

**Brian K. Niece, Ph.D.**

**Address:**

Department of Natural Sciences  
Assumption College  
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**EDUCATION**

**University of Illinois at Urbana-Champaign, Urbana, IL**  
Ph. D. Inorganic Chemistry, October 1997  
GPA 3.8/4.0  
*Thesis:* Surface Coverage and Structure of Catalytic Monolayers on Au(111) Electrodes  
*Thesis Advisor:* Andrew A. Gewirth

**Georgia Institute of Technology, Atlanta, GA**  
B.S. Chemistry, June 1992 (with highest honor)  
GPA 3.9/4.0

**EXPERIENCE**

**Assumption College, Worcester, MA**  
Professor of Chemistry (2013-present)  
Associate Professor of Chemistry (2006-2013)  
Assistant Professor of Chemistry (1997-2006) Teach lecture and laboratory courses in general, analytical, and inorganic chemistry. Recent research interests include removal of pharmaceutical compounds in a municipal wastewater treatment plant and development of novel methods for teaching chemistry with a particular emphasis on instrumental demonstrations and laboratory exercises.

**University of Illinois at Urbana-Champaign, Urbana, IL**  
Research Assistant (1993-1997) Studied catalytically active modified electrode surfaces with voltammetry, coulometry, and quartz crystal microbalance to correlate electrode structure with reactivity. Studied inorganic self-assembled monolayers by voltammetry to elucidate the nature of the substrate-adsorbate interaction.

Teaching Assistant (1992-1993, 1995-1997) Taught undergraduate discussion sections in general chemistry and laboratory sections in instrumental analysis. Served as general chemistry tutor in the Chemistry Learning Center. Served as head T.A. for general chemistry discussion sections.

**Georgia Institute of Technology, Atlanta, GA**  
Undergraduate Research Assistant (1990-1992) Synthesized metal-organic CVD precursors for  $\text{YBa}_2\text{Cu}_3\text{O}_x$  superconductor research. Synthesized and characterized cyclam derivative macrocycles and complexes.

**COLLEGE SERVICE**

General Chemistry Search Committee, Chair (2013)  
Physics Search Committee (2013)  
Honors Council (2005-2011)  
Faculty Senate Representative (2003-2004, 2010-11)  
Innovative Teaching with Instructional Technologies Mini-Grant Committee (2011)  
Physical Chemistry Search Committee (1999-2000, 2007-2008)  
Merit Awards Committee (2006-2008)  
Organic Chemistry Search Committee (2006-2007)  
Honors Program Implementation Task Force (Summer, 2005)  
Technology Strategic Planning Task Force, Convener (2003)  
Student Handbook Policies and Procedures Review Committee (2002-2003)  
Worcester Pipeline Collaborative Representative (2001-2002)  
Evaluation Committee (2001-2003)

Student Government Association Faculty Liaison (Fall, 2001)  
 Writing Emphasis Committee (2000-2002)  
 Environmental Chemistry Search Committee, Chair (2000-2001)  
 Living Learning Center Faculty Advisor (1998-1999, 2001-2002)  
 Honors Program Committee (1998-1999)

#### **TECHNICAL SKILLS**

Operation and maintenance of instrumentation for chemical analysis, including FTIR, UV/vis, FT-NMR, and atomic absorbance spectroscopy; voltammetry; polarography; HPLC; GC; and GC/MS.  
 Interfacial electrochemical characterization of electrodes and deposition processes using a variety of techniques including Cyclic Voltammetry, Potential-Step Chronocoulometry, and Quartz Crystal Microbalance.  
 Metal single crystal electrode preparation and characterization.  
 Vacuum deposition of metal thin film substrates.  
 Hardware and software design for computerized high speed data acquisition.  
 Atomic Force Microscopy and Scanning Tunneling Microscopy.  
 Computer network installation and administration on DOS, Windows, and UNIX platforms.

