

Alumni Association Dissertation Award Winners Spring 2007



Lacy M. Alexander Holowatz, Ph.D. Candidate in Kinesiology
(Adviser: W. Larry Kenney)

Lacy's dissertation is titled, "Cutaneous Vasodilation: Influence of Healthy Aging and Vascular Pathology." Her thesis work examines age-related changes in cardiovascular function in human essential hypertension, a prominent disease states that affect blood vessels. Her research will focus on blood flow to the skin as a model to study the mechanisms through which each of these insipid diseases alter blood flow. Lacy has authored or co-authored articles in over a dozen peer reviewed publications, and has presented or co-presented at scientific meetings and lectures. She has received a number of grants and awards, most recently, the Caroline Tum Suden Award from the American Physiological Society in 2006 and 2007.



Jennifer Biedendorf, Ph.D. Candidate in Communication Arts and Sciences
(Adviser: Stephen H. Browne)

Jennifer's dissertation, "The Rhetoric of Transnational Public Memory Discourses," examines how processes of globalization foster distinct global or transnational memory discourses. More specifically, the goal of her study is to offer a better understanding of how transnational memory discourses forge rhetorical constructions of a "global community" or the "global citizen." Jennifer has featured her work at regional and national conferences and also has several essays under consideration in the discipline's primary journals. She has earned a number of fellowships and grants, including a dissertation fellowship from Penn States Institute for the Arts and Humanities.



Elana M. Chapman, Ph.D. Candidate in Fuel Science
(Adviser: Andre Boehman)

Elana's research examines ways to reduce NOx emissions from compression ignition engines through various technological modifications. One aspect examines the use of dimethyl ether as a gaseous fuel inducted into a pilot ignited diesel engine. Another aspects examines the potential benefits of hydrogenating soybean oil prior to its transesterification into biodiesel. Her dissertation titled, "Strategies for NOx Reduction from a Compression Ignition Engine," could show a path toward manufacturing soybean-derived biodiesel fuels that do not suffer from the widely known "Biodiesel NOx Effect," in which biodiesel fuels tend to produce elevated emissions of oxides of nitrogen. Elana has authored and co-authored a number of publications in peer-reviewed journals, as well as presented and co-presented in a number of professional presentations. In addition, she has received several awards, most recently the College of Earth and Mineral Science Centennial Award from Penn State in 2006.



Amit V. Desai, Ph.D. Candidate in Mechanical and Nuclear Engineering
(Adviser: M. A. Haque)

Amit's dissertation titled, "Size Effect on Mechanical Properties of Nanowires," focuses on the length-scale effects in semiconducting nanowires. Currently, Amit studies the coupling between electrical, thermal and mechanical domains for the nanowires. The technical impact of this dissertation is the possible breeding of novel semiconductor devices that will use mechanical strains to tune the electronic band-gap condition by thermal fields, also resulting in the next generation of nano-sensors and actuators. Amit has authored and co-authored numerous publications and presented at several conferences. He has also submitted two patent applications.



Larissa G. Duncan, Ph.D. Candidate in Human Development and Family Studies
(Adviser: Mark T. Greenberg and J. Douglas Coatsworth)

Larissa's dissertation, "Mindfulness in Parenting: Measurement and Relation to Adolescent Adaptive Functioning and Problem Behavior," introduces an innovative parenting construct. "Mindful parenting" is intended to represent the cognitive-affective interface for parents during interactions with young teens. Larissa has presented her research at numerous professional conferences and is co-author on five peer-reviewed publications. She is the first author of multiple journal manuscripts to be submitted in the next several months, including an invited conceptual paper based upon her research. The recipient of several honors, awards and fellowships, she most recently earned the National Institute on Drug Abuse (NIDA) Pre-doctoral Training Fellowships from the Prevention Center and Methodology Center at Penn State from 2005 to 2007.

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Kevin D. Egan, Ph.D. Candidate in Political Science
(Adviser: Nancy Love)

Kevin's research examines the complex ethical relationships between sexuality, identity, and politics. His dissertation, "Sex and Citizenship: Contesting the Limits of Rights-Based Democratic Discourse," focuses on how individuals with minoritized sexual preferences are precluded from participating fully in public life. Kevin has presented papers at several conferences and developed some of those papers for submission to peer-reviewed publications. In addition, Kevin has received two fellowships at Penn State and is the recipient of the Outstanding Political Science Graduate Student Award in the Political Science Department for the 2004-2005 academic year.



Ben H. Feldmeyer, Ph.D. Candidate in Sociology
(Adviser: Darrell Steffensmeier)

Ben's dissertation, titled "Racial Invariance and Hispanic Violence: An Examination of the Structural Sources of Hispanic, Black and White Violence," focuses on the relationship between race/ethnicity, social structure, and violence and addresses several important sociological and criminological questions. Ben has co-authored a number of publications in peer-reviewed journals, and has presented and co-presented at several professional conferences. In addition, he has been recognized with the Department of Sociology Excellence in Teaching Award in 2005 and the Joan Huber and William Form Graduate Scholarship in Sociology in 2005 and 2006. Ben also received a Penn State College of the Liberal Arts Dissertation Support Grant in 2006.



