drug Delivery,” 38th Annual International Conference of the IEEE Engineering in Medicine and Biology Society (EMBC) 540-546 (2016).

959. H. Cheng, X. Yan, and R. N. Zare, "Two New Devices for Identifying Electrochemical Reaction Intermediates with Desorption Electrospray Ionization," Anal. Chem. 89, 3191-3198 (2017).

960. X. Yan. H. Cheng, and R. N. Zare, "Two-Phase Reactions in Microdroplets Without Use of Phase-Transfer Catalysts, Angew. Chemie. Int. Ed. 56, 3562 –3565 (2017).

961. Z. Zhou, and R. N. Zare, “Personal Information from Latent Fingerprints Using Mass Spectrometry and Machine Learning,” Anal. Chem. 89, 1368-1372 (2017).

962. A. M. Gouw, L. S. Eberlin, K. Margulis, D. K. Sullivan, G. G. Toal, L. Tong, R. N. Zare, and D. W. Felsher, "KRAS Activates Fatty Acid Synthase Resulting in Specific ERK and Lipid Signatures Associated with Lung Adenocarcinoma," Proc. Natl. Acad. Sci. USA 114, 4300-4305 (2017).

963. S. Banerjee, E. Gnanamani, X. Yan, and R. N. Zare, "Can All Bulk-Phase Reactions be Accelerated in Microdroplets?," Analyst 142, 1399-1402 (2017).

964. S. Banerjee, R. N. Zare, R. J. Tibshirani, C. A. Kunder, R. Nolley, R. Fan, J. D. Brooks, and G. A. Sonn, "Diagnosis of Prostate Cancer by Desorption Electrospray Ionization Mass Spectrometric Imaging of Small Metabolites and Lipids," Proc. Natl. Acad. Sci. USA 114, 3334-3339 (2017).

965. W.-B. Liu, D. P Schuman, Y.-F. Yang, A. A. Toutov, Y. Liang, H. F. T. Klare, N. Nesnas, M. Oestreich, D. G. Blackmond, S.C. Virgil, S. Banerjee, R. N. Zare, R. H. Grubbs, K. N. Houk, and B. M. Stoltz, "KOt-Bu-Catalyzed Dehydrogenative C–H Silylation of Heteroaromatics: A Combined Experimental and Computational Mechanistic Study," J. Am Chem. Soc. 139, 6867−6879 (2017).

966. S. Banerjee, Y.-F. Yang, I. D. Jenkins, Y. Liang, A. A. Toutov, W.-B. Liu, D. P. Schuman, R. H. Grubbs, B. M. Stoltz, E. H. Krenske, K. N. Houk, and R. N. Zare, "Ionic and Neutral Mechanisms for C–H Bond Silylation of Aromatic Heterocycles Catalyzed by Potassium t-Butoxide," J. Am. Chem. Soc. 139, 6880–6887 (2017).

967. E. T. Jansson, Y.-H. Lai, J. G. Santiago, and R. N. Zare, "Rapid Hydrogen−Deuterium Exchange in Liquid Droplets," J. Am. Chem. Soc. 139, 6851−6854 (2017).

968. N. Mukherjee, W. E. Perreault, and R. N. Zare, "Stark-Induced Adiabatic Raman Ladder for Preparing Highly Vibrationally Excited Quantum States of Molecular Hydrogen," J. Phys. B: At. Mol. Opt. Phys. 50, 144005 (2017).

969. M. T. Dulay and R. N. Zare, " Polymer Spray Mass Spectrometric Detection and Quantitation of Hydrophilic Compounds and Some Narcotics," Rapid Communications in Mass Spectrometry 31, 1651-1658 (2017).

970. W. Wang, C. Taylor, H. Hu, K. L. Humphries, A. Jaini, M. Kitimet, T. Scott, Z. Stewart, K. J. Ulep, S. Houck, A. Luxon, B. Zhang, B. Miller, C. Parish, A. E. Pomerantz, O. C. Mullins, and R. N. Zare, "Nanoaggregates of Diverse Asphaltenes by Mass Spectrometry and Molecular Dynamics," Energy & Fuel 31, 9140−9151 (2017).

971. K. L. Walker, L. M. Dornan, R. N. Zare, R. M. Waymouth, and M. J. Muldoon, "Mechanism of Catalytic Oxidation of Styrenes with Hydrogen Peroxide in the Presence of Cationic Palladium(II) Complexes," J. Am. Chem. Soc. 139, 12495−12503 (2017).

972. S. Banerjee, S. Sathyamoorthi, J. Du Bois, and R. N. Zare, "Mechanistic analysis of a copper-catalyzed C–H oxidative cyclization of carboxylic acids," Chem. Sci. 8, 7003–7008 (2017).

973. S. Banerjee, F.Liu, D. Sanchez, T. Martinez, and R. N. Zare. "Pomeranz-Fritsch Synthesis of Isoquinoline: Gas-Phase Collisional Activation Opens Additional Reaction Pathways," J. Am. Chem. Soc. 139, 14352-14355 (2017).

974. W. E. Perreault, N. Mukherjee, and R. N. Zare, "Quantum Control of Molecular Collisions at 1 Kelvin," Science 358, 356-359 (2017)

975. I. Nam, J. K. Lee, H. G. Nam, and R. N. Zare, "Abiotic Production of Sugar Phosphates and Uridine Ribonucleoside in Aqueous Microdroplets" Proc. Nat. Acad. Sci. (USA) 114, 12396-12400 (2017).

976. R. M. Bain, S. Sathyamoorthi, and R. N. Zare, "On-Droplet" Chemistry: The Cycloaddition of Diethyl Azodicarboxylate and Quadricyclane," Angew. Chemie Int. Ed. 56, 15083-15087 (2017).

977. K. Margulis, X. Zhang, L.-M. Joubert, K. Bruening, C. J. Tassone, R. N. Zare, and R. M. Waymouth, "Formation of Polymeric Nanocubes by Self-Assembly and Crystallization of Dithiolane-Containing Triblock Copolymers," Angew. Chemie Int. Ed. 56, 16357-16362 (2017).

