

Michigan Math and Science Scholars Faculty for 2008

Frederick Becchetti

Fred is a Professor in the Department of Physics. He received his B.Sc., M.S. and Ph.D. at the University of Minnesota. His research focuses on nuclear reactions, nuclear astrophysics and medical physics. Fred is a recipient of the LS&A Excellence in Teaching Award and has recently served on the American Association of Physics Teachers-Undergraduate Teaching Committee. He often can be found judging science fairs, including the Southeast Michigan Science Fair and the International Science Fair. His hobbies include fishing, skiing and, of course, magic.

Udo Becker

Udo is an Associate Professor in the Department of Geological Sciences at the University of Michigan. He received his Ph.D. from Virginia Technological University, and did his postdoctoral research at the University of Manchester, England. He was an Assistant Professor at the University of Muenster, Germany. The research in his group at the University of Michigan is focused on the molecular level characterizations of geologic and environmentally important surfaces and interfaces, such as sulfide and arsenian sulfide surfaces and minerals (important for acid mine drainage, arsenic release and noble metal exploration), biomineralization, nanoparticle formation, and behavior of radioactive elements in nature and nuclear waste deposits. In order to study these geochemical processes, we use electron microscopy techniques with atomic resolution and molecular simulations, partly at a quantum mechanical level.

Mort Brown

Mort is a (recently retired) Professor of Mathematics at the University of Michigan and Arthur F. Thurnau Professor in the College of Literature Science and Arts. He received his Ph.D. in mathematics from the University of Wisconsin. His fields of research are topology and dynamical systems. His most recent obsession is developing interesting mathematical games as a means of introducing students to some of the underlying concepts that flow across all advanced math. His fancy second title (above) is a teaching honor.

Zhan Chen

Zhan is a Dow Corning Assistant Professor in the Department of Chemistry of the University of Michigan. He received his PhD from the University of California at Berkeley, and did his postdoctoral research at the Lawrence Berkeley National Laboratory. The research in his group at the University of Michigan is focused on the molecular level characterizations of complicated surfaces and interfaces, such as polymer surfaces, polymer interfaces, and interfacial proteins using advanced analytical techniques. Such research provides in-depth understanding of molecular mechanisms of biocompatibility, biofouling, and polymer adhesion. Zhan received his Beckman Young Investigator Award in 2003. In his spare time, he enjoys reading, hiking, and traveling.

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Mark Conger

Mark is a Lecturer and program developer in the Mathematics Department. He received his B.A. degree from Williams College and M.A. and Ph.D. from the University of Michigan. In between his B.A. and Ph.D. he spent many years working as a professional computer programmer, and did lots of programming for fun as well. His research interests are in enumerative combinatorics and probability, but he considers himself a mathematical generalist. His recent work has focused on the mathematics of card shuffling and dealing. For fun he does woodworking and computer hacking. The summer of 2008 will be his seventh summer teaching in MMSS.

William Currie

Bill is an Assistant Professor in the School of Natural Resources & Environment at the University of Michigan. He holds a BS in Physics from Brown University, a MS in Environmental Sciences from the University of Virginia, and a Ph.D. in Natural Resources from the University of New Hampshire. Previously, Bill was a postdoctoral scholar at the Ecosystems Center at the Marine Biological Laboratory in Woods Hole, MA. His research and teaching at UM focus on the development and application of dynamic simulation models of ecosystems, specifically on how ecosystem organization translates into controls on system responses to aspects of global change. His research is collaborative, typically applying ecosystem models to interpret the results of large-scale field manipulations with other investigators. Current research, for example, includes a National Science Foundation funded project to understand carbon and nitrogen interactions that control enhanced production in loblolly pine forests in which entire stands of trees are being artificially exposed to doubled levels of atmospheric CO₂. Learn more about his research and teaching at his website.

Carolyn Dean

Carolyn is a Lecturer in the Department of Mathematics. She received her Ph.D. from the University of California, San Diego. Before moving to Michigan together, Carolyn and her husband juggled her job at the University of Chicago and his job in England as creatively as possible, with Carolyn spending some time in England. Carolyn enjoys hiking, sailing and cooking, and can often be found during lunch playing bridge in the Math Commons Room.