#### **OTHER ACTIVITIES**

Parent Volunteer, Armstrong Elementary School, Westborough, MA (2011-present)  
 Science Olympiad Massachusetts Middle School State Director (2003-present)  
 Event Supervisor and Regional Meet Coordinator, Massachusetts Science Olympiad (1998-2002)  
 Workshop Presenter, Science Olympiad Coaches Clinic, Hammond, IN (2001-2002)  
 Science Olympiad National Tournament Event Supervisor (1996, 1999)  
 Secretary/Treasurer, Illinois Science Olympiad (1994-1997)  
 Summer Camp Director, Kirkmont Center, Zanesfield, OH (1989-2002)  
 Summer Camp Counselor, Kirkmont Center, Zanesfield, OH (1988-1995, 1998)  
 University of Illinois Inorganic Chemistry Safety Committee (Member 1993-1997, Chair 1995-1996)  
 Resident Assistant, Georgia Tech (1991-1992)

#### **AWARDS**

Project Kaleidoscope Faculty for the 21st Century, Class of 2001  
 College of Liberal Arts and Sciences Outstanding Teaching Assistant Award (1997)  
 Outstanding Teaching Assistant in Chemical Sciences (1997)  
 U.S. Department of Education Graduate Fellowship (1993-1995)  
 Roger Adams Fellowship (1992-1993)  
 National Merit Scholar (1988-1992)  
 W. M. Spicer Scholarship in Chemistry (1991)  
 P. B. Sherry Memorial Scholarship (1990)  
 Dow Chemical Company Chemistry Award (1989)

#### **PROFESSIONAL SOCIETIES**

American Chemical Society (1993-present)  
 Honor Society of ΦΚΦ (1991-present)

#### **PUBLICATIONS**

“Determination of Mercury in Fish: A Low-Cost Implementation of Cold-Vapor Atomic Absorbance for the Undergraduate Analytical Laboratory,” Niece, B. K.; Hauri, J. F., *J. Chem. Educ.* **2013**, *90*, 487-489.  
 “A Spreadsheet to Facilitate Group Theory Calculations and Display of Character Tables,” Niece, B. K., *J. Chem. Educ.* **2012**, *89*, 1604-1605.  
 “Leaching of Silver from Silver-impregnated Food Storage Containers”, Hauri, J. F.; Niece, B. K. *J. Chem. Educ.* **2011**, *88*, 1407-1409.

- “Showcasing 2D NMR Spectroscopy in an Undergraduate Setting: Implementation of HOMO-2D *J*-Resolved Experiments on Permanent Magnet NMR Systems,” Niece, B.K.; Moyna, G. In *Modern Nuclear Magnetic Resonance in Undergraduate Education*; Rovnyak, D., Stockland, R., Eds.; ACS Symposium Series 969; American Chemical Society: Washington, DC, 2007; pp. 335-349.
- “Simultaneous Display of Spectral Images and Graphs using a Web Camera and Fiber Optic Spectrometer,” Niece, B. K. *J. Chem. Educ.*, **2006**, *83*, 761-764.
- “Animating Graphical Data during Lecture to Simulate Real-Time Data Collection,” Niece, B. K. *J. Chem. Educ.*, **2006**, *83*, 508-509.
- “Who is Responsible for a Fraud: An Exercise Examining Research Misconduct and the Obligations of Authorship through Case Studies,” Niece, B. K. *J. Chem. Educ.*, **2005**, *82*, 1521-1522.
- “Formation of Ordered Multilayers from Polyoxometalates and Silver on Electrode Surfaces,” Kim, J.; Lee, L.; Niece, B. K.; Wang, J. X.; Gewirth, A. A., *J. Phys. Chem. B* **2004**, *108*, 7927-7933.
- “Potential-Step Chronocoulometric and Quartz Crystal Microbalance Investigations of Underpotentially Deposited Tl on Au(111) electrodes,” Niece, B. K.; Gewirth, A. A., *J. Phys. Chem. B* **1998**, *102*, 818-823.
- “STM and AFM Studies of the Electrified Solid/Liquid Interface: Monolayers, Multilayers, and Organic Transformations,” Gewirth, A. A.; Niece, B. K. in *Electrochemical Nanotechnology: In-situ Local Probe Techniques at Electrochemical Interfaces*, Lorenz, W. J.; Plieth, W., Eds., Wiley-VCH: New York, 1998, pp. 113-124.
- “Structure of Monolayers of Silicotungstate Anions on Ag(111) and Au(111) Electrode Surfaces,” Ge, M.; Niece, B. K.; Wall, C. G.; Klemperer, W. G.; Gewirth, A. A., *Materials Research Society Symposia Proceedings* **1997**, *451*, 99-108.
- “Potential-Step Chronocoulometric and Quartz Crystal Microbalance Investigations of Coadsorbed Cd and Sulfate on Au(111) Electrodes,” Niece, B. K.; Gewirth, A. A., *Langmuir* **1997**, *13*, 6302-6309.
- “Electrochemical Applications of in Situ Scanning Probe Microscopy,” Gewirth, A. A.; Niece, B. K., *Chemical Reviews* **1997**, *97*, 1129-1162.
- “Potential-Step Chronocoulometric Investigation of Coadsorbed Bi and Hydroxide on Au(111) Electrodes,” Niece, B. K.; Gewirth, A. A., *Langmuir* **1996**, *12*, 4909-4913.
- Chemical Vapor Deposition of YBa<sub>2</sub>Cu<sub>3</sub>O<sub>x</sub> Thin Films for Wire Applications, Lackey, W. J.; Hanigofsky, J. A.; Hill, D. N.; Carter, W. B.; Barefield, E. K.; Niece, B. K.; Moss, T. S.; Green, A. J.; Hardin, R. D.; Beckloff, B. N.; Emmerich, D. M.; Judson, E. K.; Patrick, R. S.; O'Brien, D. F.; Chung, Y. S.; Polley, T. S.; Hunt, A. H.; Jake, R. A.; and Efferson, K. R., Final Report A-8094 prepared for the Defense Advanced Research Projects Agency, (1992).

