

Curriculum Vitae

Dr. Robert Milofsky
Professor of Chemistry,
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EDUCATION:

University of Colorado, Boulder, CO Ph.D., May 1991
Thesis Research: Kinetics, Mechanism and Application of
Photoinitiated Peroxyoxalate Chemiluminescence

Bates College, Lewiston, ME B.S., Chemistry, May 1987

EMPLOYMENT:

Professor, Department of Chemistry, Fort Lewis College, Durango, CO, April 2004 – present

Professor and Chair, Department of Chemistry, Fort Lewis College, Durango, CO, April 2003 – April 2004

Associate Professor and Chair, Department of Chemistry, Fort Lewis College, Durango, CO, April 2001 - present

Associate Professor: Department of Chemistry, Fort Lewis College, Durango, CO, May 1996 - 2001.

Dr. Les Sommerville, Chair

Assistant Professor: Department of Chemistry, Fort Lewis College, Durango, CO, August 1992 - April 1996.

Postdoctoral Fellowship: Ames Lab., Ames, IA, July 1991 - July 1992.
Directed by Professor Ed Yeung.

Research Assistant: University of Colorado, Boulder, CO, summer 1988, 1990
Directed by Professor John Birks.

Teaching Assistant: University of Colorado, Boulder, CO, 1987-1991.

Lab Assistant: Bates College, Lewiston, ME, August 1986-May 1987.

Research Assistant: W.R. Grace Chemical Co., Construction Products Division, Cambridge, MA, summer 1986.

Research Assistant: Brigham & Women's Hospital, Boston, MA, summer 1984 and 1985.

PUBLICATIONS:

Milofsky, Robert, **Hurley, Miller, Kenny Miller, Heston, Scott, Hasling, Nicole, Naughton, Elise**, Stevens, Bruce “A Simple, Cost-Effective Synthesis of Industrially Important Long Chain Primary Alcohols”, *Synn Lett.*, **submitted December 2010**.

Hasling, Nicole, Milofsky, Robert, **Naughton, Elise, Hurley, James**, Stevens, Bruce “Synthesis of High-Molecular weight primary alcohols”, U.S. Patent (US 12/912,136) submitted **10/2010**.

Hasling, Nicole, Naughton, Elise, Milofsky, R.E., Stevens, Bruce “Synthesis of high molecular weight primary alcohols”, Provisional Patent, October, **2009**

Milofsky, R.E. “Additive to inhibit separation of oils such as fragrances and dyes in paraffin waxes including those used for mottled candles.” Provisional Patent, October **2005**

Martin, L.A., Byrd, S.K. and Milofsky, R.E. “Effects of Tobacco Processing on the Quantity of Benzo[a]pyrene in Mainstream Smoke”, *Journal of Toxicology and Environmental Health Part A*, 66, **2003**, 1283-1286.

Carr, A.; Dickson, J.; Milofsky, R. “Post-column Ultra-fast Co-catalyzed Peroxyoxalate Chemiluminescence Detection in Capillary Electrophoresis and Capillary Electrochromatography”, *Chromatographia*, 55, **2002**, 687-692.

Kuyper, C.; Milofsky, R.E. “Recent Developments in Chemiluminescence and Photochemical Reaction Detection for Capillary Electrophoresis”, *TrAC*, 20, **2001**, 232-240.

Kuyper, C.; Denham, K.; Murray, J.; Milofsky, R. “Chemiluminescence Detection in Capillary Electrophoresis using an Ultra-fast Co-catalyzed Peroxyoxalate Chemiluminescence Reaction and Electrokinetic Reagent Delivery”, *Chromatographia*, 53, **2000**, 173-178.

Dickson, J.; **Odom, M.; Ducheneaux, F.; Murray, J.**; Milofsky, R.E. “Coupling Photochemical Reaction Detection Based on Singlet Oxygen Sensitization to Capillary Electrochromatography”, *Anal. Chem.* 72, **2000**, 3038-3042.

Milofsky, R.E.; **Ward, J.**; **Shaw, H.N.**; Klundt, I. "Post-column Photochemical Reaction Detection in HPLC Based on Photosensitized Generation of Singlet Molecular Oxygen; Study of Reaction Parameters and application to the determination of polychlorinated biphenyls" *Chromatogr. 51*, **2000**, 205-211.

Milofsky, R.E.; **Denham, K.** "Photooxidation of 3-Substituted Pyrroles: A Post-column Reaction Detection System for Singlet Molecular Oxygen in HPLC", *Anal. Chem. 70*, **1998**, 4081-4085.

