

Department of Chemistry and Biochemistry The University of Texas at Austin 105 E. 24<sup>th</sup> St. Stop A5300 Austin, TX 78712-1224 E-mail:

#### Education

Ph.D. in Chemistry, 1958, Harvard University (J. J. Lingane, mentor)
M.A. in Chemistry, 1956, Harvard University (J. J. Lingane, mentor)
B.Sc. in Chemistry, 1955, City College of New York, summa cum laude
Thayer Scholarship, 1955-1956
National Science Foundation Predoctoral Fellowship, 1956-1958

# **Professional Positions**

Director, Center for Electrochemistry, The University of Texas, 2006-present Hackerman-Welch Regents Chair in Chemistry, The University of Texas, 1985-present Norman Hackerman Professor of Chemistry, The University of Texas, 1982-1985 Jack S. Josey Professorship in Energy Studies, The University of Texas, 1980-1982 Professor of Chemistry, The University of Texas, 1967-present Associate Professor, The University of Texas, 1962-1967 Assistant Professor, The University of Texas, 1960-1962 Instructor, The University of Texas, 1958-1960 Fulbright Fellow (University of Paris 7), 1973 Visiting Professor (University of Tokyo) 1975 Sherman Mills Fairchild Scholar (California Institute of Technology), 1977 Woodward Visiting Professor (Harvard University), 1988

### **Research Interests**

Research interests involve the application of electrochemical methods to the study of chemical problems and include investigations in electroanalytical chemistry, electron spin resonance, electro-organic chemistry, high-resolution electrochemistry, electrogenerated chemiluminescence and photoelectrochemistry.

1955	Ward Medal in Chemistry	
1976	Analyst of the Year (Dallas Society of Analytical Chemistry)	
1977	Sherman Mills Fairchild Scholar (California Institute of Technology)	
1980	Harrison Howe Award (American Chemical Society, Rochester Section)	
1981	Carl Wagner Memorial Award (Electrochemical Society)	
1982	National Academy of Sciences	
1983	City College of New York Alumni Scientific Achieve ment Award	
1984	Bruno Breyer Memorial Award (Royal Australian Chem. Inst.) Fisher Award in Analytical Chemistry (American Chemical Society) Charles N. Reilley Award (Society of Electroanalytical Chemistry)	
1986	Henry Linford Award (Electrochemial Society) Docteur Honoris Causa (Universite de Paris-VII) New York Academy of Sciences Award in Mathematics and Physical Sciences	
1987	Willard Gibbs Award (American Chemical Society, Chicago Section) Olin-Palladium Medal (Electrochemical Society)	
1988	Analytical Chemistry Award in Electrochemistry (American Chemical Society) Woodward Professor (Harvard University)	
1989	Edward Mack Award (Ohio State University) Townsend Harris Medal (The City College of New York) Oesper Award (American Chemical Society, Cincinnati Section)	
1990	American Academy of Arts and Sciences Fellow Electrochemical Society Fellow Outstanding Achievement-Fields of Analytical Chemistry (Eastern Analytical Symposium)	

#### Awards

1992	G. M. Kosolapoff Award (Auburn University) Luigi Galvani Medal (Societá Chimica Italiana)	
1995	Outstanding Graduate Teaching Award (University of Texas at Austin)	
1996	Sigillum Magnum (Università di Bologna)	
1998	National Academy of Sciences Award in Chemical Sciences Pauling Award (American Chemical Society, Puget Sound and Portland Sections)	
2000	American Philosophical Society Honorary Doctorate, Texas A&M University	
2001	Career Research Excellence Award (UT Co-op Society) Pittsburgh Analytical Chemistry Award	
2002	Priestley Medal (American Chemical Society)	
2003	Presidential Citation (University of Texas at Austin) Honorary Doctorate, Weizmann Institute of Science	
2004	William H. Nichols Medal (NY-ACS) Welch Foundation Award in Chemistry	
2007	Heinz Gerischer Award (European Section of The Electrochemical Society)	
2008	Wolf Prize in Chemistry (Wolf Foundation, Israel)	
2009	Distinguished Scientist Award (Southeastern Universities Research Award - SURA)	
2010	Honorary Fellowship from the Royal Society of Chemistry Honorary Fellowship of The Chinese Chemical Society	
2011	National Medal of Science (Awarded February 2013)	
2013	Honorary Membership to the Electrochemical Society	
2013	Enrico Fermi Award (Awarded February 2014 - US Department of Energy)	
2014	Torbern Bergman Medal (Swedish Chemical Society, Analytical Division)	
2018	The Philosophical Society's Honorary Patron (Trinity College Dublin)	

