Dear Alumni and Friends,

What a remarkable time! As we go to press we have just learned that Professor Osseo-Asare was elected to the National Academy of Engineering - which is the pre-eminent recognition of one’s contributions. Osseo was cited for “his contributions to the fundamental understanding of interfacial phenomena in leaching and solvent extraction.” We will have a one-on-one feature with Osseo in our next issue. We also learned that Emeritus Professor Robert E. Newnham (Bob) will be recognized with a Benjamin Franklin Medal in April for his seminal contributions to the field of acoustic imaging (see story inside). This award is one of the premier awards in the field of science and engineering. The list of awardees is a veritable list of who’s who in the U.S. We are exceptionally happy for Bob and Osseo and proud to have them amongst the faculty. Join us in congratulating them with an email or phone call. I know they would like to hear from colleagues, friends and former students.

Major changes are about to take place this spring when the new Earth and Mineral Sciences Museum will open in Deike building with Dr. Russell W. Graham, Chief Curator of the Denver Museum of Science and Nature joining the EMS community as the Director of the new museum. We look forward to moving some of the mineral displays to the new location and to developing new displays extolling the excitement of materials to young people as well as the public. If you have any interest or inside information about exciting materials displays that you’ve seen lately, please let us know.

Finally, we will be forever grateful to Fred and Peggy Langenberg for contributing major resources to the development and support of the new Langenberg Technology Classroom that will replace the current mineral museum in the middle of Steidle (see story inside).

We have seen many changes in both the department and college since last year. We invite you for a tour this summer at the Open House during Arts Festival week (Jul. 7 – 11). Hope to see you here or on the road.

All the best,

Gary

Congratulations to Kwadwo Osseo-Asare, professor of metallurgy and geo-environmental engineering, on his recent election to the National Academy of Engineering (NAE)! Election to NAE is among the highest professional distinctions accorded to an engineer. Osseo-Asare was cited for his contributions to the fundamental understanding of interfacial phenomena in leaching and solvent extraction. Please join us in congratulating Prof. Osseo-Asare at asare@matse.psu.edu or (814) 865-4882.
Emeritus Professor Robert Newham to receive prestigious Benjamin Franklin Medal

The Franklin Institute recently announced that Robert E. Newham, professor emeritus of solid state science in the Department of Materials Science and Engineering, is the recipient of the prestigious Benjamin Franklin Medal in Electrical Engineering for 2004. He will receive the award at the Franklin Institute Awards ceremony and dinner, being held at the Institute in the Benjamin Franklin National Memorial in Philadelphia, Pennsylvania on April 29. Newham is awarded the award "for his invention of multipole piezoelectric transducers and their spatial application, which revolutionized the field of acoustic imaging."

Newham formulated the basic design rules to aid in fabricating effective composites for electronic and transducer applications. In the late 1970’s, he invented the composite piezoelectric transducer that has revolutionized fields of engineering such as undersea acoustics, medical ultrasound, wireless communications, and the chemical industry. In addition to being a pioneer in the field of electronic composites, Newham is acknowledged as the father of a unified nomenclature for piezocomposites.

Newham was educated at Harvard College (B.S., mathematics), Colorado State University (M.S., physics), The Pennsylvania State University (Ph.D. physics) and Cambridge University (Ph.D., crystallography). Prior to joining the Penn State faculty, he worked at Laboratory for Insulation Research at M.I.T. The author of more than 500 papers and 20 U.S. patents, Newham has been active in the Institute for Electrical and Electronic Engineers, the American Ceramic Society, the Materials Research Society, and the American Crystallographic Association. He is a member of the National Academy of Engineers, the International Academy of Ceramics, and has received numerous awards for his teaching and research.

For nearly 180 years, the Franklin Institute has honored the greatest men and women of science, engineering, and technology. The Franklin Institute Awards identify individuals whose great innovations have benefited humanity, advanced science, launched new fields of inquiry, and deepened our understanding of the universe. The legacy of the awards program is an "honor roll" of scientific and technological accomplishment including such names as Thomas Edison, Marie Curie, Alexander Graham Bell and Albert Einstein, to name a few. These brilliant men and women honor the legacy of Benjamin Franklin.

