Curriculum Vita

Louis J. Kirschenbaum
Department of Chemistry
University of Rhode Island
Kingston, RI 0288l

Education:

l965, B.S., Chemistry, Howard University
l967, M.S., Chemistry, Brandeis University
l968, Ph.D., Chemistry, Brandeis University

Professional Experience:

2019-	Professor Emeritus Department of Chemistry, URI
2008-9,1991-2	Visiting Scientist National Cancer Institute/NIH
2001	Visiting Scientist, CSIRO Division of Textile and Fibre Technology Belmont, Victoria, Australia
l983-Present	Professor, Department of Chemistry, University of Rhode Island
l976-l983	Associate Professor, Department of Chemistry, URI
l978-l979	Visiting Professor (Professor Chaver), Ben Gurion University of the Negev, Beer Sheva, Israel
l970-l976	Assistant Professor, Department of Chemistry, University of Rhode Island
l969-l970	NRC-NAS Postdoctoral Research Associate, Naval Ordinance Laboratory
l968-l969	Lecturer in Chemistry, Brandeis University
l965-l968	Research Assistant (NASA Traineeship, NSF Cooperative Fellowship),BrandeisUniversity
l965-l966	Teaching Assistant, Brandeis University
l963-l965	Undergraduate Research Assistant (NSF Undergraduate and Dow Chemical Summer Fellowship), Howard Univ.
l963	Summer Student Assistant (Chemistry), National Bureau of Standards

Membership in Professional and Honor Societies; Awards:

American Chemical Society (Inorganic, Analytical, and Chemical Education Divisions)
Phi Kappa Phi Sigma Xi
Phi Beta Kappa Beta Kappa Chi
American Association of University Professors
Recipient of a number of Undergraduate Academic and Research Awards,including the American Institute of Chemists, Washington Chemical Society, and Lubrizol Corporation Awards
American Chemical Society, Project SEED Award, 1988.
Worshipful Company of Dyers – Research Medal 2003
Distinguished Career Consultants Award, American Chemical Society 2014

Bibliographic Listings (Partial):

American Men and Women of Science, Who's Who in the East, Who's Who in Frontier Science and Technology, International Who's Who in Education, Who's Who in Rhode Island, American Men and Women of Science, Who's Who in Science and Engineering, Who's who in Society

Publications

Journal Publicatons

l. L.J. Kirschenbaum and J.R. Sutter, "Kinetic Studies of Permangate Oxidation Reactions. I. Reaction with Iodide Ion," Journal of Physical Chemistry, 70, 3863 (l966).

2. G. Davies, L.J. Kirschenbaum, and K. Kustin, "The Kinetics and Stoichiometry of the Reaction Between Manganese(III) and Hydrogen Peroxide in Acid Perchlorate Solution," Inorganic Chemistry, 7, l46 (l968).

3. G. Davies, L.J. Kirschenbaum, and K. Kustin, "The Kinetics and Stoichiometry of the Reaction Between Manganese(III) and Hydrazoic Acid in Acid Perchlorate Solution," Inorganic Chemistry, 8, 663 (l969).

4. L.J. Kirschenbaum and K. Kustin, "Kinetics of Copper-Ethylenediamine Complexation," Journal of the Chemical Society, (A), 684 (l970).

5. L.J. Kirschenbaum, (Book Review of) "Inorganic Chemistry of the Transition Metals," J. Amer. Chem. Soc., 95, l352 (l973).

6. L.J. Kirschenbaum, J. H. Ambrus, and G. Atkinson, "Kinetics of Silver(III) Complexation by Periodate and Tellutate Ions," Inorganic Chemistry, **12**, 2832 (1973).

7. L.J. Kirschenbaum, "Chemical History Through Birthdays and Anniversaries," Journal Chem. Education, 52, l93 (l975).

8. L.J. Kirschenbaum, "A Kinetic Study of the Reduction of the Tetrahydroxo-argentate Ion by Ethylenediamine," Journal of Inorganic and Nuclear Chemistry, 30, 88l (l976).

