

FALL 2004 ALUMNI NEWS

Lewis invested as Thurnauer Professor
MatSE hosts summer research experience for undergraduates

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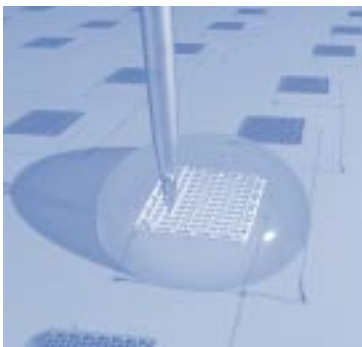
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Editor's Note: Flashback 1970's

“The ‘Flashback’ on the back cover of the Spring 2004 issue brought back a flood of memories. I can identify most of the students in this photo taken at a meeting of the Student Branch of the American Ceramic Society. I think the date was about 1971. Two of those who were grad students at that time are now retired after completing very successful careers: Suzanne Nagel at AT&T and Alan Marlor at 3M. Three of the women in the photo went on to earn their Ph.D. degrees: Carolyn (Kinney) Primus, Suzanne Nagel, and Elizabeth Richards. I’ll be interested in hearing the comments and recollections from other alumni.

-Clif Bergeron



On the cover

The cover image depicts the direct-write assembly of 3-D micro-periodic structures from polyelectrolyte inks. A schematic illustration of ink being deposited through a fine cylindrical nozzle to create the 3-D structure (in white) within the deposition reservoir is superimposed on a SEM image of 4-layer structures printed with associated in- and out-lead lines. (Photo Credit: Benjamin Grosser, Imaging Technology Group, Beckman Institute and Gregory Gratson and Jennifer Lewis, Materials Science and Engineering Department, University of Illinois).

From the Head

My first semester as Head of the MatSE Department has been exciting, demanding and very rewarding. The faculty have been very successful at attracting new research funding, their research work is being highly recognized and they continue to earn major awards for their achievements as do our students; our undergraduate program remains the top ranked program nationally; the Materials Science and Engineering building renovation project continues; and we are searching for new faculty. The last two items are particularly important as they demonstrate the support the College has for our department.

This fall we welcomed 58 freshman and 35 graduate students, increasing our total undergraduate and graduate student population to 390 students. Our Fall high school visit day attracted 60 students and their families to campus to learn about the program. The faculty and undergraduates did a superb job at the visit day, and the comments from several parents about the enthusiasm our students have for the program was good to hear.

The fall semester we celebrated the Hans Thurnauer Professorship in Materials Science and Engineering, which is the third named professorship in the department. Learning about Hans' career and the circumstances that directed Hans to join and then lead a company his family had once owned was remarkable. The most notable point was the role that Cullen Parmelee had in shaping and molding Hans' career. Mentoring and advising students remains a key activity in the department and it is reassuring and rewarding to learn that it can make a difference.

We are experiencing a welcome increase in the number of companies actively participating in the department. These activities include taking part in career nights, giving lectures in our classes, making use of the department's placement services, and providing case studies for the undergraduate laboratories. Being active in the department helps advertise your company and increases awareness of your company among our students. If



your company would like to get involved, please contact me.

I want to thank all of you for your support of the department. As you are aware from the letters I have been sending, there are many ways you can show your support. In the last nine months, you have demonstrated your loyalty and commitment to the department in many ways. On behalf of the students, faculty and staff, I thank you. Your support is appreciated and does make a tremendous difference.

As always, I welcome your input and I look forward to meeting you. We host receptions at some of the national meetings, and if you are attending the meeting or live nearby, please attend and learn more about your department.

Ian M. Robertson
Department Head

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Student Awards

Paul A. Beck Scholar: Timothy Tyler
Harry J. Beckemeyer Jr. Scholar: Jeffrey Kalish
Clifton G. Bergeron Scholar: Meena Babu
Louis R. Berner Scholars: Brian Bertram, Justin Montgomery
Robert Bohl Scholars: Matthew Hardy, David Hoying, Nicole Kwasigroch, Lynsa Nguyen, Amanda Pirih, Joseph Stephens, Ernest Timmons
Caterpillar Scholars: Mark Nowakowski, Philip Waggoner
Earl J. Eckel Scholar: Shawn Mack
M. Laird & Charisann Froberg Scholar: Philip Heil, Kristiann Rushton, Melissa Smith
Henry E. Grein Jr. Scholar: Han-Joo Choe
Kimberly Clark Scholars: Jessica Koschmeder, Jonathan McDaniel
Kevin Moore Memorial Scholar: Melissa Smith
James A. Nelson Scholar: Scott Nellis
Cullen W. Parmelee Scholars: Robert Chen, Jacob Dolezal, David Dralle
Norman L. Peterson Scholar: Michael Mulholland
3M Polymer Materials Scholars: Meena Babu, Matthew Dolder, Teresa Mosher
Lucille and Charles Wert Scholars: Jennifer Gregg, Jonathan Hollander, Wuisiew Tan
Alfred W. Allen Awards: Robert Chen, Jacob Dolezal, David Dralle, Jeffrey Kalish, Jessica Koschmeder, Eric Pressly