# **Professional Activities**

Air Force Office	Scientific Research Evaluation Panel (1977-1981)
American Academy of Arts and Sciences	Chemistry Section Election Panel (2004, 2007)
American Chemical Society	Elected to Inaugural group of Fellows (2009)
	ACS Executive Director's 2010 Committee (2004)
	Editor-in-chief, Journal of the American Chemical Society; 1982-2001
	Task Force on Ethics of the Council Policy Committee (2001)
	Governing Board for Publishing's Task Force on Access and Pricing for
	Online Journal Backfiles (2001)
	Associate Editor, Journal of the American Chemical Society; 1980-1981
	Award Committee; ACS Award in Analytical Chemistry; 1995-1997
	Committee to Select Editor for Analytical Chemistry (1990)
	Ad Hoc Task Force to Evaluate JACS (1979)
Beckman Institute (University of Illinois)	External Advisory Board (1989-1997)
Biodesign Institute (Arizona State University)	Scientific Advisory Board (2006-2008)
<b>Center for Photochemical Sciences Advisory Board</b>	Board Member, Bowling Green State University (2002-2005)
Department of Energy	Low Energy Nuclear Reactions (LENR) Review (2004)
	Energy Research Advisory Board, Panel on Cold Fusion (1989)
Electrochemical Society	Executive Committee of South Texas Local Section (1995)
	Divisional editor, J. Electrochem. Soc. (1970-1978)
	Vice-chairman, Electro-organic Division (1968-1970)
	Member, Committee on Education (1968-1970)
	Member, Committee on Free Dissemination of Research (2014-present)
International Society of Electrochemists	Chemical Physics Program (vice-chairman, 1978-1980)
International Union of Pure and Applied Chemistry	President (1991-1993)