978. Y.-H. Lai, Z. Zhou, C. Basheer, and R. N. Zare, "Upgrading Asphaltenes by Oil Droplets Striking a Charged TiO2-Immobilized Paper Surface," Energy & Fuels 31, 12685-12690 (2017).

979. D. Samanta, R. Mehrotra, K. Margulis, and R. N. Zare, " On-Demand Electrically Controlled Drug Release from Resorbable Nanocomposite Films," Nanoscale 9, 16429–16436 (2017).

980. N. Mukherjee, W. E. Perreault, and R. N. Zare, "Stark-Induced Adiabatic Passage Processes to Selectively Prepare Vibrationally Excited Single and Superposition of Quantum States," Chapter 1, pp. 1- 46 in Frontiers and Advances in Molecular Spectroscopy, J. Laane, ed. Elsevier, Amsterdam, Netherlands (2017).

981. S. Sathyamoorthi, S. Banerjee, J. Du Bois, N. Z. Burns, and R. N. Zare, "Site-Selective Bromination of sp3 C–H Bonds," Chem. Sci. 9, 100-104 (2018).

982. R. N. Zare, "Making Materials That Hate Water to Love Water: The Transformative Power of Chemistry," Molecular Frontiers Journal 1, 10-15 (2017).

983. I. Nam, H. G. Nam, and R. N. Zare, "Abiotic Synthesis of Purine and Pyrimidine Ribonucleosides in Aqueous Microdroplets," Proc. Nat. Acad. Sci. (USA) 115, 36-40 (2018).

984. Z. Zhou, X. Li, and R. N. Zare, "Optimizing Chemical Reactions with Deep Reinforcement Learning," ACS Cent. Sci.3, 1337-1344 (2017).

985. P. Guo, J. Huang, Y. Zhao, C. R. Martin, R. N. Zare, and M. A. Moses, "Nanomaterial Preparation by Extrusion through Nanoporous Membranes," Small 1703493 (2018).

986. Y.-H. Lai, S. Sathyamoorthi, R. M. Bain, and R. N. Zare, "Microdroplets Accelerate Ring Opening of Epoxides," J. Am. Soc. Mass Spec. 29, 1036-1043 (2018).

987. F. J. Aoiz and R. N. Zare, "Quantum Interference in Chemical Reactions," Physics Today 71, 70-71 (2018).

988. W. E. Perreault, N. Mukherjee, and R. N. Zare, "Cold quantum-controlled rotationally inelastic scattering of HD with H2 and D2 reveals collisional partner reorientation," Nature Chemistry 10, 561-567 (2018).

989. E. J. Dil, S. C. Kim, A. Saffar, A. Ajji, R. N. Zare, A. Sattayapiwat, V. Esguerra, and R. A. R. Bowen, "Surface Characterization and Free Thyroid Hormones Response of Chemically Modified Polyethylene Terephthalate Blood Collection Tubes," Appl. Surf. Sci. 442, 602-612 (2018).

990. W. E. Perreault, N. Mukherjee, and R. N. Zare, "Supersonic Beams of Mixed Gases: A Method for Studying Cold Collisions," Chem. Phys. 514, 150-153 (2018).

991. J. K. Lee, D. Samanta, H. G. Nam, and R. N. Zare, "Spontaneous formation of gold nanostructures in aqueous microdroplets," Nat. Comm. 9, 1-9 (2018).

992. M. T. Dulay, N. Zaman, D. Jaramillo, A. C. Mody, and R. N. Zare, "Pathogen-Imprinted Organosiloxane Polymers as Selective Biosensors for the Detection of Targeted E. coli," C 4, 29 (2018).

993. S. Sathyamoorthi, Y.-H. Lai, R. M. Bain, and R. N. Zare, "Mechanistic Analysis of the C-H Amination Reaction of Menthol by CuBr2 and Selectfluor®, J. Org. Chem. 83, 5681-5687 (2018).

994. D. Samanta, N. Hosseini-Nassab, A. D. McCarty, and R. N. Zare, "Ultra-low Voltage Triggered Release of an Anti-Cancer Drug from Polypyrrole Nanoparticles," Nanoscale 10, 9773-9779 (2018).

995. X. Yan, Y.-H. Lai, and R. N. Zare, "Preparative Microdroplet Synthesis of Carboxylic Acids from Aerobic Oxidation of Aldehydes" Chem. Sci. 9, 5207-5211 (2018).

996. S. E. Neumann, C. F. Chamberlayne, and R. N. Zare, "Electrically Controlled Drug Release Using pH-Sensitive Polymer Films," Nanoscale 10, 10087-10097, (2018).

997. Z. Zhou, X. Yan, Y.-H. Lai, and R. N. Zare, "Fluorescence Polarization Anisotropy in Microdroplets," J. Phys. Chem. Lett. 9, 2928-2932 (2018).

998. K. Margulis, A. S. Chiou, S. Z. Aasi, R. J. Tibshirani, J. Y. Tang, and R. N. Zare, "Distinguishing Malignant from Benign Microscopic Skin Lesions Using Desorption Electrospray Ionization Mass Spectrometry Imaging," Proc. Nat. Acad. Sci. (USA) 115, 6347-6352 (2018).

999. S. Mondal, S. Acharya, R. Biswas, B. Bagchi, and R. N. Zare, "Enhancement of Reaction Rate in Small-Sized Droplets: A Combined Analytical and Simulation Study," J. Chem. Phys. 148, 244704 (2018).

1000. K. Yu, H. Zhang, J. He, R. N. Zare, Y. Wang, L. Li, N. Li, D. Zhang, and J. Jiang, "In Situ Mass Spectrometric Screening and Studying of the Fleeting Chain Propagation of Aniline," Anal. Chem. 90, 7154 - 7157 (2018).

1001. S. Banerjee, E. Gnanamani, S. R. Lynch, F. Zamudio Zuñiga, J. M. Jiménez-Vargas, L. D. Possani, and R. N. Zare, "An Alkaloid from Scorpion Venom: Chemical Structure and Synthesis,"J. Nat. Products 81, 1899 - 1904 (2018).

