Dear Alumni and Friends,

The students, staff and faculty have been very active this past year. I hope you enjoy hearing of their successes. Our third annual Awards Convocation reminds me that we have many outstanding students in MatSE. We have had so much success recruiting outstanding undergraduate students that we are beginning to run out of scholarship monies. You may want to consider establishing a Trustee Scholarship in MatSE. A Trustee Matching Scholarship can be created with an outright gift or pledge at or above the $50,000 minimum endowment level between now and June 30, 2007. The Trustees promise to match your contribution and thus double the scholarship dollars available. Of course, any help that you can give us is greatly appreciated.

Governor Rendell visited Penn State to give a check for $40,000,000 to President Spanier for the new materials building. That is half of the estimated cost of the 200,000 sq ft building that we have been envisioning for almost 10 years. We have many people to thank for moving the materials building onto the funding list. I know I’ll miss some but… Dick Tressler was the first to create the vision for a new building. In the last five years Eva Pell, Vice President for Research and Carlo Pantano, MRI Director were key in their constant pursuit of our dream. Now that part of the money has been procured we have lots to do. We don’t know where the building will be located but we expect construction will begin in 2007-2008.

We received a wonderful gift for graduate fellowships from 3M Company. Dr. Frank Armatis, Laboratory Manager, 3M Corporate Research Laboratory presented a check for $225,000 to support the recruiting of outstanding graduate students. The 3M Fellowships will support three new students each year over the next three years. Thanks 3M!

For those in the Pittsburgh area, we will be hosting an Alumni and Friends reception on Tuesday, September 27, at 7:30 p.m. in the Conference room at the Omni Hotel. Please come to meet friends (you do not have to be registered for the MS&T meeting to attend). As always, when in town stop in and see us.

All the best,

Gary

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Editor: Gary L. Messing
Writer/Editor and Layout: Kim Sterndale

Gary L. Messing
Head, Materials Science and Engineering
Brand new to Materials Science and Engineering – Discovering Materials Science Camp 2005!

This summer MatSE offered a youth day camp for students in grades 10-12 at the University Park Campus. The camp, run by Drs. Allen Kimel and Chris Muhlstien, gave high school students hands-on experience in materials science.

Materials in Forensic Science: Using Materials Science to Investigate the Failure of Materials was held July 6-8. Students learned about forensic materials science and the materials we use in our daily lives, investigated incidents where materials have failed and determined why failure happened based on evidence collected, and more.

Opportunities for Giving

Private support is very important to the Material Science and Engineering Department in a wide variety of ways. Steadily dwindling state appropriations create a critical need for private funds for scholarships, programs, facilities, faculty, and outreach. In the 2004-05 academic year, the Commonwealth of Pennsylvania appropriations to Penn State comprise 11.4 percent of the University’s annual budget. We are infinitely grateful to the many wonderful alumni and friends of the department who have made gifts and created endowments to support the mission of the Department.

If you would like to make a pledge to support an endowed scholarship, please contact Kathy Spicer at 814-863-1779 or by e-mail at kkm1@psu.edu.

Congratulations to the following faculty on their recent awards of tenure:
Venkatraman Gopalan, Associate Professor of Materials Science and Engineering
Zi-Kui Liu, Associate Professor of Materials Science and Engineering
Evangelos Manias, Associate Professor of Materials Science and Engineering

New Faces in MatSE

Kim Sterndale joined MatSE as an administrative assistant in the department head’s office. Kim came to us from the Department of Biology.

Carindu Kornanic, who previously worked in The College of Science Dean’s Office, has joined the financial office staff.

Rachel Fox, who comes to us from University Libraries Human Resources, is one of the newest members of the financial office.

Michelle Matis, who previously worked in the Alumni Association’s Office of Data Access and Services, has filled an open position in the graduate studies office.

Allison Albinski has recently joined Penn State and the undergraduate studies office.

Department of Materials Science and Engineering Undergraduate Funds

Yes, I want to support MatSE with my gift of:

- $50.00
- $100.00
- $250.00
- Other:

To make a gift, please complete and return this form, including a check made payable to The Pennsylvania State University, to 121 Steidle Building, University Park, PA 16802.

Name

Address

Phone

Email

Please use my gift for the following area of need:

- New Undergraduate Processing Lab Fund
- International Internships in Materials
- Undergraduate Equipment Fund
- Undergraduate Travel Fund
Students and Staff Recognized at Annual MatSE Awards Convocation

The MatSE Department celebrated the achievements of its students, staff and faculty at the annual Awards convocation on April 27, 2005, at the Nittany Lion Inn.