(IUPAC)	Vice-President/President elect (1990-1991)	
	CHEMRAWN IV: Conference on Ocean Resources (co-chair, 1987)	
	Commission on Chemical Kinetics (1983-1987)	
	Commission on Electrochemistry (1975-1983)	
Israel Strategic Alternative Energy Foundation		
(I-SAEF)	Honorary Co-Chair of I-SAEF Advisory Board (2012-present)	
National Academy of Sciences	America's Energy Future Committee (2007-2008)	
	Governing Board member, 2004-2005 Academy of Medicine,	
	Engineering and Science of Texas (TAMEST) Board on Energy and Engineermental Systems (1082, 1086, 1002, 1006)	
	Board on Energy and Environmental Systems (1983-1986; 1993-1996; 2003-2009)	
	Chair, Chemistry Section (1996-1999)	
	Chair, Selection Committee, Award in Chemical Sciences (2002)	
	Committee Member, Award in Chemical Sciences (2006)	
National Institute of Standards and Technology	Evaluation Panel for Center for Analytical Chemistry (1983-1986)	
National Research Council	Chair, Review Committee-Steacie Institute for Molecular Sciences	
	(SIMS) NRC-Canada (2004)	
	Co-Chair-Survey Workshop on Energy and Transportation (2001)	
	Co-chair, Organizing Committee, Survey Workshop on Energy and	
	Transportation (2002)	
	U.S. National Committee for IUPAC (1983-1993; Chair, 1988-1989) Chemical Sciences Roundtable (1997-1999)	
	Committee on Potential Applications of Concentrated Solar Photons	
	(1990-1991)	
	Board on Chemical Sciences and Technology (1982-1987; co-chair, 1985-1987):	
	Committee to Survey Opportunities in the Chemical Sciences (1984- 1986)	
	Ad hoc Committee on the Future of Analytical Chemistry (1984)	
	<i>Ex-officio</i> member: U.S. National Committee for Crystallography (1985);	
	U.S. National Committee for Biochemistry (1985)	
	National Materials Advisory Board:	
	Committee on Electrochemical Aspects of Energy Conservation and Production (1985)	
	Committee on Chemical Sciences and <i>ad hoc</i> Panel on DOE Research (1980-1984)	
	NAS/NRC Liaison: Committee on High Temperature Science and	
	Technology (1984)	
National Science Foundation	Chemistry Advisory Committee (1981-1984)	
	NSF-DOE Committee for Evaluation of NRCC	
SACHEM, Inc.	Advisory Board Member (2009-present)	
Solar Energy Research Institute	Panel Member (1978-1980)	
UNESCO	Expert Committee on Electrochemistry (1984)	
Weizmann Institute	Board of Governors (1995-2000, 2000-2005, 2005-2010)	
· · · ·	Scientific and Academic Advisory Committee (1995-1998; 2001-present	
World Innovation Foundation	Fellow (2006)	
	Honorary Member (2007-present) ower, Inc. <i>Past consultant</i> : BioVeris (was IGEN), SACHEM, Nucryst	

**CONSULTANT:** Calera Corp., Dow Corning, Plug Power, Inc. *Past consultant*: BioVeris (was IGEN), SACHEM, Nucryst Pharmaceuticals, Konarka Technologies Inc., Orchid, Monsanto, CombiChem, Perkin-Elmer, Exxon Research and Engineering, ClearFlow, National Science Foundation, Phillips Petroleum, Rockwell International, Texas Instruments, Bell Northern, Radian Corp, E.I. DuPont, Electric Power Research Institute.

	Lectureships		
1969	Distinguished Visiting Scientist (Michigan State University)		
	Distinguished Visiting Scientist (University of Florida)		
1973			
1975	Visiting Professor (University of Tokyo)		
1976	Kenan Visiting Professor (University of North Carolina)		
1977	· · ·		
1979			
1980	I.M. Kolthoff Lecturer (University of Minnesota)		
	D.G. Davis Lecturer (University of New Orleans)		
	Werner Lecturer (University of Kansas)		
1981	Whitmore Lecturer (Pennsylvania State University)		
	Kelly Lecturer (Purdue University)		
	Conover Lecturer (Vanderbilt University)		
	Frontiers of Science Lecturer (Case Western University)		
1982	King Lecturer (Kansas State University)		
	Karcher Lecturer (University of Oklahoma)		
	Liebig Lecturer (University of Colorado)		
	Ottawa-Carleton Lecturer (Ottawa-Carleton Institute for Research in Chemistry)		
	Leermakers Symposium Lecturer (Wesleyan University)		
	Schweitzer-Marple Lecturer (Northwestern University)		
	Gustavson Lecturer (University of Chicago)		
	Merck Lecturer (Bucknell University)		
1983	F.M. Garland Lecturer (Texas A&I University)		
	Eltech Lecturer (Case Western Reserve University)		
	Dow Lecturer (Michigan State University)		
1984	Willard Lecturer (University of Michigan)		
	Majors Lecturer (University of Connecticut)		
1985	Iddles Lecturer (University of New Hampshire)		
	Frontiers in Chemistry (Texas A&M University)		
	Semons Lecturer (Kent State University)		
1986	Smith Lecturer (Oklahoma State University)		
	Abbott Lecturer (University of North Dakota)		
	Nekkers Lecturer (Southern Illinois University)		
	A. Noyes Lecturer (University of Illinois)		
1987	Hutchinson Lecturer (University of Rochester)		
	Baker Lecturer (Cornell University)		
1988	Dow Lecturer (University of Victoria, British Columbia, Canada)		
	Distinguished Lecturer (University of Massachusetts)		
	Priestly Lecturer (Pennsylvania State University)		
	Willard Davis Lecturer (University of South Carolina)		
	Centenary Lecturer (Royal Society of Chemistry, U.K.)		
	Woodward Visiting Professor (Harvard University)		
1000	W.M. Spicer Lecturer (Georgia Institute of Technology)		
1989	Mack Award Lecturer (Ohio State University)		
	Distinguished Visiting Speaker (University of Calgary)		
	Distinguished Visiting Lecturer (San Diego State University)		
	Friend E. Clark Lecturer (West Virginia University)		
	Oesper Symposium Speaker (University of Cincinnati)		
	W. Heinlen Hall Lecturer (Bowling Green State University)		
1000	Venable Lecturer (University of North Carolina)		
1990	Hill Memorial Lecturer (Duke University)		

