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IOWA STATE  
UNIVERSITY

# MSE

## ELEMENTS

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### *Hooked On Photonics*

A research team led by Iowa State physicist Kai-Ming Ho and his colleagues at Ames Lab is on the verge of achieving its goal: fully three-dimensional optical photonic crystals. That goal may be reached sooner than expected, thanks to the efforts of an MSE faculty member.

MSE Associate Professor Kristen Constant has developed a novel ceramic technique for creating colloidal optical photonic crystals using inexpensive, non-toxic materials. The crystals possess a periodic structure that resembles a honeycomb and have a photonic bandgap - a range of forbidden frequencies within which a specific electromagnetic wavelength is blocked, and light is reflected.

Three-dimensional photonic crystals that operate at optical wavelengths have captured the interest of the research community because of their potential applications to light control and manipulation that include light-emitting diodes, micro-fabricated lasers, waveguides and optical switches for telecommunications.

Here's how Constant's process works: A sample is prepared by spreading a few drops of a slurry of titania suspension and polystyrene spheres on a glass substrate. After 24 hours in a humidity chamber, the sample is compressed in a cold isostatic press. Five minutes of compression helps thin the sample and reduces stress cracks in the heat-treatment process that follows.

Slow baking is the final step. The sample is heated to more than 500°C (968°F) over a period of five hours, during which time the mold of polystyrene is burned off, leaving behind air spheres in a titania matrix. Now, Constant can visually inspect the resulting colloidal crystal sample for the shiny regions of bright green or salmon that indicate a periodic structure is present.

"If we don't see color, either the scale is wrong or the structure is wrong," Constant explains.

Eventually, Constant hopes to be able to make large-area optical photonic crystals using the economical and reproducible ceramic technique. Such an achievement would greatly enhance the efforts of scientists to find out more about the control of light emissions and propagation in these materials.



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# Greetings From The MSE Department!

## *Making Strides Toward The Millennium*

As we approach the new millennium, the department is also entering a new era. This fall we are implementing the Materials Engineering curriculum in its entirety. The new curriculum builds on the traditional strengths in Ceramics and Metallurgy, and adds two new specialization areas: electronic materials and polymeric materials. If student response is any indication, we have done absolutely the right thing!

Our hiring was focused on staffing the electronic and polymeric materials specialization areas. In previous newsletters, we introduced two new faculty - Professors David Cann and Alan Constant - in the electronic materials area. This year, we added a senior polymer faculty. Professor Vladimir Tsukruk joined our department last month from Western Michigan University. He is an outstanding addition to our roster. You will read more about him on page 5 of this issue.

Last month, we received word that Distinguished Professor Rohit Trivedi has been awarded the "Boylan Eminent Faculty in Research" award, the highest (research) award given to an engineering faculty (member) at ISU. Our warmest congratulations to Rohit. Also, our dear friend, distinguished alumnus, and past-chair of the MSE Industrial Advisory Council, James Watson is a recipient of the 1999 Marston Medal. This is the most prestigious recognition for an (ISU) engineering graduate. We are very proud of Jim and his accomplishments in his illustrious career.

To keep you better informed about the department, faculty, and alumni, we've added a new feature to our newsletter. It's called MSE Briefs and it can be found on page 6. There's more in that column about the award received by Rohit.

Speaking of awards, I am convinced that we have many alumni who are eminently qualified for an alumni award. So please, do not be overly modest. Let us know of your accomplishments. We are often asked to nominate our alumni for awards, and since we don't always know about the accomplishments of our alumni, I fear we are missing good opportunities.

Lastly, we will hold a reception at the TMS/ASM annual meeting November 1 from 6 to 8 p.m. at the Omni Netherland Plaza hotel. Come and join us, meet our future engineers. I hope to see you in Cincinnati!

# ISU "INTERNET EXPLORERS" PROGRAM HIGHLY SUCCESSFUL

MSE student Meagen Marquardt is just one of many success stories to come out of the College of Engineering's "Internet Explorers" program at Iowa State. While a senior at Boone High School, she participated in the first summer program held in 1997. This summer, she returned to the program, mentoring 15 high school girls from Iowa, Illinois, Minnesota, Virginia, and Africa, who participated in the third Internet Explorers program.