A special symposium organized by Peter Lewis of Drexel University, Newham’s nominator, and the Materials Research Institute will take place on April 28. The Symposium schedule and participation details can be found at http://www.mri.psu.edu/conferences/FranklinAwards/

Congratulations may be passed on to Prof. Newham at bobnewham@psu.edu or (814) 865-1612.

Materials researchers receive grant for small-angle x-ray scattering instrument at Penn State

Three Penn State faculty were recently awarded a grant from the National Science Foundation to purchase a small-angle x-ray scattering instrument, the first instrument of its kind at Penn State. Ralph Colby, professor of materials science and engineering, Paul Sokol, professor of physics, and James Rant, professor of polymer science and engineering and associate head for graduate studies in materials science and engineering, received the grant for their proposal, “Acquisition of small-angle x-ray scattering with in situ shear for materials research and education.”

Small angle x-ray scattering (SAXS) is one of the most powerful analytical tools for probing the structure of materials on 2–100 nanometer length scales. These length scales cover a diverse spectrum of research at the University. As the only existing SAXS instrumentation at Penn State, the acquisition of this instrument is particularly important. Previously, faculty and students were forced to travel to national laboratories to perform even the most preliminary x-ray scattering experiments, severely limiting the number of students exposed to this important technique and the quality of their education.

Also, the new SAXS instrument will strengthen existing research programs of all users and enable new research and collaboration. The equipment is located in Hosler building and is part of the Materials Characterization Laboratory (MCL), a fully staffed analytical laboratory serving the University’s materials community and offering a range of state-of-the-art analytical techniques and support services.

For more information on the SAXS instrument, please contact Mark Angelone of MCL at mas3@psu.edu or 883-9350 or visit 7 Hosler building.

Ultra-thin coating traps DNA on a leash

A coating that tethers DNA to a glass surface and allows the molecule to attach in three different places could make DNA microarrays denser and more affordable, according to Penn State materials scientists.

DNA is the basis of enormous efforts in research and development in pharmaceutical and chemical industries across the country. To assay large numbers of DNA fragments, researchers use DNA microarrays—sometimes called biosips or genome chips. Currently, manufacture of these chips is time consuming and expensive.

Carlo G. Pantano

Glass is the common, inexpensive substrate base for optical detection in DNA microarrays. However, the glass surface is slippery and DNA will not stick in place. Penn State researchers have developed a coating made of molecules with one side that binds to glass and the other side that grabs on to DNA strands to solve this problem.

"The coating is a single molecule thick, about one nanometer," says Dr. Carlo G. Pantano, distinguished professor of materials science and engineering and director of Penn State’s Materials Research Institute. "The DNA that attaches to this flexible leash is able to act as if it were free floating."

The organic molecules that make up the coating have one end that attaches to the glass and the other end with three functional amine groups where DNA strands can interact and attach.

Retention of DNA is more than 50 percent better than found on DNA microarrays using traditional coatings.

Because fluorescent markers are routinely used with DNA microarrays to locate specific DNA fragments that have hybridized, the underlying glass and the coating need to be as non-fluorescent as possible.

Pantano, working with Samuel D. Conzone and Daniel Haines, research scientists at Schott Glass Technologies, and Efz Eldin Metwalli, Penn State postdoctoral fellow, chose a variety of glasses, including pure silicon dioxide, Borofloat and flat-panel display glass, to test for self fluorescence of the glass and the coated glass. The researchers found that the coating did not change the self-fluorescence of the slide.

“Research on coatings for DNA microarrays is driven by the need to put more spots on each slide so that more potential drugs or genes can be tested at once,” says Pantano. "With less self-fluorescence, better adhesion of the DNA probes, and more functionality of the tethered DNA, we are moving in the right direction. Perhaps we will find a way to produce re-usable microarrays.”

Schott Glass Technologies of Duryea, Pa., has now licensed the coating, supplied the glass and is developing it. Penn State has filed for a patent on this work which was supported by Schott Glass and Penn State’s National Science Foundation Materials Research Science and Engineering Center (MRSEC). 

Contact: A'Vorse Messer, nem1@psu.edu, 814-865-4941. For the full article go to: http://live.psu.edu/story/4923
Printing plastic circuits stamps patterns in place

When Benjamin in “The Graduate” was told to go to plastics, computers were in their infancy and silicon technology ruled. Now, conducting organic polymers are infiltrating the electronic market and the watchword is once again plastics, according to Penn State researchers. “For plastic circuits we cannot use the old processing,” says Qing Wang, assistant professor of materials science and engineering. “Photolithography and silicon technologies require harsh environments and plastics cannot hold up to them.”