9. A.S. Marcus, W.K. Kelly, and L.J. Kirschenbaum, "Ground Water Quality Model of the Chipuxet Aquifer in the Upper Pawcatuck River Basin," R.I. Water Resources Center, l3th Annual Report, l977, p. l0.

l0. L.J. Kirschenbaum and Linda Mrozowski, "Kinetics of Silver(III) Decomposition in Dilute Acid," Inorganic Chemistry, l7, 37l8 (l978).

ll. H. Cohen, L.J. Kirschenbaum, E. Zeigerson, M. Jacobi, E. Fuchs, G. Ginzburg, and D. Meyerstein, "Complexation of a Nickel(III) Macrocyclic Complex by Sulfate Ion. A Pulse Radiolytic Study," Inorganic Chemistry, l8, 2763 (l979).

l2. L.J. Kirschenbaum and D. Meyerstein, "Oxidation, Reducation and Copper-Carbon Bond Formation in the Reactions of Copper(II) Tetraglycine with Pulse Radiolytically Generated Free Radicals," Inorg. Chem., l980, l9, l373.

13. E. Zeigerson, G. Ginzburg, D. Meyerstein, and L.J. Kirschenbaum, "A Comparative Study of the Electrochemical and Pulse Radiolytic Oxidation of the Complexes of Nickel(II) and Copper(II) Containing l,4,8,ll-tetraazacyclo-tetradecane," J. Chem. Soc., Dalton Trans., l980, l243.

14. L.J. Kirschenbaum and S.S. Kirschenbaum, "Begin Your Day with a Bit of History," Texas Science Teacher, September, l980.

15. L.J. Kirschenbaum and D. Meyerstein, "A Pulse Radiolysis Study of the MnO_4^{2-} Ion. The Stability of Mn(V) in 0.l M NaOH," Inorg. Chim. Acta, l98l, 53, L99.

16. E. Zeigerson, G. Ginzburg, L.J. Kirschenbaum, and D. Myerstein, "The Electrochemical Oxidation of Divalent Nickel Complexes with Tetra Aza Macrocyclic Ligands in Aqueous Solutions," Electroanal. Chem. and Interfacial Chem., l98l, l27, ll3.

17. E. Zeigerson, G. Ginzburg, J. Becker, L.J. Kirschenbaum, H. Cohen and D. Meyerstein, "The Difference in the Stability of the Disastereoisomers of the Tervalent Nickel Complex with 5,7,7,l2,l4,l7 Hexamethyl l,4,8,ll Tetraazacyclotetradecane in Sulfate and Perchlorate Containing Solutions, A Pulse Radiolytic and Electrochemical Study", Inorg. Chem., l98l, 20, 3988.

18. E. Zeigerson, I. Bar, J. Bernstein, L.J. Kirschenbaum and D. Meyerstein, "Stabilization of the Tervalent Nickel Complexes with meso-5,7,7,l2,l4,l4 Hexamethyl-l,4,8,ll Tetraazacyclotetradecane by Axial Coordination of Anions in Aqueous Solution," Inorg. Chem., l982, 2l, 73.

19. L.J. Kirschenbaum and R.I. Haines, "Diaxial Complexation of a Sterically Hindered Nickel(III)-Tetraaza Macrocycle: An ESR Study," Inorg. Chim. Acta, l983, 76, Ll27.

20. E.T. Borish, L.J. Kirschenbaum, and A. Kosci, "A Simple, All-Glass Filtration Apparatus," J. Chem. Educ., l983, 60, 243.

21. L.J. Kirschenbaum and E.T. Borish, "Kinetics and Mechanism of the Reaction of Silver(III) with Hydrogen Peroxide," J. Chem. Soc. Dalton, l983, 749.

22. L.J. Kirschenbaum and J.D. Rush, "Kinetics of the Reduction of the Tetra- hydroargentate(III) Ion by Arsenite," Inorg. Chem., l983, 22, 3304.

