

Maria del Valle Bohorquez

Associate Professor of Chemistry

Drake University

Des Moines, Iowa 50311

Phone: (515) 271-2595 Fax: (515) 271-1928

maria.bohorquez@drake.edu

BIOGRAPHICAL SUMMARY

Argentinean; Permanent Resident

Education

- Ph.D. in Chemistry, University of Rio Cuarto, Argentina (1985). Thesis Advisor: Carlos M. Previtali, *Dissertation*: "Fluorescence Quenching of Indolic Compounds by Aliphatic Aminoacids"
- Licentiate in Chemistry, University of Rio Cuarto, Argentina (1980)

Employment History

2005- present Director of the Drake Undergraduate Science Collaborative Institute
1998-present Associate Professor, Drake University
1995-1998 Assistant Professor, Drake University
1991-1995 Assistant Professor, Southeastern Louisiana University, Louisiana
1989-1991 Postdoctoral Fellow, Bowling Green State University, Ohio
1985-1989: Postdoctoral Fellow, Radiation Laboratory, University of Notre Dame, IN
1983-1985 Instructor, University of Rio Cuarto, Argentina
1980-1983 Teaching Assistant, University of Rio Cuarto, Argentina

Honors and Awards

- Elected Councilor of the Council on Undergraduate Research (2002-2005)
- Nominated for Drake University College of Arts and Sciences Teacher of the Year Award

Professional Organizations

American Chemical Society
Council on Undergraduate Research

Inter-American Photochemistry Society

TEACHING ACTIVITIES

- *General Chemistry*: General Chemistry I and General Chemistry II

- *Physical Chemistry*: Physical Chemistry I, Physical Chemistry II
- *Biophysical Chemistry*: Biophysical Chemistry
- *Senior Seminar*: Senior Seminar

COMMUNITY SERVICE AT DRAKE UNIVERSITY

2005-present	Drake University's liaison to Council on Undergraduate research
2002-present	Faculty advisor to chemistry club
2003	Member, Committee charged with the writing of proposal to the Howard Hughes
2004-2005	Promotion and tenure Committee
2004-2007	Institutional Review Board Committee (Faculty Senate committee)
2003-2005	University Curriculum Committee (Faculty Senate committee)
2003-2004	Arts and Sciences Council, and Curriculum Committee, Chair, Drake University
2002-2003	Arts and Sciences Council, and Curriculum Committee, Chair, Drake University
2001-2002	Arts and Sciences Council, Drake University
1998-1999	Pre-Medical Advisory Committee, Drake University
1998-1999	BSC Committee, Drake University

INVITED SEMINARS AND GRADUATE COURSES

"Effects of Molecular Organization on Photophysical Behavior", University of Alabama, Mobil, March 1993

"Langmuir-Blodgett Films : Principles and Applications I", Universidad Nacional de Rio Cuarto, Argentina, December 1993 (Graduate course)

"Photoconductivity of Caretonoid Derivatives in Langmuir-Blodgett Films", Louisiana State University, Baton Rouge, March 1994

"Principles of Photochemistry", Universidad Nacional de Río Cuarto, Argentina, June - July 1996.(Graduate course)

"Fluorescence Probe Investigations of the Micellization of Pluronic F127", University of Missouri-Columbia, Columbia, September 1998

"Langmuir-Blodgett Films : Principles and Applications II", Universidad Nacional de Rio Cuarto, Argentina, August 2000 (Graduate course)

Principles of Photochemistry", Universidad Nacional de Río Cuarto, Argentina, October 2001.(Graduate course)

PUBLICATIONS

Bohorquez, M. J. Cosa, N. Garcia and C. Previtali. "Fluorescence quenching of indolic compounds by aliphatic aminoacids. Evidence for excited state complexes." *Photochem. Photobiol.*, **40**:201-205, 1984

Bertolotti, S. G., M. Bohorquez, J. Cosa, N. Garcia and C. Previtali. "Micellar effect on the fluorescence quenching of indolic compound by aminoacids." *Photochem. Photobiol.*, **46**:331-335, 1987

Bohorquez, M., D. Brault and L. K. Patterson. "Porphyrin-lipid interactions at the air-water interface in spread monolayers. A fluorescence study." *Photochem. Photobiol.*, **46**:953-957, 1987

Bohorquez, M. and L. K. Patterson. "Effects of molecular organization on photo-physical behavior. Time Resolved Fluorescence of a Pyrene Labeled Phosphatidylcholine in Spread Monolayers of Dioleoylphosphatidylcholine." *J. Phys. Chem* , **92**:1835 -1839, 1988

Bohorquez, M. and L. K. Patterson. "Effects of molecular organization on photo-physical and photochemical behavior: Quenching by subphase iodide of fluorescence in pyrene bearing probes at the nitrogen-water interface." *Thin Solid Films* , **159**:133 -139, 1988

Gopidas, K. R., M. Bohorquez, and P. V. Kamat. "Photophysical and photochemical aspects of coupled semiconductors. Charge transfer in colloidal CdS-TiO₂ and CdS-AgI Systems." *J. Phys. Chem*, **94**:6435-6440, 1990

Bohorquez, M. and L. K. Patterson. "Effects of molecular organization on photo-physical and photochemical behavior. Interactions of oxygen and pyrene-bearing probes across the air-lipid boundary in spread monolayers." *Langmuir*, **6**:1739-1742, 1990

Morlino, E. A., M. Bohorquez, D. C. Neckers and M. A. J. Rodgers. "Chromophore-assisted peroxy bond breakage: Laser flash spectroscopic studies of a Benzophenone Perester." *J. Am. Chem. Soc.*, **113**:3599-3601, 1991