Stephen DeBacker

Stephen is the Director of the Michigan Math and Science Scholars and an Associate Professor in the Department of Mathematics. He did his undergraduate work at Santa Clara University and received his Ph.D. from The University of Chicago. Before joining the faculty at the University of Michigan, he had appointments at Harvard and The University of Chicago. He is interested in using geometry and analysis to answer certain questions which arise in number theory. He spends nearly every mathematical free moment with his family; but in his spare time, he fixes his house -- be sure to ask for amusing stories about this.

Glenn Fox

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Glenn is a Professor of Biology at Jackson Community College. He received his B.S., M.S., and Ph.D. in Biology from the University of Michigan, where he taught as a Graduate Student Instructor for four years. Glenn's research focuses on the evolution and ecology of squamate reptiles (specifically snake evolution and origins), and he has a special interest in the philosophy of science and the combination of technologically intensive and philosophically cogent approaches to testing hypotheses of historical relationships among organisms. This is Glenn's seventh year participating in the MMSS Program. In his spare time, he enjoys hiking, nature photography, travel, and developing means to acquire more spare time.

Mel Hochster

Mel Hochster is the Jack E. McLaughlin Distinguished University Professor of Mathematics, and is a member of the National Academy of Sciences and of the Michigan STRIDE Committee that is dealing with gender equity issues in the sciences. He did his undergraduate work at Harvard and received his Ph.D. from Princeton. His research interests might be described as studying solutions of a large number of equations in a large number of unknowns, including their geometry, by techniques related to number theory. He has five children, including one who is grown and is a mathematician, a fifteen year old, and nine year old triplets. Somehow this does not leave a lot of time for recreation, but his hobbies include bridge and cryptic crossword puzzles.

Phillip Hughes

Philip is a Research Scientist and Adjunct Professor in the Astronomy Department of the University of Michigan. He received his Ph.D. from the University of Sussex in the United Kingdom and did postdoctoral research at the Mullard Radio Astronomy Observatory of the Cavendish Laboratory, Cambridge, before coming to the University of Michigan in 1983. His research focuses on energetic flows in the form of plasma jets, traveling at almost the speed of light, from the environment of the supermassive black holes that inhabit the nuclei of active galaxies. These studies use simulations run on clusters of computers, modeling the plasma flow in a way similar to that used by aerospace engineers to model air flow over a plane's wing. He enjoys photography and movies, and is obsessive about keeping up with international news and current affairs.

Santhadevi Jeyabalan

Santha is a lecturer in the Department of Molecular, Cellular and Developmental Biology (MCDB). She received her M.S. and Ph.D. from the University of Michigan, Ann Arbor in 1976, in Genetics and Developmental Biology. She also holds a M.S. in Microbiology from Eastern Michigan University and an M.Sc., in Parasitology from Madras University, India. She is devoted to full time teaching, coordinating the Genetics Lab and the Developmental Biology Lab for upper level undergraduates and teaching a Genetics course in Spring terms. She is a recipient of LS&A Excellence in Education award in 1992, 94 and 98. Her "cyber fly" project won a Computer World Smithsonian award in 1999. She is also an academic advisor in LS&A Honors and received the Ruth M. Sinclair Memorial award for advising in 1997. Santha enjoys teaching, cooking, reading Tamil literature and spending time with her three grown-up daughters.

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Trachette Jackson

Trace' is an Associate Professor in the Department of Mathematics. She has a B.S. in Mathematics from Arizona State University and a Ph.D. in Applied Mathematics from the University of Washington. Trace's research interests involve developing models of tumor structure, growth, and chemotherapeutic control strategies. In addition to mentoring students on career opportunities in math and science, Trace' likes hiking, gardening and cooking.

Nkem Khumbah

Nkem is a mathematics lecturer with the Comprehensive Studies Program at the University of Michigan. He holds a BS in Mathematics from the University of the District of Columbia, a MS in mathematics from Virginia Polytechnic Institute and State University, and a Ph.D. in Information Technology from George Mason University. Prior to joining the faculty at the University of Michigan, Nkem was an Assistant Professor of Mathematics at North Georgia College and State University. He also held research fellowships at Institute for Pure and Applied Mathematics (UCLA) and the Mathematical Science Research Institute (UC Berkeley).

At the University of Michigan, he has three main professional interests: 1) teaching mathematics 2) working with high schools to deliver mathematics instruction that is aligned with college expectations, and 3) research on development and application of mathematical structures that facilitate the compression of massive data sets with minimal loss to the statistical structure of the data.