Wang, working with Ziqi Liang and Ken LI, graduate students in materials science and engineering, are looking into novel processing methods for production of organic conducting polymer circuits. One method that is low cost, easy to do, fast and adaptable to large areas and non-flat surfaces, is micro contact printing. “We use conducting polymers that are functionalized,” Wang told attendees at the annual meeting of the American Chemical Society in New York. “They have functional groups attached that allow them to be soluble and to attach to the surface.”

Attachment is important as most polymers are slippery and do not want to adhere to surfaces. In conventional ink printing, ink is held onto the paper by surface interactions, but not by chemical reactions. When printing a plastic electronic device, surface interactions are not strong enough to hold the polymer ink onto the surface.

In conventional printing, ink is placed on the plate and then the ink and paper are brought together for a very short time during which the wet ink is transferred to the paper. When printing polymers on organic acid coated gold, the process is different. The researchers use a pliable stamp of the submicron pattern they wish to transfer. They then apply the polymer “ink” to the stamp surface and dry it. The stamp and the substrate are held in contact for 30 minutes while the polymer transfers to the substrate. Because the stamp is pliable, this printing method is applicable to curved surfaces. A wide variety of opto-electric devices are possible, including light-emitting diodes, field effect transistors, lasers, solar cells and chemical and biological sensors.

Wang has investigated the resulting patterns using a variety of microscopic techniques to ensure that the pattern created on the surface is continuous and usable. Micro contact printing does create patterns with some defects, but the researchers believe that the resultant product is usable. “Micro-printed patterns of conducting polymer need to be used in applications where some defects can be tolerated,” says Wang. “Although we do optimize the printed pattern as much as possible.”

The Commonwealth of Pennsylvania’s Lehigh-Penn State Center for Optical Technologies supported this work.

Contact: Andrea Messer, kmess@psu.edu, or Vicki Fong, vfong@psu.edu, 814-865-9481. For the full story go to: http://live.psu.edu/story/1991

MatSE honors Charles Lieber with 2003 Nelson W. Taylor award; 2004 lecture series planned

“Materials at the Nanoscopic,” was the theme of the 2003 Nelson W. Taylor Lecture Series in Materials Science and Engineering, held on September 4 and 5, 2003 on the University Park campus.

Charles M. Lieber who holds the Mark Hyman, Jr. Chair of Chemistry and a joint appointment in the Department of Chemistry and Chemical Biology and the Division of Engineering and Applied Sciences at Harvard University received the 2003 Nelson W. Taylor Award in recognition of his outstanding contributions in nanoscale materials. He presented, “Nanoscience and nanotechnology: Building a big future from small things” to a standing room only crowd at the HUB-Robeson Center Auditorium. The lecture series also included presentations from Penn State faculty from the departments of electrical engineering, chemical engineering, chemistry and materials science and engineering, who are experts in various aspects of nanotechnology.

A native of Philadelphia, Lieber received his B.S. degree in chemistry from Franklin and Marshall College. After completing his Ph.D. at Stanford University and postdoctoral work at the California Institute of Technology, Lieber began his career as an assistant professor at Columbia University in 1987. Since moving to Harvard in 1991 as professor of chemistry, he has won numerous awards including the Feynman Award in Nanotechnology, ACS Pure Chemistry Award, NSF Creativity Award, and Leo Hendrik Baekeland Award. He is a Fellow of the American Academy of Arts and Sciences, American Physical Society and the American Association for the Advancement of Science, and serves on the Editorial Advisory Board of several science and technology journals. He has published more than 200 papers in peer-reviewed journals and is the principal inventor on more than 15 patents.

The Nelson W. Taylor Lecture Series honors the memory of Nelson W. Taylor, professor and head of the Department of Ceramics, 1933-43, who was responsible for establishing Penn State as an important center for ceramic research.

The 2004 Nelson W. Taylor Lecture on “Functionally Active Materials” will be held on Friday, September 17.