1002. K. Margulis, , Z. Zhou, Q. Fang, R. E. Sievers, R. J. Lee, and R. N. Zare, "Combining Desorption Electrospray Ionization Mass Spectrometry Imaging and Machine Learning for Molecular Recognition of Myocardial Infarction," Anal. Chem. 90, 12198-12206 (2018).

1003. Hong Zhang, Kai Yu, Na Li, Jing He, Lina Qiao, Ming Li, Yingying Wang, Dongmei Zhang, Jie Jiang and Richard N. Zare, "Real-Time Mass-Spectrometric Screening of Droplet-Scale Electrochemical Reactions," Analyst 143, 4247-4250 (2018).

1004. X. Song, H. Chen, and R. N. Zare, "Conductive Polymer Spray Ionization Mass Spectrometry for Biofluid Analysis," Anal. Chem. 90, 12878-12885 (2018).

1005. D. Gao, F. Jin, X. Yan, and R. N. Zare, "Selective synthesis in microdroplets of 2-phenyl-2,3-dihydrophthalazine-1,4-dione from phenyl hydrazine with phthalic anhydride or phthalic acid," Chemistry - A European Journal 25, 1466-1471 (2019).

1006. K. I. Hilsabeck, J. L. Meiser, M. Sneha, N. Balakrishnan, and R. N. Zare, "Photon Catalysis of Deuterium Iodide Photodissociation," Phys. Chem. Chem. Phys. 21, 14195-14204 (2019).

1007. J. Mack, K. Walker, S. Robinson, R. N. Zare, M. Sigman, R. Waymouth, J. Du Bois, "Mechanistic Study of Ruthenium-Catalyzed C–H Hydroxylation Reveals an Unexpected Pathway for Catalyst Arrest," J. Am. Chem. Soc. 141, 972-980 (2019).

1008. K. I. Hilsabeck, J. L. Meiser, M. Sneha, J. A. Harrison, and R. N. Zare, "Nonresonant Photons Catalyze Photodissociation of Phenol," J. Am. Chem. Soc. 141, 1067-1073 (2019).

1009. M. Langbroek, P. Jenniskens, L. Kriegsman, H. Nieuwenhuis, N. De Kort , W. Van Westrenen, M. E. Zolensky, K. Ziegler, Q.-Z.Yin, M. E. Sanborn, J. Wimpenny, A. Yamakawa, M. M. M. Meier, K. C. Welten, K. Nishizumi, A. S. Burton, D. P. Glavin, Q. Wu, R. N. Zare, P. Schmitt-Kopplin, N. Hertkorn, and S. De Vet, "The CM Carbonaceous Chondrite Regolith Diepenveen," Meteoritics & Planetary Science 54, 1431-1461 (2019).

1010. W. E. Perreault, N. Mukherjee, and R. N. Zare, "HD (v = 1, j = 2, m) orientation controls HD-He rotationally inelastic scattering near 1 K," J. Chem. Phys. 150, 174301 (2019).

1011. X. Li, Y. Cao, K. Luo, Y. Sun, J. Xiong, L. Wang, Z. Liu, J. Li, J. Ma, J. Ge, H. Xiao, and R. N. Zare, Highly Active Enzyme-Metal Nanohybrids Synthesized in Protein-Polymer Conjugates,"Nature Catalysis 2, 718-725 (2019).

1012. E. N. Carcamo-Noriega, S. Sathyamoorthi, S. Banerjee, E. Gnanamani, R. Hernández-Pando, D. Mata-Espinoza, J. I. Veytia-Bucheli, L. D. Possani, and R. N. Zare, "1,4-Benzoquinone Antimicrobial Agents Against Staphylococcus aureus and Mycobacterium tuberculosis Derived from Scorpion Venom," Proc. Nat. Acad. Sci. (US) 116, 12642-12647 (2019).

1013. W. E. Perreault, N. Mukherjee, and R. N. Zare, "Stark-induced adiabatic Raman passaged examine through the preparation of D2(v=2, j=0) and D2 (v=2, j=2, m=0)." J. Chem. Phys.150, 234201 (2019).

1014. A. M. Gouw , K. Margulis, N. S. Liu, S. J. Raman, A. Mancuso, G. G. Toal, L. Tong, A. Mosley , A. L. Hsieh , D. K. Sullivan, Z. E. Stine, B. J. Altman, A. Schulze , C. V. Dang , R. N. Zare, D. W. Felsher "The MYC Oncogene Cooperates with Sterol Regulated Element-Binding Protein to Regulate Lipogenesis Essential for Neoplastic Growth," Cell Metabolism **30**, 556-572 (2019).

1015. J. K. Lee, D. Samanta , H. G. Nam, and R. N. Zare, "Micron-Sized Water Droplets Induce Spontaneous Reduction," J. Am. Chem. Soc. **141**, 10585-10589 (2019).

1016. Z. Zhou, S. Kearnes, L. Li, R. N. Zare, and P. Riley, "Optimization of Molecules via Deep Reinforcement Learning," Scientific Reports **9**, 10752 (2019).

1017. S. Banerjee, A. C.-Y. Wong, X. Yan, B. Wu, R. J. Tibshirani, J. D. Brooks, and R. N. Zare, "Early Detection of Unilateral Ureteral Obstruction by Desorption Electrospray Ionization Mass Spectrometry," Sci. Rep. 9, 11007 (2019).

1018. P. Zhao, R. N. Zare, and H. Chen, "Absolute Quantification of Peptides by Coulometric Mass Spectrometry," J. Am. Soc. Mass Spec. 30, 2398-2407 (2019).

1019. J. K. Lee, K. L. Walker, H. S. Han, J. Kang, F. B. Prinz, R. M. Waymouth, H. G. Nam, and R. N. Zare, "Spontaneous Generation of Hydrogen Peroxide from Aqueous Microdroplets," Proc. Nat. Acad. Sci (US) 116, 19294-19298 (2019).

1020. C. Liu, J. Li , H. Chen, and R. N. Zare, "Scale-Up of Microdroplet Reactions by Heated Ultrasonic Nebulization," Chem. Sci. 10, 9367 - 9373 (2019).

1021. S. Banerjee and R. N. Zare, "Influence of Inlet Capillary Temperature on the Microdroplet Chemistry Studied by Mass Spectrometry," J. Phys. Chem. 123, 7704-7709 (2019).

