James Kern Baird, Ph.D.
Professor of Chemistry

Department of Chemistry, University of Alabama in Huntsville

Education:

B.S.(Chemistry) Summa Cum Laude, Yale University, New Haven, CT 1963
A. M. (Physics) Harvard University, Cambridge, MA 1965
Ph.D.(Chemical Physics) Harvard University, Cambridge, MA 1969
Dissertation Advisor: Professor Norman F. Ramsey, 1989 Nobel Prize in Physics

Professional Experience:

1982 - Professor of Chemistry, Adjunct Professor of Physics and Adjunct Professor of Chemical Engineering, University of Alabama in Huntsville, Huntsville, AL

(a) 1998 – 1999 and Spring 2007, Visiting Professor, Sterling Chemistry Laboratory, Yale University, New Haven, CT.

(b) 1992 - 1995 Director, University of Alabama System Ph.D. Program in Materials Science.

(c) 1985 - 1999 Principal Scientist, Consortium for Materials Development in Space, University of Alabama in Huntsville.

(d) 1982 – 1990 and 2001- 2005. Chairman, Department of Chemistry. University of Alabama in Huntsville.

1981-1982 Manager, Radiochemistry Unit, General Electric Company, Knolls Atomic Power Laboratory, Schenectady, NY

1970-1981 Research Physicist, Health Physics Division, Oak Ridge National Laboratory, Oak Ridge, TN

1969-1970 Captain, U.S. Army, Sandia Base, Albuquerque, NM.

Academic Awards:

Phi Beta Kappa.
Sigma Xi.
Henry Fellowship for study at Cambridge University, England, 1963.
Woodrow Wilson National Fellowship, 1963-64.
Oak Ridge Graduate Fellowship, 1965-68.

Research Awards:

Defense Atomic Support Agency Certificate of Achievement, 1970.
NATO Visiting Research Fellow, Department of Theoretical Chemistry,

Oxford University, England, 1979 - 1982.
American Chemical Society, Carolina-Piedmont Section, Charles H. Stone Award for Research, 1991.
American Society for Engineering Education Distinguished Summer Faculty Research Fellow, Naval Research Laboratory, Washington, DC, 1993.
Summer Faculty Research Fellow, NASA Marshall Space Flight Center, Huntsville, Al, 2001
University of Alabama of Huntsville Foundation Award in Research and Creative Achievement in the Physical Sciences, 2008.

Teaching and Service Awards:

University of Alabama in Huntsville Student Government Association Outstanding Teacher Award, 1996.
Alpha Lambda Delta Freshman Honor Society Best Teacher of the Year Award, 1997.
University of Alabama in Huntsville College of Science Dean's Service Award, 2001.
Who's Who in the South and Southwest, Who's Who in American Education.,
Who's Who in America.

Memberships:

American Chemical Society
American Physical Society
(1) Member of the American Physical Society Committee on Investments, 2015 -2017.
(2) Candidate for Treasurer, American Physical Society, 2018.

Invited Lectures and Session Chairmanships

(a) Since 1973 have given more than 100 invited lectures and seminars at universities, national laboratories, and professional society meetings in the U.S., Europe, and Japan.

(b) Chairman, Physics of Liquids Colloquium, Southeastern Section Meeting of The American Physical Society, Chapel Hill, N.C., November 6-8, 1980.

(c) Chairman, Southeastern Theoretical Chemists' Association, 1991-1992.

(d) Chairman, Protein Crystal Growth Colloquium, March 1997 American Physical Society Meeting, Kansas City, MO.

(e) Chairman, Nucleation Symposium IV, Polymers and Membranes, 85th ACS Colloid and Surface Science Symposium, McGill University, Montreal, Que, Canada, June 21, 2011.

(f) Chairman, Biophysics Section, 14 International Conference on the Crystallization of Biological Macromolecules, Huntsville, AL, Sept. 22 – 28, 2012.