More than 175 students, staff, and faculty gathered for a reception and dinner followed by an awards program. After a warm welcome and remarks by Gary Messing, department head, Robert Newnham, Professor Emeritus, Alcoa Professor of Solid State Science, addressed the group sharing his remarkable 50 years of Penn State experience. The program was then handed over to the student emcees. Undergraduate students, Nathan Murphy and Kyle Hoff, presented the undergraduate awards, while graduate students Matt Heidecker and Nazanin Bassiri Gharb presented the graduate awards.

Undergraduate awards were presented in the categories of Academic Excellence, Service, Leadership, and the Undergraduate Poster Competition for Excellence in Undergraduate Research. Graduate student awards were presented for Outstanding Service to the Department and for the Graduate Poster competition. Presentation of the MatSE Staff Excellence Award concluded the program.

MatSE Award for Academic Excellence
Jeffrey Bender

MatSE Service Award
Paul Cha

MatSE Leadership Award
Jennifer Rygel

MatSE Graduate Service Award
Brian Erwin and Brian Marx

MatSE Awards for Excellence in Undergraduate Research

1st Place: Alejandro Levander
“Synthesis of Anisotropic SrTiO3”

2nd Place: Kevin Yocca
“Influence of Crosslinking Lithium Ion Conduction in Poly(ethylene imine) Gel Electrolytes”

3rd Place: Kurtis Chiang
“Preparation of Porous Xerogel-metal Nanocomposites Through Sacrificial Dendrimer Templates”

3rd Place: Craig McCann
“MEMS Summit V Polycrystalline Silicon: Investigating Fracture Strength at Room and Elevated Temperatures”

Undergraduate Team Winner: Team, Brad Jones, Erica Redline, Robert Mizikar and Thomas Winkler
“Ceramic Tubes for Gun Barrel Applications”
Graduate Research Poster Awards

1st Place Individual
Kun Li
"Synthesis and Multiple Self-Assembled Nanostructures of an Oligo (p-phenyleneethynylene) Containing Rod-Coil-Rod Triblock Copolymer"

2nd Place Individual
Amit Kumar
"A Bi-directional Model to Calculate Red Geology Using a Phenomenological Model, a Neural Network"

3rd Place Individual
Lisa Edge
"Thermo Stability of Amorphous Lanthanum Aluminate Thin Films on Silicon"

3rd Place Individual
Olivier Perrick
"MEMS Reliability: The Role of Environment in the Fatigue Behavior of Silicon Thin Films"

1st Place Group: (tie)
Dr. Jim Adair's group
"Particle Science and Technology"

Dr. Jim Run's group
"Structured and Ionic Polymers"

3rd Place Group:
Dr. John Hellmann's group
"Thermomechanical Properties and Performance of Materials at the Nano-, Micro-, and Macrochrome"

Chen Receives Guggenheim Fellowship

Dr. Long-Qing Chen is a 2005 recipient of a Guggenheim Fellowship. The 2005 Fellowship winners include 186 artists, scholars, and scientists selected from over 3,000 applicants for awards totaling $7,112,000. Guggenheim Fellows are appointed on the basis of distinguished achievement in the past and exceptional promise for future accomplishment.

The purpose of a Guggenheim Fellowship is to allow a fellow to secure a block of time, free from other duties, in which to pursue their own scholarly or creative work. Chen will use this fellowship to study the structures and properties of ferroelectric and multiferroic thin films that have potential applications in various functional devices including actuators, sensors, spintronics, electrooptics, and storage devices. He will spend an extended period of time with researchers at the Rutgers University.

More Alumni News

Donald Kupp (B.S. '82) was appointed as associate director of Penn State's Industrial Research Office (IRO). His primary focus is materials research, building on his background and experience in materials as well as his familiarity with material researchers at Penn State. Kupp served in various capacities at Penn State's P/M Lab and with the Department of Materials Science and Engineering during the 1980's and 1990's.

Congratulations to Kyle Stenski (B.S. '97) and his team the Cincinnati Dockers (combined with the Pittsburgh Wallabies), an Australian Rules Football Team, for their victory over Kansas City making them the Division 3 National Champs. What is Australian Rules Football, you ask? Check out www.cincinnatidockers.com to find out!