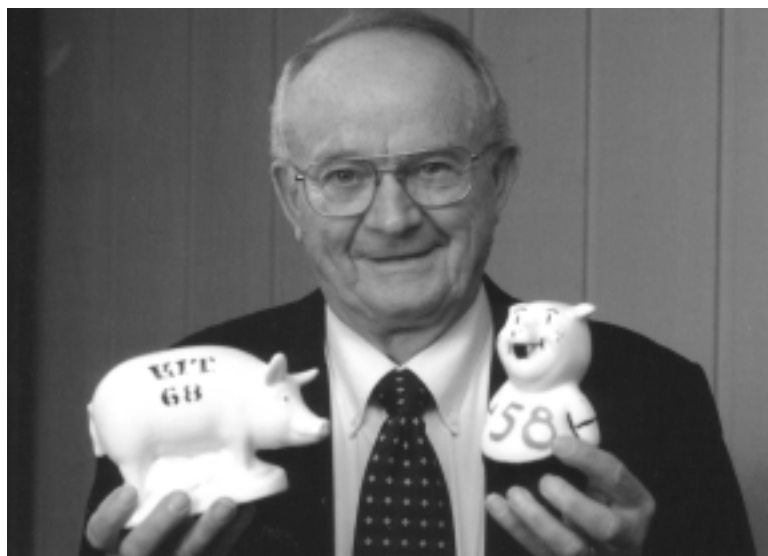
Department Head Ian Robertson and the student award winners at the 2004 awards banquet.

Arthur L. Friedberg Awards: Michelle Bielick, Riley Kerestes
Laird Froberg Award: Melissa Smith
Materials Science and Engineering Alumni Board Award: Rachel Williams

Pigs of the Past

by Victor Tennery, former professor in Ceramic Engineering

As many of our older alumni know, the Pig Roast was a special social affair held each spring in which the students properly “ribbed” the faculty concerning teaching styles, etc., and provided the faculty the opportunity to “summarize” the student body – it was a great event for all. The Big Pig Award was a special event in the academic year and was conferred at the Pig Roast by the undergraduate students. The faculty member chosen was one that had made a particularly memorable impression upon these students during their years learning



the Ceramic Engineering profession at the University of Illinois. I was on the faculty from 1961 through 1968, and it was my great privilege to be awarded the Big Pig Award for 1968. In presenting me with the award, the students cited the arduous labor involved in successfully completing my junior/senior level electronic ceramics course as something which would take them years to forget. This award was also an indication by the students that they understood the effort the faculty winner put into the course content to make it a rigorous learning experience. In the accompanying picture, taken during the MatSE Awards Banquet ceremony on April 23, 2004, I am shown holding the Big Pig Award designated “VJT 68.” Also, a tradition was started many years earlier in which a committee of the undergraduate student body fabricated a place setting pig for each attendee commemorating the year of the ceremony. In the picture at left, I hold the pig made for the spring 1958 Pig Roast.

2004 Alumni Awards

Distinguished Merit Award

for an alumnus who has had an illustrious career and whose accomplishments reflect admirably on the MatSE Department.

Toni Grobstein Maréchaux

Toni Grobstein Maréchaux (BS Met '81) is Director of the National Materials Advisory Board at the National Academies (The National Academy of Sciences, the National Academy of Engineering, the Institute of Medicine, and the National Research Council). She also directs the staff and activities for the Board on Manufacturing and Engineering Design. Both boards act as advisors to the nation on science and engineering issues.

Prior to joining the National Academies, Maréchaux directed a variety of projects and programs promoting the use of advanced materials and manufacturing technologies. Her experience includes steel manufacturing at National Steel, high temperature materials development at the NASA Glenn Research Center, and industrial program coordination at the U.S. Department of Energy. As an engineer, Maréchaux has worked with materials for Stirling engines, metal matrix composites, turbine blades, fuel cells and advanced batteries, and space-based nuclear reactors. Her program management experience includes space power technology for NASA Headquarters, automotive applications for DOE's Transportation Technologies Program, and mining, metals, and concrete technology for DOE's Industrial Technologies Program. She received her M.S. and Ph.D. in Materials Science from Case Western Reserve University.



Toni Grobstein Maréchaux

Loyalty Award

for time, talents, and services freely given by an alumnus who has displayed extraordinary interest in and loyalty to MatSE.

Donald W. Hamer

Don Hamer (BS Cer '45) worked as an engineer in the ceramics industry in Chicago after serving in World War II and the Korean War. During these years, he became interested in the business world and, in 1958, earned an M.B.A. from the University of Chicago. Following employ-

ment with a number of companies, Hamer took a job as chief engineer at the Erie Technological Products Plant, now called Murata Electronics. In 1969, he formed State of the Art, Inc., to produce educational seminars and consulting services on thick-film technology. The company soon expanded into manufacturing and began producing and selling resistors.

His professional honors include Fellow of the American Ceramic Society, Daniel C. Hughes Award from the International Society of Hybrid Microelectronics, and the Buesseum Award for lifetime achievement in electronic materials. He has received the UI College of Engineering Alumni Award for Distinguished Service. In 2001 he established the Donald W. Hamer Professorship. He serves on the MatSE Department's Senior Advisory Committee.



Donald Hamer

Young Alumnus Award

for an alumnus under the age of 40 who has demonstrated unusual accomplishments in the early stages of his/her career.