Paul Becher named distinguished speaker in MatSE; 2004 distinguished speaker series planned

The Department is proud to welcome its newest faculty member, Ronald Hodden, who joined the department at the beginning of the fall semester as an assistant professor of materials science and engineering. Hodden returned to the University in August 2003 after receiving his B.S. from Penn State in 1995 and his Ph.D. from Cornell University in 2000, both in chemical engineering. He was employed as a National Research Council Research Associate from 2000-2003 at NIST in Gaithersburg, MD.

Hodden holds a position as co-funded with the Materials Research Institute.

Paul F. Becher of the Metals and Ceramics Division at Oak Ridge National Laboratory was an honored speaker at the department’s Distinguished Speaker Series last fall. Becher presented, “The Effects of Additives on the Microstructure and Properties of Silicon Nitride Ceramics.”

Becher received his B.S. and M.S. in Metallurgical Engineering from the University of Missouri-Rolla in 1963 and 1964, respectively, and his Ph.D. in Materials Engineering from North Carolina State University in 1970. Becher’s research activities span the areas of microstructural design of ceramics, toughening mechanisms in ceramics, interface structure and behavior in ceramics, composites, coatings, films, deformation, fracture, fatigue, thermal stress and creep behavior of ceramics and composites, and ceramic processing. He is past-president of the American Ceramic Society and a member of the National Academy of Engineering. He has authored or co-authored over 240 technical publications in these fields and presented numerous invited lectures in the U.S. and overseas.

This spring semester the 2004 Distinguished Speaker Series in Materials Science and Engineering will recognize Robert Davis of North Carolina State, Sheldon Weidhern of the National Institute of Standards and Technology, Austin Chang of the University of Wisconsin, and Matthew Tirrell of the University of California at Santa Barbara. (Please see page 12 for dates.)
Professor Ralph Colby named Fulbright Scholar and authors new textbook

Ralph H. Colby, professor of materials science and engineering, has been named a Fulbright Senior Scholar for 2004-05. Under the Fulbright grant, Professor Colby will travel to New Zealand where he will teach and conduct research at Victoria University of Wellington from January through June of 2005. There he will be working with Dr. Paul Callaghan, professor of chemical physics, on NMR imaging of albumin aggregation in synovial fluid. Professor Colby will also be teaching a graduate course from his new textbook, Polymer Physics, which he co-authored with Michael Rubinstein of the University of North Carolina at Chapel Hill and was published by Oxford University Press in 2003. Professor Colby’s wife and youngest son will travel with him to New Zealand next year.

MatSE staff honored by the College of Earth and Mineral Sciences

Cindi Mihalik, staff assistant in materials science and engineering (MatSE), recently received the College of Earth and Mineral Sciences (EMS) Outstanding Staff Award. Eric Barron, dean of EMS, presented Mihalik with the award at the college’s Staff Appreciation Luncheon held annually at the Nittany Lion Inn. Mihalik, who currently works in the MatSE financial office, received the award for her contributions to the College and dedication to her job. Mihalik’s nominators and supporters said of her, “Cindi is being nominated for her exceptional growth as a professional. She is courteous and has the complete trust of the faculty and staff in her support of the department. Cindi’s positive outlook on the department is very refreshing; both faculty and staff appreciate her enthusiasm.” Mihalik has been with the college and department for nearly 21 years.

Two other MatSE staff were honored at the luncheon. Debbie Evec, staff assistant in the MatSE department office, received a Five Years of Service Award for her service to the University. Frank Driscoll, computer lab supervisor and facilities coordinator, received the On-the-Job-100% Award, which is given to EMS staff who do not use sick time.

Graduate students receive travel fellowships to ECERs meeting in Turkey and PacRim conference in Japan

A contingent of 12 graduate students and faculty were awarded travel fellowships to participate in the July meeting of 8th European Ceramic Society (ECERs) meeting in Istanbul, Turkey. The theme of the meeting was “Let’s meet where the continents meet.” There were 675 participants from 51 countries and a total of 720 papers presented. Two hundred companies participated in the Ceramic Exhibition and.

The fellowships were supported by Dr. Jean Fuller, Manager of Ceramic and Nonmetallic Materials in the Air Force Office of Scientific Research, Gary L. Messing (Penn State), and Suqiu Gu (Penn State), and Dr. Toshio Osakada. The graduate students awarded include: Denny Beaufort (University of Illinois), Matthew Knaus (Penn State), and Paul Toups (Univ of Illinois). The faculty awarded includes Professors David Cam (Iowa State), Allen Kimel (Penn State) and Jon Paul Maria (North Carolina State Univ).