Andrea Statz (B.S. '03) is part of a research group led by Phillip Messersmith of Northwestern University that is working on biologically inspired polymers for antifouling medical surfaces. Many medical implants fail because cells stick to them and interfere with their operation. Statz is part of a team that is working on a new coating that consists of two linked parts. The first part is a proteinlike polymer designed to prevent cells from sticking to it and is resistant to enzymatic degradation. The second part emulates the adhesive protein in mussel glue, which could prove to be more durable. Statz, who received her B.S. with honors in Materials Science and Engineering in Polymer Engineering and a minor in Biotechnology, is a graduate student in the Messersmith Research Group at the Northwestern University in Evanston. While at PSU, she was advised by Paul Painter, Professor of Polymer Science, and did her honor's thesis, "Osteoblast Interaction with Orthopedic Biomaterials," under the advisement of Erwin Vogler, Associate Professor of Materials Science and Engineering and Bioengineering.

Obituaries

We are saddened to learn of the deaths of Edward M. Anderson (M.S. '67) on September 21, 2004, and Henry Mauze (George) Davis, Professor Emeritus of Chemical Metallurgy at Penn State, on April 19, 2004, at the age of 101 years.

Mr. Anderson was employed by Baikowski Malackoff Inc. with prior affiliation with Reynolds Metals Co., Alcoa Industrial Chemicals, Lanxide Corp., Exxon Research & Engineering Co., Babcock & Wilcox Co., and General Refractories Co. Anderson was a Fellow of the American Ceramic Society and a member of NICE.

Dr. Davis began his career at Penn State in 1936 as a Research Associate in the Ceramics Department which was then in the School of Mineral Industries. He transferred to the Metallurgy Department where he advanced over time to Professor of Chemical Metallurgy. Davis was very active in the Penn State Chapter of the American Society for Metals (ASM). He retired from Penn State as Professor Emeritus in 1962. Davis then worked at the Army Research Office as Director of the Metallurgy and Materials Science Division until his retirement in 1974.
Thank you to all who have contributed to MatSE!

(The following is a list of donors to the department from July 1, 2004 – June 1, 2005. We have checked our records carefully but if you do not see your name listed, please contact us at (814)865-0497 so that we can correct our records.)

**Individuals**

David M. Koncosics  
John C. Kosco  
Mary M. Kosco  
Eleanor W. Krebs  
Thomas M. Krebs  
Amitabh Kumar  
Kakoli Kumar  
Isabel Knowlton Lloyd  
Errol L. Lloyd  
James E. Loftus  
Kimberly Diane Loftus  
V. Jeffrey Martin  
Christine Szocki Martin  
Daniel R. Marx  
Penny S. Marx  
Karen Bickel Mason  
Thomas O. Mason  
James P. Materkowski  
Roberta Materkowski  
Denise Scovel McCarthy  
G. J. McCarthy  
Ronald A. McCauley  
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Lance R. Miller  
Cynthia Kreider Montgomery  
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Matthew J. Morrison  
Suzette K. Pangrle  
Barry M. Pangrle  
Carlo G. Pantano  
Jacqueline A. Pantano  
Howard R. Peiffer  
Alberta Zilinski Perrotta  
Anthony J. Perrotta  
Robert J. Petcavich  
Linda R. Young  
Howard W. Pickering  
Judith A. Pickering  
Stephen R. Preisler  
Aaron D. Proper  
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Lucy Geryak Rusinko  
Kathleen Schumacher Schuyler  
Roy L. Schuyler, III  
Jeffrey R. Shallenberger  
Trish Shallenberger  
Gregory A. Slachta  
Patricia Annette Slachta  
Trevor B. Spence  
Ronald F. Spitzer  
Joyce Spitzer  
Richard M. Spriggs  
Jane Locker Sproat  
Robert L. Sproat  
Michael E. Starsinic  
Donald F. Stock  
Mary Stock  
Jack F. Strange  
Loretta M. Strange  
Michael J. Suscavage  
Theresa Kerly Suscavage  
Tseng-Ying Tien  
Chin Kai Tien  
John C. Turn, Jr.  
Mary Ann S. Turn  
William A. Turner  
Estelle Graessle Turney  
Cynthia M. Ward-Vieira  
Paul Vieira  
Steven A. Warner  
Gail Weiss  
Lon L. Weiss  
Eric J. Whitney  
Ann B. Whitney  
Ruth Dudenhofer Wood  
Martha Zerfoss  
Ping Zhang

**Foundations**

Alcoa Inc.  
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Keramos Nat'l Ceramic Eng. Frat.  
Materials Modification, Inc.  
National Starch and Chemical Fdn.  
Pennsylvania Ceramics Association  
Raytheon Company  
State of the Art Inc.  
Zircoa, Inc.  
3M Foundation
and the University of California-Berkeley. He will also travel to Hong Kong, China, and Germany to attend conferences and workshops as well as to visit a number of research groups during his fellowship. Chen's aim is to develop theories and multiscale computational models for predicting the structures and behaviors of ferroelectric and multiferroic thin films.