Atif A. Odeh (BS Met '92)

Atif A. Odeh is President and Principal Metallurgist for ATRONA Material Testing Laboratories, a Metallurgical, Materials, and Mechanical testing services laboratory and consulting firm he founded in 1999. ATRONA Material Testing Laboratories, Inc. has grown in the last five years to an 11,000 sq ft state of the art engineering lab. ATRONA currently employs 10 staff members in the metallurgical and mechanical engineering fields. The accredited laboratory is capable of comprehensive failure analysis, all types of

metallurgical testing and mechanical testing including static and dynamic type testing and engineering services. Odeh's experience includes two years of research, development, and material testing for the Army Corps of Engineers and nine years of plant metallurgy for manufacturing and private sectors including aerospace, heavy machinery, off highway industry, gearing industry and heat treat. He has held the positions of plant metallurgist, environmental manager, product engineering manager, plant superintendent, and project manager. He has consulted and assisted companies in China, Korea, India, Europe, South America, Japan, and Canada. He is the author of "Metallurgy and Heat Treatment, the Pocket Book."



Atif Odeh

Scholarship established to honor Clifton Bergeron

MatSE alumni have established a new scholarship in honor of their former professor, Clifton Bergeron. Prof. Bergeron (BS Cer '50, MS Cer '59, PhD Cer '61) served as head of the Department of Ceramic Engineering from 1978 to 1986. He retired in 1988. The primary objective of the scholarship is to encourage outstanding MatSE undergraduates to better equip themselves for successful careers in industry by acquiring summer internship experience or participating in a research program prior to graduation. To be considered for the award, undergraduates have to write an essay on their internship experience or a related research experience. The winner of the 2004 Clifton Bergeron Scholarship is Meena Babu. In addition to working as a co-op at Kimberly-Clark, Babu is active in a number of organizations including the Society of Women Engineers, Undergraduate Materials Organization, and Women's Glee Club. She has served as an engineering learning assistant for the College's Engineering 100 program and despite the many demands on her time, maintains a grade point average of 3.9/4.0. Alumni who wish to contribute to the Clifton Bergeron Scholarship Fund may complete the form on page 9 of the newsletter.

Expanded career services and mentoring

Engineering Career Services recently expanded its services for all University of Illinois College of Engineering alumni and now offers free access to job postings and other resources on its new online job board at www.uiucengineeringjobs.com. Through this new job board, alumni can directly access and apply to job postings from employers seeking experienced professionals or recent grads. Additionally, alumni can directly post full-time and internship employment opportunities for their company or organization and manage the process by which all applicants apply. There is no cost for any of these services.

One other new feature included with the online job board is an Alumni Mentor and Networking Program. All alumni have the option of participating in a new College-wide mentor network for both students and alumni. Participants in this program register online and indicate their willingness to provide industry information and share career expertise. The system also enables volunteers to manage the frequency of requests for information by students and other alumni. In addition to enabling students to gain more direct insight and knowledge about engineering careers, alumni mentors can also participate and expand their own professional network.

2004 Bergeron Scholar Meena Babu's winning essay

To *educate* is to impart knowledge, and to *learn* is to receive it. Obtaining an education is quite often associated with being taught in a formal fashion that involves textbooks and homework problems in a lecture hall setting. But knowledge can be imparted in several different ways, and when the educational environment is no longer a classroom, learning becomes much more of a challenge—and much greater a reward.

It is by this token that I have come to understand what it really means to “learn.” During my co-op term with Kimberly-Clark, I have assumed the roles of product developer, process engineer, research technician, and scientist; and by taking leave of the campus environment for one semester and setting foot in the working world, I have, in this brief period of time, found that experience is sometimes the best teacher. I have realized that a formal university education will *not* serve to answer all of the questions I will encounter in my future profession as an engineer, but instead will act as an internal resource that will foster my ability to brainstorm and problem-solve. I have been challenged to present my observations and conclusions not in a timed, written examination, but in an open round-table discussion. I have discovered that my performance as an individual is sometimes less important than my performance as a team player, and that high grade point averages will not guarantee success when it comes to expressing your ideas or thinking on your feet.

Witnessing the inner workings of a large company has given me more knowledge that will help to evaluate my educational and career goals. My involvement in the consumer products industry has verified my interest in polymer science. And most importantly, my co-op term has prompted me to ask new questions about my future, and has made me aware of several other professional avenues that I have yet to explore.

I will return to campus in the fall as a wiser person in the sense that I have seen where a formal education will lead me, and I will be better prepared to understand and apply the material I encounter along the way. The hands-on experience I have gained as a co-op is something I will almost certainly value more than any class I will take at any university. During this semester I have been given a glimpse of my future, and I have learned what will be expected of me in just a few years; until then, I will continue to learn and develop the skills I will need to be a success once the classrooms begin to disappear and the working world takes their place.



Clif Bergeron and Meena Babu

An interview with 1984 alumnus Rick Russell, NASA engineer

Rick Russell (BS Met '84) is a Materials Engineer in NASA's Orbiter Project Office. In his position, he is responsible for the management of aging orbiter issues including corrosion, non-destructive evaluation, nonmetallics, wiring and subsystems. He left NASA's processing engineering group and the shuttle program in 1996 to join the Aerostructures Corporation in Nashville, and then Bell Helicopter in Ft. Worth, Texas, in 2000. In 2001 he rejoined the shuttle program, taking a position with United Space Alliance (USA). Following the Columbia disaster, he led the Materials and Process Engineering team that supported the reconstruction and failure analysis of Columbia's debris. He rejoined NASA in March 2004. Rick and his wife, Lisa, and children, Daniel (15 yrs.), Alivia (6 yrs.), and Ryan (6 weeks) live in Melbourne, Florida. Rick invites his former classmates to drop him a line at Richard.W.Russell@nasa.gov.