23. L.J. Kirschenbaum and J.D. Rush, "Polypeptide Complexes of Silver(III),"J. Am. Chem. Soc., l984, l06, l083.

24. L.J. Kirschenbaum and E.T. Borish, "Kinetics and Mechanism of the Reaction Between Silver(III) and Azide Ion," Inorg. Chem., l984, 23, 2355.

25. J.D. Rush and L.J. Kirschenbaum, "The Reaction of the Tetrahydroxo-argentate(III) Ion with Thiosulfate," Inorg. Chem., l985, 24, 744.

26. L.J. Kirschenbaum, E.T. Borish and J.D. Rush, "Reactions of Trivalent Silver with One-Electron Reducing Agents," Israel J. Chem., l985, 25, l59.

27. E.T. Borish, L.J. Kirschenbaum and E. Mentasti, "The Kinetics and Stoichiometry of Silver(III) Reduction by the Octacyano Complexes of Mo(IV) and W(IV)," J. Chem. Soc., Dalton Trans., l985, l789.

28. J.D. Rush and L.J. Kirschenbaum, "Complexes of Silver(III) with Oxoanions," Polyhedron, l985, 4, l573.

29. E. Mentasti, C. Baiocchi, and L.J. Kirschenbaum, "Kinetics and Mechanisms of Complex Formation of Gallium(III) and Indium(III). The Reactions with PAR in Water and Other Mixed Solvents," J. Chem. Soc. Dalton Trans. 1985, 2615.

30. E. Mentasti and L. J. Kirschenbaum, "Kinetics of the Oxidation of Ni(II) and Cu(II) Macrocycles by Aqua silver(II) in Acidic Perchlorate Media", Inorganica Chimica Acta 1987, 129, 99.

31. L. J. Kirschenbaum (Book Review of) "Inorganic Reactions and Methods", J. Am. Chem. Soc. 1987, 109, 4430.

32. E. Mentasti and L.J. Kirschenbaum, "Oxidation of Organic Compounds by Silver(II). Reactions with Aliphatic Diols and a-Hydroxy-Acids" Inorganica Chimica Acta, 1987, 134, 283.

33. L.J. Kirschenbaum and R.K. Panda, "Kinetics and Mechanism of the Reaction of the Tetrahydroxoargentate(III) ion with Thiourea," Polyhedron, 1988, 7, 2753.

34. L.J. Kirschenbaum and R.K. Panda, "Kinetics and Mechanism of the Reaction between 4-Tertiarybutylphenolate Anion and Tetrahydroxoargentate(III) in Aqueous Alkaline Media," J. Chem. Soc. Dalton Trans. 1989, 217.

35. L.J. Kirschenbaum, I. Kouadio, and E. Mentasti, "Kinetics of the Reduction of the Tetrahydroxoargentate(III) Ion by Sulfite in Aqueous Alkaline Media," Polyhedron., 1989 8, 1299.

36. L.J. Kirschenbaum, R.K. Panda, E. Borish, and E. Mentasti, "Vicinal Dioximate Complexes of Silver(III), Inorganic Chemistry., 1989, 28, 3623.

37. Raj N. Mehrotra and L. J. Kirschenbaum, "Kinetics and Mechanism of the Oxidation of Hypophosphite Ion by The Tetrahydroxoargentate(III) Ion." Inorganic Chemistry, 1989, 28, 4327.

38. I. Kouadio, L.J. Kirschenbaum and R. N. Mehrotra, "The Oxidation of Iodide Ion by the Tetrahydroxoargentate(III) Ion in Aqueous Alkaline Media", J. Chem. Soc. Dalton Trans, 1990, 1929.

39. I Kouadio, L.J. Kirschenbaum, R. N. Mehrotra, and Y. Sun, "Silver(III) Oxidation of DL-Mandelate Ion" J. Chem Soc. Perkin Trans. II., 1990, 2123

40. L. J. Kirschenbaum and Yunfu Sun, "The Reduction of the Tetrahydroxoargentate(III) Ion by Thiocyanate in Aqueous alkaline media," Inorg. Chem., 1991 30, 2360.