Kennedy, B.J.; Milofsky, R.; Carron, K.C. "Development of a Cascade Flow Cell for Dynamic Aqueous Phase Detection Using Modified SERS Substrates", *Anal. Chem. 69*, **1997**, 4708-4715.

Milofsky, R.E.; **Bauer, E.** "Capillary Electrophoresis with Post-Column Addition of Terbium and Sensitized Lanthanide-ion Luminescence Detection for the Determination of Diflunisal and Salicylic acid", *J. High Resolut. Chrom.*, **20**, **1997**, 638-642.

Milofsky, R.E.; **Dickson, J.**, **Ferris, M.** "Tris(2,2'-bipyridyl)ruthenium(III) as a Chemiluminescent Reagent for Detection in Capillary Electrophoresis", *J. High Resolut. Chrom.*, **20** **1997** 643-646

Milofsky, R.E.; **Spaeth, S.** "Determination of Orotic Acid in Aqueous Solutions by Micellar Electrokinetic Capillary Chromatography Using Sensitized Lanthanide-Ion Luminescence Detection", *Chromatogr.*, **1996**, **42**, 12-16.

Milofsky, R.E., **Malberg, M.G.**; **Smith, J.M.** "Determination of Steroids by Micellar Electrokinetic Chromatography with Sensitized Room Temperature Lanthanide Ion Luminescence Detection", *J. High Resolut. Chrom.*, **1994**, **17**, 731.

Milofsky, R.E.; Yeung, E.S. "Native Fluorescence Detection of Nucleic Acids and DNA Restriction Fragments in Capillary Electrophoresis", *Anal. Chem.*, **1993**, **65**, 153-157.

Milofsky, R.E.; Birks, J.W. "Laser Photolysis Study of the Kinetics and Mechanism of Photoinitiated Peroxyoxalate Chemiluminescence", *JACS*, **1991**, **113**, 9715-9723.

Nondek, L., Milofsky, R.E.; Birks, J.W. "Determination of Carbonyl Compounds in Air by HPLC using On-Line Analyzed Microcartridges, Fluorescence and Chemiluminescence Detection", *Chromatogr.*, **1991**, **32**, 33.

Milofsky, R.E.; Birks, J.W. "Photoinitiation of Peroxyoxalate Chemiluminescence: Application to Flow Injection Analysis of Chemilumophores", *Anal. Chem.*, **1990**, **62**, 1050-1054.

TALKS:

Hasling, N.E., Naughton, Elise and Milofsky, R.E. Synthesis of high molecular weight primary alcohols", 237th ACS National Meeting, March 22nd, 2009, abstract no. ChEd 901

Neff, D.L., Tyler, Christina, and Milofsky R.E. "Stop-flow Kinetics Study and Flow Injection Analysis using the Dichlorimidazole Catalyzed Chemiluminescence Reaction", 229th ACS National Meeting, March 14th, 2005, abstract no. ChEd. 360.

Milofsky, R. "Chemiluminescence and Photochemical Reaction Detection for Capillary Electrophoresis and Capillary Electrochromatography", Sandia National Laboratory, March 2004

(award address) Milofsky, R. "Ultra-fast Peroxyoxalate Chemiluminescence and Photochemical Reaction Detection for Capillary Electrophoresis and Capillary Electrochromatography", September 2003

(invited talk) – Milofsky, R. "Second-generation chemiluminescence and photochemical reaction detection: Coupling sensitive, selective, and efficient detection schemes to nanoscale separations", 225th ACS National Meeting, March 25th, 2003, abstract no. Envr. 111

Metcalf, D. and Milofsky, R. "Coupling fluorescence probes for singlet molecular oxygen with nanoscale separations" 225th ACS National Meeting, March 25th, 2003, abstract no. ChEd 194

Lorenz, B. and Milofsky, R. "Recent developments in the optimization of ultrafast cocatalyzed peroxyoxalate chemiluminescence detection in capillary separations" 225th ACS National Meeting, March 25th, 2003, abstract no. ChEd 254

Carr, A., and Milofsky, R. "Postcolumn ultrafast co-catalyzed peroxyoxalate chemiluminescence detection in capillary electrophoresis and capillary electrochromatography", 223rd ACS National Meeting, April 7th, 2002, abstract no. Anyl. 112.

(invited talk) Milofsky, R.E. "Can a research-based laboratory serve the needs of students in instrumental analysis", presented at the 221st ACS National Meeting, San Diego, April 3rd, 2001 abstract no. ChED 949.

Kuyper, C., Denham, K., Dickson, J. Murray, J. and Milofsky, R. "Chemiluminescence Detection in Capillary Electrophoresis using an Ultra-fast Co-catalyzed peroxyoxalate chemiluminescent Reaction and Electrokinetic Reagent Delivery", 221st ACS National Meeting, April 1st, 2001, abstract no. Anyl. 29.