Consulting:

Have testified before the National Academy of Sciences Advisory Committee on Civil Defense, before the Office of Science and Technology Policy (President's Science Advisor), and before the National Commission on Space. Consultant to SCI, Morton Thiokol, and Chrysler Corporation (Acustar Division), Unisphere, and Wilmer and Lee Attorneys.

Recent Grants and Contracts:

(1) "Ostwald Ripening". NASA Marshall Space Flight Center, $74,255. October 1, 1984 - June 1, 1986.

(2) "Electron Transport in Liquid Hydrocarbons", Petroleum Research Fund of the American Chemical Society. $15,000. September 1, 1984-September 1, 1992.

(3) "Protein Crystal Growth." NASA Headquarters, $288,957. October 1, 1985 - October 1, 1990.

(4) "Crystal Growth in the System Hg/Cd/Te". NASA Marshall Space Flight Center, $85,000. October 30, 1984 - December 11, 1987.

(5) "Solution Phase Diffusion." NASA Sponsored UAH Consortium for Materials Development in Space, $206,000. September 15, 1986 - September 14, 1997.

(6) "Plasma Chemistry of Ammonia." NASA Marshall Space Flight Center $154,000. October 1, 1988 - March 31, 1991.

(7) "Kinetics of Diffusional Droplet Growth in a Liquid Two-Phase System. "NASA Headquarters, $104,700. March 13, 1990 - March 13, 1993.

(8) "Thermal Plasma Production of Nitric Acid," Alabama Space Grant Consortium, $10,000. February 1, 1994 - January 31, 1996.

(9) "Quantum Barrier Crossing Frequency in the Decomposition of Energetic Materials," Lawrence Livermore National Laboratory, Livermore, CA. $2600. January 1, 1994 - December 31, 1994.

(10) “Protein Crystal Growth Kinetics,” National Institutes of Health, $207,000. August 1, 1994 - March 1, 2002.

(11) “Hydrogen Diffusion in Metals,” Naval Research Laboratory, Washington, DC. $51,000. June 1, 1994 - April 30, 2000.

(12) “Shock Waves and Solids,” Phillips Laboratory, Kirtland Air Force Base, NM. $59,800. June 26, 1995 - August 22, 1997.

(13) “Chemical Kinetics at the Critical Point of Solution,” Petroleum Research Fund of the American Chemical Society, $25,000. September 1, 1995 - August 31, 2000.

(14) "Search for an Isotope Effect in the Coexistence Curve of a Two-Component Solution," Cambridge Isotopes Laboratory, Andover, MA. $2300. January 1, 1996 - December 31, 1996.

(15) "Lysozyme Crystal Growth," Southeastern Universities Research Association, $42,000. Graduate Student Stipends, 1995 - 2001.

(16) "Electrophoretic Mobility of Protein Crystals," Alabama Space Grant Consortium, $10,000. April 1 - October 31, 1997.

(17) "Thermoelectricity," Air Force Office of Scientific Research, Washington, DC. $40,000. May 24, 1999 - August 24, 1999.

(18) "Chemical Equilibrium at the Critical Point of Solution," Alabama NASA EPSCOR, $12,500. March 1 – August 31, 2001.

(19) "Viscosity of Molten HgZnTe," NASA Marshall Space Flight Center, $15,000. September 1, 2001 – December 31, 2002.

(20) "The Consolute Point Battery," U.S. Army/SMDC, $113,000. April 15, 2002- June 30, 2005.

(21) "Cosmic Ray Shielding Materials," NASA/MSFC, $36,000 September 1, 2005 – August 8, 2007.

(22) "Role of Sinusoidal Oscillations in the Bridgman Growth of CdZnTe Crystals," NASA Marshall Space Flight Center, $7800, September 22, 2015 – October 24, 2016.