## PRESENTATIONS

- “Homonuclear 2D-J Spectroscopy: Demonstrating the Origin of the Second Dimension in 2D Spectra” Niece, B. K., presented at the *NMR Teaching Techniques Across the Undergraduate Curriculum* workshop sponsored by Anasazi Instruments, July 30, 2012, State College, PA.
- “Homonuclear 2D-J Spectroscopy: Demonstrating the Origin of the Second Dimension in 2D Spectra” Niece, B. K., presented at the *NMR Applications Across the Undergraduate Chemistry Curriculum* workshop sponsored by Anasazi Instruments, August 18, 2007, Boston, MA.

- “Removal of Ibuprofen Through a Wastewater Treatment Plant,” Hauri, James F.; Niece, B. K., presented at SETAC North America 26<sup>th</sup> Annual Meeting, November 16, 2005, Baltimore, MD.
- “Underpotential Deposition of Bi From the Ionic Liquid 1-Ethyl-3-methylimidazolium Bromide,” Niece, B. K.; Doe, R. E.; Tai, Y. P., presented at the American Chemical Society 224th National Meeting, August 20, 2002, Boston, MA.
- “Turning Students Into Scientists: Writing as a Development Tool in Analytical Chemistry,” Niece, B. K., presented at the Northeast Regional Meeting of the American Chemical Society, June 20, 2000, University of Connecticut.
- “Scanning Probe Microscope Studies of Metal and Inorganic Monolayers at the Solid/Liquid Interface,” Niece, B. K.; Gewirth, A. A., presented at the Symposium on the Electrochemistry of Surfaces and Interfaces, March 14, 1996, Argonne National Laboratory.
- “Potential-Step Chronocoulometric Investigation of Coadsorbed Bi and Hydroxide on Au(111) Electrodes,” Niece, B. K.; Gewirth, A. A., presented at the American Vacuum Society 42nd National Symposium, October 18, 1995, Minneapolis, MN.
- “Potential-Step Chronocoulometric Investigation of Coadsorbed Bi and Hydroxide on Au(111) Electrodes,” Niece, B. K.; Gewirth, A. A., presented at the 188th Meeting of The Electrochemical Society, October 9, 1995, Chicago, IL.