1022. X. Wu, H. Yue, Y. Zhang, X. Gao, X. Li, L. Wang, Y. Cao, M. Hou, H. An, L. Zhang, S. Li, J.-Y. Ma, H. Lin, Y. Fu, H. Gu, W.-Y. Lou, W. Wei, R. N. Zare, and J. Ge, “Packaging and Delivering Enzymes by Amorphous Metal-Organic Frameworks,” *Nat. Comm.* **10**, 5165 (2019).

1023. D. Gao, F. Jin, J. K. Lee, and R. N. Zare, "Aqueous Microdroplets Containing Only Ketones or Aldehydes Undergo Dakin and Baeyer-Villiger Reactions," Chem. Sci. **10**, 10974-10978 (2019).

1024. E. Gnanamani, X. Yan, and R. N. Zare, "Chemoselective N-Alkylation of Indoles in Aqueous Microdroplets," Angew. Chemie Int. Ed. **59**, 1-5 (2020).

1025. Z. Zhou, D. Alvarez, C. Milla, and R. N. Zare, "Identification of Cystic Fibrosis from Specific Signatures in Perspiration Samples: A Proof of Concept," Proc. Nat. Acad. Sci. (USA) **116**, 24408-24412 (2019).

1026. R. Narayanan, X. Song, H. Chen, and R. N. Zare, "Teflon Spray Ionization Mass Spectrometry," J. Am. Soc. Mass Spec. **31**, 234-239 (2020).

1027. K. Margulis, A. Honkala, I. Kalashnikova, S. E. Noll, M. Hill, R. N. Zare, and B. R. Smith, "Nanoparticles Decorated with Granulocyte-Colony Stimulating Factor for Targeting Myeloid Cells," Nanoscale 12, 2752-2763 (2020).

1028. K. J. Wert, J. D.Sengillo, G.l Velez, Kanchustambham Vijayalakshmi, V. Shankar, R. N. Zare, A. G. Bassuk, S. H. Tsang, and V. B. Mahajan, "Metabolite Therapy Guided by Liquid Biopsy Proteomics Delays Retinal Neurodegeneration," EBioMedicine 52, 102636 (2020).

1029. X. Zhong, H. Chen, and R. N. Zare, "Ultrafast Enzymatic Digestion of Proteins by Microdroplet Mass Spectrometry," Nat. Comm. 11, 1049 (2020).

1030. K. Luo, J. Li , Y. Cao, C. Liu , J. Ge , H. Chen , R. N. Zare, "Reaction of Chloroauric Acid with Histidine in Microdroplets Yields a Catalytic Au-(His)2 complex," Chem. Sci. 11, 2558 (2020).

1031. V. Kanchustambham, V. Shankar, R. M. Bain, R. Nolley, G. A. Sonn, C.-S. Kao, H. Zhao, R. Tibshirani, R. N. Zare, and J. D. Brooks, "Identiﬁcation of Diagnostic Metabolic Signatures in Clear Cell Renal Cell Carcinoma using Mass Spectrometry Imaging," Int. J. Cancer 147, 256-265 (2020).

1032. J. van den Berg, Y.-H. Lai, G. Wadsworth, W. Lamberti, H. Woo, S. Raman, and R. N. Zare. "Spraying model PAHs on charged TiO2 surface for high-efficiency degradation," Energy & Fuels 34, 4289-4295 (2020).

1033. M. T. Dulay, J. K. Lee, A. C. Mody, R. Narasimhan, D. M. Monack, and R. N. Zare, "Spraying Small Water Droplets Acts as a Bacteriocide," QRB Discovery **1**: e3, 1–8 (2020).

1034. M. Zhang, Y. Zou, X. Xu, X. Zhang, M. Gao, J. Song, P. Huang, Q. Chen, Z. Zhu, W. Lin, R. N. Zare, and C. Yang, "Highly Parallel and Efficient Single Cell mRNA with Paired Picoliter Chambers," Nat. Comm. 11, 2118 (2020).

1035. W. E. Perreault, H. Zhou, N. Mukherjee, and R. N. Zare, "Harnessing the power of adiabatic passage to prepare the highly vibrationally excited H2 (v = 7, j = 0) level," Phys. Rev. Lett. 124, 163202 (2020).

1036. X. Song, X. Yang, R. Narayanan, V. Shankar, S. Ethiraj, X. Wang, N. Duan, Y.-H. Ni, Q. Hu, and R. N. Zare, “Oral Squamous Cell Carcinoma Diagnosed from Saliva Metabolic Profiling,” *Proc. Nat. Acad. Sci. (USA)* **117**, 16167–16173 (2020).

1037. X.Song, H. Chen, and R. N. Zare, “Coulometry-Assisted Quantitation in Spray Ionization Mass Spectrometry,” J Mass Spectrom. 2020;e4628.

1038. J. L. van den Berg, K. I. Neumann, John A. Harrison, H. Weir, E. G. Hohenstein, T. J. Martinez, and R. N. Zare, “Strong, Nonresonant Radiation Enhances Cis–Trans Photoisomerization of Stilbene in Solution,” J. Phys. Chem. **124**, 5999–6008 (2020).

1039. C. F. Chamberlayne and R. N. Zare,”Simple Model for the Electric Field and Spatial Distribution of Ions in a Microdroplet,” J. Chem. Phys. 152, 184702 (2020).

1040. S. Shankar and R. N. Zare, "A Few Guiding Principles for Practical Applications of Machine Learning to Chemistry and Materials," Chapter 20, in Machine Learning in Chemistry: The Impact of Artificial Intelligence, H. M. Cartwright, ed., Royal Society of Chemistry, London (2020).

1041. B. M. Lipinski, K. L. Walker, N. E. Clayman, L. S. Morris, T. M. E. Jugovic, A. G. Roessler, Y. D. Y. L. Getzler, S. N. MacMillan, R. N. Zare, P. M. Zimmerman, R. M. Waymouth, and G. W. Coates, "Mechanistic Study of Isotactic Poly(propylene oxide) Synthesis using a Tethered Bimetallic Chromium Salen Catalyst," ACS Catal. **10**, 8960–8967 (2020).