41. L. J. Kirschenbaum, "Higher Oxidation States in Group IB; the Chemistry of Hypervalent Silver", in T. N. Rao Commemorative Celebration, Osmania University, Hyderabad (India), 1991, pp.1-29.

42. O. Abollino, E. Mentasti, C. Sarzanini, V. Porta and L. J. Kirschenbaum, "Simultaneous Stopped-Flow Determination of Gallium and Indium by a Ligand Substitution Reaction," The Analyst, 1991, 116, 1167.

43. Y. Sun, L. Kirschenbaum and I. Kouadio "Kinetics and Mechanism of the Multi-step Oxidation of Ethylenediaminetetraacetate by $[Ag(OH)_4]^-$ in Alkaline Media," J. Chem. Soc. Dalton Trans., 1991, 2311-2315.

44. Y. Sun and L.J. Kirschenbaum, "The Oxidation of Cyanide Ion by Ag(III) in Alkaline Media." J. Coord. Chem., 1992, 26, 127-131.

45. H. Kim, I Rosenthal, L.J. Kirschenbaum and P. Riesz, "Photosensitized Formation of Ascorbate Radicals by Chloroaluminum Phthalyocyanine Tetra-sulfonate: an Electron Spin Resonance Study," Free Radical Biology and Medicine, 1992, 13, 231-238

46. T. Kondo, H. Kim, L.J. Kirschenbaum and P. Riesz, "Sonolysis of Dimethylsulfoxide - Water mixtures: a Spin Trapping Study." J. Phys. Chem., 1993, 97, 522-527.

47. H. Kim, I. Rosenthal, L.J. Kirschenbaum and P. Riesz, "Photosensitized Formation of Ascorbate Radicals by Riboflavin: an ESR Study" Photochemistry and Photobiology, 1993, 57, 777-784.

48. V. Misik, L.J. Kirschenbaum and P. Riesz, "Sonochemistry of Dimethylformamide- Water Mixtures: a Spin Trapping Study." J. Physical Chem., 1995, 99, 5970-5976.

49. X. Qu, L.J. Kirschenbaum and E.T. Borish, "Free Radical Production from Photoirradiated Melanin,"Soc. Cosmetic Chemists, Ann. Sem. 1996, 9-10.

50. Xinhua Qu, Louis J. Kirschenbaum, and Edward T. Borish, "Hydroxyterephthalate as a Fluorescent Probe for Hydroxyl Radicals: Application to Hair Melanin" *Photochemistry and Photobiology*, 2000, **71**, 307-313

51. W. B. Euler, L. J. Kirschenbaum and B. Ruekberg, "Determination of K_{sp}, ΔG^o, ΔH^o, and ΔS^o, for the Dissolution of Calcium Hydroxide in Water: A General Chemistry Experiment, *J. Chem. Educ.* 2000, **77**,1039-1040,

52. L.J. Kirschenbaum, X. Qu, and E. T. Borish, "Oxygen radicals from Photoirradiated Human Hair: an ESR and Fluorescence Study", *Journal of Cosmetic Science*, 2000, **51**, 159-182

53. . L.J. Kirschenbaum, E. Resende, E. Li and B. Ruekberg "An Alternative Confirmatory Test for Silver Ion in Qualitative Analysis", *J. Chem. Ed.*, 2110 **78**, 1524.

54. Amitava Das and L.J. Kirschenbaum, Mechanistic Aspects of Electron Transfer Reactions of Ag(II) and Ag(III) and the Role of Ag(I) in Redox Catalysis," in Preparation for *Rev. Inorganic Chemistry*.

55 K. Millington and L.J. Kirschenbaum "Detection of hydroxyl radicals in photoirradiated wool, cotton, nylon and polyester fabrics using a fluorescent probe", *Coloration Technology*, 2002, **118** 6-14.

