

First Alumni Association Dissertation Award Winners Spring 2002



Heather C. McCune Bruhn, Ph.D. Candidate in Art History
(Adviser: Dr. Elizabeth B. Smith)

Heather's dissertation research involves a detailed investigation of the tower monstresances produced in German-speaking areas of Europe between the late fourteenth and late fifteenth centuries. Her skill as both a teacher and scholar are reflected in her being selected in Spring 2000 for Penn State's Graduate Assistant Outstanding Teaching Award, and more recently a Fulbright Fellowship for research in Germany during the 2002-2003 academic year. Heather has presented her work at the Philadelphia and Cleveland Museums of Art, and she has published two articles and two catalogue entries in *Medieval Art in America: Patterns of Collecting 1800-1940*.



Brandon E. Dugan, Ph.D. Candidate in Geosciences
(Adviser: Dr. Peter B. Flemings)

Brandon's research links observation and theoretical analysis of flow in porous media to illuminate large-scale fluid flow in continental margins. In addition to several other publications, his work appeared in the July 2000 edition of *Science*, one of the most prestigious, cross-discipline journals in the world. Here at Penn State, Brandon has been the recipient of four prestigious fellowships: the Exxon Fellowship in Quantitative Geosciences, the Shell Fellowship, the Joint Oceanographic Institution (JOI) Fellowship, and the Link Ocean Engineering Foundation Fellowship.



Sungwon Kim, Ph.D. Candidate in Materials
(Adviser: Dr. Venkatvaman Gopalan)

Sungwon's dissertation centers on the fundamental science of ferroelectrics—a class of materials with built-in electrical dipoles in their crystal structure. He has multiple publications in *Applied Physics*, recently presented his work at The American Ceramic Society's 103rd Annual Meeting and Exposition, and is the holder of a U.S. Patent.



Shilpa Mehta, Ph.D. Candidate in Biochemistry & Molecular Biology
(Adviser: Dr. Davis T. W. Ng)

Shilpa's research focuses on uncovering the mechanisms that underlie the quality control of protein folding—a particularly important area of biomedical research, because aberrant protein conformation is the basis of numerous human diseases including Alzheimer's, cystic fibrosis, Huntington's, Parkinson's and prion diseases. The recipient of a fellowship from Jawaharlal Nehru University (Delhi, India) while completing her master's work, Shilpa received a Braddock Fellowship at Penn State in 2000. She is the co-author of two published research papers and the co-holder of a U.S. Patent.



Isis K. Mullarky, Ph.D. Candidate in Pathobiology
(Adviser: Dr. Lorraine M. Sordillo)

Isis's dissertation research involves oxidant stress and endothelial cell metabolism. Utilizing the latest advances in molecular biology, her work promises to elucidate the causes of cell damage and the formation of atherosclerotic lesions that result in vascular diseases. Isis is the author or co-author of three peer reviewed journal articles and has received numerous awards for poster presentations including first place honors at The American Association of Veterinary Immunologists' annual meetings in 1999 and 2000. In 1999, she received the Mr. and Mrs. Bosworth Grier Scholarship.

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Harihara Prasad Natarajan, Ph.D. Candidate in Management Science, Operations & Logistics
(Adviser: Dr. Anantaram Balakrishnan)

Harihara's dissertation research addresses optimization modeling to support negotiation and coordination in supply chains. He is the co-author of a paper that recently appeared in *Manufacturing & Service Operations Management*, and he has been an invited speaker at the national meeting of the Institute for Operations Research and Management Science. Hari will also be presenting his work at the upcoming Manufacturing and Service Operation Management Society's annual conference.



Jennifer Schwartz, Ph.D. Candidate in Sociology
(Adviser: Dr. Darrell Steffensmeier)

Jennifer's research seeks to advance our understanding of how changes in the structural features of communities, particularly in the economic (deindustrialization, increases in female labor force participation) and family institutions (increases in divorce, female-headed households), drive female and male rates of violent behavior. She has co-authored three published articles and presented her research at the American Society of Criminology annual meeting in each of the last three years.



Joseph A. Sherwin, Ph.D. Candidate in Engineering Science and Mechanics
(Adviser: Akhlesh Lakhtakia)

Joseph's dissertation research entails the construction of a nominal structure-property relationship model for chiral sculptured thin films (STFs) infiltrated with isotropic chiral fluids. Over the course of his work, he has authored or co-authored six articles in international journals. He has also held professional positions with the Naval Air Propulsion Center and Los Alamos National Laboratory.



Catherine E. Thomas, Ph.D. Candidate in English Literature
(Adviser: Dr. Linda Woodbridge)

Catherine's dissertation project addresses the cultural politics of poisoning in early modern England. By analyzing this popular literary motif, this work reveals how poisoning was interpreted as a tradition, convention, and political device, and participates in the developing critical field of cultural rhetoric. In 2001, Catherine received the Ben Euwema Award for Graduate Research in Penn State's Department of English and in 2000 was awarded a Sparks Fellowship for exemplary academic performance. She has presented her work at various conferences both in the U.S. and abroad, and has contributed to the forthcoming edited volume, *Women, Violence and English Renaissance Literature* (2002, Arizona State University Press).



Michael A. Trakselis, Ph.D. Candidate in Chemistry
(Adviser: Dr. Stephen J. Benkovic)

Michael's research focuses on the mechanism of action of the T4 replisome—an entity composed of eight proteins that assemble into a complex which drives leading and lagging strand DNA synthesis. Michael has authored or co-authored four published articles, and has presented his work at two national conferences. Michael has been the recipient of a Nellie and Oscar Roberts Fellowship, a Homer Braddock Graduate Research Fellowship, and the Harry and Catherine Dalalian Graduate Student Research Award.