1042. S. Lhee, J. K. Lee, J. Kang, S. Kato, S. Kim, R. N. Zare, and H. G. Nam, “Spatial Localization of Charged Molecules by Salt Ions in Oil-Confined Water Microdroplets," Sci. Adv. **6** (41), eaba0181 (2020).

1043. J. Kang, S. Lhee, J. K. Lee, R. N. Zare, and H. G. Nam, "Restricted Intramolecular Rotation of Fluorescent Molecular Rotors at the Periphery of Aqueous Microdroplets in Oil," *Sci. Rep*. **10**, 16859 (2020).

1044. H. Xiong, J. K. Lee, R. N. Zare, and W. Min,"Strong Electric Field Observed at the Interface of Aqueous Microdroplets," *J. Phys. Chem. Lett.* **11**, 7423-7428 (2020).

1045.  X. Yan, X. Zhao,  Z. Zhou, A. McKay, A. Brunet, and R. N. Zare, "Cell-Type-Specific Metabolic Profiling Achieved by Combining Desorption Electrospray Ionization Mass Spectrometry Imaging and Immunofluorescence Staining," *Anal. Chem.* **92**, 13281-13289 (2020).

1046. S.Hameed, J. Zhao, and R.N Zare, “Ambient PM Particles Reach Mouse Brain, Generate Ultrastructural Hallmark of Neuroinflamation, and Stimulate Amyloid Deposition, Tangles, and Plaque Formation,” *Talanta Open* **2**, 100013 (2020).

1047. C. F. Chamberlayne, R. N. Zare, and J. G. Santiago, "Effects of Weak Electrolytes on Electric Double Layer Ion Distributions" *J. Phys. Chem. Lett.* **11**, 8302-8306 (2020).

1048. H. Xiong, J. K. Lee,  R. N. Zare, and W. Min, "Strong Concentration Enhancement of Molecules at the Interface of Aqueous Microdroplets," *J. Phys. Chem. B.* **124**, 9938-9944 (2020).

1049. J. K. Lee, H. S. Han, S. Chaikasetsin, D. P. Marron, R. M. Waymouth, F. B. Prinz, and R. N. Zare, "Condensing Water Vapor to Droplets Generates Hydrogen Peroxide," Proc. Nat. Acad. Sci. (US) **117**, 30934-30941 (2020).

1050. Q. Wang, Q. Wang, Y. Zhang, Y. M. Mohamed, C. Pacheco, N. Zheng, R. N. Zare, and H. Chen,  
"Electrocatalytic Redox Neutral [3+2] Annulation of *N-*Cyclopropylanilines and Alkenes,"  
*Chem. Sci.* **12**, 969-975 (2021).

1051. P. Zhao,  H. Gunawardena, X. Zhong, R. N. Zare, and H. Chen, “Microdroplet Ultrafast Reactions Speed Antibody Characterization”, *Anal.Chem*. **93**, 3997 – 4005 (2021).

1052. S. Hameed and R. N. Zare, "Molecular Signature and Anatomical Features of a Hypertrophic Scar From Abdominal Skin of a 36-Year-Old Female," *Annals of Clinical and Medical Case Reports* **5**, 1-8 (2021).

1053. J. Li, C. Liu, H. Chen, and R. N. Zare, "Accelerated Oxidation of Organic Sulfides by Microdroplet Chemistry," *J. Org. Chem.* **86**, 5011-5015 (2021).

1054. H Zhou, W. E. Perreault, N. Mukherjee, and R. N. Zare, "Shape Resonance Determined from Angular Distribution in D2 (*v*=2, *j*=2) + He --> D2 (*v*=2, *j*=0) + He Cold Scattering," *J. Chem. Phys.* **154**, 104309 (2021).

1055. K. Luo, H. Chen, and R. N. Zare, "Location of Carbon-Carbon Double Bonds in Unsaturated lLpids Using Microdroplet Mass Spectrometry," *Analyst*  **146**, 2550-2558 (2021).

1056. C. F. Chamberlayne and R. N. Zare, "What Role Does the Electric Double Layer Play in Redox Reactions at Planar Electrostatically Charged Insulating Surfaces?" Topics in Catalysis (2021). <https://doi.org/10.1007/s11244-021-01418-z>.

1057. X. Yang, L. Zhang, X. Song, X. Zhang, V. Shankar, S. Wang, Y. Yang, Y. Ni, R. N. Zare, and Q. Hu, "In Situ DESI-MSI Lipidomic Profiles of Distance-Related Margin of Oral  
Squamous Cell Carcinoma," SSRN Electronic Journal: DOI: [10.2139/ssrn.3763775  Posted: 28 Jan 2021.](https://www.researchgate.net/deref/http%3A%2F%2Fdx.doi.org%2F10.2139%2Fssrn.3763775?_sg%5B0%5D=SfocuUrJQTpG_ip7uwRLjvsVoU2TjOHUDmyk3b7m6Uqu9jyKJIsEvCx6WchFYLGXb64vwtCbps3EPsuMHOPKkPtwOw.MVphStIWuytP1qHkPMwmg8AKtwFFp9zZ2W-1MSBBjmXmUO_rxFzgDfV-p1Y49aBeidqtbbs7cN8MpRUk7iESDg)

1058. W. E. Perreault, H. Zhou, N. Mukherjee, and R. N. Zare, "A bi-axial quantum state that controls molecular collisions like a double-slit interferometer,"  Frontiers in Physics 9: 671997 (2021).

1059. V. Shankar, R. Tibshirani, and R. N. Zare, "MassExplorer: A Computational Tool for Analyzing Desorption Electrospray Ionization Mass Spectrometry Data," Bioinformatics 37, 3688-3690 (2021).

1060. J. Tucci, T. Chen, K. Margulis, E. Orgel, R. L. Paszkiewicz, M. D. Cohen, M. J. Oberley, R. Wahhab, A. E. Jones, A. S. Divakaruni, C.-C. Hsu, S. E. Noll, X. Sheng, R. N. Zare, and S. D. Mittelman, "Adipocytes Provide Fatty Acids to Acute Lymphoblastic Leukemia Cells," Frontiers in Oncology 11: 665763 (2021).