Dr. Chen received his B.S. in materials science and engineering from Zhejiang University in China in 1982, an M.S. in materials science and engineering from the State University of New York at Stony Brook in 1985 and a Ph.D. in materials science and engineering from the Massachusetts Institute of Technology in 1990. Chen joined the faculty in the Department of Materials Science and Engineering in 1992.

Christopher Muhlstein Receives NSF CAREER Award

Dr. Christopher Muhlstein has been awarded an NSF CAREER Award for his proposal, "Education and Research in Nanomaterials Degradation: The Road to Molecular Fatigue Studies." This five-year grant is one of the National Science Foundation's most prestigious awards, and is intended to support the development of future academic leaders. Dr. Muhlstein joined the faculty of the Department of Materials Science and Engineering at Penn State in September 2002 after receiving his Ph.D. at the University of California, Berkeley. Since his arrival, he has built a research group and laboratory facilities to explore the limits of structural materials at micro- and nanometer length scales.

The promise of revolutionary technologies has driven an aggressive investment in the science of nanomaterials at Penn State. However, the ability to effectively utilize these materials is ultimately limited by how they degrade and fail. Recent studies suggest that nanoscale materials can accumulate fatigue damage, but how and why such damage accumulates is unknown. As nanotechnology continues to evolve, it will be essential to understand the fatigue behavior of ever-smaller structures, such as macromolecules and metallic nanowires, in order to avoid unanticipated, in-service failures. In Dr. Muhlstein's program four families of nanomaterials that have been shown to be susceptible to fatigue degradation (brittle nanomaterials, ductile nanomaterials, organic monolayers, and macromolecules) will be characterized using electron microscopy and mechanically tested under monotonic and fatigue loading conditions using novel sample preparation and testing techniques with the ultimate goal of identifying the mechanisms underlying damage accumulation in these nanomaterials. This research program is a collaborative effort that will include an educational outreach program with Penn State Public Broadcasting and contributions from faculty at Penn State (Drs. Elizabeth Dickey and Joan Redwing) and technical staff at the National Center for Electron Microscopy at Lawrence Berkeley National Laboratory.

Dr. Howard W. Pickering Receives AESF Scientific Achievement Award for 2004

Howard W. Pickering, Distinguished Professor of Metallurgy, was selected as the 2004 recipient of the AESF Scientific Achievement Award. This award is the American Electroplaters and Surface Finishers Society's (AESF) most prestigious award. Its purpose is to recognize those whose outstanding scientific contributions have advanced the theory and practice of electroplating, metal finishing and allied arts; have raised the quality of products and processes; or have advanced the dignity of the profession.

Dr. Pickering has been a leader in corrosion research, in particular as it applies to metal coatings, specifically electroplated coatings. His work has led to an understanding of the mechanisms of corrosion processes for over 30 years. He has advanced the knowledge and science of the corrosion field and has mentored more than 60 graduate students who have since entered the field.

Dr. Pickering delivered the 2005 William Blum Memorial Lecture at SUR/FIN 2005 in St. Louis, Missouri, where he received the AESF Scientific Achievement Award.
Elizabeth Dickey Appointed as a Ryan Faculty Fellow
The Materials Science and Engineering Department is pleased to announce that Elizabeth C. Dickey has been appointed as a 2005-2006 John T. Ryan, Jr. Faculty Fellow.