Nine graduate students were awarded National Science Foundation supported travel fellowships to participate in the September meeting of 5th Pacific Rim meeting in Nagoya, Japan and to tour Japanese ceramic manufacturing plants. There were 240 symposia and a total of 1150 presentations at PacRim 5.

The fellowships were supported by Dr. Lynnette Madsen, Program Director of Ceramics, Division of Materials Research, National Science Foundation. The students were teamed with Japanese students and visited NTK and NGK manufacturing plants in Nagoya, and Morita in Kyoto. In addition the students were taken on a sightseeing tour of Kyoto, Nara and Kyoto temples in the Kyoto area.

Wataru Sakamoto (Nagoya University) and Gary L. Messing (Penn State) co-organized the travel program. Travel fellows included Ellis S. Buckford (Penn State), Kevin Fox (Penn State), Jennifer Giconi (MIT), Matthew Hall (Alfred University), and from Drexel University were Elizabeth Hoffman, Jennifer Jordan, Tom Juliano, Nevin Naguib, and Michael B. Sigman, Jr. (University of Texas).

MatSE develops undergraduate research opportunities in biomaterials

Students whose interests cut across the boundaries of materials research and biology are choosing materials science and engineering as an undergraduate major and are gaining valuable research experience in the emerging field of biomaterials. Biomaterials can be classified as any material used in modern medicine that comes into contact with the body, from sterile disposables (such as syringes, needles and sample collection containers) to implantable devices for drug delivery and organ replacement (such as insulin pumps, stents and the artificial heart). Materials Science and Engineering (MatSE) is providing research experience for undergraduate students interested in this growing area of biomaterials research, including a minor in bioengineering.

Arwen Wilson was recently awarded a National Institute of Health (NIH) fellowship supporting undergraduate research in biomaterials. Wilson’s project, “Surface Engineering in Contact Activation of Blood Coagulation” is led by Erwin Vogler, associate professor of materials science and engineering, who is her advisor, and Christopher Siedlecki, assistant professor of surgery and biomedical engineering at Hershey Medical Center. Wilson’s research is being conducted in Dr. Vogler’s Biomaterials Surface Science Laboratory in Stieble building. The focus of Wilson’s research is specifically aimed at discovering ways to reduce blood clotting in the application of medical devices. One of the ways to solve this problem is to understand how blood proteins interact with biomedical surfaces and cause clotting. Wilson is working together with Anndi Kristianson, graduate assistant in bioengineering.

Amra Tabakovski, another undergraduate student in MatSE, is also gaining experience in biomaterials research under the supervision of Dr. Vogler. Tabakovski’s project, “Orthopedic Biomaterials,” focuses on the interaction of osteoblast cells with bone-implanting materials. Orthopedic biomaterials, as important in the development of prostheses and bone cement used in orthopedic medical care, is working with Xiaomel Liu, graduate assistant in bioengineering.

Congratulations to the following MatSE students on their Fall ’03 graduation:

R.S. Degrees
Rebecca Klostur
Jamie Morley
Roben O'Neill
Thomas Prichoik
Shannon Rumenk
Stephen Sollenberger

M.S. Degrees
Timothy E. Bogart
Steven C. De Blasio
Yujin Fan
Maruti C. Uppalapati
Seyit O. Ural
Hsiao-Yuan Wang

Ph.D. Degrees
Caner Duranuc
Richard E. Eitel
He Huang
Vikram K. Koppa
Steven J. Montgomery
Mei S. Ong
Junwu Shen
Shihai Zhang

Arwen Wilson
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Undergraduate scholarship recipients for 2003-04 academic year


Francis Hamilton Byers: Aaron Dawes, Daniel Frenier, Mark Haracznak, Lori Hoch, Jessica Koller, Jayson VanShara

Charles G. & Donna H. Carson: Kurt Chiang, Brad Jones

Michael & Mary Jane Coleman: Lori Hoch

C. Phillip Cook Jr. Memorial: Eric Heinbaug, Jaclyn Sherarer, Arna Tabakovic, Jayson VanShara

Richard: John N. Davies: Rebecca Klossner, Andrew Shindiyagin

DuPont: Jayson VanShara

Dorothy Page Eurlington: Michael Dunkanick, Jacob Snell

Glass Container Industry Res.: Jennifer Rygel, Katherine Williams, Melissa Zimmermann

