

Alumni in Academia...

Dr. Michael J. Mills

Associate Professor
Department of Materials Science and
Engineering at The Ohio State Univer-
sity

BS. in Metallurgical Engineering,
San Jose State University, 1980
M.S. and Ph.D. in Materials Science and
Engineering, Stanford University, 1985

Dr. Mills dissertation topic at Stanford was the creep deformation and microstructure of aluminum solid solution alloys. After two years at the Ecole Polytechnique Federale in Lausanne, Switzerland, Dr. Mills joined Sandia National Laboratories in Livermore, CA. Then in the fall of 1994, Dr. Mills joined the faculty of the Department of Materials Science and Engineering at the Ohio State University in Columbus, Ohio. His primary research interests are in the relationship between microstructure and mechanical properties of materials, with special emphasis on transmission electron microscopy techniques. His present research includes studies of creep in commercial Ti alloys, dislocation processes in NiAl and FeAl intermetallics and chemistry in ceramic-based sensors for harsh, high temperature environments. Dr. Mills reflects on his SJSU experience in the following statement:

SJSU is a big, dynamic university in which students can sometimes feel like just a "number" as one sits in a large lecture hall with 200 plus other students, like in undergraduate chemistry, for example. When I took my first MatE class in 1978 from Professor Bob Anderson, I immediately sensed something different about the subject and the department. The smaller size of the department allowed for direct contact with the professors. This is something I had rarely experienced up to that point. This more intimate setting, combined with the excitement which gradually developed in me concerning the field of materials engineering, made me feel that I had found an academic "home".

I received a solid background in MatE during my undergraduate career at SJSU. I feel that it would have prepared me well for an industrial position. In fact, I had the wonderful opportunity to work throughout the summers following junior and senior years at Hewlett-Packard Research labs in Palo Alto. However, inspired and encouraged in large measure by the MatE faculty, I set

my sights on graduate school, and was fortunate to have the option of choosing between Stanford, Berkeley and MIT. I think this is a clear indication of the stature and respect that the Materials program at SJSU commands nationwide. The graduate program at Stanford is extremely rigorous and competitive, attracting students from all the "top" undergraduate programs. But, once again, I feel the education I received at SJSU prepared me extremely well for the challenges of graduate school. I also believe that the changes in the program which have occurred since my time there have only enhanced the educational opportunities at SJSU.



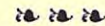
Dr. Joseph D. Andrade

Professor of Bioengineering and
Materials Science & Engineering at
The University of Utah

BS. in Metallurgical Engineering,
San Jose State University, 1965
Ph.D. in Materials Science and Engi-
neering, University of Denver, 1969

Joseph D. Andrade's major technical interests and activities deal with proteins at interfaces, biocompatibility and biosensors. He served as Vice President for Public Policy of AIMBE and was Program Chairman of the 1993 meeting which resulted in the book, Medical and Biological Engineering in the Future of Health Care, University of Utah Press, 1994. He has edited six books, published over one hundred peer-reviewed papers, been awarded five patents, and has served as Dean of Engineering and Chairman of the Department of Bioengineering at the University of Utah.

Andrade's public service and community activities include enhancing elementary school science education and informal science education. He has founded and directs a small biotechnology company, Protein Solutions, Inc., which develops novel materials for science education. He serves as program chair for the Utah Science Center—a discovery based science center for Utah, to open in 1996. He has a particular interest in targeting and focusing biomedical engineering research and development on activities and developments which can significantly reduce the costs of health care.



Dr. William D. Nix

Lee Otterson Professor of Engineering
& Chairman of the Department of Mate-
rials Science and Engineering at
Stanford University

BS. in Metallurgical Engineering, San
Jose State University, 1959
Ph.D. in Materials Science, Stanford
University, 1963

Many of the MatE students at San Jose State are familiar with Dr. William D. Nix from his book, the Principles of Engineering Materials, co-authored by Craig R. Barrett, now Vice President of Intel Corporation, and Alan S. Tetelman. Of course, those faculty in the Department from Stanford University (E. Allen, P. Pizzo and G. Selvadurai) too, are very familiar with Bill and the book! Bill Nix has been the Chairman of the Department of Materials Science and Engineering at Stanford since 1991. Here is the perspective of Dr. W.D. Nix, 1959 alumnus from San Jose State:

My entire career in Engineering has been spent as a teacher, first as a part-time Instructor in Metallurgical Engineering at San Jose State College and later as a regular faculty member in the Department of Materials Science and Engineering at Stanford. Although my mother had always urged me to become a teacher, I originally had no plan to do so. It was not until my senior year at San Jose State in 1958 that I first realized that I would become a teacher. I found myself teaching my fellow students and I enjoyed it. Later that year I accepted a position as a laboratory teaching assistant in the Metallurgical Engineering Department. That experience led me to graduate school at Stanford where I continued to prepare myself as a teacher.