Professor Dickey, Associate Professor of Materials Science and Engineering, has been a faculty member at Penn State since 2001, focusing her research in the area of interface science where she strives to develop atomic-level structure/property relationships for internal interfaces, correlating atomic structure and chemistry with interfacial mechanical and electrical properties. Dickey advises a research group of 2 undergraduate students, 7 graduate students and 3 post-doctoral scholars. Her group’s experimental forte is in transmission electron microscopy, which provides spatially resolved structural and chemical information of materials down to the sub-nanometer length scale. She has an NSF-funded research program, which focuses on understanding segregation of solute atoms to grain boundaries in oxide ceramic and the implications for electrical behavior of the material. Similar interfacial issues are studied in several research projects related to capacitors materials within the Center for Dielectric Studies at Penn State. Dickey also has a research thrust in the area of nanomaterials. Through collaborative projects with Professor Peter Eklund, Department of Physics, and Professor Joan Redwing, Materials Science and Engineering, Dickey’s group is studying structure and chemistry of semiconducting nanowires. Of particular interest is the study of interfaces in radially and axially heterostructured wires.

With support from AFOSR, Dickey’s group studies directionally solidified ceramic eutectics (e.g., Al2O3-ZrO2 and LAlB4-ZrB2) for high-temperature structural applications. While part of this program involves studying the interface between the constituent phases, other work focuses on residual stresses which accumulate due to thermal expansion mismatch between the two phases during processing. She has developed techniques for measuring residual stresses in these highly textured materials by x-ray diffraction.

John T. Ryan, Jr. was a mining engineering graduate of Penn State in 1934. The Ryan Fellowships were created to provide supplementary funds to outstanding members of the College of Earth and Mineral Sciences faculty to assist them in continuing and furthering their contributions in teaching, research, and public service.

Pantano and Green Elected to the World Academy of Ceramics
Carlo G. Pantano, Distinguished Professor of Materials Science and Engineering and Director of the Materials Research Institute, and David J. Green, Professor of Ceramic Science and Engineering, were elected to the World Academy of Ceramics. The World Academy of Ceramics is located in Italy, and joins internationally renowned individuals who have made a significant contribution to the advancement of the ceramics field. Professors Green and Pantano were elected as Professional Members (Academicians) in the class of “Science,” of which 26 new members were elected in 2004 worldwide. This brings the number of Penn State faculty to nine. Sridhar Kornaren, Professor of Clay Mineralogy, was also elected in 2004. They join Professors R. E. Newham, L. E. Cross, R. Roy, D. M. Roy, R. E. Tressler, and G. L. Mesinger as members of the academy.

More Student Awards
Jennifer Rygel, a junior in the Integrated Undergraduate/Graduate MatSE Degree Program, received the 2005 Evan Pugh Scholar Award. Jennifer is involved in many clubs and committees, including President, Earth and Mineral Sciences Interest House, Irvin Hall, Vice President, Keramos National Professional Ceramic Engineering Fraternity; and Penn State Chapter President, Penn State Material Advantage Club.

Alejandro Levander received the 2005 President’s Freshman Award. Alejandro is a 2004-2005 MatSE Undergraduate Research Fellow, a member of the Materials Advantage Club, and was recently accepted into the NSF Research Experience for Undergraduates program. Alejandro’s research interests lie in protective polymeric coatings. Jennifer and Alejandro received their awards at the University Park Student Awards recognition event on Saturday, April 9, 2005.

Undergraduate student Melissa Lackey, studied abroad with the Education Abroad program at the University of Leeds during the 2005 spring semester. Melissa was a Leeds student senator through June, taking a variety of classes including some in materials.

Kevin Fox, graduate research fellow in Materials Science and Engineering, was awarded a scholarship to attend the 2005 Winter School on High Resolution Electron Microscopy, held in January at Arizona State University. Kevin attended lectures and laboratory demonstrations, with an emphasis on “hands-on” experience of high resolution operation. He is advised by Dr. John Hellemann.

Graduate student David Scrymgour has won the prestigious Truman Fellowship at the Sandia National Labs, Albuquerque, NM. He was one of only five finalists, and one of only two awardees this year. David graduated with a Ph.D in Materials Science from Penn State in December 2004 with Prof. V. Gopalan as his advisor. His thesis work titled "Local structure and shaping of domain walls for photonic applications," involved nanoscale probing and phenomenological modeling of a single ferroelectric domain wall, and shaping domain walls to demonstrate a number of novel electro-optic devices. His thesis won the "MRI Best Thesis Award" in 2005. At Sandia, David will continue to explore his interests in nanoscale science and optical materials.

MatSE graduate students, Saurabh Mishra, Sara Prins, Michael Ugurek, Jingxian Zhang and Yancheng Zhang, are the recipients of the 2005 Kennesaw Graduate Student Fellowship Awards. These awards are for continuing MatSE graduate students who have exhibited academic excellence at Penn State; and who are working on topics related to Kennesetel’s interests. Awardees will be expected to visit Kennesetel during the academic year to discuss their research projects.