Donald W. Hamner: Andrew Mackey, Dennis Shay

Homestead Scholarship: Robert Smith, Craig Thomas

F. Hammett: Erin Henry

Harvey Kocher Scholarship: Matthew Benzio, Gary Burke, Paul Haage, Justin Hyska, Ho-Ching Li, Sarah Mansueti, Jennie McGuire, Joanna Mina, Robert O'Neill, Brandon Ribe, Shannon Rummell, Nustin Sherlock, Philip Williams, Arwen Wilson, Andrew Woodruff, Kevin Youca, John Zaharof

Mr. & Mrs. Frank D. Lovett, Sr.: Stephen Solltenberger

Anthony & Alberto Perrotta: Kelli Friedricks, Christopher Gold, Michael Kelly, Julie Sutsko

Sholch Scholarship: Katherine Williams

Starscience Scholarship: Jessica Kohler

State of the Art: Sarah Ditits, Nathan Murphy, Amish Shah, Daniel Shih, Tyler Wise

James & Mary-Ellen Tietjen: Melissa Lackey, Tyler Moyer

Georgia & Madeleine Todd: Jeremy Rabin

Richard E. & Sue A. Tressler: Andrew Mackey, Thomas Mrotek

William & Estelle Turseny: Jessica Kohler, Jamie Morley, Melissa Zimmerman


Sam Zerfoss Memorial: Jeffrey Bender, Paul Cha, Erin Henry, Ju Pyo Hong, Craig McCarl, Stephen Solltenberger, Craig Thomas

EMS deans contribute to new Trustee Scholarship

The three most recent deans of the College of Earth and Mineral Sciences have joined in the effort to help keep a Penn State education accessible by creating a Trustee Scholarship in their college. The Trustee Scholarship Program, launched University-wide last year, aims to ensure that a Penn State degree remains within the reach of all qualified undergraduates, regardless of financial means.

Contributing to the EMS Deans Trustee Scholarship were Eric J. Barron, who has served as dean since July 2002, and his wife, Molly Barron; John A. Dutton, dean from 1985 to 2002, and his wife, Elizabeth Dutton; and Charles L. Hosler, dean from 1965 to 1985.

“With more than 50 years of combined overall service to the College of Earth and Mineral Sciences, these administrators know firsthand the effects that higher education’s rising costs have had on students and their families,” said Penn State President Graham J. Spanier. “The wonderful example of collaboration and generosity they and their spouses have set by making a personal commitment to the Trustee Scholarship Program is an inspiration for the entire University community.”

The University launched the scholarship initiative in July 2002, aiming to secure $100 million in endowed gifts for Trustee Scholarships by June 30, 2007. To underscore its commitment to this effort, the Board of Trustees agreed to match 5 percent of the gift, and to make these matching funds available to assist students as soon as the donor completes scholarship pledge forms and guidelines. The matching funds continue in perpetuity and are combined with income from the endowment to increase the financial impact of the scholarship. A $50,000 minimum gift is required.

In 2002-03, 77 percent of Penn State undergraduates received more than $450 million in student financial aid. However, almost 60 percent of those funds (more than $260 million) were in the form of loans, resulting in an average student loan debt of $18,200 at graduation.

The Trustee Scholarship program, when fully endowed at $100 million, will increase the amount of privately funded endowed spending on scholarships, as opposed to loans, by 40 percent.

Day receives Charles L. Hosler Alumni Scholar Medal

Dr. Delbert E. Day, curators’ professor emeritus of ceramic engineering and former director of the Graduate Center for Materials Research at the University of Missouri-Rolla, received the Charles L. Hosler Alumni Scholar Medal from Penn State’s College of Earth and Mineral Sciences at the College’s Obelisk Society reception and dinner on September 19, 2003.

Day is an internationally renowned glass scientist who has been involved with containerless melting of glass in space, the development of therapeutic glass spheres, TheraSphere™, which are used to locally irradiate cancerous organs, and the invention of Glassah™, a commercial product that is used to recycle glass. Day is co-founder and serves as chairman and CEO of MO-Sci Corp.; a company which has commercialized a number of his discoveries. He is the author or co-author of over 280 technical publications, the editor of three books, and holds 42 U.S. and foreign patents.