During the six-week internship, the high school girls learned HyperText Markup Language (HTML) programming, researched scientific topics, and designed Web pages geared toward middle school students. While on campus, the high school girls, like typical college students, stayed in dorm rooms and put in 40 hours a week fulfilling their Internet Explorers' responsibilities.

Organizers say the program, geared toward girls with minority and rural backgrounds, should help them acquire a high level of computer skills; know the satisfaction of working on a developmental research project; and gain a sense of accomplishment by designing a sophisticated computer project on the Web.

MSE Associate Professor Larry Genalo, one of the project coordinators, said the goals of Internet Explorers are twofold. "One, we want to expose participants to the world of computers - something that inner city and rural schools oftentimes don't have the money for," he said. "And secondly, these students are going to design Web pages specifically for middle school girls. We think it's important for these students to see that girls, about their ages, are capable of learning and using a high level of computer technology."

Genalo is pleased with the program's success. "Nineteen of the 20 participants from the first year's program have now completed one year of college, 17 of which are science or engineering majors. And all 16 Internet Explorers from last year's program are enrolling in college for this fall."

Marquardt said, "Before I took part in the program, I was going to study animal ecology, although I had been toying with environmental engineering. After the program, I decided to pursue engineering. It gave me an extra little push toward engineering because it exposed me more to that field."

"I learned so much as an Internet Explorer," she continued. "Not just HTML, but how to use the library and how to use the Internet for research instead of just for fun. I enjoy working with these girls - teaching them and showing them what Iowa State is all about."

To see what past Internet Explorers have designed, log on to <[www.eng.iastate.edu/explorer/](http://www.eng.iastate.edu/explorer/)>. ISU's College of Engineering contributed an \$11,000 grant to fund the program, General Motors provided \$20,000 and Square D Corporation gave \$5,000.

## RELIEF FOR FLIGHT FATIGUE

As flight miles increase dramatically, airplane engines are subject to greater tests of endurance. Aviation experts are constantly trying to find ways to reduce accident rates despite increased stress on engines. Phase II of the Engine Titanium Consortium (ETC) purports to do that and more in its effort to develop safe and reliable engine component material that can withstand the rigors of modern day aviation.

"Our job is to increase the safety so there is not an increase in the rates of accidents," says Bruce Thompson, director for the Center for Nondestructive Evaluation and Distinguished Professor of Materials Science and Engineering. In collaboration with the FAA and industry partners, General Electric, Pratt & Whitney and Allied Signal, ISU metallurgists are working to improve the production and inspection process of titanium billets that are used in aircraft engines.

It is generally assumed that after a plane has flown several times, it develops metal fatigue. Thompson draws the analogy of a coat hanger bent several times at the same spot. Eventually the hanger will snap. This same sort of work hardening occurs in extremely small regions of metal components in aircraft engines that are loaded cyclically below their yield stress. Like the coat hanger, these components have tiny regions at crack tips that are plastically deforming under cyclic load, allowing a crack to gradually advance. Over the long term, the crack gets so large that the remaining metal cannot hold the load, and the whole piece fails.

It becomes the job of engineers to estimate a time frame when inspection is most needed for these engine parts. In-service inspection of engine components, specifically using ultra sonic and eddy-current inspection, is a crucial element in establishing safety standards.

ETC is particularly concerned with the rotating components in engines and their condition under the stress of extreme flight-induced pressure and prolonged use. At high speeds, if an engine malfunctions because of stress, parts of it could break loose and penetrate the interior and fuselage, causing serious damage. Therefore, says Thompson, research in rotating components is a high priority with the aviation industry.

Phase I of ETC was concerned with titanium research, billet production, and inspection by ultrasonics and eddy-current. Phase II is a continuation of this research with added focus on inspecting the forging of billets. The second phase is also concerned with inspection of other materials, particularly nickel-based alloys and in-service inspection of airplanes.

Thompson emphasizes that the research work at ETC is closely connected to the needs of the aircraft industry with regards to safety and reliability. The techniques that are developed in this type of research, however, can also be used in other areas where engine durability and resistance is of paramount concern. For example, inspection of forgings can add further knowledge to the inspection of complicated shapes, like turbines in the land-based generators that are used to create electric power.

Thompson characterizes Phase II of ETC as an "evolutionary change," where past research and results provide impetus and continued momentum for future growth and discovery. The ultimate goal is to ensure safety of the engine materials and develop optimum inspection standards.