Graduate and Post-doctoral Research Students Supervised:

(1) Five UAH graduate students (Judy Cain, H-M. Lee, Anna Holmes, Lihong Guo, Teresa Hodge) studying toward the M.S. in Chemistry.
(2) One University of Kansas (James A. Crumb) and three UAH graduate students (Jeffery Rowe, Jon Baker, Xingjan Wang) studying toward the M.S. in Physics.
(3) Two UAH graduate students (K. Caraballo and K. W. El-Nemr) studying toward the M.S. in Materials Science.
(4) Five UAH graduate students (Y. W. Kim, D. A. Barlow, Baichuan Hu, Josh Lang, Pauline Norris) studying toward the Ph.D. in Materials Science.
(5) Five UAH post-doctoral fellows (L. K. Lee, J. C. Clunie, Ning Lee, George Miller, Y. W. Kim)

Organizational Activities at UAH:

(1) As Chemistry Department Chairman from 1982 to 1990:

(a) Increased annual federal grant and contract expenditures from $400,000 to $3,880,000. Among departments of chemistry in the U.S., the University of Alabama in Huntsville

department ranked 39th in the nation in this category in 1990, at the end of my second term as Chairman. See Chemical and Engineering News, August 17, 1992, p. 68.

(b) Obtained funding and purchased the following equipment for the department: Fourier transform infrared spectrometer, fluorescence spectrometer, x-ray diffractometer, 200 MHz pulsed NMR spectrometer, x-ray photoelectron spectrometer, Auger electron spectrometer, scanning electron microscope, Raman spectrometer, and two gas chromatograph/mass spectrometers.

(c) Started construction on a new building to house the Chemistry Department.

(d) Increased the size of the faculty by 50%.

(e) Tripled the size of the administrative and scientific support staff.

(f) Increased graduate enrollment by 100%.

(g) Successfully recruited local industrial retirees to teach in the undergraduate program.

(h) Established American Chemical Society approved undergraduate biochemistry curriculum.

(2) Founder and past Director (1992-1995) of the University of Alabama System Ph.D. Program in Materials Science. This tri-campus program involves 55 students and 60 faculty members located in 11 departments. Since its inception in 1989, the program has awarded 65 Ph.D. degrees.

(3) A principal force in the successful establishment on campus of the Consortium for Materials Development in Space, a research center funded by NASA in the amount of $50 million over 15 years.

(4) Represented the university at the state level in planning the Alabama proposal to the NSF Experimental Program for the Stimulation of Competitive Research (EPSCOR), which resulted in $1,000,000 in equipment purchases for the Chemistry Department.

(5) Wrote University of Alabama System Proposal titled " A Microgravity Research Center for the Three Campuses of the University of Alabama" requesting $7,500,000 from NASA Headquarters, October 1984.

(6) Wrote University of Alabama in Huntsville proposal titled "Center for Surface and Interface Science" requesting $10,000,000 from NSF over five years. January 15, 1988.

(7) As Chemistry Department Chairman during 2001 to 2005, I recruited and hired five new assistant professors. With 19 members, the Chemistry Department faculty in 2005 reached its largest size ever.

(8) Served on a number of high level University of Alabama in Huntsville committees, including the Graduate Council, the Faculty Senate, and the College of Science Promotion and Tenure Advisory Committee, and the University Review Board serving as Chairman.

Teaching Load:

The standard teaching load at the University of Alabama in Huntsville is two courses per semester. In the summer, I volunteer to teach PH 621 Statistical Mechanics and Kinetic Theory I for the Physics Department.

Courses Taught:

CH 101 Introduction to Chemistry (Non-majors)
CH 121 and CH 123 General Chemistry (Majors)
CH 341 Chemical Thermodynamics (Undergraduates)
CH 342 Chemical Kinetics (Undergraduates)
CH 343 Quantum Chemistry (Undergraduates)
CH 346 Experimental Physical Chemistry II
CH 347 and CH 348 Biophysical Chemistry (Undergraduates)
CH 640 Advanced Chemical Thermodynamics (Graduates)
CH 641 Statistical Thermodynamics (Graduates)
CH 642 Advanced Chemical Dynamics (Graduates)
CH 643 Quantum Chemistry (Graduates)
CH 644 Chemical Electrodynamics (Graduates)
CH 746 Solid State Chemistry (Graduates)
PH 560 and PH 561 Solid State Physics (Graduates)
PH 621 Statistical Mechanics and Kinetic Theory I (Graduates)

Consistently score near the top on student evaluations of my teaching.