Q: What do you do for NASA?

At the time of the Columbia accident, I was the lead of prime contractor's Materials and Processes (M&P) group for processing the space shuttle fleet. In my new position for NASA, I work for Johnson Space Center and the Orbiter Project Office, yet still reside at Kennedy Space Center (KSC). My prime responsibilities are to address the aging Orbiter fleet. I chair the Orbiter Corrosion Control Review Board and have recently started a new Aging Orbiter Working Group.

Q: What was your role in the Columbia accident investigation?

The Columbia debris was collected and sent to a hangar at KSC where a reconstruction was done to aid in determining root cause. I was asked to lead the M&P team assembled for this effort. The M&P team was formed to assess recovered debris and analyze selected component materials and to support any materials analyses directed by the Columbia Accident Investigation Board. The Columbia Board was composed of scientists and engineers both from within and outside NASA. NASA members on the Board were non-shuttle.

Q: What were your biggest challenges during the reconstruction?

There were many challenges. Our first task was to develop detailed procedures and sampling techniques to preserve hardware and critical evidence. Much effort was also expended in developing the best nondestructive techniques to limit destructive sampling and prevent further damage to critical evidence. The nature of the debris itself also posed its own challenges. Never before has an aircraft accident investigation been performed on a vehicle that

broke up such a high altitude and speed, producing unique thermal and mechanical damage. Once the focus of the investigation shifted to the left wing components, several structural pieces were selected to develop a failure analysis process for debris hardware and to obtain exploratory laboratory data.



Rick Russell

Q: Did your team's efforts make a difference?

In the early stages of the investigation, many people were very skeptical that any useful data would come of the forensic analysis. I am proud to say that the conclusions reached by the M&P team were consistent with the conclusions reached by the NASA Orbiter Engineering Working Group and the Columbia Accident Investigation Board.

Q: What are the biggest challenges ahead?

We are working very hard getting the Orbiter fleet ready for return to flight. The vehicles are aging and new problems keep arising. Even before the accident, numerous issues and component failures have plagued us. The orbiters were designed for 10 years or 100 flights. In the beginning, a much faster turn around and aggressive launch schedule was anticipated. The leading orbiter in flights is Discovery with 30. I've been hired to lead the aging orbiter effort because we are now over two times our design life. For the M&P engineering team the real challenge is addressing all the current known issues and at the same time proactively analyzing the hardware and systems to prevent future failures.

Thanks to all who contributed to MatSE during Fiscal Year 2004

Vasantha R. Amarakoon
Rajnikant B. and Nalini R. Amin
Robert Clark Anderson
Joseph J. Au
James V. Barnett
Andrea O. Barney
C. Walter Beattie Jr.
James H. Bechtold
Clifton G. and Laura K. Bergeron
Ralph E. Bevis
Robert B. Bieniasz
Gerson B. Bilow
Andrew G. Blake
Rodney S. Bond
Alfred J. Bonfiglio
Donald H. Boone
Jerry W. Brockmeyer
Cindy A. Brya
David G. Cahill and Adelaide H. Aime
Woodrow W. Carpenter
Charles R. Casey
Stanley L. Channon
Wen-Li A. Chen and
Hwei-Ling Yau
Albert S. Chow
Daniel T. Connor
Charles W. Connors
Betty A. Coulman
Wilford H. Coutts Jr.
Joseph B. Darby
Mark and Eileen De
Guire
John P. DeLuca
Charles D. Dobson
Joseph W. Dow
Scott T. Duncan
Michael A. Dvorack
Robert J. Eagan
James and
Anastasia Economy
Thomas Faro
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William E. Heitmann
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Kristen L. Holverson
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James N. Humenik and Mary Jane Nelson Humenik
Elwin L. and Nell Johnson
Joseph M. Kaplan
Stephen P. and Mary A. Karas
Betty Kepley
Victor Kerlins
Rory S. Kirkpatrick
Martin J. Kopchak
Carl A. Kotecki
Ralph G. and Virginia A. Kraft
John F. and Doris M. Krumwiede
Kenneth J. Kuna
James A. Laird

Elizabeth J. Opila
Robert G. Parkison
Valentino M. Patarini
Michael A. Pershing
Frederick A. Petersen
James W. Pettyjohn Jr.
Ellen S. Pfafflin
Lucas E. Pfeiffenberger
William O. Powers
Gino J. and Carolyn M. Primus
Leonard H. Radzilowski
Mathew M. Retonde
Elizabeth A. Richards
Jordan and Julie A. Riedl
Robert J. Ringhofer
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Kent J. Yancik
Philip E. Zapp
Greg J. Zeigler
Kenneth P. Zeman
Jacob W. Zindel

The student awards highlighted in this issue would not be possible without your support. The list of donors includes alumni and friends who have helped maintain MatSE's outstanding reputation. Included are individuals who directed their gifts to MatSE between July 1, 2003 and June 30, 2004. [We check the list carefully, but if we have overlooked you, please contact the Editor so that we can correct our records.]