	M.E. Kapp Lecturer (Virginia Commonwealth University)
	H. Murray Clark Lecturer (San Jose State University)
	S. C. Lind Lectureship (ACS East Tennessee Section, Knoxville, TN)
1991	Gooch-Stephens Lecturer (Baylor University)
	Joel Broberg Lecturer (North Dakota State University)
	Linus Pauling Distinguished Lecturer (Oregon State University)
	Milton Kahn Lecturer (University of New Mexico)
	Samuel Ruben Lecturer (Reed College)
	Dow Lecturer (University of British Columbia)
	DuPont Distinguished Lecturer (Indiana University)
1992	G. M. Kosolapoff Lecturer (Auburn University)
	Phi Beta Kappa Lecturer (Knox College, Colgate University, Wake Forest
	University, University of Alabama, University of California, Los Angeles,
	University of Illinois, University of Wisconsin, and Boston University)
1993	W. R. Grace Distinguished Lecturer (University of Maryland)
	Xerox Distinguished Lecturer (Simon Fraser University)
	Samuel M. McElvain Analytical Sciences Lecturer (University of Wisconsin,
	Madison)
1994	National Research Council of Canada Distinguished Lecturer (Steacie Institute for
	Molecular Sciences)
	F.E. Beamish Lecturer (University of Toronto)
	Moses Gomberg Lecturer (University of Michigan)
	3M University Lecturer (University of Western Ontario)
1995	Howard Ritter Memorial Lecturer (Miami University)
	Arthur D. Little Lecturer (Northeastern University)
	L. B. Rogers Lecturer (University of Georgia)
1996	Rayson Huang Visiting Lecturer (University of Hong Kong)
1005	FMC Plenary Lectures (Princeton University)
1997	Renfrew Lecture (University of Idaho)
1000	Northwest Lectureship in Physical Chemistry (University of Oregon)
1998	Society of Analytical Chemists /Spectroscopy of Pittsburgh Lecture (Pennsylvania
1999	State University)
1999	Lemieux Lectureship (University of Ottawa) Chanaellaris Distinguished Lecturer (Leuisiane State University)
2000	Chancellor's Distinguished Lecturer (Louisiana State University)
2000	Probst Lecturer (Southern Illinois University, Edwardsville) Thomas Lecture (University of Missouri)
	Basterfield Lecture (University of Regina)
	Amy-Mellon Lecture (Purdue University)
	Brian Bent Memorial Lecture (Columbia University)
2001	Norman Sutin Symposium (Brookhaven National Laboratories)
2001	Humphrey Symposium (University of Vermont)
	Weissberger-Williams Lecture Series (Kodak Research Laboratories)
2002	Priestley Medal Address (American Chemical Society National Meeting)
2002	Neal R. Amundson Lecture Series (University of Guadalajara, Mexico)
2005	William Crews McGavock Lectures (Trinity University, San Antonio, TX)
_000	Bergveld lecture (University of Twente, Enschede, The Netherlands)
2006	Shain Colloquium Series (University of Wisconsin)
2007	G. F. Smith Lecture Series (University of Illinois at Urbana-Champaign)
,	Director's Colloquium Series (Los Alamos National Laboratory, NM)
2010	Jefferson Lecture Series (University of Virginia)
2012	Dole Lecture Series (Northwestern University)
2012	Doe Lecture Series (Northwestern Oniversity)

