

H. Richard Leuchtag

P. O. Box 2325, Bandera, Texas 78003

Phone: (830) 895-8529

E-mail: leuchtag@ktc.com

Born in Breslau, Germany (now Wroclaw, Poland). Lived in Panama 1939-1940 and in U.S. 1940-present. U.S. citizen since November 1949. Married Alice Kathleen Kesner June 7, 1955; son, Clyde Raymond Leuchtag. Grandchildren Jeremy, Joshua and Ilana.

EDUCATION

B.A., Physics, University of California at Los Angeles, 1950

M.A., Physics, University of California at Los Angeles, 1955

Graduate study, Biophysics, University of California at Los Angeles Medical Center, 1955-1957

California Secondary Credential, University of Southern California, 1960

Ph.D., Physics (Biophysics Committee), Indiana University, Bloomington, 1974

EXPERIENCE

1997-1999 Adjunct Professor, Department of Biology, Texas Southern University, Houston

1991-1997 Professor, Department of Biology, Texas Southern University

1987-1991 Associate Professor, Department of Biology, Texas Southern University

1982-1987 Assistant Professor, Department of Biology, Texas Southern University

1980-83, 87 Investigator, Marine Biological Laboratory, Woods Hole, Massachusetts

1978-1982 Research Instructor, Physiology and Biophysics, University of Texas Medical Branch, Galveston

1974-1978 Associate Editor, *Physics Today*, New York

1972-1974 Research Associate, Biophysics Research Lab., Physics Dept., New York University

1965-1970 Instructor, Physics Dept., Indiana University-Purdue University at Indianapolis

1963-1965 Instructor, Physics Dept., San Diego State College (now California State University, San Diego)

1962-1963 Instructor, Science Dept., University of San Diego College for Men, San Diego

1961-1962 Instructor, Physics and Chemistry, Don Bosco Technical High School, South San Gabriel, California

1953-1954 Physicist-Acoustic Homing Specialist, U. S. Naval Ordnance Test Station, Pasadena, California

1951-1953 Corporal, U. S. Army, Army Field Forces Board #4, Fort Bliss, Texas

MEMBERSHIP IN SCIENTIFIC SOCIETIES

American Physical Society; Biophysical Society; Sigma Xi, The Scientific Research Society

SELECTED PUBLICATIONS

BOOKS:

Structure and Function in Excitable Cells, D.C. Chang, I. Tasaki, W.A. Adelman Jr. and H. R. Leuchtag, eds., Plenum, New York, 1983.

C. U. M. Smith and H. R. Leuchtag, *Study Guide for Molecular Neurobiology*, John Wiley, 1997.

H. Richard Leuchtag, *Voltage-Sensitive Ion Channels: Biophysics of Molecular Excitability*, Springer, Dordrecht, The Netherlands, 2008. For reviews see

<http://www.springer.com/physics/biophysics/book/978-1-4020-5524-9?detailsPage=reviews>

BOOK CHAPTERS:

- H. R. Leuchtag and H. M. Fishman, The nonlinear kinetics of an electrodiffusion membrane, in *Structure and Function in Excitable Cells*, D. C. Chang, I. Tasaki, W. A. Adelman Jr. and H. R. Leuchtag, editors, Plenum, New York, 1983.
- H. M. Fishman and H. R. Leuchtag, Electrical noise in physics and biology, in *Electrical Noise in Epithelial Tissues*, S. I. Helman and W. Van Driessche, eds., 3-35, Academic, Orlando, 1990.
- H. M. Fishman and H. R. Leuchtag, Determination of potassium- and sodium-channel relaxation times in squid nerve fibers from membrane admittance analysis, in *Biomembrane Electrochemistry, ACS Advances in Chemistry 235*, M. Blank and I. Vodyanoy, editors, 1994.

PATENT:

- H. Richard Leuchtag, U.S. Patent #4,320,028, Nuclear Waste Disposal System, 1982-1999.

ARTICLES:

- H. R. Leuchtag and J. C. Swihart, Steady-state electrodiffusion: Scaling, exact solution for ions of one charge, and the phase plane, *Biophys. J.* 17:24-46 (1977).
http://www.ncbi.nlm.nih.gov/pubmed/831855?itool=EntrezSystem2.PEntrez.Pubmed.Pubmed_ResultsPanel.Pubmed_RVDocSum&ordinalpos=9
- H. R. Leuchtag, A family of differential equations arising from multi-ion electrodiffusion, *J. Math. Physics*, 22:1317-1321 (1981).
- H. M. Fishman, H. R. Leuchtag and L. E. Moore, Fluctuation and linear analysis of Na-current kinetics in squid axon, *Biophys. J.* 43:293-307 (1983).
http://www.ncbi.nlm.nih.gov/pubmed/6626670?itool=EntrezSystem2.PEntrez.Pubmed.Pubmed_ResultsPanel.Pubmed_RVDocSum&ordinalpos=7
- H. M. Fishman, H. R. Leuchtag and D. Poussart, Nonlinear single-channel conductance in squid axon, *Biophys. J.* 45:46-49 (1984).
http://www.ncbi.nlm.nih.gov/pubmed/19431559?itool=EntrezSystem2.PEntrez.Pubmed.Pubmed_ResultsPanel.Pubmed_RVDocSum&ordinalpos=1
- H. R. Leuchtag, Indications of the existence of ferroelectric units in excitable-membrane channels, *J. Theor. Biol.* 127:321-340 (1987).
http://www.ncbi.nlm.nih.gov/pubmed/2448549?itool=EntrezSystem2.PEntrez.Pubmed.Pubmed_ResultsPanel.Pubmed_RVDocSum&ordinalpos=5
- H. R. Leuchtag, Phase transitions and ion currents in a model ferroelectric channel unit, *J. Theor. Biol.* 127:341-359 (1987).
http://www.ncbi.nlm.nih.gov/pubmed/2448550?itool=EntrezSystem2.PEntrez.Pubmed.Pubmed_ResultsPanel.Pubmed_RVDocSum&ordinalpos=4
- H. R. Leuchtag, A proposed physical mechanism for activation of sodium channels, *Ferroelectrics* 86:105-113 (1988).
http://www.informaworld.com/smpp/content~db=all~content=a752290291?words=leuchtag&has_h=80945490
- H. R. Leuchtag, Does the Na channel conduct ions through a water-filled pore or a condensed-state pathway?, *Biophys. J.* 62:22-24 (1992).
http://www.ncbi.nlm.nih.gov/pubmed/1318101?itool=EntrezSystem2.PEntrez.Pubmed.Pubmed_ResultsPanel.Pubmed_RVDocSum&ordinalpos=3
- H. R. Leuchtag, Long-range interactions, voltage sensitivity, and ion conduction in S4 segments of excitable channels, *Biophys. J.* 66:217-224 (1994).
[http://www.ncbi.nlm.nih.gov/pubmed/7510528?itool=EntrezSystem2.PEntrez.Pubmed.Pubmed_ResultsPanel.Pubmed_RVDocSum&ordinalpos=2&log\\$=free](http://www.ncbi.nlm.nih.gov/pubmed/7510528?itool=EntrezSystem2.PEntrez.Pubmed.Pubmed_ResultsPanel.Pubmed_RVDocSum&ordinalpos=2&log$=free)
- V. S. Bystrov and H. R. Leuchtag, Bioferroelectricity: Modeling the transitions of the sodium

- channel, *Ferroelectrics* 155(1-4):19-24 (1994).
<http://www.informaworld.com/smpp/content~db=all~content=a762387872?words=leuchtag&has h=80945490>
- H. R. Leuchtag, Fit of the dielectric anomaly of squid axon membrane near heat-block temperature to the ferroelectric Curie-Weiss law, *Biophys. Chem.* 53:197-205 (1995).
http://www.ncbi.nlm.nih.gov/pubmed/17020847?itool=EntrezSystem2.PEntrez.Pubmed.Pubmed_ResultsPanel.Pubmed_RVDocSum&ordinalpos=1
- V. S. Bystrov and H. R. Leuchtag, Phase transitions in the ferroelectric-active model of ion channels of biomembranes, *Ferroelectrics* 186:305-307 (1996).
<http://www.informaworld.com/smpp/content~db=all~content=a752080103?words=leuchtag&has h=80945490>
- H. R. Leuchtag and V. S. Bystrov, Theoretical models of conformational transitions and ion conduction in voltage-dependent ion channels: Bioferroelectricity and superionic conduction, *Ferroelectrics* 220:157-204 (1999).
<http://www.informaworld.com/smpp/content~db=all~content=a759103662?words=leuchtag&has h=80945490>
- H. R. Leuchtag, Bioferroelectricity in models of voltage-dependent ion channels, *Ferroelectrics* 236:23-33 (2000).
<http://www.informaworld.com/smpp/content~db=all~content=a752153740?words=leuchtag&has h=80945490>
- O. Helluin, M. Beyermann, H. R. Leuchtag and H. Duclohier, A critical role for the branched sidechain adjacent to the third arginine of the sodium channel voltage sensor, *IEEE Transactions on Dielectrics and Electrical Insulation* 8:637-643 (2001).
<http://ieeexplore.ieee.org/Xplore/login.jsp?url=http%3A%2F%2Fieeexplore.ieee.org%2Fstamp%2Fstamp.jsp%3Ftp%3D%26arnumber%3D946716%26isnumber%3D20492&authDecision=-203>