56.W. B. Euler, L. J. Kirschenbaum and B. Ruekberg, "Determining the Thermodynamics of $Ca(OH)_2$ Solubility" [Laboratory Experiment THER529] Chemical Education Resources/Brooks Cole, 2002

57. Oxley, Jimmie C., James L. Smith, Louis Kirschenbaum, Kajal P. Shinde and Suvarnakishore Marimganti. "New Source of Evidence: Explosive Traces in Hair." Proc. SPIE-Int. Soc. Opt. Eng. 2004. **5403** 246-255

58. J. C. Oxley, James L. Smith, Louis J. Kirschenbaum, Kajal. P. Shinde, and Suvarna Marimganti. Accumulation of Explosives in Hair, *J Forensic Sci*, 2005 **50**, 826-831.

59. J. C. Oxley; J. L. Smith; L. Kirschenbaum; S. Marimganti "Accumulation of Explosives in Hair: Part 2. Factors Affecting Sorption." , *J Forensic Sc*i, 2007 **52**, 1291-1296.

60. Louis J. Kirschenbaum, When Vonnegut Met H. G. Wells (Letter) *Chemical and Engineering News* June 4, 2007 p.4.

61. J. C. Oxley, J. L. Smith, L. J. Kirschenbaum, S. Marimganti, S.Vadlamannati, Detection of Explosives in Hair Using Ion Mobility Spectrometry, *J Forensic Sci* 2005 **53** 690-3

62. Pulak Chandra Mandal, Jhimli Bhattacharyya, Suranjana Das, Subrata Mukhopadhyay[a], Louis J. Kirschenbaum Mechanistic studies on the oxidation of pyruvic acid by an oxo-bridged diiron(III,III) complex in aqueous acidic media. *Polyhedron*,2009 **28** 3162-3168.

63. S.Ito, N. Miyoshi, W.G. DeGraff, K. Nagashima, L.J. Kirschenbaum, and P. Riesz, Synergistic Effects of Gold Nanoparticles for 5-Aminolevulinic Acid-Induced Oxidative Stress, *Free Radical Research* 2009 **43,** 1214-1224.

64. N. G. Tran, H. Kalyvas, K. M. Skodje, T. Hayashi, P. Moënne-Loccoz, P. E. Callan, J. Shearer, L. J. Kirschenbaum and E. Kim, Phenol Nitration Induced by an $\{Fe(NO)_2\}^{10}$ Dinitrosyl Complex, J. Am. Chem. Soc. 2011 **133** 1184-1187.

65. Louis J. Kirschenbaum, Ben Ruekberg. Prediction of Bond Angles of Hydrides from Electronegativities: Reconciling VSEPR and VB, *The Chemical Educator*, 2012 **15** 340-343.

66. L. J. Kirschenbaum and B. Ruekberg, Relating Bond Angles of Dihalo- and Tetrahalo- -methanes, -silanes, and –germanes to Electronegativities *J. Chem. Educ.* 2012 **89** 351-354.

67. L. J. Kirschenbaum and P. Riesz, Sonochemical Degradation of Cyclic Nitroxides in Aqueous Solution, *Ultrason. Sonochem.* 2012 **19** 114-119 (dx.doi.org/10.1016/j.ultsonch.2012.01.014)

68. J. C. Oxley, J. L. Smith, L. J. Kirschenbaum, S. Marimganti, I. Efremenko, R. Zach, Y. Zeiri, "Accumulation of Explosives in Hair: Part 3: Binding Site Study" *J. Forensic Sci*, 2012 **57** 623-635 (2012 DOI: 10.1111/j.1556-4029.2011.02020.x)

69. Kirschenbaum LJ, Ruekberg B,,. A Correlation of the Solubility of Water in Hydrocarbons as a Function of Temperature Based on the Corresponding Vapor Pressure of Pure Water. Chemical Sciences Journal, Vol. 2013: 9 pages, Article ID: CSJ-101.