Some MatSE alumni chose to support other units of the University of Illinois; those gifts are not listed here but will be acknowledged by those units. If you wish to direct gifts to MatSE, please indicate MatSE on your check and on the donor form.

Individuals listed in **boldface** are currently Presidents Council members. As of January 1, 1995, individuals must pledge \$15,000 over a 10-year period to become Presidents Council members. For more information about this program, contact: University of Illinois Foundation, Harker Hall, MC-386, 1305 W. Green Street, Urbana, IL 61801.

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3M

3M Foundation

MatSE relies upon the support of corporations and foundations, in addition to gifts from alumni and friends. This corporate and foundation support is essential for maintaining high-quality teaching and research within the department. We would like to thank the following corporations and foundations that contributed to MatSE during fiscal year 2004 (July 1, 2003 – June 30, 2004).

Corporations and foundations listed in **boldface** provided matching funds to supplement the gifts of alumni and friends. If you work for a company that offers a matching gift program, please be sure to include a matching gift form with your donation. For more information on matching gifts, contact the University of Illinois Foundation at 217-333-0675.

www.mse.uiuc.edu/alumni/giving.html

Lewis named Thurnauer Professor of Materials Science and Engineering

On September 28, Jennifer Lewis (BS Cer '86) was invested as the first Hans Thurnauer Professor of Materials Science and Engineering



Jennifer Lewis

at the University of Illinois. Lewis joined the MatSE faculty after earning her Sc.D. in ceramic science from the Massachusetts Institute of Technology in 1991. Lewis' research program currently focuses on self and directed assembly of materials from colloidal and organic building blocks. Her work is providing new insights into the phase behavior, rheological properties, and drying behavior of colloid-nanoparticle, colloid-polymer, nanoparticle-polyelectrolyte, and polyelectrolyte mixtures. The knowledge gained from these fundamental studies serves to underpin her group's materials assembly efforts.

derpin her group's materials assembly efforts.

Lewis and her research group have developed novel colloidal, nanoparticle, and polyelectrolyte inks for direct-write assembly of 3D periodic structures. To form filaments, "these inks must first flow through a very fine deposition nozzle and then quickly 'set' to maintain their shape while simultaneously bonding to the underlying layer," Lewis said. Her group has fabricated filaments measuring only 0.5 micron wide. In comparison, a typical strand of hair is about 75 microns. "The robotic deposition equipment has the capability of handling multiple inks and dispensing them simultaneously. As the relative rates of deposited ink are regulated, structures can be built that have compositional variations in them." (See cover photo.) The structures have potential application as photonic band gap materials, microfluidic networks, and perhaps biodegradable and biocompatible scaffolds for growing new tissues for surgical procedures. Lewis' work in this area was cited by *C&E News* as one of the top discoveries in materials chemistry in 2002, and has been featured in *The Economist*, *The Technology Review*, and *Materials Today*.



Prof. Lewis with Marion and Monica Thurnauer.

Lewis has co-authored more than 60 invited and peer-reviewed publications, and has delivered 90 invited talks at professional meetings, government and industrial laboratories, and academic institutions. She is an associate editor of the *Journal of the American Ceramic Society* and serves on the editorial board of American Chemical Society's *Langmuir* journal. In addition, she is a past President of the Ceramics Education Council.



College of Engineering Dean David Daniel presents Jennifer Lewis with a medallion.

She has received the NSF Presidential Faculty Fellow Award (1994), faculty research awards from the Schlumberger Foundation (1995) and the Allied Signal Foundation (1998, 1999), and the Brunauer Award from the American Ceramic Society (2003). At Illinois, she has been recognized with the Burnett Teaching Award (1994), Xerox Faculty Research Awards (1996, 2001), and the University Scholar (2001) and Willet Faculty Scholar (2002) Awards. She holds a primary appointment in the MatSE Department and is affiliated with the Department of Chemical and Biomolecular Engineering, the Beckman Institute, and the Frederick Seitz Materials Research Laboratory.

The Thurnauer Professorship was established by alumnus Hans Thurnauer (MS Cer '32). His daughter, Marion Thurnauer, and granddaughter, Monica Thurnauer, attended the ceremony on behalf of the family.

Department Notes

John Weaver was elected a Fellow of the American Association for the Advancement of Science (AAAS). He was chosen “for seminal studies on the physics and chemistry of surfaces, interfaces, and nanostructures.”

The research group of **Joe Greene** and **Ivan Petrov** was issued a patent (US 6,762,131) that discloses a novel technique for forming atomic-scale structures at designated positions in a controlled and self-assembled manner over a large surface area of a substrate.

David Payne received the Ferroelectrics Recognition Award from the IEEE Ultrasonics, Ferroelectrics, and Frequency Control Society at the society’s conference in August 2004. The award was for “outstanding achievements in scientific work as well as in promoting the ferroelectrics community.”

John Abelson was elected a Fellow of the American Vacuum Society (AVS). He was chosen “for seminal contributions to the atomic-level understanding of amorphous and nanocrystalline hydrogenated silicon films.”

Pascal Bellon and **Ken Schweizer** made the “Incomplete List of Teachers Ranked

as Excellent by their Students” for the spring 2004 semester.

Duane Johnson was promoted to the rank of full professor.