"It's an important objective for us, the FAA, and industrial partners that our work find its way into practice."

## PATENTS

The following MSE faculty, alumni, and students were awarded patents recently.

Professor and Chair **Mufit Akinc**: Boron modified molybdenum silicide and products.

Adjunct Professor **Iver Anderson** Low temperature joining of ceramic composites. **Anderson** with Adjunct Assistant Professor **S. Bulent Biner** and Ames Lab Scientist **Dan Sordelet**: Composite material reinforced with atomized quasicrystalline particles and method of making same.

Adjunct Professor **Iver Anderson** and **Mohammad Nosrati**, MSCerE'93: Low temperature joining of ceramic composites.

Distinguished Professor **John Verhoeven** and Ames Lab Assistant Scientist **Paul Berge** BSMETE'88, MSMET'94: An air melting technique for preparing Cu-Cr alloys.

Distinguished Professor **Karl Gschneidner Jr.** and Associate Professor **Vitalij Pecharsky**: Calorimetric system and method.

Professor **Steve Martin**: Methods for laser treatment of tissue.

Adjunct Professor **R. William McCallum**: Carbide/Nitride grain refined rare earth-iron-boron permanent magnet and method of making.

Assistant Professor **Joshua Otaigbe** with current MSE graduate student **Jun Xiao**: Method for making water-resistant, temperature-resistant NdFeB alloy powders for use in high temperature and corrosive environments.

Associate Professor **Vitalij Pecharsky** and Distinguished Professor **Karl Gschneidner Jr.**: Dual stage active magnetic regenerator and method.

**Paul D. Prichard**, PhDMSE'97; **Matthew F. Besser**, BSCERE'94 (and current MS graduate student); and Adjunct Professor **Dan Sordelet**: Method and apparatus for reactive plasma atomization.

## First Class Glass: Gaffers Draw Rave Reviews



Last summer, the glass-blowing studio was one of four tours offered to members of the ISU Foundation's Board of Governors and the University Museum Curators Associates. Based on the tour, the program was later voted most exciting and interesting of all the tours! The glass-blowing studio is located in Engineering Annex but will move into Old Sweeney when the Annex is demolished later this year. Members of the Gaffer's Guild sell their glass creations twice a year. The first sale will be in early to mid-December.

# STUDENTS HONORED AT BANQUET

More than two dozen students were honored at the 1999 MSE Spring Awards banquet. Seven students were recognized as National Merit/National Achievement Scholarship recipients, and the remainder were honored with department and/or college scholarships.

A complete list of awardees follows.

The event was held at the Memorial Union. About 80 people attended, including several special guests with close ties to the department's scholarship program: Martha Buck, JoAnn Peterson, Donald Thompson, and David and Donna Wilder.

Dr. Alton D. Romig, Jr., vice president for science, technology and components at Sandia National Laboratory, Albuquerque, N.M., was guest speaker. His presentation focused on the special design considerations needed to create micromachines, the methods used to manufacture them, and the limitations and advantages of their use.

## **1998-99 National Merit/National Achievement Scholarship Recipients:**

**Brent Andrees • Brynne Kriegermeier • Richard Lewis • Justin Peters • Alan Tkaczyk • Paul Tomlinson • Samuel Umbach**

### **Other honorees:**

**Justin Riney**

*Frank S. McCutcheon III Scholarship*

**Gabriel Weigelt**

*David R. Wilder Scholarship*

**Stephanie Connor**

*Clarence Ford Scholarship*

**E. Eddie Hofer**

*Roderick Seward, Flossie Ratcliffe, & Helen M. Galloway Scholarship*

**Kristin Johannsen**

*Clayton H. Cooper Scholarship*

**Meagen Marquardt**

*College of Engineering Scholarship*

**Jane Clayton**

*Oscar L. Bock Scholarship*

**Rachel Neuendorf**

*Murray Gautsch Scholarship*

**Darin Adolphs**

*David T. Peterson Memorial Scholarship*

**Bryan Baker**

*Samuel Walker Beyer Scholarship*

**Joel Dobson**

*Otto & Martha Buck Materials Science and Engineering Scholarship*

**Theron Lewis**

*Metallurgical Engineering Alumni Scholarship*



### **The following students received a Ceramic Engineering Alumni scholarship:**

**Thomas Anderson**

**Jon Ihlefeld**

**Henry Kang**

**Chad Martindale**

**Benjamin Van Zante**

### **College of Engineering scholarships were awarded to:**

**Laura Keehner**

**Michael Krashin**

**Brian Madsen**

**Joseph Schramm**

**Kevin Sutherland**

## **A COOL CONNECTION ON THE NET**

When Mike Jones went looking for a science project last fall, he found two invaluable resources - the Internet and MSE Professor Karl Gschneidner.

