

Michael J. Felty

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- Education**
- Doctor of Philosophy – Chemistry** 2008
University of Tennessee Concentration in Chemical Physics
Ph.D. dissertation: Adsorption of Propane on the Magnesium Oxide (100) Surface and Synthesis of Anodized Aluminum Oxide. Defended August 5, 2008. Thesis Advisor: Dr. John Z. Larese
- Bachelor of Science – Physics and Chemistry** 2002
Western Kentucky University Double Major with Minor in Mathematics
Undergraduate research in laser induced fluorescence of crown ethers
- Work**
- Professor of Physical Science and Chemistry** 2009 – present
Trinity Valley Community College, Athens, Texas
Provide high quality classroom and laboratory experiences for students at multiple TVCC campuses, as well as classes within the Texas Department of Criminal Justice. Build one-on-one connections with students through registration activities, student advising, tutoring, and mentoring.
- Teach key concepts, while cultivating high-level analytical thinking and problem solving
 - Effectively use technology to enhance learning and build interest in subject
 - Design novel laboratory activities for use in prison classrooms
 - Volunteer time and tutoring services weekly at the Student Success Center
 - Participate in 16 hours of professional development per year
 - Classes taught: Physical Science I, Physical Science II, Introductory Chemistry I
- Adjunct Instructor** 2008 – 2009
ITT Technical Institute, Knoxville, Tennessee
Engaged students through student-centered, multimodal approaches, using lectures, active learning exercises, group activities, demonstrations, and multi-media. Provided tutoring and one-on-one aid at the campus Learning Resource Center. Completed detailed reporting of class statistics via IRIS. Assessed and tracked student-learning outcomes. Participated in curriculum development.
- Instrumental in improving course design and teaching materials
 - Provided personal attention, such as calling to check on absent students
 - Experience presenting to students of all skill levels and backgrounds
 - Proven ability to motivate students and build peer cooperation
 - Classes Taught: Physics, Problem Solving, Research Methods, Statistics
- Post-Doctoral Research Associate** 2008 – 2009
University of Tennessee, Knoxville, and Oak Ridge National Laboratory, Oak Ridge, Tennessee
Surface science of adsorption, with focus on nanoscale metal oxide substrates (MgO, ZnO, SnO₂, Al₂O₃, etc). Investigated molecule-molecule and molecule-substrate interactions. Explored chemical and catalytic effects of molecular confinement in nanoporous media.
- Designed Molecular Dynamics and Monte Carlo simulations using Materials Studio
 - Authored clear, concise, and interesting presentations and publications
 - Edited successful, large-scale scientific grant applications and reports
 - Track record of leadership and service, kept group members motivated and on target
 - Ability to meet deadlines in a high-pressure environment
- Tutor** 2004 – 2009
Tutoring Connection, Knoxville, Tennessee
Aided students with learning core ideas in chemistry, physics, math, and general science at the high school and college levels. Assisted gifted students with independent study.

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Work (Continued)	Graduate Research Assistant 2002 – 2008 <i>University of Tennessee, Knoxville, and Oak Ridge National Laboratory, Oak Ridge, Tennessee</i> Synthesis of nanoparticles and nanoporous materials. Characterization of novel morphologies using X-ray spectroscopy, electroanalytical, and thermal analysis. Computational modeling of adsorption. <ul style="list-style-type: none">• Expertise in adsorption isotherms, TGA, X-ray powder diffraction• Extensive microscopy experience, including AFM, SEM, STEM• Oversaw adherence of group lab to departmental safety protocols• Responsible for troubleshooting and technical upkeep of ~20 group computers
	Graduate Teaching Assistant 2002 – 2008 <i>University of Tennessee, Knoxville, Tennessee</i> Instructed students through lectures, demonstrations, one-on-one aid, and practical laboratory assistance. Performed daily lab set up and break down. Lead weekly discussion sessions. <ul style="list-style-type: none">• Head TA, coordinated activities of seven other TA's• Significantly redesigned and updated laboratory experiments• Exceptional service to department, recruiting committee, ACGS treasurer (\$15k budget)• Classes Assisted: General Chemistry I, General Chemistry II, Physical Chemistry I, Physical Chemistry II
	Laboratory Student Instructor and Teaching Assistant 1998 – 2002 <i>Western Kentucky University, Bowling Green, Kentucky</i> Presented pre-lab lectures and supervised laboratory experiments. Performed lab set-up and break down. Managed chemical stock room operation, ordering, and inventory. Ensured student safety. <ul style="list-style-type: none">• Revitalized local chapters of ACS Student Affiliates and SPS• Organized community outreach events, exhibits, chemistry and physics "magic shows"• Class Taught: Fundamentals of General Chemistry Lab 106• Classes Assisted: College Chemistry I, Physical Chemistry I
Fellowship	Research Experience for Undergraduates 2001 <i>University of Florida, Gainesville, Florida. Principal Investigator: Dr. Philip Brucat</i> Performed extensive literature review of vibrational spectroscopy. Participated in research to determine the potential energy surface of Ni_2^+ .
Skills	Teaching: ~1300 classroom hours; student-centered teaching; effective communication of complex ideas; expert computer skills; proficiency in Blackboard; curriculum development activities; committee service; community outreach; student mentoring; consistently high student evaluations. Synthesis, characterization, and analysis: Synthesized metal oxides using high temperature, electrochemical, and wet chemistry techniques. Characterized materials via adsorption isotherms; TGA; microscopy using AFM, SEM, and STEM; X-ray spectroscopy by ESCA (XPS), EDXS, and powder diffraction; IR, Raman, UV-Vis, and AA; Molecular Dynamics and Monte Carlo simulations. Instrument design and maintenance: High resolution adsorption/desorption isotherm stations, nitrogen and closed-cycle helium cryogenic systems, high vacuum systems, AFM, Lepel RF generator, Nd^{3+} :YAG and N_2 Pumped Dye LASERS. Computer modeling, programming, and software: LabVIEW, Mathematica, Maple, KaleidaGraph, Accelrys Materials Studio, HyperChem, Sparta Molecular Modeling, CrystalMaker, CrystalDiffract, Mac OS X, iWork Suite, Windows XP, Word, Excel, PowerPoint, EndNote.

