

# Alumni Association Dissertation Award Winners Spring 2008



**Elizabeth A. Beverly**, Ph.D. Candidate in Biobehavioral Health

(Adviser: Linda A. Wray)

The significance of Elizabeth's research lies in the growing problem of type 2 diabetes in the older population. Her dissertation titled "Incorporating Values and Preferences into Clinical Care Guidelines Designed for Older Adults Living with Type 2 Diabetes," aims to illuminate the role of values and preferences in the treatment of type 2 diabetes with the purpose of improving coordination and consistency of care for older adults. Elizabeth has received a number of awards during her academic career at Penn State, including the Hintz Scholarship Award for Outstanding Graduate Work in 2004 and again in 2007 from her department. In 2006, she earned first prize in the Social and Behavioral Science category of Penn State's Graduate Exhibition and the Society of Behavioral Medicine Meritorious Student Award. Elizabeth has published four papers in peer reviewed journals and is a member of the editorial review panel for the Journal of Psychosocial Nursing.



**Susan C. Bobb**, Ph.D. Candidate in Cognitive Psychology

(Adviser: Judith F. Kroll)

Susan's dissertation titled "Morphology in Bilingual Language Processing," aims to examine the cognitive processes underlying second language development and to further clarify constraints to language learning. Her research will help to provide a basis for developing a deeper understanding of language comprehension, which will in turn, provide a basis for developing strategies that can be used in improving second language instruction and pedagogy. Bilingual in English and German, Susan was selected by the prestigious D.A.A.D (German Academic Exchange) to participate in a five-month short-term research grant to The Max Planck Institute for Human Cognitive and Brain Science in Leipzig, Germany. She was also awarded a nearly \$12,000 Dissertation research grant by the National Science Foundation for the 2007-2008 academic year.



**Patrick F. Conforti**, Ph.D. Candidate in Chemistry

(Adviser: Barbara Garrison)

Patrick's dissertation entitled "Molecular Dynamics Simulations of Laser Ablation of Polymers," is focused on developing a model for including physical and chemical processes in laser ablation of polymers, specifically poly (methyl methacrylate) or PMMA. He helped develop a novel, hybrid simulation scheme in which chemical reactions can occur throughout classical dynamics simulations without using computationally intensive potential functions. His research has elucidated greater insight into the microscopic mechanisms involved in the complex process of polymer ablation. During his academic career, Patrick has amassed a publication record of more than a dozen accepted papers in prestigious journals, six of which he is a first author. He has also presented at several professional conferences and meetings, and has been recognized with a number of awards and fellowships. In 2007, he received a Weyenberg Fellowship and a travel award to present at the Ninth International Conference on Laser Ablation held in Tenerife, Spain.

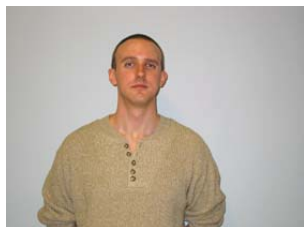


**Jennifer M. Dean**, Ph.D. Candidate in Entomology

(Adviser: Consuelo M. De Moraes)

Jennifer's dissertation is titled, "Chemical Ecology of Mutualistic Plant-microbe Interactions and Effects on Insect Herbivores." Her research in the rapidly emerging, interdisciplinary field of chemical ecology aims to expand on previous work by investigating complex, multi-species interactions among plants, microbes and insect herbivores. Her findings may contribute to the development of more sustainable management techniques for agriculture that are informed by an understanding of the chemical ecology of plants, microbes, and insects. A University Graduate Fellowship recipient, Jennifer has received numerous awards for her studies, and is the only student in her college to have been awarded both the prestigious National Science Foundation (NSF) Graduate Research Fellowship and an NSF dissertation improvement grant.