Nazarin Bassiri Gharb, a graduate student in Materials Science and Engineering, was the recipient of the General Motors Corporation 2005 Society of Women Engineers Scholarship Award. Nazarin’s poster, Non-Linear Dielectric and Piezoelectric Response in [111] and [100] Oriented 0.5PbTiO3 Thin Films” was also the winner of the 2004 IEEE UFFC Joint 50th Anniversary Conference student poster competition. She is advised by Dr. Susan Trollier-McKinstry.

Francelys Medina, graduate student advised by Professors Michael Lunaghan and James Adair, received the NSF Graduate Research and Education in Advanced Transportation Technologies fellowship for 2004/2005.

Shenyang Hu received the 2005 MRI Student Research Award in the Ph.D. category. Shenyang graduated with a Ph.D. in Spring 2004 and was advised by Dr. Long-Qing Chen. Shenyang also received a two year Director’s Postdoctoral Fellow appointment at Los Alamos National Laboratory where he will be doing research in the area of computational simulations of phase stability and microstructure evolutions in Po-Ge and Al-Ga alloys with hybrid molecular dynamics, thermodynamic calculation and phase-field approaches.

Ravi Dhurjati won 2nd place in the category of Engineering, at the 20th Annual Graduate Poster Exhibition held at Penn State in March, 2005. Ravi is a graduate student in MatSE under the advisement of Dr. Erwin Vogler.

John Creek won 3rd Place in the Physical Sciences Category at the 20th Annual Graduate Poster Exhibition held at Penn State in March, 2005. John, a graduate student in MatSE, is co-advised by Dr. James Runt, MatSE, and Dr. Greg Ziegler, Food Science.

Bernd Wittke, a Ph.D. student in the metals option, won 1st place in the poster competition of the chemistry and materials science division at the 7th Annual Environmental Chemistry Student Symposium held at Penn State. Bernd is advised by Dr. Howard Pickering.
**Student Scoop**

**Congratulations MatSE Graduates Fall 2004, Spring 2005**

**B.S. degrees**
- Jeffrey Bender
- Paul Cha
- Christopher Deeble
- Sarah Diits
- Paul Hauge
- Kyle Hoff
- Ju Pyo Hong
- Brian Julius
- Brian Kim
- Jessica Kohler
- Lok Man Norman Li
- Sarah Mansuetti
- Craig McCann
- Ioanna Mina
- Joseph Moretz
- Nathan Murphy
- Joshua Panfile
- Amish Shah
- Jaclyn Shearer
- Nevin Sherlock
- Daniel Shir
- Robert Smith
- Seth Stewart
- Amra Tabakovic
- Thomas Taggart
- Christopher Walton
- Arwen Wilson
- Andrew Woodruff
- Kevin Yocca
- Melissa Zimmerman

**M.S. degrees**
- Leon Amelinckx
- Chad Eichfeld
- Morgan Smith
- Maria Zapata

**Ph.D. degrees**
- Lennart Berg
- Elam Leed
- Sean Sweeney
- Mustafa Telli
- Ahmed Touny
- Hsiao-An Wang

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**Alumni News**

**Gary Weber Recipient of 2005 McFarland Award**

Dr. Gary Weber, materials science and engineering alumnus and former Associate Vice President and Director of Technology Transfer at Penn State, was the recipient of the 2005 David Ford McFarland Award for Achievement in Materials Science at the 57th annual banquet on Saturday, April 23. Dr. Weber presented the McFarland lecture titled “From Submarines and National Labs to Industry and Academia – A Career in Materials Science.”

Dr. Weber earned his B.S., M.S., and Ph.D. degrees in Ceramics Science at Penn State. He has held executive research positions at Oak Ridge National Lab, Carborundum/SOHIO, General Electric and PPG Industries. In 2000, Dr. Weber joined Penn State as Associate Vice President for research and the Director of Technology Transfer where he was responsible for intellectual property activities and commercialization.

Dr. Weber is currently involved in the technical community by serving on several boards of directors and advising committees, including the Ben Franklin Center of Central and Northern PA, Austrian Research Centers of North America, High Peaks Venture Partners VC firm, and NASA SBIR small company program.
MatSE Faculty Honored at EMS Wilson Awards Banquet

MatSE was well represented at the College of Earth and Mineral Sciences annual Wilson Awards Banquet held on Sunday, April 17, 2005. MatSE faculty members were honored for excellence, service, and mentoring.