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- Awards** Carol B. Moulton Service Award (2006) Dept. of Chemistry Scholarship (2000)
Dept. of Chemistry Service Award (2006) Dan D. Troutman Scholarship (1999)
SERMACS Scholarship (2004) WKU Scholarship (1998)
Chemical Physics Fellowship (2002) Ogden College Science Scholarship (1997)
NSF-REU Fellowship (2001) Earl Thomas Conley Scholarship (1997)
- Committees** UT Dept. of Chemistry Faculty-Student Interaction Committee, *Chairperson* (2006)
UT Dept. of Chemistry Recruiting Committee (2005, 2006)
UT Association of Chemistry Graduate Students, *Treasurer* (2005)
WKU Honors Committee (1997, 1998, 1999)
WKU Student Affiliates of the ACS, *Secretary* (1997), *Treasurer* (1998), *President* (1999)
WKU SPS, *Vice President* (1998)
- Organizations** American Chemical Society (ACS)
American Physical Society (APS)
Materials Research Society (MRS)
Society of Physics Students (SPS)
American Association for the Advancement of Science (AAAS)
- Publications** Felty, M. and J. Z. Larese (2009). "Molecular Dynamics Simulations of Thin Film Alkanes on MgO and Graphite." (In preparation)
Felty, M. and J. Z. Larese (2009). "A Thermodynamic Investigation of Thin Films of Propane on the Magnesium Oxide (100) Surface." (Preprint available)
Arnold, T.; Cook, R. E.; Chanaa, S.; Clarke, S. M.; Farinelli, M.; Yaron, P. and J. Z. Larese (2006). "Neutron Scattering and Thermodynamic Investigations of Thin Films of n-Alkanes Adsorbed on MgO (100) Surfaces." Physica B: Condensed Matter 385: 205-207.
- Presentations** Landry, P.*; Chen, H.; Barbour, A.; Felty, M. and J. Z. Larese (2009) "Synthesis and Characterization of Au and Pd Decorated ZnO Powders." *Materials Research Society*. San Francisco, California. (poster)
Landry, P.*; Chen, H.; Barbour, A.; Felty, M. and J. Z. Larese (2009) "Synthesis and Characterization of Au and Pd Decorated ZnO Powders." *American Physical Society*. Pittsburgh, Pennsylvania. (oral)
Thomas, G. H.; Chanaa, S.*; Farinelli, M.*; Landry, P.; Estes, B. and J. Z. Larese* (2009) "Confined Synthesis of Metal (M=Cu, Ag, Au, Pd) Nanoparticles." *Materials Research Society*. Boston, Massachusetts. (poster)
Felty, M.*; Milojevich, A. and J. Z. Larese (2008) "A Characterization Study Using Multiple Techniques to Determine the Porosity of Anodized Aluminum Oxide." *60th Southeast Regional Meeting of the American Chemical Society*. Nashville, Tennessee. (oral)
Chanaa, S.; Chen, H.; Landry, P.; Barbour, A.*; Felty, M. and J. Z. Larese (2008) "Nanoscale Materials Chemistry: Studies of Confinement Using Neutrons." *American Conference on Neutron Scattering*. Sante Fe, New Mexico. (poster)
Felty, M.*; Chanaa, S. and J. Z. Larese (2008) "Synthesis and Characterization of Anodized Aluminum Oxide." *Materials Research Society*. San Francisco, California. (oral)
Chanaa, S.*; Chen, H.*; Felty, M.* and J. Z. Larese* (2008) "Synthesis and Characterization of Different Morphologies of Mesoporous Silica." *Materials Research Society*. San Francisco, California. (presentation)