Wujing Xian is a new Lecturer in the MatSE Department. Xian received her B.S. in chemistry in 1990 from Zhongshan University in Guangzhou, China, and her Ph.D. in chemistry in 1996 from the University of Nebraska at Lincoln. From 1996-98, she worked as a postdoctoral fellow at the Rowland Institute at Harvard University. From 1998-99, she was a research fellow in the Experimental Medicine/Hematology Division at Brigham and Women’s Hospital and



MatSE hosted over 150 visitors at our annual High School Visit Day on October 10. Students and family members listened to an introduction to materials science and engineering, toured the undergraduate laboratories, watched demonstrations, and enjoyed a pizza supper with faculty and undergraduates. In the photo above, visitors react to one of the demonstrations.

Harvard Medical School. Most recently she worked as a postdoctoral fellow and research associate at the University of Pennsylvania School of Medicine in Philadel-



Wujing Xian

phia. Xian’s doctoral training was in biophysics, for which she used biophysical methods to study peptide and protein structures. She also worked on problems in electrostatic interactions of biological polyelectrolytes. This semester she is teaching the biomaterials laboratory course, MSE 472.

Recent Press

Gerard Wong’s research on self-assembled supramolecular structures was featured in *Nature Materials* (September 2004).

James Economy and **Zhongren Yue**, research scientist, were mentioned in *Food Production Daily* (August 2004) for developing a new generation of high surface-area porous materials for removing atrazine from water supplies. They were also on the front page of Champaign-Urbana’s *The News-Gazette* (September 7, 2004).

Jennifer Lewis and **Greg Gratson**, Ph.D. student, reviewed direct-write methods for three-dimensional fabrica-

tion in *Materials Today* (July/August 2004).

John Rogers and **Ralph Nuzzo** had the cover feature of *Applied Physics Letters* (June 28, 2004). Their research was also on the front page of *The News-Gazette* (July 19, 2004).

John Rogers’ research on fabricating transistors using a stamping technique was in the “Research News” in *Materials Today* (June 2004).

Paul Braun’s and **Jennifer Lewis’** research on colloidal crystals was featured on the cover of *Langmuir* (June 22, 2004).

MatSE hosts summer research experience for undergraduates

In the summer of 2004, the MatSE Department sponsored a ten-week long internship program in which undergraduates carried out a research project under the mentorship of MatSE professors and graduate students. During the course of the summer, the interns visited two national facilities for materials research; attended weekly faculty seminars on current research topics in MatSE; participated in workshops on scientific ethics, writing, and oral communication; gave oral presentations on their research project; and wrote (and re-wrote) a final paper. In the process, the students, from six universities including the University of Illinois, gained valuable research experience that will help them as they finish their undergraduate education and enter the job market. Professor John Abelson, Cindy Brya and Raju Perecherla organized this year's program. Plans are underway for next summer—check out the website www.mse.uiuc.edu/REU.html for project titles and program dates.



Goshen College student Teresa Bartal and her project advisor, Prof. Erik Luijten.



Northwestern University student Samantha Cruz in the laboratory.

Summer 2004 Research Projects

“Positioning Silicon Microstructures Using Magnetic Forces”

Mark Albrecht, Goshen College, Goshen, IN

Advisor: John Rogers

“TEM Sample Preparation for the Depth Profiling of Medium Range Order in Amorphous Silicon Thin Films”

Milka Alyssa, University of Illinois at Chicago

Advisor: John Abelson

“Wear Behavior of Cu-15Ni-8Sn Spinodally Hardened Alloy”

Jason Bares, University of Wisconsin-Madison

Advisor: Pascal Bellon

“Bundling of Rod-like Polyelectrolytes in the Presence of Multivalent Ions”

Teresa Bartal, Goshen College, Goshen, IN

Advisor: Erik Luijten

“Characterization of Polymethyl Methacrylate Thin Films Through Pico-Second Acoustics”

Clayton Chan, University of Illinois at Urbana-Champaign

Advisor: David Cahill

“Characterization of Ethanol Grown Single-Walled Carbon Nanotubes”

Samantha Cruz, Northwestern University, Evanston, IL

Advisor: Moonsub Shim

“In-situ TEM Study of Grain Growth in Nanograined Copper”

Jennifer Gregg, University of Illinois at Urbana-Champaign

Advisor: Ian Robertson

“Sintering Study of the Mullite Powders Used in the Free-Form Fabrication of Ceramic Composites”

John Ingram, University of Illinois at Urbana-Champaign

Advisor: Jennifer Lewis

“3D Maskless Lithography of Proximity Field Nanopatterning Through Micromolding”

Robert Nidetz, University of Illinois at Urbana-Champaign

Advisor: John Rogers

“An Improved Synthesis of Ceramic Powders”

Jeff Noga, North Central College, Naperville, IL

Advisor: Trudy Kriven

“Processing of Bulk Lead Zirconate Titanate Ceramics With Commercial-Grade Dielectric Properties”

Daniel Shoemaker, University of Illinois at Urbana-Champaign

Advisor: David Payne

In Memoriam

James Healy (BS Cer '44, MS Cer '49, PhD Cer '51) died July 13, 2004, in Peoria, Illinois. A World War II Navy veteran, he was a naval officer for four years, serving as a Lieutenant junior grade on the USS Santa Fe light cruiser in the Pacific Theater. He worked in scientific research at A. O. Smith Corp. in Milwaukee, Wisconsin, where he held with the firm two patents on the Harvestore. He later was a scientist for Spindletip Research in Lexington, Kentucky, and vice president at Bunker Ramo in Broadview, Illinois, and Janesville, Wisconsin. He taught the apprentice classes at Caterpillar Inc. through Illinois Central College for five years. He and his wife donated Doering Homeplace to the city of East Peoria; the gift was the stimulus for the beginning of the East Peoria Historical Society in 1999. He was a lifetime member of the UI Alumni Association and the Tazewell County Historic Places Society, and a member of the Rotary Club, Bowling Club, and the Peoria Knife and Fork Club,

where he was president and served as treasurer for five years. He was a member of First United Methodist Church in East Peoria and its Men's Club. He is survived by his wife, Barbara.