1061. X. Zhong, H. Chen, and R N. Zare, "Ultrafast Enzymatic Digestion of Deoxyribonucleic Acid in Aqueous Microdroplets for Sequence Discrimination and Identification," QRB Discovery, **2**: e4, 1–8 (2021).

1062. M. T. Dulay, C. R. Boeser, K. L. Walker, C. Fieder, and R. N. Zare " Polymer Substrate with Surface Solvent Reservoir for Polymer-Spray Mass Spectrometric Analysis of Hydrophilic Drugs,´Talanta Open 4, 1000048 (2021).

1063. X. Song, Q. Zang, and R. N. Zare, " Hydrogen-Deuterium Exchange Desorption Electrospray Ionization Mass Spectrometry Visualizes Acidic Tumor Microenvironment," Anal. Chem. 93, 10411–10417 (2021).

1064. X. Zhang,  W. Wang, R. N. Zare, and Q. Min, “Peptide and Protein Assays Using Customizable Bio-Affinity Arrays Combined with Ambient Ionization Mass Spectrometry,” Chem. Sci. 12, 10810-10816 (2021).

1065. M.T. Dulay, C. A. Huerta Aguilar, C.F. Chamberlayne, R. N. Zare, A. Davidse, and S. Vukovic, "Effect of Relative Humidity on Hydrogen Peroxide Production in Water Droplets," QRB Discovery 2, e8, 1-6 (2021).

1066. H. Zhou, W. E. Perrealt, N. Mukherjee, and R. N. Zare, “Quantum mechanical double slit for molecular scattering,” Science 374, 960-964 (2021).

1067. X. Song, J. Li, M. Mofidfar and R. N. Zare, “Distinguishing Between Isobaric Ions Using Microdroplet Hydrogen-Deuterium Exchange Mass Spectrometry,” Metabolites 11, 728 (2021).

1068. X. Yang, X. Song, X. Yang, W. Han, Y. Fu, S.Wang, X. Zhang, G. Sun, Y. Lu, Z. Wang, Y. Ni, R. N. Zare, and Q. Hu, "Big Cohort Metabolomic Profiling of Serum for Oral Squamous Cell Carcinoma Screening and Diagnosis," Natural Sciences **1**, 1-12 (2021).

1069. M. A. Rice, V. Kumar, D. Tailor, F. J. Garcia-Marques, E.-C. Hsu, S. Liu, A. Bermudez, V. Kanchustambham, V. Shankar, Z. Inde, B. R. Alabi, A. Muruganantham, M. Shen, M. Pandrala, R. Nolley, M. Aslan, A. Ghoochani, A. Agarwal, M. Buckup, M. Kumar, C. C. Going, D. M. Peehl, S. J. Dixon, R. N. Zare, J. D. Brooks, S. J. Pitteri, S. V. Malhotra, and T. Stoyanova, “SU086, an Inhibitor of HSP90, Impairs Glycolysis and Represents a Treatment Strategy for Advanced Prostate Cancer,” Cell Reports Medicine 3, 100502 (2022).

1070. S. D. Chambreau, D. M. Popolan-Vaida, O. Kostko, J. K. Lee, Z. Zhou, T. Brown, P. Jones, K. Shao, J. Zhang, G. L. Vaghjiani, R. N. Zare, and S. R. Leone, “Thermal and Catalytic Decomposition of 2‑Hydroxyethylhydrazine and 2‑Hydroxyethylhydrazinium Nitrate Ionic Liquid,” J. Phys. Chem A 126, 373-394 (2022).

1071. N. Armstrong, C. M. Storey, S. E. Noll, K. Margulis, M. H. Soe, H. Xu, B. Yeh, L. Fishbein, E. Kebebew, B. E. Howitt, R. N. Zare, J. Sage, and J. P. Annes, “Succinate Accumulation is not Sufficient for Tumorigenesis in Mouse Chromaffin Cells but Dual Loss of SDHB and NF1 Yields SDHx-like Pheochromocytomas,” Cell Reports 38, 110453 (2022).

1072. A. Davidse and R. N. Zare, “Effect of Relative Humidity in Air on the Transmission of Respiratory Viruses,” Molecular Frontiers Journal 5, 1-13 (2021).

1073. X. Song, M. Mofidfar, and R. N. Zare, "Introducing Nafion for in situ Desalting and Biofluid Profiling in Spray Mass Spectrometry," Frontiers in Chemistry, 9: 807244 (2021).

1074. T. Kakeshpour, B. Metaferia, R. N. Zare, and A. Bax, “Quantitative Detection of Hydrogen Peroxide in Rain, Air, Exhaled Breath, and Biological Fluids by NMR Spectroscopy,” Proc. Nat. Acad. Sci. (USA) 119, e2121542119 (2022).

1075. C. F. Chamberlayne and R. N. Zare, “Microdroplets Can Act as Electrochemical Cells.” J. Chem. Phys. 156, 054705 (2022).

1076. M. T. Dulay, C. F Chamberlayne, and R. N. Zare, “Optimizing Coaxial Sonic Spray Geometry for Generating Water Microdroplets," Anal. Chem. 94, 3762-3766 (2022).

1077. L. Zhao, X. Song, C. Gong, D. Zhang, R. Wang, R. N. Zare, and X. Zhang, “Sprayed Water Microdroplets Containing Dissolved Pyridine Spontaneously Generate Pyridyl Anion,” Proc. Natl. Acad. Sci. (USA) 119, e2200991119 (2022).

1078. B. Shen, X. Yang, S. E. Noll, X. Yang, Y. Liu, S. Jia, J. Zhao, S. Zheng, R. N. Zare, and H. Zhong, “Cell-Based Ambient Venturi Autosampling and Matrix-Assisted Laser Desorption Ionization Mass Spectrometric Imaging of Secretory Products,” Anal. Chem. 94, 3456-3466 (2022).

1079. C. P. Delaney, D. P. Marron, A. S. Shved, R. N. Zare, R. M. Waymouth, and S. E. Denmark, “Potassium Trimethylsilanolate-Promoted, Anhydrous Suzuki-Miyaura Cross-Coupling Reaction Proceeds via the “Boronate Mechanism”: Evidence for the Alternative Fork in the Trail,” J. Am. Chem. Soc. 144, 4345-4364 (2022).