Rihter, B. D., M. Bohorquez, M. A. J. Rodgers and M. E. Kenney. " Two new sterically hindered phthalocyanine: synthetic and photodynamic aspects." *Photochem. Photobiol.*, **55**, 677-680, 1992

Rihter, B. D., M. D. Bohorquez, M. A. J. Rodgers and M. E. Kenney. " Three New Phtalocyanines with Potential for PDT Studies" *Proceedings of Optical Methods for Tumor Treatment and Detection: Mechanisms and Techniques in Photodynamic Therapy from SPIE-The International Society for Optical Engineering Vol 1645*, 1992

Bohorquez, M. and L. K. Patterson. "Intramolecular Excimer Fluorescence kinetics of 1,2-Di(4-pyrenylbutanoyl)-sn-glycero-3-phosphorylcholine as a probe of molecular organization in spread monolayers at the nitrogen-water interface."
Langmuir, **9**:2097-2101, 1993

L. Sereno, J. J. Silber, L. Otero, M. Bohorquez, A. L. Moore, T. A. Moore, and D. Gust. "Photoelectrochemistry of Langmuir-Blodgett Films of Carotenoid Pigments on ITO Electrodes". *J Phys. Chem*, **100**, 814-821, 1996

Perry, J. W., I.Y. Lee, M. Bohorquez and X. -L. Wu.
"Optical Limiting Materials using Photoinduced Charge Transfer".
Polymer Preprints, **37**, 99-100, 1996.

Wu, X.-L., A. A Heikal, I.-Y. Lee, M. Bohorquez and J. W. Perry
"Photoinduced Intermolecular Charge-Transfer Systems for Optical Limiting".
Mat. Res. Soc. Symp. Proc., **479**, "Materials for Optical Limiting II" 1997

M. Bohorquez, Cody Koch, Troy Trystad, and Nivedita Pandit
"A Study of the Temperature-Dependent Micellization of Pluronic F127"
Journal of Colloid and Interface Science, **216**, 34-40, 1999

M. Bohorquez, Cody Koch, Troy Trystad, and Nivedita Pandit
" Effect of Salts on the Micellization, Clouding and Solubilization Behavior of Pluronic F127 Solutions"
Journal of Colloid and Interface Science, **222**, 213-220, 2000

M.L. Gómez, H.A. Montejano, M. Bohorquez and C.M. Previtali-
"Photopolymerization of acrylamide initiated by the three component system safranin/triethanolamine/diphenyliodonium chloride. The effect of aggregation of the salt."
J. Polym. Sci., A, Polym. Chem. Ed. **42**, 4916-4920, 2004

H. Sillescu, C. Nelson, and Maria Bohorquez
"The Drake University Conference on Undergraduate Research in the Sciences"
American Journal of Undergraduate Research, **3**, v-viii, 2004

BOOKS

"Solutions Manual", Maria Bohorquez, W. H. Freeman and Company, New York, (2005) to accompany "Physical Chemistry for the Life Sciences", P. W. Atkins and J. C. de Paula, W. H. Freeman and Company, New York, (2005)

GRANTS

Faculty Development Grant: Maria del Valle Bohorquez. " Long Range Electron Transfer Reactions in Organized Systems" \$2,000. June 1992-1993

LEQSF Research and Development Program, Maria del Valle Bohorquez. "Long Distance Electron Transfer Reactions: The "Through-Bond" vs "Through-Space" Mechanisms Examined Within Two-Dimensional Lipid Arrays" \$67,631, June 1993-June1996

Louisiana Stimulus for Excellence in Research (LaSER) Human Resource Development Program, Maria del Valle Bohorquez and Russel Schmehl: "Joint Tulane-Southeastern Program in Interfacial Photochemistry" \$60,734 (not funded)

Faculty Development Grant: Maria del Valle Bohorquez. "Fluorescence Studies of Amphiphilic Complexes in Organized Media" \$1,600, June 1994-1995

NASA, Maria del Valle Bohorquez (CoPI), "JOVE Partnership: Joint Venture in Space Research", \$455,707, June 1995-June 1998

NASA, Maria del Valle Bohorquez (CoPI), "JOVE Partnership: Joint Venture in Space Research", \$122,000, September 1995-June 1998

NSF-ILI-IP, Maria del Valle Bohorquez, (PI), Nita Pandit (co-PI), "Establishment of an interdisciplinary Physical Chemistry program", \$24,792 (not funded)

Drake University Faculty Research Grant Program, Maria del Valle Bohorquez, "Characterization of Octadecylviologen-Ruthenium complex Langmuir and Langmuir-Blodgett films", \$2500, May 1998-May 1999

NSF-ILI-IP, Maria del Valle Bohorquez, (PI), Nita Pandit (co-PI), "Integration of Fluorescence Spectroscopy into the Physical Chemistry Curriculum", \$21,952 (not funded)

NSF-CCLI, Maria del Valle Bohorquez (PI), Nita Pandit (co-PI), Mark Vitha (co-PI), L. Henderson (co-PI), "Interdisciplinary Incorporation of Fluorescence Spectroscopy into the Upper level Undergraduate Laboratories", \$79,221, July 2003-2005

Research Site for Educators in Chemistry (RSEC), Maria Bohorquez, "Molecular Dynamics Calculations of Langmuir Monolayers", \$14,227 July 2003-September 2004

Howard Hughes Medical Institute, Jerry Honts, Maria Bohorquez, "Rejuvenating Undergraduate Education at Drake University", \$1,572,398 (not funded)