Marieke R. Gilmartin, Ph.D. Candidate in Integrative Biosciences - Neuroscience
(Adviser: Matthew D. McEchron)

Marieke's research seeks to determine how neurons in multiple cognitive brain structures interact with each other to encode complex forms of learning. The title of her dissertation is "Mapping Learning Networks by Examining Neuronal and Population Activity during Trace Fear Conditioning." Marieke has co-authored many articles in peer-reviewed publications, and has received a number of awards. Most recently, she received the Wisconsin Symposium on Emotion Travel Award in 2006 and the 2006 D.G. Marquis Behavioral Neuroscience Award for the best paper published in the journal *Behavioral Neuroscience* in 2005.



Valer Gotea, Ph.D. Candidate in Biology
(Adviser: Wojciech Makalowski)

Valer's dissertation is titled "The Contribution of Transposable Elements to Genomic Novelty - A Computational Approach." His research is part of a large community effort to decode the secrets of the recently sequenced human genome, and has the purpose of learning more about ways in which transposable elements influence the functionality and evolution of genomes. Valer has published four papers in leading journals with impact on the field, his findings contributing to the improvement of the popular BLAST software and his papers being cited shortly after publication in other leading journals. He has several other manuscripts in progress, resulting in part from collaborations facilitated by the Worldwide Universities Network. He presented his research at several Penn State seminars and international meetings, having had the honor to chair the "Transposable Elements" session at the 2006 annual meeting of the Society for Molecular Biology and Evolution.

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H. Fritz Kramer, Ph.D. Candidate in Physiology
(Adviser: Leonard S. Jefferson, Jr.)

Fritz's dissertation is titled "AS160 Regulates Skeletal Muscle Glucose Metabolism." His research is focused on the molecular mechanisms governing exercise-mediated glucose transport into skeletal muscle, which are distinct from insulin and are preserved in individuals with diabetes. Last spring, an abstract of his work was selected for oral presentation at the American Diabetes Association Annual Meeting. Fritz has authored and co-authored publications in leading professional journals, and has received numerous awards and honors. Most recently, he was awarded an Outstanding Poster award at the Experimental Biology meeting, as well as two prestigious fellowships: the American Heart Association Pre-Doctoral Fellowship and the Joslin Diabetes Pre-Doctoral Fellowship.



Julia A. Maresca, Ph.D. Candidate in Biochemistry, Microbiology, and Molecular Biology
(Adviser: Donald A. Bryant)

Julia's research attempts to identify novel genes in chlorophyll and carotenoid biosynthesis in phototrophic bacteria and then demonstrate the physiological and ecological importance of these genes and their products. The title of her dissertation is "The Genetic Basis for Pigment Variation in Green Sulfur Bacteria." Julia has amassed a publication record of fourteen articles, authored or co-authored, in top quality journals, and has submitted fifteen abstracts to professional conferences. She has twice been awarded at the Allegheny Branch of the American Society for Microbiology annual meeting for her oral presentation. In addition, she has received two NASA Space Grant Fellowships from the Pennsylvania Space Grant Consortium, and is the recipient of a University Graduate Fellowship.



Elena R. Margine, Ph.D. Candidate in Physics
(Adviser: Vincent Crespi)

Elena's dissertation, "Modeling of the Electronic and Vibrational Properties of Carbon Nanostructures," focuses on using state-of-the-art simulation methods as a powerful tool to streamline the path to practical implementations of nanotechnological applications. Elena's findings have been published in *Physical Review Letters*, the premier disciplinary journal. Her work has also been featured on the National Science Foundation Web site, as well as popular publications such as *PC Magazine* and *Telephony* magazine. Elena was awarded two Duncan Graduate Fellowships from Penn State in 2005 and in 2006, and a Braddock Graduate Fellowship from Penn State in 2001-2003.



Patrick G. Traynor, Ph.D. Candidate in Computer Science and Engineering
(Adviser: Thomas La Porta and Patrick McDaniel)

Patrick's dissertation, "Characterizing the Impact of Rigidity on Security," addresses a critical and growing problem of security in our telecommunications infrastructure. His findings have garnered the attention of several major federal agencies concerned with cybersecurity, including the FCC, FBI and DHS, as well as providers such as Verizon Wireless. His work has also appeared as a multicolumn article in the *New York Times*, and reported on CNN, MSNBC, and all over the world. Patrick has been lead author on a number of publications, most recently in the top mobility conference, ACM Mobicom, which has an acceptance rate typically below ten percent. In addition, Patrick has been a reviewer for a sizable number of professional journals and conferences.