After receiving my B.S. degree from SJSU in Metallurgical Engineering in 1959 (the very first graduate of that new program), I went to Stanford for graduate work in Materials Science. There I received both the M.S. and Ph.D. degrees, the latter in 1963. I joined the faculty at Stanford and started full-time teaching in 1962. My career there has centered around the training of Ph.D. students in Materials Science. My stu-

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Experimental Module Development

Over the last few years, Gopala Rao, full-time temporary faculty member of the Department, has been developing a series of experimental modules to better demonstrate basic materials principles to students. These modules reflect Professor Rao's interests in electronic and magnetic materials; and the mechanical behavior of materials. Here is a list of some of Professor Rao's contributions:

Hall Effect Experiment (carrier concentration and mobility); **Superconductivity** (measurement of critical temperature); **Temperature Effect of Resistivity** (TCR for metals, band gap for semiconductors, 77K to 573K); **Thermoprobe** (to distinguish between n-type and p-type semiconductor materials); **B-H Hysteresis Loop** (BH-loop on oscilloscope: saturation induction, remnant induction and coercive force); **Crystal Models** (1-inch diameter wooden sphere models, and atomic packing fraction structural models); **Four-Point Bend Fixture** (elastic modulus and bend modulus determination from deflection and/or use of strain-gaged specimens).

Professor Rao's commitment to the Department and to the College of Engineering, and his dedication to the students is truly exemplary. On behalf of the MatE faculty, I thank Professor Rao for these, and his many other contributions to the Department.

MatE at SJSU: The Engine That Drives Academia!

Well, maybe this is perhaps too tall a claim. But, this Department has, over the years, graduated students who have made their contribution to the field through teaching and research in an academic career. In this Newsletter, we feature four individuals who have made their mark in a University role: Bill Nix at Stanford University, Joe Andrade at the University of Utah, Rand German at

Penn State, and Mike Mills at Ohio State. I have chosen to call these gentlemen by their 'common' names because they were 'just students' like some of you reading this Newsletter. Have you considered the possibility of an academic career? Perhaps you should. I share a brief description of each of these individuals and, where available, a personal statement they offer to the Class of '96.

• See **Alumni in Academia**, Page 4.

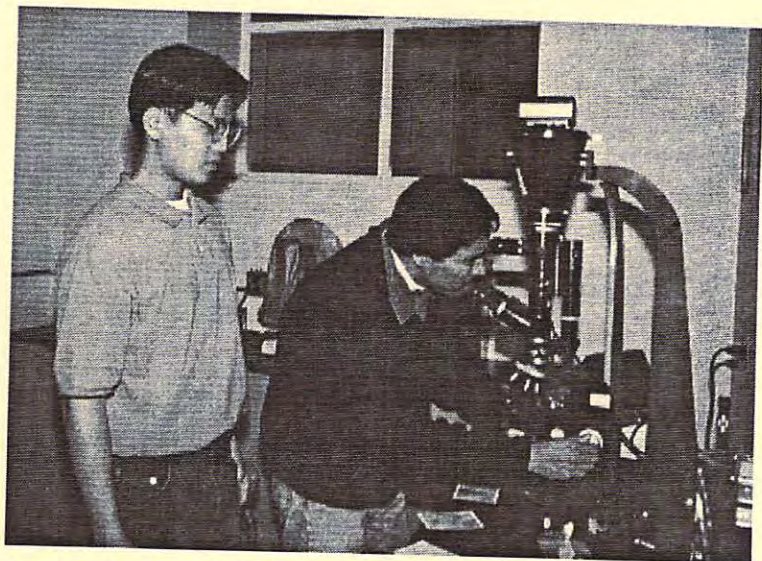
University Research Awards

Two of our students, Kristine Griley and Brian Rodrigues, have been awarded the University's Annual Student Research Award. We are very proud that our department has secured two of a total of only seven awards made by the University this year.

Kristine Griley's award was for her senior project research entitled: Thermal Aging Characteristics of Lead-Free Ag-Sn Solders. This topic is expected to be of increasing interest to the electronics industry as environmental driving forces demand

change. Brian Rodrigues earned his award for his M.S. thesis research on: Electrical Conductivity of Single Phase Alloys. Brian's work is fundamental and will be useful in better comprehending the conduction of electricity through alloy conductors. Dr. Guna Selvaduray was the project and thesis advisor for both Kristine and Brian.

The next stage is the CSU state-wide research forum where Kristine and Brian will be representing SJSU. Keep up the good work!



Jerome Aguas (left) and Julian Collazo performing metallography in the Metals and Alloys course, MatE 154.