1080. S. Shankar and R. N. Zare, “The Perils of Machine Learning in Designing New Chemicals and Materials,” Nat. Mach. Intell. 4, 314-315 (2022).

1081. A. V. Gouw, V. Kumar, A. Resendez, F. B. Alvina, N. S. Liu, K. Margulis, L. Tong, R. N. Zare, S. V. Malhotra and D. W. Felsher, “Azapodophyllotoxin Causes Lymphoma and Kidney Cancer Regression by Disrupting Tubulin and Monoglycerols,” ACS Med. Chem. Lett. 13, 615-622 (2022).

1082. X. Li, Y. Cao, K. Luo, L. Zhang, Y. Bai, J. Xiong, R. N. Zare, and J. Ge, "Cooperative Catalysis by a Single-Atom Enzyme-Metal Complex," Nat. Commun. 13, 2189 (2022).

1083. M. A. Mehrgardi, M. Mofidfar, and R. N. Zare, "Sprayed Water Microdroplets Are Able to Generate Hydrogen Peroxide Spontaneously," J. Am. Chem. Soc. 144, 7606-7609 (2022).

1084. A. Kumar, S. Mondal,M. Mofidfar, R. N. Zare, and S. Banerjee, “Capturing Reactive Carbanions by Microdroplets," J. Am. Chem. Soc. 144, 7573-7577 (2022).

1085. H. Zhou  , W. E. Perreault  , N. Mukherjee  and R. N. Zare , “Anisotropic Dynamics of Resonant Scattering Between a Pair of Cold Aligned Diatoms,“ Nat. Chem. Nat. Chem. 14, 658-663 (2022).

1086. X. Zhang, W. Lu, C. Ma, T. Wang, J.-J. Zhu, R. N. Zare, and Q. Min, “Insights into Electrochemiluminescence Dynamics by Synchronizing Real-Time Electrical, Luminescent, and Mass Spectrometric Measurements,” Chem. Sci. 13, 6244-6253 (2022).

1087. W. E. Perreault, H. Zhou, N. Mukherjee, and R. N. Zare, " Coherent Preparation of Highly Vibrating and Rotating D2 Molecules," J. Phys. Chem. Lett. 13, 4682-4687 (2022).

1088. Y. Ai, J. Xu, H. P. Gunawardena, R. N. Zare, and H. Chen, “Investigation of Tryptic Protein Digestion in Microdroplet and in Bulk Solution,” J. Am. Soc. Mass Spectrom., 33, 1238-12-1249 (2022).

1089. D. Xing, Y. Meng, X. Yuan, S. Jin, X. Song, R. N. Zare and X. Zhang, “Capture of Hydroxyl Radicals by Hydronium Cations in Water Microdroplets,” Angew. Chem. Int. Ed. 2022, e202207587.

1090. B. Chen, Y. Xia, R. He, H. Sang, W. Zhang, J. Li, L. Chen, P. Wang, S. Guo, Y. Yin, L. Hu, M. Song, Y. Liang, Y. Wang, G. Jiang, and R. N. Zare, **“**Water-Solid Electrification Causes Hydrogen Peroxide Production from Hydroxyl Radical Recombination in Sprayed Microdroplets,” Proc. Natl. Acad. Sci. (USA) 119, e2209056119 (2022).

1091. Y. Bai, P. Luan, Y. Bai, R. N. Zare, and J. Ge, “Enzyme-photo-coupled catalysis in gas-sprayed microdroplets,” Chem. Sci., **13**, 8341-8348 (2022).

1092. Y. Meng, X. Song, and R. N. Zare, "Laser Ablation Electrospray ionization Achieves 5 Micron Resolution Using a Microlensed Fiber," Anal. Chem. 94, 10278-10282 (2022).

1093. M. L. Wang, C. F. Chamberlayne, H. Xu, M. Mofidfar, S. Baltsavias, J. P. Annes, R. N. Zare, and A. Arbabian, “On-Demand Electrochemically Controlled Compound Release from an Ultrasonically Powered Implant,” RSC Advances 12, 23337- 23345 (2022).

1094. L. Zhao, X. Song, C. Gong, D. Zhang, R. Wang, R. N. Zare, and X. Zhang, "Reply to Brzeski and Jordan: Potential Pyridine Tautomers that can Form Stable Dipole-bound Anions,” Proc. Nat. Acad. Sci (USA) 119, e2212433119 (2022).

1095. X. Song, Y. Meng, and R. N. Zare, "Spraying Water Microdroplets Containing 1,2,3-Triazole Converts Carbon Dioxide into Formic Acid," J. Am. Chem. Soc. 144, 16744-16748 (2022).

1096. W. E. Perreault, H. Zhou, N. Mukherjee\*, and Richard N. Zare, “Resonant Cold Scattering of Highly Vibrationally Excited D2 with Ne,” J. Chem. Phys. 157, 144301 (2022).

1097. C. F. Chamberlayne and R. N. Zare, "Simple Estimate of the Potential Drop Across an Amphiprotic Liquid–Liquid Interface," J. Phys. Chem. 126, 8112-8118 (2022).

1098. Y. Meng, E. Gnanamani, and R. N. Zare, "C(sp3)-N Bond Formation Between Toluene and Amine in Water Microdroplets," J. Am. Chem. Soc. 144, 19709-19713 (2022).

1099. V. Shankar, B. Michael, A. Celli, Z. Zhou, M. D. Ashland, R. Tibshirani, M. Snyder, and R. N. Zare, “Identification of End Stage Renal Disease Metabolic Signatures from Human Perspiration,” NaturalSciences; 1- 9. <https://doi-org.stanford.idm.oclc.org/10.1002/ntls.20220048> (2022).

1100. Y. Meng, E. Gnanamani, and R. N. Zare, Catalyst-Free Decarboxylative Amination of Carboxylic Acids in Water Microdroplets,” J. Am. Chem. Soc. 145, 32-36 (2023).