The Hosler Alumni Scholar Medal recognizes the distinguished career of Dr. Charles L. Hosler, professor emeritus of metallurgy and dean of the College from 1965 to 1985, who served Penn State as senior vice president for research and dean of the Graduate School.

Late-breaking news...

Day elected to National Academy of Engineering

Aluminum Delbert Day (‘60 M.S. and ‘61 Ph.D.) was recently elected to the National Academy of Engineering (NAE). He was cited for “development of radiotracers in the microspheres and their transfer to medical applications.” Election to NAE is among the highest professional distinctions accorded to an engineer.

Congratulations, Delbert!
Profile: Frederick Langenberg (Metallurgy, '55 Ph.D.)

MatSE alumnus and chairman of Langand Corporation in McMurray, Pennsylvania, Frederick Langenberg (metallurgy, '55 Ph.D.) and his wife Peggy recently donated $300,000 to the Department of Materials Science and Engineering.

Through the Langenberg's generous gift, "The Frederick and Peggy Langenberg Fund for Excellence in Materials Science and Engineering" was established to support innovative research, education and service opportunities in the department. As a result, a new information technology classroom named "The Frederick and Peggy Langenberg Classroom," will be located in Steidel building, where students will have wireless access to the Internet and state-of-the-art audio-visual equipment.

"Innovation leads to new materials and new products," said Langenberg of his decision to support the department in this way. "The cultivation of innovative people and ideas, materials science and engineering will continue to stay on top in the development of new technologies."

With a distinguished career in the metals industry, Langenberg knows first-hand about being on top in the development of new technologies. Launching his career as a metallurgicalist with U.S. Steel in 1951, Langenberg soon found himself in decision making roles. He progressed up the executive ladder, becoming president of Colt Industries' Trent Tube Division and later of Jessop Steel. In 1975 he was elected president of the American Iron and Steel Institute, headquartered in Washington, D.C., maintaining a voluminous library and extensive research programs to serve the industry's manufacturers.

As president from 1979-81 and president, chairman, and chief executive officer of Interlake Corporation from 1981-91, Langenberg was the driving force in converting the company from a maker of capital-intensive commodities to a technology-driven, multinational producer of engineered materials, including metal powders, aerospace components, and handling/packaging systems. Colleagues regard him as an enlightened leader who has used his foresight about a changing world to help create a revolution in his profession.

Langenberg is a Distinguished Alumnus (1989) and an Alumni Fellow (1977) who earned his Ph.D. in Metallurgy in 1955 and then spent one year as a visiting fellow at Massachusetts Institute of Technology. He has been active in the American Society for Metals (ASM) ever since his undergraduate years at Lehigh, and was given the Penn State ASM Chapter's David Ford McFarland Award for achievement in metallurgy in 1973. He is a Distinguished Life Member of ASM and also is active in the Association for Iron and Steel Technology.

As members of the University's Mount Nittany Society, Obelisk Society and President's Club, the Langenbergs are among Penn State's most loyal supporters. At least twice per year they visit University Park, "... Usually for football games and the Mount Nittany and Obelisk Society meetings," said Langenberg. In 2001, they established the Langenberg Scholarship Fund in Materials Science and Engineering to support outstanding undergraduate and graduate students studying metals science and engineering. The Langenbergs reside in Upper St. Clair, Pennsylvania.

We want to hear from you!

Please visit us online at www.matse.psu.edu/alumni/ where you can read our alumni News and Notes online, and send us your news using the Alumni News Form or update your contact information with the Penn State Alumni Association.

Please keep checking back to our alumni web pages as we will be adding more information in the future!

News and Notes

Tabitha Dobbin (‘02 Ph.D.)

accepted a position as an assistant professor of physics at Louisiana Tech University and a joint appointment with the Department of Physics at Grambling State University. This spring semester, she is teaching Quantum Mechanics to undergraduate students at Grambling. Her research on nanoparticle synthesis and sizing using small-angle x-ray scattering and light scattering is focused on the synthesis of systems for hydrogen storage, including the design of a MEMS based electrochemical test cell for the hydrogen storage tests.

