

Robert C. Stewart, M.B.L., Ph.D.

Associate Professor of Chemistry
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PROFESSIONAL SUMMARY

Chemical Research Scientist, Consultant, and Educator with R&D, consulting and university teaching experience. Published over 20 research papers and one U.S. patent.

EDUCATION

M.B.L.	Oral Roberts University	School of Missions (<i>magna cum laude</i>) 2006
Ph.D.	Johns Hopkins University	Physical-Inorganic Chemistry 1976
B.Sc.	Eastern Nazarene College	Chemistry-Physics (<i>cum laude</i>) 1971

EXPERIENCE

Oral Roberts University, Tulsa, Oklahoma, 1976-1981, 1996-present.

Chemistry Department Chair and Tenured Associate Professor of Chemistry.

- Professor of biochemistry, analytical, organic and chemical research.
- Department Chair, 1998 – 2009

City of Tulsa Department of Public Works, Tulsa, Oklahoma, 2005-2010.

Chemical Consultant.

- Conducted a comprehensive literature, pilot plant and laboratory study of chlorine disinfection byproducts.
- Investigated the Hach colorimetric method for total trihalomethane content in treated waters.
- Mentored student interns for corrosion and disinfection chemical studies.

AWARDS/HONORS

- Earned cash award for outstanding achievement in developing an improved surfactant for sulfur removal as a member of an analytical/engineering team.
- Cash award for an improved high pressure reactor design to study gas hydrate kinetics.
- Recognized for outstanding performance in implementing continuous improvement and customer focus initiatives.
- 2008 Outstanding Chemistry Faculty Member.

PROFESSIONAL MEMBERSHIP

Member Tulsa Chapter of the American Chemical Society.
Member American Water Works Association.

COMMUNITY/UNIVERSITY SERVICE

- ORU Safety Committee member, 2005-present.
- ORU Faculty Development member, 2000-present.
- ORU Curriculum Committee, 2005-present.
- Science fair judge for local and regional high school competitions.
- Coordinator for American Chemical Society Chemistry Olympiad Competition.
- Associate Pastor, Korean Fellowship of the Central Assembly of God, Tulsa, 2002-2007.
- Curriculum Designer for Dominion Farms Consortium to develop clean water in underdeveloped countries, 2008-2009
- Bible Fellowship Leader, Victory Christian Center, 1984-1997.
- Sunday School Bus Driver, Victory Christian Center. 1997-2002.

PUBLICATIONS

1. "Is Organic Free Water Necessary for Routine Water Analysis?" by R. C. Stewart and Tyler Gipson, AWWA, 2009.
2. "Determination of the Efficacy of Pretreating Raw Water at the A.B. Jewell Treatment Plant with a Combination of Chlorine Dioxide and Chlorine for the Purpose of Decreasing Total Trihalomethane Formation Potentials." by R.C. Stewart, and Tyler Gipson, Project Final Report to the Tulsa Metropolitan Utility Authority of the State of Oklahoma, January 19, 2009.
3. "3D Autocorrelation for the Determination of Large Pore Sizes", by A. J. Lucas, J. A. Derbyshire, N. Dillon, M. Peyron, G. K. Pierens, L. D. Hall, D. W. Philps and R. C. Stewart, *J. Magnetic Resonance Imaging*, 1995.