Venkatraman Gopalan, Associate Professor of Materials Science and Engineering, received the Wilson Award for Excellence in Research, the college’s highest honor for sustained research achievement. Gopalan was recognized for his exceptional accomplishments in the field of optoelectronics and ferroelectronics. The totality of his research accomplishments, as measured by the number of peer reviewed papers, citations, invited talks and peer comments, demonstrates that Gopalan has excelled and consequently brought international recognition to the Department of Materials Science and Engineering, the College and Penn State as the home for ground-breaking materials research.

Tarasankar DebRoy, Professor of Metals Science and Engineering, received a Special Appreciation Award as an outstanding faculty member who has served his profession and the University diligently at all levels.

Earle Ryba, Associate Professor of Metallurgy, and John Hellmann, Professor of Ceramic Science and Engineering, were honored for excellence in teaching with a Gladys Snyder Education Grant for “Collaborative learning using industrial problems in materials science and engineering.”

Erwin Vogler, Associate Professor of Materials Science and Engineering and Bioengineering, received the Wilson Award for Excellence in teaching. Vogler has a very lucid teaching style with great emphasis on motivating his students to think independently while relating his course materials to everyday situations where the relevance and application can be seen. His energy and willingness to share his knowledge and work individually with the students in his classes significantly contribute to shaping a future generation.

Tarasankar DebRoy, Gary L. Messing, Distinguished Professor of Ceramics, Carlo Pantano, Distinguished Professor of Materials Science and Engineering, and James Runt, Professor of Polymer Science, were recognized for 25 years of committed service.

Paul Painter, Professor of Materials Science and Engineering, received a Faculty Mentoring Award in Earth and Mineral Sciences. Painter was recognized for his leadership of the Polymer Science Club where his personable and caring way has endeared him to legions of polymer graduates.
Digby Macdonald, Distinguished Professor of Materials Science and Engineering, was elected a Fellow of the World Innovation Foundation. The World Innovation Foundation comprises leading scientists and scholars, many of whom are Nobel Laureates, with the mission of directing scientific inquiry toward the benefit of humankind.


Susan Trollor-McKinstry, Professor of Materials Science and Engineering, attended the Poleer “Winter Course on Piezoelectrics” in Chateau d’Oex, Switzerland where she gave an invited lecture titled, “Fatigue Anisotropy in Relaxor Piezoelectrics.” While in Chateau d’Oex, she taught a short course on Crystal Chemistry to over 35 students from Universities across Europe. Trollor-McKinstry also delivered an invited lecture, “Templated Grain Growth for Enhanced Piezoelectric Properties in Reduced Pb Systems,” at the POLEER meeting on “Electroactive Materials and Sustainable Growth” at the Abhay Le Vaux de Cernay, May 2005.

Long-Qing Chen, received the Outstanding Young Scientist Award from the National Science Foundation of China from which he will receive research funding to support his collaborative research with Beijing University of Science and Technology on Phase-Field Simulation of Ferromagnetic Shape Memory Alloys.


Darrell Schlam, Professor of Materials Science and Engineering, was elected to The Materials Research Society’s Board of Directors for the 2005-2007 term.

Robert E. Newnham, Alcoa Professor Emeritus, Solid State Science, was elected as a Fellow of the Institute of Electrical and Electronic Engineers (IEEE). Newnham gave a plenary address at the fiftieth anniversary of the UFFC Division of the IEEE on “Fifty Years of Ferroelectrics” which summarizes the many advances in ferroelectric materials and ultrasonic applications made at Penn State.

Newnham’s new book on crystal physics and structure-property relationships, “Properties of Materials: Anisotropy, Symmetry, Structure,” was published in January 2005. It covers a very wide range of physical properties and engineering applications, and is suitable for teaching a one- or two-semester course. Published by Oxford University Press, his book is available in both paperback and hardcover editions.

107th Meeting of The American Ceramic Society

The American Ceramic Society held its 107th Annual Meeting in Baltimore, Maryland, April 10-13, 2005. A number of MatSE faculty, students and alumni were honored with awards at the Awards Banquet on April 12.

Clive A. Randall, Professor of Materials Science and Engineering and Director, Center for Dielectric Studies, was named a 2005 Society Fellow.


Gary L. Messing, Distinguished Professor and Department Head, received the Ceramic Educational Council Outstanding Educator Award.