1101. M. Mofidfar, J. T. Kelly, M. H. Rubinstein, and R. N. Zare, "Silicone Wristband Spray Ionization Mass Spectrometry for Combined Exposome and Metabolome Profiling," Israel J. Chem. (in press).

1102. H. Gunawardena, Y. Ai, J. Gao, R. N. Zare, and H. Chen, "Rapid Characterization of Antibodies via Automated Flow Injection Coupled with Online Microdroplet Reactions and Native-pH Mass Spectrometry," Anal. Chem. (in press).

1103. X. Song, Q. Zang, C. Li, T. Zhou, and R. N. Zare, “Immuno-Desorption Electrospray Ionization Mass Spectrometry Imaging Identifies Functional Macromolecules by Using Microdroplet-Cleavable Mass Tags,” Angew. Chemie Int. Ed. 2023, e202216969.

1104. S. Ramsay-Burrough, D. P. Marron, K. C. Armstrong, T. J. Del Castillo, R. N. Zare, and R. M. Waymouth, “Mechanism-Guided Design of Robust Palladium Catalysts for Selective Aerobic Oxidation of Polyols,” J. Am. Chem. Soc. (in press).

1105. W. Li, C. Chan, Z. Li, S.Y. Siu, S. Chen, H. Sun, Z. Liu, Y. Wang, C. Hu, N. M. Pugno, R. N. Zare, H. Wu, K. Ren, “All-Perfluoropolymer, Nonlinear Stability-Assisted Monolithic Surface Combines Topology-Specific Superwettability with Ultradurability,**”** The Innovation (in press).

1106. X. Song, C. Basheer, and R. N. Zare, “Making Ammonia from Nitrogen and Water Microdroplets,” Proc. Natl. Acad. Sci. (USA) 120, e2301206120 (2023).

1107. Y. Dai, C. F. Chamberlayne, M. S. Messina, C. J. Chang, R. N. Zare, L. You, and A. Chilkoti, “Interface of Biomolecular Condensates Modulates Redox Reactions,” Chem 9, 1–16 (2023).

1108. T. Zhang, S. E. Noll, J. T. Peng, A. Klair, A. Tripka, N. Stutzman, C. Cheng, R. N. Zare, and A. J. Dickinson, “Chemical Imaging Reveals Diverse Functions of Tricarboxylic Acid Metabolites in Root Growth and Development,” Nature Comm. 14, 2567 (2023).

1109. A. Davidse and R. N. Zare, “Indoor pollution: avoid harmful control measures,” Nature 615, 394 (2023).

1110. V. Shankar, K. Vijayalakshmi, R. Nolley, G. A. Sonn, C.-S. Kao, H. Zhao, R. Wen, L. S. Eberlin, R. Tibshirani, R. N. Zare, and J. D. Brooks, “Distinguishing Renal Cell Carcinoma from Normal Kidney Tissue Using Mass Spectrometry Imaging Combined with Machine Learning,” JCO Precision Oncology 7, e2200668 (2023).

1111. Y. Meng, E. Gnanamani, and R. N. Zare, “One-Step Formation of Pharmaceuticals having a Phenylacetic Acid Core using Water Microdroplets,” J. Am. Chem. Soc. 145, 7724–7728 (2023).

1112. Y. Meng, W. Hang, and R. N. Zare, “Microlensed Fiber Allows Subcellular Imaging by Laser-Based Mass Spectrometry,” Nat Protoc (2023).

1113. R. N. Zare, “Dudley Herschbach: My Source of Inspiration,” Molecular Frontiers Journal (in press).

1114. Y. Xia, J. Li, Y. Zhang, Y. Yin, B. Chen, Y. Liang, G. Jiang, and R. N. Zare, “Contact Between Water Vapor and Silicate Surface Causes Abiotic Formation of Reactive Oxygen Species in an Anoxic Atmosphere,” Proc. Natl. Acad. Sci. (USA) 120, e2302014120 (2023).

1115. Y. Li, K. W. Kolasinski, and R. N. Zare, “Silica particles convert thiol-containing molecules to disulfides,” Proc. Natl. Acad. Sci. (USA) 120, e2304735120 (2023).

1116. S. Shaik, D. Danovich, and R. N. Zare, “Valence Bond Theory Allows a Generalized Description of Hydrogen Bonding,” J. Am. Chem. Soc. 145, 20132-20140 (2023).

1117. Y. Meng, R. N. Zare, and E. Gnanamani, “One-Step, Catalyst-Free Formation of Phenol from Benzoic Acid Using Water Microdroplets,” J. Am. Chem. Soc. 145*,*19202-19206 (2023).

1118. X. Chen, Y. Xia, Z. Zhang, L. Hua, X. Jia, F. Wang, and R. N. Zare, “Hydrocarbon degradation by contact with anoxic water microdroplets,” J. Am. Chem. Soc. 145, 21538−21545 (2023).

1119. X. Song, C. Basheer, Y. Xia, J. Li, I. Abdulazeez, A. Al-Saadi, M. Mofidfar, M. A. Suliman, R. N. Zare, “One-Step Formation of Urea from Carbon Dioxide and Nitrogen Using Water Microdroplets,” J. Am. Chem. Soc.145, 25910-25916 (2023).

1120. X. Song, C. Basheer, and R. N. Zare, “Water Microdroplets-Initiated Methane Oxidation,” J. Am. Chem. Soc. 145, 27198–27204 (2023).

1121. J. Li, Y. Xia,X. Song, B. Chen, and R. N. Zare, “Continuous Ammonia Synthesis from Water and Nitrogen via Contact Electrification,” Proc. Natl. Acad. Sci. (USA) 121, e2318408121 (2024).

1122. Y. Meng, A. Chiou, S. Aasi, N. A. See, X. Song, and R. N. Zare, “Noninvasive Detection of Skin Cancer by Imprint Desorption Electrospray Ionization Mass Spectrometry Imaging,” Anal. Chem. 96, 1, 28–32 (2024).

1123. Y. Meng, E. Gnanamani, and R. N. Zare, “Superfast Formation of C(sp²)-N, C(sp²)-P, and C(sp²)-S Vinylic Bonds in Water Microdroplets,” Angew. Chem. Int. Ed. (in press).