#### **Publications**

Editor, *Electrogenerated Chemiluminescence*, Marcel Dekker: New York, 2004. Editor, *Electroanalytical Chemistry*, 24 volumes Editor, *Encyclopedia of Electrochemistry* Editor, *Encyclopedia of the Electrochemistry of the Elements*, 16 volumes Section Editor, *Encyclopedia of Physical Science & Technology* Editor w/ Joseph Jordan and Roger Parsons, *Standard Potentials in Aqueous Solution* Author w/ Larry Faulkner, *Electrochemical Methods*, Wiley, 1<sup>a</sup> Ed., 1980, 2<sup>ac</sup> Ed., 2001 Author, *Chemical Equilibrium*, Harper and Row, 1966 Author, *Integrated Chemical Systems*, Wiley-Interscience, 1994 Editor w/Michael V. Mirkin, *Scanning Electrochemical Microscopy* Editor w/Michael V. Mirkin, *Scanning Electrochemical Microscopy* 2<sup>ac</sup> Edition Author of 1000 peer-reviewed papers (see complete list <u>here</u>) and chapters and over 30 patents.

### **Editorships**

Journal of the American Chemical Society (editor-in-chief, 1982-2001) Journal of the American Chemical Society (associate editor, 1980-1981) Electrochimica Acta (divisional editor, 1978-1980) Journal of the Electrochemical Society (divisional editor 1970-1978)

## **Editorial Advisory Board Memberships**

Accounts of Chemical Research (1993-2007) Analytical Letters (1967-2004) Analytical Sciences (1985-1999) Bulletin of the Chemical Society of Japan (1995-2004) Russian Chemical Bulletin (1995-2008) Catalysis Letters (1988-1994) Chemical Instrumentation (1967-1977) Chemical Physics Letters (1992-1998) Critical Reviews in Analytical Chemistry (1985-1991) Heterogeneous Chemistry Reviews (1993-2007) Journal of Photoacoustics (1982-1984) Journal of Supercritical Fluids (1988-1995) New Journal of Chemistry (1978-1993) Nano Letters (2005-2006) NANO (2007-2008) Academic Press Dictionary of Science and Technology (1989-1992) Encyclopedia of Analytical Chemistry: Instrumentation and Applications (1996-2001) Encyclopedia of Physical Science and Technology (Academic Press, 1984-2004) McGraw-Hill Encyclopedia of Science and Technology (1992-1997) Structure and Bonding (Springer-Verlag, 1996-2005)

### **Professional Societies**

American Philosophical Society
National Academy of Sciences (Chairman of Chemistry Section, 1996-1999)
American Academy of Arts and Sciences
American Chemical Society
Electrochemical Society
American Association for the Advancement of Science (Council Delegate, 1992-1995; Chair of Chemistry Section, Feb. 1997-Feb. 1998)
The Association of Harvard Chemists
Society of Electroanalytical Chemistry
World Innovation Foundation Fellow (2004-2006); Honorary Member (2007)

# **Students and Postdoctoral Fellows**

Mentor and collaborator at the University of Texas at Austin with 91 Ph.D. students, 18 M.S. students, over 200 postdoctoral associates, and numerous visiting scientists.

# Personal

Citizen of the U.S.A. Widower, two children (Eddie and Sara), four grandchildren