In addition to his interests in mathematics, science, society and international development, Nkem enjoys playing soccer and board games with his three boys.

David C. Michener

David Michener is the Assistant Curator at the UM Nichols Arboretum and Matthaei Botanical Gardens and an Adjunct Assistant Professor in the Program in the Environment and the School of Natural Resource & Environment. His undergraduate degree is in botany from the University of North Carolina at Chapel Hill, and his M.A. and Ph.D. degrees in botany are from the Claremont Graduate School in conjunction with work performed at the Rancho Santa Ana Botanic Garden. He spent six years on a NSF-funded postdoc at the Arnold Arboretum of Harvard University: he's been at the University of Michigan since then. David's professional career includes responsibility for the exotic to endemic living plant collections and related landscapes managed by the "Arb and Gardens" in and near Ann Arbor, although his work has taken him from Brazil to the Russian Far East. David is nationally active in professional societies and with granting agencies in the management of living collections as museum-like entities. His teaching and curatorial responsibilities include facilitating and engaging investigators with the research resources; a recent twist is being the junior author on a pharmaceutical article (David figured the phylogenetic depth to the argument); his own work is increasingly

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focused on digital mapping, records, and virtual access. David's outside interests include gardening, fishing with friends, and travel.

Patrick Nelson

Patrick is an Assistant Professor in the Department of Mathematics and the Associate Director of the Michigan Math and Science Scholars Program. He earned his B.S. from Arizona State University, a M.S. and Ph.D. from the University of Washington - all in Applied Mathematics. Patrick's research areas are in non-linear dynamics, mathematical modeling, and mathematical biology including virology and parasitic infections. His hobbies include baseball, tennis, squash, fishing, hiking and climbing.

Georg Raithel

Georg is an Associate Professor in the Department of Physics. Georg received his Ph.D. at the University of Munich. In his research, he employs laser-cooled rubidium atoms to study matter waves in optical lattices and in other atom trapping devices, and to investigate collision processes involving cold, very highly excited atoms (Rydberg atoms) and cold plasmas. In his spare time and vacations, Georg enjoys bicycling, skiing, camping and mountain hiking with his family.

Edward Rothman

Ed is a Professor in the Department of Statistics and Director of the Center for Statistical Consultation and Research. He holds a B.Sc. degree in Mathematics from McGill University in Montreal, Canada, and a Ph.D. degree in Statistics from the Johns Hopkins University in Baltimore Maryland. Ed is a consultant with researchers throughout the University, a variety of corporations, and students. He assists people with the design of their study, the analysis, and the presentation of the results. He has been honored for his teaching of undergraduates.

David Winn

Dave is a Lecturer in the Department of Physics. He earned his Ph.D. in Physics from the University of Michigan at Ann Arbor for research into the properties of top quark decays. Dave is a passionate fan of the game of hockey and spends most of his free waking moments pursuing the sport. When Dave is not teaching or skating he can be found testing his knowledge of "applied physics" by riding one of the many beautiful (and challenging!) mountain bike trails in Southeast Michigan.

Marty Weissman

Marty is a professor in the mathematics department of the University of California, Santa Cruz. After his undergraduate work at Princeton University, he received his Ph.D. from Harvard University. Before joining the Santa Cruz mathematics department, he was a National Science Foundation postdoctoral fellow at the University of California at Berkeley. He has enjoyed being a visiting scholar at the University of Michigan in the

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winters of 2007 and 2008, as well as visiting the Hausdorff Institute of Mathematics in Germany during the summer of 2007.

Marty is interested in applications of representation theory and geometry to problems in number theory. He has taught numerous courses in number theory and abstract algebra at the university level. In addition, he has worked with K-12 teachers on many occasions, teaching aspects of proof-writing, problem-solving, and mathematical language. Outside of mathematics, Marty enjoys whitewater kayaking, surfing, and skiing.

Administration

Stephen DeBacker

Stephen is the Director of the Michigan Math and Science Scholars and an Associate Professor in the Department of Mathematics. He did his undergraduate work at Santa Clara University and received his Ph.D. from The University of Chicago. Before joining the faculty at the University of Michigan, he had appointments at Harvard and The University of Chicago. He is interested in using geometry and analysis to answer certain questions which arise in number theory. He spends nearly every mathematical free moment with his family; but in his spare time, he fixes his house -- be sure to ask for amusing stories about this.

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