70. Morgan A. Turano, Cinzia Lobuono, Louis J. Kirschenbaum, Cofee Stirrers and Drinking Straws as Disposable Spatulas *J. Chem. Educ.* 2015**92,** 197-198

71. Hang Ma, Weixi Liu, Louis J. Kirschenbaum, Joel A. Dain and Navindra Seeram, Glucitol-core containing gallotannins inhibit the formation of advanced glycation end-products mediated by their antioxidant potential, Food and Function, 2016, **7**, 2213-2222.

72. W. Liu, Z. Wei, H. Ma, A. Cai, …LJ Kirschenbaum, …J. Dain…and N. Seeram, Anti-glycation and anti-oxidative effects of a phenolic-enriched maple syrup extract and its protective effects on normal human colon cells, Food and Function 2017, **8**, 757-766.

73. L.J. Kirschenbaum and Y.Sun, Nicotinamide complex of Silver(III) with expanded coordination number, J. Coordination Chemistry, 2018, **71,** 1863-1874.

74. M. A. Cashman, L.J. Kirschenbaum, J. Holowachuk, and T.B. Boving, Identification of hydroxyl and sulfate free radicals involved the reaction of 1,4-dioxane with peroxone activated persulfate oxidant, J. Hazardous materials, 2019, **380,** 120875

Book

E. Grunwald and L.J. Kirschenbaum, "Introduction to Quantitative Chemical Analysis," Prentice-Hall, Inc., Englewood Cliffs, NJ, l972.

Translations of this book have been published.

In Spanish ("Introduccion al Analisis Quimico Cuantitativo" Prentice-Hall International, Buenos Aires, l973).
In Japanese Baifukan Co., Ltd., Tokyo, l977).

Book Contribution

L.J. Kirschenbaum, "Introducing Historical Perspective with Chemical Birthdays and Anniversaries". "Directory of Teaching Innovations in Chemistry," L.R. Meeth and D.S. Gregory, Eds., Studies in Higher Education, Arlington, VA l982, p. l25.
Book/Technology reviews for Prentice Hall/Pearson, John, Wiley, Houghton Mifflin, McGraw-Hill.
.

Department and University Service (Recent/current):

Chemistry Department
Graduate Curriculum and Examinations Committee, Chair until 2010
Undergraduate affairs Committee, Chair 2010-
Annual review committees (one each year)

University
Faculty Senator (2009-11 2012-15
Constitution, bylaws and University Manual Committee (Since 2002)
Phi Beta Kappa (Historian 2012-)
Committee on Members in Course (since 1976)
URI Hillel Foundation, Board of Trustees
Joint Classroom Standards Committee (2014-)

URI/AAUP
President (2012-50 , Ex-officio member of all committees
Vice President 2009-2012)
Grievance Committee
Faculty Assistance Committee (founder and permanent chair)
Executive director search committee, Chair 2016

Service to the Profession
RI Section, American Chemical Society (ACS)
Executive Committee; alternate councilor
Career Consultant for the American Chemical Society (workshop presentations, resume reviews, career counseling by internet, phone and at National Meetings)
American Association of University Professors
Treasurer, Collective Bargaining Congress (2004-2008)
Secretary, Collective Bargaining Congress (2018-13)
Committee C on Teaching Research and Publication (Chair, 2010-2013)
CBC Grants Committee (2006-8, 2010-2013))
Marilyn Sternberg Award Committee
Investment Committee (2006-8)

Manuscript and proposal reviews

Annali di Chimica (Editorial Board member until 2008)
J. Chemical Soc – (regular reviewer)
Dalton Trans
J. Chemical Research
Analyst
Faraday Transactions
Physical Chemistry Chemical Physics (PCCP)
New Journal of Chemistry
Journal of Physical Chemistry
Inorganic Chemistry
Inorganica Chimica Acta
International Journal of Chemical Kinetics
Polyhedron
EnvironmentalEngineering and Wastewater Journal
Desalination and Water Treatment

National Science Foundation,
Petroleum Research Foundation