# Alumni Association Dissertation Award Winners Spring 2008



**Nathan Paul Devir**, Ph.D. Candidate in Comparative Literature

(Adviser: Thomas O. Beebee)

The title of Nathan's dissertation is, "The Cultural Variables of Modern Judaic Discourse in the Literary Works of Chaim Potok, A.B. Yehoshua, and Chochana Boukhobza." Specifically, his research examines the cultural variables of modern Judaic discourse by comparing the use of archetypal figures in the literary output of three important Jewish authors of various backgrounds: A. B. Yehoshua, Chaim Potok, and Chochana Boukhobza. The goal is to determine the influence of cultural milieu and biographical experience on the representational stance of these authors' writings with regards to the Jewish nation, conceived as one but living in a wide diversity of circumstances. Nathan has had numerous articles published in professional journals and reference works. Most recently, a chapter and an interview with Potok's widow, Adena, will be published in the book, *New Essays on Chaim Potok*, by the State University of New York Press in 2008.



**Wei Jiang**, Ph.D. Candidate in Biochemistry, Microbiology and Molecular Biology

(Adviser: J. Martin Bollinger, Jr. and Carsten Krebs)

Wei's research focuses on *Chlamydia trachomatis* (*C. trachomatis*) ribonucleotide reductase (RNR) and her breakthrough discovery of a heterobinuclear Mn/Fe redox cofactor in *C. trachomatis* RNR. RNR provides the only pathway of de novo biosynthesis of deoxyribonucleotides, the precursors of DNA synthesis and repair, and plays a pivotal role in cell growth. *C. trachomatis* is a common obligate intracellular parasite and human pathogen that causes sexually transmitted diseases and is also a potent cofactor facilitating the transmission of HIV. Wei's work and discovery were published in *Science* magazine, the world's leading journal of original scientific research, in May 2007, and her findings have allowed her to pursue several new directions for her project. Most recently, Wei was invited to give a talk on her thesis work at the Gordon Conference Graduate Research Seminar in Bioinorganic Chemistry in January 2008, which, according to her advisor, is a remarkable accomplishment for a third-year doctoral student and demonstrates the high interest of the bioinorganic community in her results.



**Alissa Walls Mazow**, Ph.D. Candidate in Art History

(Adviser: Sarah K. Rich)

Alissa's dissertation, "Plantae, Animalia, Fungi: Transformations of Natural History in Contemporary American Art," examines the ways in which contemporary artists have adopted the visual traditions of natural history guidebooks, field scrapbooks, and curiosity cabinets. In an era of ever-increasing environmental crisis, many artists have used antiquated modes of looking to explore longstanding nature-culture dialectics and begin new dialogs about emerging paradigms, in which plants, animals and fungi engage in symbiotic, ecologically-conscious dialogs. Alissa has earned important awards and fellowships for her research, including the Douglas Foundation Predoctoral Fellowship from the Smithsonian Museum of American Art, a Graduate Student Summer Residency at Penn State's Institute for Arts and Humanities, a Department of Art History Dissertation Fellowship and a Susan W. and Thomas A. Schwartz Endowed Fellowship for Dissertation Research in Art History from the Department of Art History. A prolific scholar, Alissa has presented research and published papers on a range of materials, from elevators to mushrooms.



**Richard P. Meisel**, Ph.D. Candidate in Genetics

(Adviser: Stephen W. Schaeffer)

The title of Rich's dissertation is "Gene Duplication and Chromosomal Rearrangement in *Drosophila* Genomes." His research focuses on the origin and evolution of chromosomal rearrangements and gene duplications in the fruit fly *Drosophila pseudoobscura*. His study on gene duplications, developed on his own, provides a glimpse into how the evolutionary process acts creatively to generate genes of new function. Rich is a recipient of a University Graduate Fellowship and, most recently, he was awarded a National Science Foundation (NSF) Dissertation Improvement Grant to further his dissertation research.