Ralph C. Goetz (BS Met '49) died June 12, 2004. He was retired from Novak and Company in Chicago where he had been superintendent. Survivors include his wife, Dolores; children, Sandra Goetz, Jacqueline (Ronald) Trost, and William (Kirsten) Goetz; and five grandchildren.

Michael Massing (MS MatSE '98) passed away on February 2, 2004, the victim of an automobile accident. He received his J.D. from the University of Illinois in 2001 and was an intellectual property attorney at the law firm of Brinks,

Hofer, Gilson and Lione in Chicago. The College of Law has announced that his friends, colleagues, and classmates are establishing the Michael A. Massing Memorial Scholarship Fund. The scholarships will be issued to first-year law students and will be based upon merit, need, and demonstrated evidence of a commitment to community service. For information on how to contribute to the scholarship fund, contact the College of Law Development Office at 217-333-2628, alumni@law.uiuc.edu.



Michael Massing

Morris Berg (1921-2004)

Morris Berg passed away on October 13, 2004, in Urbana. He was born on June 9, 1921, in Columbus, Ohio, a son of Nathan and Esther Liberman Berg. He married Brenda Joanne Fagan Lerner on June 26, 1988, in Champaign. She survives. Also surviving are three sons, Nicholas Berg, of Lewes, Delaware, Frederick Lerner of Chicago, and Scott Lerner of Champaign; two daughters, Tracy Berg of Ardmore, Pennsylvania, and Sandy Lerner Schwartz of White Heath, Illinois; and 10 grandchildren.

Dr. Berg served in the U.S. Navy during World War II, where he was a bomb disposal officer on an aircraft carrier in the Pacific. He received a bachelor's degree in ceramic engineering from Ohio State University in 1942, and he earned a doctorate in ceramic engineering from the Massachusetts Institute of Technology in 1953.

He was a ceramic scientist and engineer at the AC Spark Plug Division of General Motors, U.S. Bureau of Mines and the

Radio Corporation of America, and an adjunct professor of ceramic engineering at the University of Illinois. He pioneered the development of ceramic electronic circuits



Morris Berg

in automobiles, ceramic packaging of semiconductors, unique catalyst and sensor materials for automobile exhaust control, and a wide range of ceramic and glass components for color televisions. He is also widely regarded for his contributions to early theories on the fabrication of ceramics from powders.

He was the recipient of the David S. Sarnoff Outstanding Achievement Award in Engineering and the Ferro Award for an outstanding technical publication. He was elected a Fellow to the American Ceramic Society and the American Society of Metals. He authored numerous publications and is the holder of several significant patents for his innovations in ceramic engineering. He was founder and president of Advanced Technical Products, a developer of high temperature research kilns.

He was a member of Sinai Temple, the Champaign Country Club, and Krannert Marquee Circle. He was co-chairman of the Parkinson's Awareness Group.

Class Notes

1950s

Michael Griffin (BS Met '54) visited the University of Illinois in October for Homecoming weekend and the Class of 1954 reunion.



Bob Cowan

Bob Cowan (BS Cer '54, MS Cer '55) visited the University of Illinois in August. He has been retired from Los Alamos National Laboratory since 1991. He spends his time in search and rescue operations and training, amateur radio, genealogy, and traveling. He has two daughters, one in Albuquerque and one near Atlanta. He also has five grandchildren and three great-grandchildren. He lives in Los Alamos, New Mexico.

1960s

Lowell M. Hoffman (BS Met '63) was appointed adjunct research professor and Industry Fellow, Center for Logistics and Digital Strategy, Kenan Institute of Private Enterprise at the University of North Carolina's Kenan-Flagler Business School. He continues in his worldwide consulting, mentoring and supply chain management strategy workshop

enterprise, Global Sourcing Solutions. He and his wife, Ruth, make Chapel Hill their home base.

1970s

Susan Plies (BS Cer '75) was recognized for being the first woman glass plant manager in the U.S. for PPG Industries. She was honored on October 6 at the first annual "Power of Positive Women" seminar in Wichita Falls, Texas.

1980s

Neil S. Berke (PhD Met '80) has been elected chair of ASTM Committee G01 on Corrosion of Metals. In his career, he has focused on materials engineering with a concentration on corrosion of metals, durability of concrete and processing effects on corrosion. He is an R&D Fellow at Grace Construction Products, W.R. Grace and Company, in Cambridge, Massachusetts.

1990s

Brian Karr (BS Met '92, MS Met '94, PhD MatSE '97) returned to campus on October 27 to give a guest lecture in MSE 461, Electronic Materials and Processing. He has worked with magnetic memory material for hard drives at Seagate for the past 6 years.