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Presentations

(Continued)

Chen, H.*; Chanaa, S.*; Felty, M.* and J. Z. Larese* (2008) "Synthesis and Applications of Magnetic Hollow Mesoporous Silica." *Materials Research Society*. San Francisco, California. (poster)

Felty, M.*; Landry, P.; Barbour, A.; and J.Z. Larese (2007) "Synthesis and Characterization of Variable Pore Size, Ordered Cylindrical Nanopores in Alumina." *Materials Research Society*. San Francisco, California. (poster)

Cook, R. E.*; Arnold, T.; Barbour, A. M.; Chanaa, S. Z.; Farinelli, M. J.; Frazier, L.; Yaron, P. N.; Clarke, S. and J. Z. Larese (2006) "Neutron and Thermodynamic Study of Small Hydrocarbons Adsorbed on Metal Oxides." *American Conference on Neutron Scattering*. St. Charles, Illinois. (poster)

Ross, M.*; Farinelli, M.; Chinta, S.; Beach, D.; Rondinone, A. and J. Z. Larese (2005) "Synthesis and Characterization of MgO and ZnO nanoparticles." *American Physical Society*. Los Angeles, California. (oral)

Farinelli, M. J.*; Cook, R. E.*; Chanaa, S.; Yaron, P. N.; Daemen, L. L.; Ramirez-Cuesta, T.; Clarke, S. and J. Z. Larese (2004) "Neutron and Thermodynamic Investigation of Alkane Adsorption on MgO (100) Surfaces." *56th Southeast Regional Meeting of the American Chemical Society*. Research Triangle Park, North Carolina. (poster)

Farinelli, M.* and J. Z. Larese (2004) "Thermodynamic Investigations of Propane on the MgO (100) Surface." *56th Southeast Regional Meeting of the American Chemical Society*. Research Triangle Park, North Carolina. (oral)

Cook, R. E.*; Chanaa, S.*; Farinelli, M. J.*; Yaron, P. N.*; Arnold, T.*; Daemen, L. L.; Ramirez-Cuesta, T.; Clarke, S. and J. Z. Larese* (2004) "Neutron and Thermodynamic Investigation of Alkane Adsorption on MgO (100) Surfaces." *American Conference on Neutron Scattering*. College Park, Maryland. (poster)

Buthelezi, T.*; Farinelli, M. J.*; O'Brien, M. and J. Harrington (2002) "Lifetime Measurements of Bound and Unbound Crown Ethers." *223rd American Chemical Society National Meeting*. Orlando, Florida. (poster)

Farinelli, M.*; Shon, Y.-S. and T. Buthelezi (2001) "LIF Studies of Monolayer Protected Clusters." *Argonne Symposium for Undergraduates in Science, Engineering, and Mathematics*. Chicago, Illinois. (oral)

Farinelli, M.* and T. Buthelezi (2001) "The Solubility of DBC and its Complexes in Various Solvents." *Sigma Xi Conference*. Bowling Green, Kentucky. (oral)

Farinelli, M.*; O'Brien, M.; Harrington, J. and T. Buthelezi (2001) "Characterization of Dibenzo-18-Crown-6 Ether Using Ultraviolet-Visible Spectroscopy." *National Conference for Undergraduate Students*. Lexington, Kentucky. (oral)

Farinelli, M.*; Harrington, J.; O'Brien, M. and T. Buthelezi (2001) "Characterization of Crown Ether Complexes Using UV-VIS Spectroscopy in Different Polar Protic Solvent Media." *The Pittsburgh Conference*. New Orleans, Louisiana. (oral)

Farinelli, M.*; O'Brien, M.* and T. Buthelezi* (2000) "Characterizing Crown Ethers and Their Complexes Using Ultraviolet-Visible Spectroscopy." *Kentucky Academy of Sciences*. Lexington, Kentucky. (poster)

Farinelli, M.* and T. Buthelezi (2000) "UV-VIS Spectroscopy and Laser Induced Fluorescence Studies of Crown Ether Complexes." *Argonne Symposium for Undergraduates in Science, Engineering, and Mathematics*. Chicago, Illinois. (oral)

* Indicates presenting author(s).