Other Academic Activities:

Lecturer, Naval Nuclear School, West Milton, NY, 1981 - 1982.
Adjunct Associate Professor, Department of Physics, University of Kansas 1977 - 1980.
Founder and first Chairman, Chemical Physics Seminar, Oak Ridge National Laboratory, Oak Ridge, TN., 1976.
Reviewer of manuscripts for Journal of the American Chemical Society, Journal of Physical Chemistry, Journal of Chemical Physics, Physical Review and Physical Review Letters.
Reviewer of proposals for NSF, NASA, DOE and the Petroleum Research Fund of the American Chemical Society.

Civic and Alumni Activities:

Member of the Board of Directors of the ORNL Federal Credit Union, which had $400 million in assets (1977 to 1979).
Member of the Board of Governors and Chairman of the Committee on Continuing Education of the Association of Yale Alumni (1972- 1976).
Chairman of the Board of the United Church Nursery School (1976-1981).
Member of the Board of Directors of the Melton Hill Regional Industrial Development Association, Clinton, TN. (1967 - 1968).
Secretary of the Yale University Class of 1963 (1973 - 1988).

Publications:

1. P. D. Miller, W. B. Dress, J. K. Baird, and Norman F. Ramsey
   Limit to the Electric Dipole Moment of the Neutron
   Phys. Rev. Lett.19, 381-384 (1967)

2. W. B. Dress, J. K. Baird, P. D. Miller, and Norman F. Ramsey

Upper Limit for the Electric Dipole Moment of the Neutron
Phys. Rev.170, 1200-1206 (1968).

3. J. K. Baird, P. D. Miller, W. B. Dress, and Norman F. Ramsey
Improved Upper Limit to the Electric Dipole Moment of the Neutron
Phys.Rev. 179 1285-1291 (1969).

4. James K. Baird and James H. Marable
Reflection and Transmission of a Traveling Unit Impulse Voltage at a Power Line-Power Transformer Junction
IEEE Conf. Paper C75 110-112, November 12, 1974.

5. L. G. Christophorou, K. S. Grant, and J. K. Baird
Slowing-Down of Subexcitation Electrons in Polyatomic Gases
Chem. Phys. Lett. 30 104-108 (1975).

6. James K. Baird
Continuum Dielectric Model for an Electron in a Nonpolar Fluid
J. Phys. Chem 79 2862-2866 (1975).

7. James K. Baird and Verner E. Anderson
Combination First Wall and Parabolic Lithium Mirror for a Laser-Driven Pellet Fusion Reactor
Proceedings of the Sixth Symposium on Engineering Problems of Fusion Research, San Diego, California, November 18-21, 1975.
Proceedings published by the Institute of Electrical and Electronics Engineers as IEEE Publ.No. 75CH1097-NPS, pp.1015-1019.

8. James K. Baird
Kinetics of Electron Capture by SF_6 in Solution
Can. J.Chem. 55, 2133-2143 (1977).

9. H. R. Petty, J. A. Crumb, V. E. Anderson, E. T. Arakawa, and J. K. Baird
New Differential Bottcher-Onsager Method Used to Determine Polarizability and Apparent Radius of the Tungstosilicate Anion.
J. Phys. Chem. 81, 696-703 (1977).

10. James K. Baird, Verner E. Anderson, and Stephen A. Rice
Comment of "Probability of Escaping Neutralization When the Mobility is Field Dependent".
J. Chem. Phys. 67, 3842-3844 (1977).

11. H. R. Petty, E. T. Arakawa, and J. K. Baird
Methods to Determine the Temperature Dependence of the Pre-Exponential Factor of the Arrhenius Equation from Thermogravimetric Data.
J. Therm. Anal.11, 417-422 (1977).