# Alumni Association Dissertation Award Winners Spring 2008



**Parrish L. Paul**, Ph.D. Candidate in Counseling Psychology

(Adviser: Kathleen J. Bieschke)

Parrish's dissertation, "Gay Identity Development as a Process of Meaning-Making Development," focuses on how constructive development influences identity development in gay men, specifically within the context of religious or spiritual beliefs. His research will be the first to examine constructive development in this context, providing the field with valuable information on how best to serve these individuals, particularly in regard to how to be respectful to both their gay identity as well as their spiritual or religious identity. Parrish has authored and co-authored two journal papers and one book chapter, and has presented at eight national meetings. A University Graduate Fellow, Parrish also earned three scholarships and a research grant from the College of Education at Penn State. In 2003, he received the Roger F. Aubrey Northstar Award from Vanderbilt University for "Promise in Facilitating Human Development through Counseling."



**Benedict A. Samuel**, Ph.D. Candidate in Mechanical Engineering

(Adviser: Aman Haque)

Benedict's dissertation, "Multiphysics Studies on Polymeric and Biological Nanofibers," focuses on the coupling/interaction between mechanical, electrical, thermal, optical (and other physical) domains at the nanoscale. The significance of his research can be explained by the latest microprocessors, where the intense heat (thermal) and the residual/thermal stress (mechanical) impact the electronic performance of the chip, and hence the necessity for a multi-domain materials testing paradigm. Benedict found that when acting simultaneously, the interaction between mechanical, thermal and electrical fields can be more dramatic at the nanoscale as compared to the macro scale. Benedict holds one patent, has had seven articles published in professional journals, in all of which he is the first-author, and has presented at seven conferences. He is also a Graduate Teaching Fellow with the Department of Mechanical Engineering.



**Nicolas Yunes**, Ph.D. Candidate in Physics

(Adviser: Benjamin Owen)

Nicolas' dissertation is titled, "At the Interface: Gravitational Waves as Tools to Test Quantum Gravity and Probe the Astrophysical Universe." His research builds upon Einstein's theory of General Relativity (GR), which holds the promise to open a new window to astrophysics and high-energy theory. Nicolas' dissertation sits at the interface between these fields, using GR and its consequences as a bridge to test theories that go beyond Einstein's, as well as to understand astrophysical processes, such as how galaxies form. Nicolas has been described as a top student nationwide graduating in gravitational physics, having earned three Duncan Fellowships, two Mebus Fellowship, an Excellence in Teaching Award and the Blue Apple Award during his academic career at Penn State. He also has an estimated eighteen influential publications to his credit, and has given more than twenty talks both at national and international conferences and universities.



**Zhihua Hua**, Ph.D. Candidate in Plant Biology

(Adviser: Teh-hui Kao)

Zhihua's research focuses on a self/non-self recognition mechanism possessed by many flowering plant species that operate during sexual reproduction. His dissertation titled, "Biochemical and Functional Studies of S-RNase-Based Self-Incompatibility in *Petunia inflata*," sheds light on how self-incompatible plants select the "correct type" of pollen for mating to avoid inbreeding. A passionate scholar, Zhihua has to his credit a total of thirty-seven peer-reviewed original papers and review papers to his name. In 2006 and 2007, *Plant Cell*, the highest-impact scientific journal for plant biology, published Zhihua's research findings.



**Yi Zuo**, Ph.D. Candidate in Environmental Engineering

(Adviser: Bruce Logan)

Yi's research concerns the field of bioenergy production, with an emphasis on bioelectricity generation in microbial fuel cells (MFCs) from organic waste and wastewater. Her dissertation titled, "Novel Electrochemical Material Applications and New Exoelectrogenic Bacteria Isolated from Microbial Fuel Cells (MFCs)," hopes to advance the field's understanding of MFCs and increase the potential for practical applications of this technology. Yi has amassed a publication record of eleven articles in professional journals, eight of which she is a first-author. A University Graduate Fellowship recipient, Yi has received a number of awards during her academic career, most recently a Student Research Award from the Pennsylvania Water Environment Association (PWEA).