Adams, C., Mandernack, K., Mills, C. and Milofsky R. “Kinetic and Optimal Moisture Studies of Methanotroph-Enriched Whole Soil Samples Overlaying Coal Bed Methane Seeps”, 221st ACS National Meeting, April 1st, 2001, abstract no. Anyl. 92

Ducheneaux, F. and Milofsky, R. “Post column liquid- and solid-phase addition to a RP-HPLC photochemical reaction-detection scheme for the determination of substituted aromatic compounds”, 219th ACS National Meeting, March 28th, 2000, abstract no. Anyl. 162.

Murray, J. and Milofsky, R. “Submicromolar detection of substituted aromatics in capillary electrochromatography”, 219th ACS National Meeting, March 28th, 2000, abstract no. Anyl. 165.

Arkin, D., Bartlett, T. and Milofsky, R. “Synthesis of N-substituted *t*-butyl 2-carboxy-3-hydroxy- and 3-methoxy-*N*-diphenylpyrroles” 219th ACS National Meeting, March 28th, 2000, abstract no. CHED. 405.

Milofsky, R. “Getting on Track for a Job at a PUI” CU Boulder, March 20, 2000

(invited talk honoring Tom Wenzel) Milofsky, R.E. “Balancing student needs and progress in the lab: Key elements of successful research programs for undergraduates”, 218th ACS National Meeting, New Orleans, August 22, 1999

Kjellberg, C. and Milofsky, R.E. “Determination of Quinolinic Acid by HPLC with sensitized lanthanide ion luminescence detection”, 217th ACS National Meeting, March 22, 1999, abstract no. 485

Shaw, H.N. and Milofsky R.E. “Synthesis and photophysical studies of some novel 3-substituted pyrroles”, 217th ACS National Meeting, March 22, 1999, abstract no. 561

Ward, J. and Milofsky, R.E. “Post-column photochemical reaction detection system for the determination of PCBs following separation by RP/HPLC”, 217th ACS National Meeting, March 22, 1999, abstract no. 580

(invited talk) Milofsky, R.E. “Undergraduate Research and the Modern Instrumental Lab”, 216th ACS National meeting, August 24, 1998, abstract no. 13

Denham, K.A. "Photooxidation of 3-substituted pyrroles: A post-column reaction detection scheme for singlet molecular oxygen in HPLC", 215th ACS National Meeting, March 31, 1998, abstract no. 526

Bauer, E. and Milofsky, R. " Capillary electrophoresis with post-column addition of terbium and sensitized lanthanide ion luminescence detection for the determination of

diflunisal and salicylic acid", 215th ACS National Meeting, March 31, 1998, abstract no. 529

(invited talk) Milofsky, R.E. "Luminescence and Photochemical Reaction Detection in HPLC and CE: Research at a PUI" - University of Kansas - February 9, 1998

Ferris, M.M. and Milofsky, R. "Development of an electrogenerated chemiluminescent detector for capillary electrophoresis employing a Nafion joint", 213th ACS National Meeting, April 14, 1997

Greer, B. and Milofsky, R. "Determination of Tetracycline by sensitized europium luminescence in MEKC", 213th ACS National Meeting, April 14, 1997

Milofsky, R. and Halvorson, E. "Detection of Analytes that are Poor Chromophores Based on the Quenching of C₆₀- Sensitized Type II Photooxidation", 211th ACS National Meeting, March 25, 1996

Milofsky, R. and Spaeth, S. "Determination of Orotic Acid in Aqueous Solutions by Capillary Electrophoresis using Sensitized Luminescence Detection", 211th ACS National Meeting, March 25, 1996

Milofsky, R. and Taylor, D. "Kinetics, Mechanism and Analytical Applications of Micelle-Enhanced Photooxidation Reactions", 211th ACS National Meeting, March 25, 1996

Milofsky, R.; Spaeth, S.; Halvorson, E. and Taylor, D. "Luminescence and Photochemical Reaction Detection in Capillary Electrophoresis and HPLC", 37th Rocky Mountain Conference, July 23, 1995.

Milofsky, R. and Malberg, G. "Sensitized Lanthanide Ion Luminescence Detection in Micellar Electrokinetic Chromatography", 209th ACS National Meeting, April 3, 1995.

Milofsky, R.; Jensen, C. and Odom, M. "Photochemical Reaction Detection for Capillary Electrophoresis and HPLC based on Singlet Oxygen Sensitization", 209th ACS National Meeting, April 3, 1995.