"Since Grambling is a historically black college and Louisiana Tech is not, the State of Louisiana Board of Regents has designed a Joint Faculty Program between the two—which should be mutually beneficial," said Dobbin. Along those lines, she is proposing an NSF Nanotechnology Undergraduate Initiative to grant Physics and Chemistry degrees with nanotechnology emphasis provided that the students take 2 courses (one laboratory class and one lecture class) and perform one semester of practicum research with a professor in nanoscience/nanotechnology.

Thank you to all who have contributed to MatSE!

(The following is a list of donors to the department from July 1 - December 31, 2003. We have checked our records carefully, but if you do not see your name listed, please contact the editor at: (814) 865-2746 so that we can correct our records.)

Individuals

W. Scott and Ann Marie Aaron
Jason P. and Victoria E. Arnold
Peter F. and Angela Bausman
Andrew K. and Martha Powell Birchenall
H. Dean and Alicia Bunnell
Charles G. Carson, III and Donna Hancock Carson
Theodore P. and Kathleen Christini
John Daul
Delbert E. Day
P. James and Theresa Deifenbach
Dorothee E. Enright
Katherine T. Faber and Thomas F. Rosenhouse
Alison W. Gre
Brenda Bartges Gilles
Charles D. and Anna Maria R. Greshkovich
Douglas C. and Lynette D. Hague
Donald W. Hunter and Marie Bednar
John R. Hellmann, Jr. and Kathleen Costick Hoffmann
David J. Hoffmann, Jr. and Margaret Ann Hofmann
David L. Hoek and Brenda S. Webster-Hoek
Thomas A. Houston
John F. Kelso and Judith A. Nemeste-Kelso
Donald A. and Carol Sleeth Kenagy
William G. and Susan Deres Kohleman
John C. and Mary M. Kosco
Stanley J. Kozinski
Leslie D. and Lyn Krizmanich Kramer
Thomas M. and Eleanor W. Krebs
Mildred Rickard Landis
Evel L. Isaiah Knowlton Lloyd
James E. Kimberly Diane Lottus
Daniel R. and Penny S. Marx
Thomas O. and Karen Bickel Mason
Gary L. and Rebecca Lynn Messing
John A. and Joann N. Miller
Lance R. Miller
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Name
Address
<table>
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<tr>
<th>Event</th>
<th>Dates</th>
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<tr>
<td>Graduate Open House</td>
<td>February 27</td>
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<tr>
<td>Engineering Open House</td>
<td>February 28</td>
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<tr>
<td>Spring Break</td>
<td>March 8 - 12</td>
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<tr>
<td>Robert Davis, Kobe Distinguished Professor of Materials Science and Engineering, North Carolina State, 26 Hosler building, 11:15 a.m.</td>
<td>March 18</td>
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<tr>
<td>American Physical Society, Montreal</td>
<td>March 22 - 27</td>
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<tr>
<td>MatSE Undergraduate Open House</td>
<td>March 26</td>
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<td>EMEX</td>
<td>March 27</td>
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<tr>
<td>American Chemical Society, Anaheim CA</td>
<td>March 28 - April 1</td>
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<tr>
<td>Sheldon Wiederhorn, Senior Fellow, NIST, 26 Hosler building, 11:15 a.m.</td>
<td>April 1</td>
</tr>
<tr>
<td>Austin Chang, Distinguished Professor of Materials Science and Engineering, University of Wisconsin, 26 Hosler building, 11:15 a.m.</td>
<td>April 8</td>
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<tr>
<td>Materials Day, “Materials for Advanced Manufacturing”</td>
<td>April 14 - 15</td>
</tr>
<tr>
<td>Matthew Tirrell, Richard A. Auhll Professor of Materials and Dean, College of Engineering, University of California, Santa Barbara, 26 Hosler building, 11:15 a.m.</td>
<td>April 15</td>
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<tr>
<td>ACerS Annual Meeting, Indianapolis</td>
<td>April 18 - 21</td>
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<tr>
<td>IPAC Meeting and MatSE Awards Convocation</td>
<td>April 22</td>
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<tr>
<td>McFarland Banquet and Blue/White Game</td>
<td>April 24</td>
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<td>Commencement</td>
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<td>American Chemical Society, Philadelphia</td>
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<td>ISAF, Montreal</td>
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