12. James K. Baird
Safety of Nuclear Energy

Yale Scientific Vol.52, No.3, p.2, February 1978.

13. Stephen A. Rice and James K. Baird
Uniform Theory of Electron Kinetics in Nonpolar Liquids
J. Chem. Phys. 69, 1989-1995 (1978)

14. James A. Crumb and James K. Baird
Reactivity/Rate Constant Ratio for Scavengers of Charged Particles in Nonpolar Liquids.
J. Phys. Chem. 83 1130-1133 (1979).

15. James K. Baird
Parity and Differentiability Restrictions on the Electric Field Dependence of the Mobility of Charged Particles in Gases and Liquids.
J. Chem. Phys. 79, 1575 (1979).

16. Howard R. Petty and James K. Baird
On the Polarizability of Macromolecules in Solution
Journal of Theoretical Biology 80, 295-299 (1979).

17. Stephen A. Rice, P. Robin Butler, Michael J. Pilling, and James K. Baird
A Solution to the Debye-Smoluchowski Equation for the Rate of Reaction of Ions in Dilute Solution
J. Chem. Phys. 70 400l-4007 (1979).

18. J. K. Baird, E. T. Arakawa, D. W. Noid, and H. R. Petty
Phase Fluorometry as a Probe of Diffusion Controlled Molecular Encounters in Dense Fluids
J. Chem. Phys. 7l, 508l-5089 (l979).

19. James K. Baird
Symmetry Properties of the Transport Coefficients of Charged Particles in Disordered Materials
J. Phys. Chem. 84, l258-l259 (l980).

20. James K. Baird
Rate of Electron Capture by Molecular Oxygen Calculated from Geminate Ion Recombination Fluorescence Data.
J. Chem. Phys. 72, 5289-5290 (l980).

2l. T. L. Ferrell, J. K. Baird, D. R. James, M. O. Pace and L. G. Christophorou
A Solution to Laplace's Equation for Hyperboloidal Electrodes with Applications to Dielectric Testing in Nonuniform Electric Fields,
Gaseous Dielectrics II, edited by L. G. Christophorou, Pergamon Press, New York l980, pp. 383-388.

22. J. K. Baird, J. Bullot, P. Cordier and M. Gautheir
Semiempirical Formula for the Electric Field Dependence of Geminate Ion Recombination Fluorescence.

J. Chem. Phys. 74 l692-l698 (l98l).

23. J. K. Baird, J. McCaskill and N. H. March
On the Theory of the Stern-Volmer Coefficient for Dense Fluids.
J. Chem. Phys.74, 6812-6816 (1981).

24. J.K. Baird and S.P. Escott
On the Departures from the Stern-Volmer Law for Fluorescence Quenching in Liquids.
J. Chem. Phys.74, 6993-6995 (1981).

25. J. K. Baird, J. Bullot, P. Cordier, and M. Gauthier
Comparison of Semiempirical Laws for the Electric Field Dependence of
Geminate Recombination Fluorescence.
J. Phys. Chem. 86, 903-908 (1982).

26. H. Sano and J. K. Baird
Brownian Motion of Reacting Charged Particles in Ionization Tracks.
J. Chem. Phys. 77 6236-6246 (1982).

27. J. K. Baird, J. McCaskill and N. H. March
Finite Concentration Fluorescence Quenching in the Presence of Diffusion
J. Chem. Phys. 78 6598-6602 (1983).

28. J. K. Baird
Negative Ion Photodetachment and the Electron Effective Mass in Liquids.
J. Chem. Phys. 79 3316-3320 (1983).

29. David Peak, T. C. Werner, Richard M. Dennis, Jr., and James K Baird
Fluorescence Quenching at High Quencher Concentrations.
J. Chem. Phys. 79 3328-3335 (1983).

30. J. K. Baird
Application of the Theory of Ostwald Ripening to Microgravity
Phase Separation Experiments
Proceedings of the 5th European Symposium on Materials Science Under Microgravity,
Schloss Elmau, West Germany, 5-7 November, 1984, pp. 319-321.