Milofsky, R. "Photooxidation Reactions Based on Singlet Oxygen Photochemistry", 36th Rocky Mountain Conference, Aug 1, 1994

Milofsky, R. and Smith, J. "Capillary Electrophoresis with Laser-induced Fluorescence Detection in an Undergraduate Laboratory", 207th ACS National Meeting, March 14, 1994

Milofsky, R. and Hergenreter, E. "Photooxidation Reactions Based on Singlet Oxygen Photochemistry", 207th ACS National Meeting, March 14, 1994

Milofsky, R. "Analytical Applications and Evaluation of Aryl Oxalate Esters using the Photoinitiated Peroxyoxalate Chemiluminescence Reaction", 42nd Pittsburgh Conference, March 5, 1991.

Milofsky, R. "Photoinitiation of Peroxyoxalate Chemiluminescence: Application to Flow Injection Analysis of Chemilumophores", 32nd Rocky Mountain Conference, July 31, 1990.

Milofsky, R. "Photoinitiation of Peroxyoxalate Chemiluminescence: Application to Flow Injection Analysis of Chemilumophores", 45th Northwest/10th Rocky Mountain Regional Meeting", June 14, 1990.

GRANTS AND AWARDS:

IGI – The International Group “Synthesis of high molecular primary alcohols and carboxylic acids” \$8,000 , summer 2008

S&S Chemical “Synthesis of polyolefins, polyethylenes and high-chain alcohols” \$30,000, 2006-2009

Space Alliance Technology Outreach Program (SATOP) “NMR investigation into the oil binding mechanisms of polyolefins”, \$10,000, Fall 2007

Award for Excellence in undergraduate chemical research, Indiana University, September 2003

Fort Lewis College “Synthesis, kinetics and analytical applications of photooxidation reactions involving fluorescein-based fluorescent probes”, Fall 2003, \$3,000

Featured Scholar Award, Fort Lewis College, October 2001

Jean Dreyfus Boissevain Undergraduate Scholarship \$5,500, Fall 2001

NSF-DTS “Photochemical reaction detection and Ultra-fast co-catalyzed chemiluminescence reaction detection: Developing multi-faceted research projects for the undergraduate chemistry curriculum while enhancing lab experiences for non-science majors”. Submitted May 2001 – **not funded**, \$226,320

ACS-PRF Summer Research Fellowship – Study of biogeochemical parameters that influence methane consumption and N₂O formation in soils, 2000, \$6,500

Henry Dreyfus – Teacher-Scholar – “Type II photooxidation of substituted pyrroles: towards the development of solid- and liquid-phase reactors for environmental and biomedical analysis, 1999-2004, \$60,000

"Study of the kinetics and mechanism of $^1\text{O}_2$ -induced photooxidation of substituted pyrroles in organized media", American Chemical Society - Petroleum Research Fund, B, 1998-00, \$ 25,000

"Spectrophotometric and Chemiluminescence Measurements Using Fiber-optically Coupled Sensors, NSF Colorado Connect, 1997 \$3,000

"Universal Detector for Molecular Recognition Identification in Separation Science" NSF-STTR, 1995-96, \$77,000

"Study of Micellar and Cyclodextrin Enhanced Photochemical Reactions II", Research Corporation, 1995-97, \$25,700

"HPLC With Diode Array Detection: Bioanalytical and Environmental Labs for Biology and Chemistry", NSF-ILI, 1995-97, \$19,500

"Study of Micellar and Cyclodextrin Enhanced Photochemical Reactions", Research Corporation, 1994-95, \$10,000

"Improvement of Undergraduate Biological Science Education: Restoration/Remodeling", Howard Hughes Medical Institute, June 1993, \$500,000

NSF-SBIR – Molecular Recognition Detectors for LC and CE; November 1993, \$35,000

1990 Mobay Corporation Award for outstanding research in the field of Analytical Chemistry.

ACTIVITIES:

- SUIT/CEC (Southern Ute Indian Tribe/Colorado Environmental Commission – appointed by Governor Ritter – State of Colorado – 2010-present
- Consultant, S&S Chemical, 2001 - present
- Consultant, IGI – 2007-2009
- Consultant to Quetzal Biomedical – Fall 2001 – May 2005
- Consultant, Detection Limit Technology, 1996-1999
- Reviewer, Research Corporation, 1999- present
- Reviewer, Petroleum Research Fund, 1999 – present
- Reviewer, Analytical Chemistry, 1993-present
- Reviewer, Journal of Chromatography: B, 2002 – present
- Reviewer, Analytica Chimica Acta - 2004

- Reviewer, Prentice Hall Science Books, 1997 - present
- Member, Sigma Xi Scientific Research Society. April 1991-present.
- Member, American Chemical Society, 1987-present