4. "Quantitative Slice-Selection Measurements: Petrophysical Applications", by G. K. Pierens, M. Peyron, A. J. Lucas, T. A. Carpenter, L. D. Hall and R. C. Stewart, *J. Magnetic Resonance*, 1994.
5. "The Modified Stretched Exponential Model for Characterization of NMR Relaxation in Porous Media", by M. Peyron, G. K. Pierens, A. J. Lucas, L. D. Hall, and R. C. Stewart, *J. Magnetic Resonance*, 1995.
6. "Porosity Profiles by Physical Slice Selection Methods", by A. J. Lucas, L. D. Hall, and R. C. Stewart and D. W. Phelps, *The Log Analyst*, 1995.
7. "Quantitative Porosity Mapping of Reservoir Rock Cores by Physically Slice Selected NMR", by A. J. Lucas, G. K. Pierens, M. Peyron, T. A. Carpenter, L. D. Hall, R. C. Stewart, D. W. Phelps, and G. F. Potter, *3rd Society of Core Analysts European Core Analysis Symposium Proceedings, Paris, France, Sept. 14-16, 1992. Advances in Core Evaluation III: Reservoir Management*, 3-24, 1993.
8. "Quantitative Longitudinal Fluid Saturation Profiles with a Slice-Selected CPMG Experiment," by G. K. Pierens, M. Peyron, A. J. Lucas, T. A. Carpenter, L. D. Hall, G. F. Potter, R. C. Stewart, and D. W. Phelps, *J. Magnetic Resonance*, 1993.
9. "A Rigorous Evaluation of the Experimental Requirements for Performing Quantitative Porosity Measurements by NMR", A. J. Lucas, M. Peyron, G. K. Pierens, T. A. Carpenter, L. D. Hall, R. C. Stewart, G. F. Potter, and D. W. Phelps, *SPE Unsolicited Paper No. SPE-27420*, Dec. 1993.
10. "Strategies for Overcoming Linewidth Limitations in Quantitative Petrophysical NMR Measurements", by M. Peyron, G. K. Pierens, A. J. Lucas, L. D. Hall, G. F. Potter, R. C. Stewart and D. W. Phelps, *paper presented at the 2nd International Meeting: Recent Advances in MR Applications to Porous Media*, University of Kent at Canterbury, UK, April 14-16, 1993.
11. "Pore Geometry Information via NMR Pulsed Field Gradient Experiments", by A. J. Lucas, S. J. Gibbs, M. Peyron, G. K. Pierens, L. D. Hall, R. C. Stewart and D. W. Phelps, *poster presented at the 2nd International Meeting: Recent Advances In MR Applications to Porous Media*, University of Kent at Canterbury, UK, April 14-16, 1993.
12. "Analytical NMR and HPLC Characterization of Narrow Boiling Distillates of the C7+ Fraction of Two Reservoir Oils", R. C. Stewart, D. W. Phelps, J. R. Ball, D. L. Crosby, and J. D. Parli, *Advances in Thermodynamics Volume 1: C7+ Fraction Characterization*, edited by L. G. Chorn and G. A. Mansoori, Taylor and Francis publishers, New York, Chapter 5, 57-78, 1989.