Toby Padfield (BS MatSE '96) married Michelle Kees on May 29, 2004. Michelle is a clinical assistant professor in the Department of Psychiatry at the University of Michigan Medical School in Ann Arbor. Toby was promoted to the position of senior materials

engineer with ZF Sachs Automotive, where he has been working for the past 4 years. He will be moving to the ZF Group NAO Technical Center in Northville, Michigan next year.

Marge Kaunas (BS Cer '97) gave birth to her first child, James Allen, on August 28, 2004. He surprised his parents by arriving a few days earlier than the planned C-section. Marge and her husband, Brian (BS UIUC Industrial Engr. '98), write that this was James' "first act of defiance towards his parents."

Paul Osenar (PhD MatSE '98) and his wife, Amy, celebrated the birth of their first child, Torin Riley, on October 14, 2004.

Kevin Grens (BS MatSE '99) recently accepted a position as

a sales engineer for Instron Corporation. He is covering a multi-state territory in the Midwest.

2000s

Steve Frisbie (BS MatSE '00) married Jen Kenter (BS UI Accountancy '01) on June 12 in Tempe, Arizona. Steve is a device engineer for Motorola in Tempe. Jen is working as a staff accountant for Gaintner Bandler Reed in Phoenix.

Mark Veliz (BS MatSE '02) married **Grete Savage (BS MatSE '02)** on July 17, 2004, in Cincinnati, Ohio. Mark is a Turbine Airfoils Material Applications Engineer at GE Aircraft Engines in Cincinnati. Grete is an assistant program manager at Universal Technology Corp. in

MatSE Career Night



Three alumni returned to campus on October 25 to speak to MatSE undergraduates about their careers. **Becky (Giesfeldt) Reuhs (BS MatSE '00)** is a scientist for Clorox in Willowbrook, Illinois. **Casey (Mottter) Harmon (BS MatSE '00)** is a senior process engineer for Zimmer in Warsaw, Indiana. **Cory Padfield (BS Met '96)** is an associate engineer for Hyundai America in Ann Arbor, Michigan.

Intel recognizes outstanding graduate research

Beavercreek. They live in Mason, Ohio.

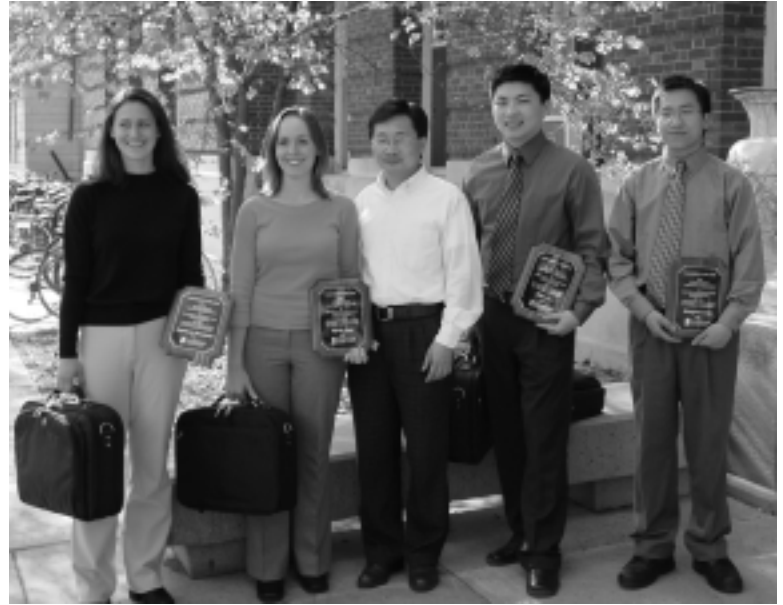
Adam Vincens (BS MatSE '02, MS MatSE '03) married Magda Soejarto (BS UIUC Kinesiology '02), on May 28. Adam is working for Applied Composites Corp., Saint Charles, Illinois, in material development.

Zack Birky (BS MatSE '03) and his wife, Julie, celebrated the birth of their first child, Evan Zachary, on August 23. Zack is an engineer for Caterpillar in East Peoria.

We want to hear from you...

Send your news to the Editor (see page 3 for contact information.)

The MatSE Department's Racheff Award for Outstanding Graduate Research is given based on the quality and originality of a student's research and its presentation. From the research summaries and faculty recommendations, finalists are selected who then give an oral presentation to a panel of judges. The award consists of a plaque and up to \$1,000 financial support to attend a conference at which the student recipient will present his or her research.



This year, award recipients received an unexpected prize of laptop computers donated by Intel Corporation. At the department colloquium on May 3, **Zhiyong Ma (PhD MatSE '94)**, pictured at center, presented the computers on behalf of the company. Ma is a senior principle engineer for Intel in Logic Technology Development Quality and Reliability. The 2004 winners, pictured from left to right, (advisors in parentheses) are Stephanie Pruzinsky (Paul Braun), Blythe Gore (Ian Robertson), Jiwen Liu (Erik Luijten), and Hongjun Liang (Gerard Wong).

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*** Must be age 65 or older or have graduated from the University of Illinois 40 or more years ago. In the case of joint memberships, one of the joint members must meet this criteria.

UD21

Flashback



Do you recognize these smiling faces from the Class of 1990? Where are they now? We would love for you to share your memories with us as well as any pictures you may have from our department's past. Contact the Editor at 217-333-8312, brya@uiuc.edu.



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