Kevin Fox, graduate student, was awarded the Sapphire GEMS (Graduate Excellence in Materials Science) Award by the Basic Science Division for his presentation: “Microstructural Characterization and Impression Creep Testing of SiAlON Ceramics.” Kevin’s advisors are John R. Hellmann, David J. Green, and Elizabeth C. Dicke. His project is funded by Kennametal Inc. and the US Department of Energy.

Niall J. Donnelly, a Postdoctoral Scholar working in Clive Randall’s Laboratory at the Materials Research Institute, received the Best Student Presentation Award-Oral Category, Electronics Division.

David W. Johnson, Jr. (B.S. 64, Ph.D. 68), retired from Agere Systems, Incorporated, received the Distinguished Life Membership, the Society’s most prestigious grade of membership.

Saint-Gobain Ceramics and Plastics, Incorporated received the Corporate Technical Achievement Award for development of Cerastat™ Electrostatic-Discharge Dissipative Ceramics zirconia, Oh-Hun Kwon (Ph.D. 86) accepted the award. Kwon, a research manager for Saint-Gobain Ceramics and Plastics, is one of the inventors of Cerastat, a high-density ceramic that dissipates static electricity. The patented ceramic has wide-ranging applications, including on tools used in the manufacturing of magnetic heads, on wafer handling containers and fixtures, and during assembly of hard disk drives.

Ramakrishna T. Bhatt (Ph.D. 75), a Senior Materials Research Engineer in U.S. Army Vehicle Technology Directorate, NASA-Glenn Campus was named a 2005 Society Fellow.

Christine Langton (Ph.D. 80), currently at the Savannah River Site, South Carolina, was named a 2005 Society Fellow.

John Hellmann, Professor of Ceramic Science and Engineering, completed a successful term as President of NICE.
Upcoming Events

2005 Nelson W. Taylor Memorial Lecture

The 2005 Taylor Lecture in Materials will be held Friday, September 16, 2005 in 117 Auditorium, Hetzel Union Building, with Professor Marvin L. Cohen presenting the Taylor Lecture entitled "Quantum Alchemy and Reflections on the WYP 2005 and Einstein," at 11:00 a.m. Cohen is a University Professor in the Department of Physics at the University of California at Berkeley, and Senior Scientist at the Lawrence Berkeley Laboratory. He is a member of the National Academy of Sciences, the American Academy of Arts and Sciences, and a Fellow of the American Association for the Advancement of Science. In 2002, Cohen received the National Medal of Science.

The theme of the Taylor Lecture this year is computational materials science. The lecture series will begin at 9:00 a.m. with Lectures from Penn State speakers, Long-Qing Chen, Professor of Materials Science and Engineering, Vincent Crespi, Professor of Physics and Materials Science and Engineering, and Kristen Fichthorn, Professor of Chemical Engineering and Physics.

Student Scoop

First class of Undergraduate Research Fellows in MatSE

The Undergraduate Research Fellows (URF) Program in the Department of Materials Science and Engineering was launched in the spring semester. The goal of the URF is to encourage undergraduate students to pursue research experiences with MatSE faculty. The program is limited to Freshman-Junior level students. The Fellows presented the results of their research at the departmental poster competition on April 27, 2005.

The 2004-2005 URFs and their advisors are:
- Front row: Trevor Buehl (Suzanne Moloney); Zana Cranmer (Joan Redwing); and Krystle Dzienis (Qing Wang).
- Back row: Mark Burton (John Hellmann); Matt Scates (Chris Muhlstein); and Alejandro Levander (Gary Messing).
- Not pictured: Kurtis Chiang (Ron Hedden).

Students Honored at EMS Wilson Awards

Several MatSE undergraduate students were honored for their achievements at the College of Earth and Mineral Sciences annual Wilson Awards Banquet on Sunday, April 17, 2005.

Mark Burton, an undergraduate in the metals science and engineering option, received the George W. Brindley award in Nonmetallic Crystal Chemistry. The award honors the memory of Dr. George Brindley who was head of the Department of Ceramic technology from 1955 to 1962. This award recognizes materials science students who do outstanding work in crystal chemistry.

Craig McCann and Arwen Wilson, graduates of the metals science and engineering option in Spring 2005, each received the Robert W. Lindsay Award in Metallurgy. This award honors the memory of Dr. Lindsay who served 27 years on the faculty and was head of the Department of Metallurgy from 1960 to 1969. The award recognizes students who do outstanding work in physical metallurgy.