31. J. K. Baird and C. H. Morales
Angular Momentum and Photocurrent Threshold Law for the Solvated Electron.
J. Phys. Chem. 89 774-776 (1985).

32. J. K. Baird
Dielectric Screening and the Electron Scattering Length in Liquid Argon.
Phys. Rev. A. 32, 1235-1236 (1985)

33. J.K. Baird, Li Kao Lee, and E.J. Meehan, Jr.
Photocurrent Thresholds and Angular Momenta for Electrons Solvated in
Some Glassy Solids.

J. Chem. Phys. 83 3710-3711 (1985).

34. J. K. Baird
On the Concentration Dependence of the Interdiffusion Coefficient
Materials Under Extreme Conditions, ed. by H. Ahlborn, H. Fredrikkson, and E. Luscher, Les Editions Physique, Les Ulis, France, 1985, pp. 73-75.

35. J. K. Baird, E. J. Meehan, Jr., A. L. Xidis and S. B. Howard
Convective Diffusion in Protein Crystal Growth.
J. Crystal Growth 76 694-700 (1986).

36. James K. Baird, Richard W. Frieden, E. J. Meehan, Jr., Pamela J. Twigg, Sandra B. Howard and William A. Fowlis
Model for Determining Vapor Equilibration Rates in the Hanging Drop Method for Protein Crystal Growth.
Proceedings of the Sixth European Symposium on Materials Sciences Under Microgravity Conditions, Bordeaux, France, 2-5 December 1986, pp. 391-394.

37. J. K. Baird and R. H. Rehfeld
Thermodynamics of Electron Transport in Amorphous Insulators.
J. Chem. Phys. 86, 4090-4095 (1987).

38. James K. Baird and Richard W. Frieden
Rigorous Theory of the Diaphragm Cell When the Diffusion Coefficient Depends Upon Concentration.
J. Phys. Chem. 91 3920-3923 (1987).

39. James K. Baird, Richard W. Frieden, E.J. Meehan,Jr., Pamela J. Twigg, Sandra B. Howard, and William A. Fowlis
Evaporation Kinetics in the Hanging Drop Method of Protein Crystal Growth. Materials Research Society Symposium Proceedings 87 231-237 (1987).

40. S. Bamberger, J. M. Harris, J. K. Baird, J. Boyce, J. M. VanAlstine, R. S. Snyder and D. E. Brooks
Demixing of Aqueous Polymer Two-Phase Systems in Low Gravity.
Separation Science and Technology 23 17-35 (1987).

41. J. K. Baird and T. P. Schuman
On the Relationship Between Gas Phase and Liquid Phase Photodetachment Cross Sections in the Threshold Region: Application to Anthracene and Perfluorobenzene Anions.
Rad. Phys. Chem. 32 493-496 (1988).

42. W. A. Fowlis, L. J. DeLucas, P. J. Twigg, S. B. Howard, E. J. Meehan and J. K. Baird
Experimental and Theoretical Analysis of the Rate of Solvent Evaporation in the Hanging Drop Method of Protein Crystal Growth.
J. Crystal Growth 90 94-104 (1988).

43. S. B. Howard, P. J. Twigg, J. K. Baird and E. J. Meehan
The Solubility of Hen Egg-White Lysozyme

J. Crystal Growth 90 117-129 (1988).

44. James K. Baird and Dwight P. Russell
Physical Interpretation of the Disappearance of Dielectric Screening in the Case of Electrons in Nonpolar Fluids.
Phys. Rev. A 39 4295 - 4297 (1989).

45. C. Riley, J.K. Baird, T.A. Barr, and W.B. McKnight
Consideration of the First Excited Triplet State of Molecular Nitrogen as an Energy Transfer Source for a Chemical Laser.
Z. Phys. Chem. (Leipzig) 270 1098 - 2005 (1989).