13. "Composition and Method for Removing Hydrogen Sulfide from Gas Streams", by R. C. Stewart, US Patent, 5,026,503, claim: June 25, 1991, file: July 21, 1989.
14. "Composition and Method for Removing Hydrogen Sulfide from Gas Streams", by R. C. Stewart, Canadian Patent, 2,003,010, claim: January 21, 1991, file: November 15, 1989.
15. "Nuclear Magnetic Resonance, Mass Spectroscopic, and Chromatographic Characterization of Narrow Boiling Distillates from a San Andres Formations Crude Oil and a Light Tensleep Oil", *paper presented at the 1988 AIChE Spring National Meeting, New Orleans, LA, March 6-10, 1988, session on C7+ Fraction Characterization*, 1988.
16. "An R&D Program for Underground Coal Gasification in Bituminous Coals", W. M. James, M. M. Siegel, R. C. Stewart and R. Mungen, *8th US Department of Energy Underground Coal Conversion Symposium, Keystone, Colorado, August, 15-19, 1982, Proceedings*, 429-488, 1982.
17. "An Assessment of Underground Coal Gasification in Bituminous Coals", M. M. Siegel, R. Z. M. Mason, W. M. James, R. C. Stewart and W. Ives, *8th US Department of Energy Underground Coal Conversion Symposium, Keystone, Colorado, August, 15-19, 1982, Proceedings*, 245-260, 1982.
18. "Pyrene: Vapor pressure, enthalpy of combustion, and chemical thermodynamic properties", by N. K. Smith, R. C. Stewart, A. G. Osborn, and D. W. Scott, *J. Chemical Thermodynamics*, no. 10, vol.12, 919-926 (1980).
19. "Nucleoside Complexing. A Raman and ^{13}C NMR Spectroscopic Study of the Binding of Hard and Soft Metal Species", by L. G. Marzilli, B. de Castro, J. P. Caradonna, R. C. Stewart, and C. P. Van Vuuren, *J. Amer. Chem. Soc.*, no. 3, vol. 102, 916-24 (1980).
20. "Metal Ion Binding to Cytidine in Solution. Compelling Raman and Carbon-13 Nuclear Magnetic Resonance Spectral Evidence for Coordination to the Exocyclic Oxygen at Position 2", by L. G. Marzilli, R. C. Stewart, C. P. Van Vuuren, B. de Castro, and J. P. Cardonna, *J. Amer. Chem. Soc.*, no. 12, vol. 100, 3967-8 (1978).
21. "A Mechanistic Investigation of Cobaloxime Complexes Containing Good Trans Labilizing Ligands, Including Spectroscopic and Rate Comparisons", by R. C. Stewart and L. G. Marzilli, *J. Amer. Chem. Soc.*, no. 3, vol. 100, 817-22 (1978).
22. "Tris-(3-nitroso-2,4-pentanedionato)cobalt(III): strong evidence for a facial geometry analogous to feroverdin", by L. A. Epps, K. Wiener, R. C. Stewart, L. G. Marzilli, *Inorg. Chem.*, no. 10, vol. 16, 2663-4 (1977).
23. "Correlation of Ligand Trans Effects on Substitution Reactions and NMR Spectra in Cobaloximes," by R. C. Stewart and L. G. Marzilli, *J. Amer. Chem. Soc.*, (1977).

24. "Carbon-13 NMR Studies on Cobaloximes," by R. C. Stewart and L. G. Marzilli, *Inorg. Chem.*, no. 2, vol. 16, 424-7 (1977).
25. "Isomerization About a Dioxo Bridge, Spectroscopic and Chemical Studies on Oxo-Osmium (VI) Esters," by L. G. Marzilli, B. E. Hanson, T. J. Kistenmacher, L. A. Epps, and R. C. Stewart, *Inorg. Chem.*, no. 7, vol. 15, 1661-5 (1976).
26. "Spectroscopic Substituent Constants for Ligands," by L. G. Marzilli, P. Politzer, W. C. Trogler, and R. C. Stewart, *Inorg. Chem.*, no. vol. 14, 2389-93 (1975).
27. "The Trans Effect of the Good Sigma Donor Ligands: Dimethyl phosphate, methyl phenyl phosphonate, and diphenylphosphinate. Evidence for Complete Bond Breaking in the Transition State of SN1(lim) Reactions of Dimethylphosphonatocobaloxime and Methylcobaloxime Complexes," by W. C. Trogler, R. C. Stewart, L. G. Marzilli, *J. Amer. Chem. Soc.*, no. 11, vol. 96, 3697-9 (1974).
28. "Cis and Trans Effects on the Proton Magnetic Resonance Spectra of Cobaloximes," by W. C. Trogler, R. C. Stewart, L. A. Epps, and L. G. Marzilli, *Inorg. Chem.*, no. 7, vol. 13, 1564-70 (1974).
29. "Influence of Trans Ligands on the Bonding Mode of Thiocyanate in Cobalt (III) Complexes. Evidence for Adjacent and Remote Attack During Electron-Transfer Reactions," by L. G. Marzilli, R. C. Stewart, L. A. Epps, and J. B. Allen, *J. Amer. Chem. Soc.*, no. 17, vol. 95, 5796-8 (1973).