46. J.C. Clunie, N. Li, M. T. Emerson, and J.K. Baird
Theory and Measurement of the Concentration Dependence of the Differential Diffusion Coefficient Using a Diaphragm Cell with Compartments of Unequal Volume.
J. Phys. Chem. 94 6099 - 6105 (1990).

47. James K. Baird, Ning Lee, and George Miller
The G-Value in Plasma and Radiation Chemistry
J. Appl. Phys. 68 3661-3668 (1990).

48. Laurent Sibille and James K. Baird
Analysis of Solvent Evaporation Rates in the Vapor Diffusion Protein Crystal Growth Experiments from the STS-61C Space Shuttle Mission.
J. Crystal Growth 110, 72 -79 (1991).

49. Laurent Sibille, John C. Clunie, and James K. Baird
Solvent Evaporation Rates in the Closed Capillary Vapor Diffusion Method of Protein Crystal Growth.
J. Crystal Growth 110, 80 -88 (1991).

50. Norman L. Burns, John C. Clunie, and James K. Baird
The Interdiffusion Coefficient in Aqueous Solutions of Copper Sulfate, Cobalt Sulfate, and Nickel Sulfamate.
J. Phys. Chem. 95 3801 - 3804 (1991).

51. James K. Baird and George P. Miller
High Energy Chemistry of Gases: A Theory Linking the G-Value in Radiation Chemistry to the Quantum Yield in Photochemistry.
Trends in Chemical Physics 1, 119 - 124 (1991).

52. James K. Baird
Photochemistry, Plasma Chemistry, and Radiation Chemistry Magill's Survey of Science: Physical Science F. N. Magill and T. A. Tombrello, eds., Salem Press, Pasadena, CA, 1992. Vol. 4, pp. 1791 -1797.

53. J.S. Chen, J.C. Clunie, J.K. Baird, and F.E. Rosenberger
The Diaphragm Cell: A Closed Form Solution to the Transport Equation and Its Application to the Determination of the Interdiffusion Coefficient in the System HCl:H_2O.

Phys. Chem. Liquids 24, 261 -273 (1992)

54. J.C. Clunie, N. Burns, and J.K. Baird
Nernst - Hartley Evaluation of the Interdiffusion Coefficient of Aqueous Nickel Sulfamate Using New Measurements of the Equivalent Conductances of the Ions
J. Electroanal. Chem. 328, 317 - 320 (1992)

55. J. B. Cain and J. K. Baird
Series Integration of the Diaphragm Cell Transport Equation When the Diffusion Coefficient is a Function of Concentration.
J. Chem. Phys. 97, 4368 - 4372 (1992)

56. James K. Baird and Jenn-Shing Chen
Theory of the Time-Lag Diffusion Method for the Case of an Outgassing Solid.
J. Mater. Res. 8, 1455 - 1461 (1993)

57. George P. Miller and James K. Baird
Radiofrequency Plasma Decomposition of Ammonia: A Comparison with Radiation Chemistry Using the G-Value.
J. Phys. Chem. 97, 10984 - 10988 (1993)

58. James K. Baird and Jenn-Shing Chen
Time Lag Diffusion Method for a Solid Propellant Emitting Gases
Mat. Res. Soc. Symp. Proc. 296 356 - 359 (1993).

59. J. B. Cain, J. C. Clunie, and J. K. Baird
Diaphragm Cell Determination of the Interdiffusion Coefficient for Succinonitrile + Water.
International J. of Thermophys. 16, 1225-1234 (1995).

60. James K. Baird and Erik M. Schwartz
The Thermal Phase of Fast Proton Equilibration in Metals: Hydrogen Atom Diffusion
Nuclear Instruments and Methods: Part B 96,657-662 (1995).

61. J. C. Clunie, M. L. Lewis, D. T. Albright, and J. K. Baird
A Search for Gravitational Effects in Diffusion.
SPIE Proceedings 2809, 244-246 (1996)

62. Joseph R. Luft, Douglas T. Albright, James K. Baird, and George T. DeTitta
The Rate of Water Equilibration in Vapor-Diffusion Crystallizations: Dependence on the Distance from the Droplet to the Reservoir.
Acta Cryst. D52, 1098-1106 (1996).

63. James K. Baird, Gary R. Hough, and Thomas R. King
Velocity Dependence of Impact Fluorescence
International J. of Impact Engr. 19, 273-276 (1997).

64. J. S. Chen, C. Y. Fang, and J. K. Baird
Monomer Shift, Dimer Shift, and Dimerization Constant for Self-Association Determined Graphically from NMR Dilution Shifts: Pyrolidone in $CDCl_3$ as an Example.

Z. Phys. Chem.199, 49-60 (1997).

65. J. P. Guelfucci, J. Fite-Rey, J. Casanovas, and J. K. Baird
Application of the Semi-empirical Method to Determine the Spatial Distribution Function for Thermalized Photoelectrons Created by Vacuum Ultraviolet or High Energy Irradiation of Some Nonpolar Dielectric Liquids.
J. Chem. Phys. 106 9497-9504 (1997).

66. A. M. Holmes, S. G. Holliday, J. C. Clunie, and J. K. Baird
Electrophoretic Mobility and Zeta-Potential of Lysozyme Crystals.
Acta Cryst. D 53 456-457 (1997).

67. J. K. Baird
Low-Earth Orbit Atomic Oxygen Erosion of Polymer Surfaces
J. Spacecraft and Rockets 35 62-65 (1998).

68. J. C. Clunie and J. K. Baird
Suppression of the Rate of Hydrolysis of t-Amylchloride at the Consolute Composition of Isobutyric Acid + Water
Fluid Phase Equilibria 150-151 549-557 (1998).

69. J. K. Baird and L. Guo
Free Convection and Surface Kinetics in Crystal Growth from Solution.
J. Chem. Phys. 109 2503-2508 (1998).

70. J. K. Baird and J. C. Clunie
Critical Slowing Down of Chemical Reactions in Liquid Mixtures
J. Phys. Chem. A 102, 6498-6502 (1998).

71. J. K. Baird and J. C. Clunie
Kinetics of Lysozyme Crystal Growth from Solution
Phys. Chem. Liquids 37 285-295 (1999).

72. J. K. Baird, S. C. Hill, and J. C. Clunie
Kinetics of Protein Crystal Nucleation and Growth in the Batch Method
J. Crystal Growth 196 220-225 (1999).

73. J. C. Clunie and J. K. Baird
Interdiffusion Coefficient and Dynamic Viscosity for the Mixture 2,6-Lutidine + Water Near the Consolute Point
Phys. Chem. Liquids 37 357-371 (1999).

74. J. K. Baird and E. M. Schwartz
Isotope Effect in Hydrogen Diffusion in Metals.
Z. Phys. Chem. 211, 47-68 (1999).

75. J. K. Baird, T. R. King, and C. Stein
Oxygen Diffusion in Silver
J. Phys. Chem. Solids 60 891-894 (1999).

76. J. K. Baird
A Generalized Statement of the Law of Mass Action
J. Chem. Ed. 76 1146-1150 (1999).

77. J. K. Baird
Theory of Protein Nucleation and Growth Controlled by Solvent Evaporation
J. Crystal Growth 204 553-562 (1999).

78. J. K. Baird and T. R. King
A Wien Displacement Law for Impact Radiation
International J. Impact Engr. 23 39-49 (1999).

79. H.-M. Lee, Y. W. Kim, and J. K. Baird
Electrophoretic Mobility and Zeta-Potential for Lysozme Crystals in Some 1:1 Electrolytes
J. Crystal Growth 232, 294-300 (2001).

80. J. K. Baird, S. C. Scott, and Y. W. Kim
Theory of the Effect of pH and Ionic Strength on the Nucleation of Protein Crystals
J. Crystal Growth 232 50-62 (2001).

81. Y. W. Kim and J. K. Baird
Effect of the Consolute Point of Isobutyric Acid + Water on the Rate of an
S_N1 Hydrolysis Reaction
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