Jones, a 9th grader at Unami Middle School near Philadelphia, wanted to do a project on cooling technology because his father works for a company that manufactures air conditioning systems. He was surfing the Internet for ideas when he saw a *Popular Science* magazine article about Gschneidner's work with magnetic refrigeration. Jones looked up Gschneidner's bio and e-mail address on the Iowa State web site and contacted him.

The teen asked for Gschneidner's advice in putting together a project demonstrating the magnetocaloric effect. Gschneidner happily obliged. He sent Jones a thin strip of gadolinium (a metal with a large magnetocaloric effect at near-room temperatures) and a packet of information that included reports and diagrams. Jones used the materials in his project titled "Cool Magnets." His work earned several honors, including a first place award in the Pennsylvania Junior Academy of Science regional competition.



The newest member of the MSE faculty is Vladimir Tsukruk. Tsukruk joined the department this fall after six years at Western Michigan University, where he was a professor and department chair.

Tsukruk's research interests include nanofabrication of organized molecular materials from functional organics and polymers. He is the author and co-author of 130 refereed publications, and one book. Additionally, he has co-edited two books, holds three patents, serves on the editorial board of Tribology International, and is workshop chair at Polymer Materials Science and Engineering Division, ACS.

Tsukruk has received numerous awards for academic and research excellence, including a Humboldt Foundation Research Fellowship, an NSF Young Investigator/Research Initiation Award, an Air Force Office for Scientific Research Faculty Fellowship, and an Outstanding Service to Students Award from WMU.

A graduate of the National University of Ukraine (Kiev), Tsukruk earned a Ph.D. and a D.Sc. from the National Academy of Sciences of Ukraine. He served as a research associate at the University of Akron, a Humboldt fellow at Technical University of Darmstadt, and head of the Laboratory of Molecular Structures at the Institute of Bioorganic Chemistry, Kiev.

His family includes wife Natalia and their two children, Dima and Asya. They reside in Ames.

## MSE Alum Awarded Marston Medal



Jim Watson, BSCer'58 and MSCer'60, is the latest recipient of the Marston Medal, the highest honor bestowed by the College of Engineering. He will be formally recognized during homecoming weekend, October 29-30.

Watson is currently chairman of the board of GlobiTech Inc., a supplier of epitaxial foundry services to the semiconductor industry. He also serves as chairman of STARTech Technology Business Center LLC, a for-profit business incubator focusing on telecom, software, and semiconductor technologies. Prior to this responsibility,

Watson was president of TwinStar Semiconductor Inc., a joint venture project between Texas Instruments (TI) Inc. and Hitachi Ltd. The company produced 16- and 64-megabit dynamic random access memory chips in a state-of-the-art manufacturing facility in Richardson, Texas.

After 34 years of service, Watson retired from TI in 1994. His assignments at the officer level included worldwide responsibility for total quality, supply process management, and strategic marketing as well as management of digital logic and military products integrated circuit businesses.

A charter member and former chair of the Materials Science and Engineering department Industrial Advisory Council, Watson has also served on the Engineering College Industrial Advisory Council. In 1993 his career achievements and service were recognized with the College's Professional Achievement Citation in Engineering.

Watson is the 61<sup>st</sup> recipient of the Marston Medal, which honors an alumnus for outstanding achievements in engineering. The award is named for Anson Marston, Iowa State's first engineering dean.

Last year, Professor Brian Gleeson and Emeritus Professor William Larsen conducted a daylong workshop on corrosion for the students of materials science and engineering. A unique aspect of the workshop was that it was both initiated and organized by the students, with MSE student Andrew Schulz playing the principal role. A total of about 15 students attended the workshop.

The workshop began with a 45 minute video entitled Corrosion in Action and then proceeded with lectures and demonstrations on the following topics: electrochemical basics of corrosion; forms of corrosion; corrosion behavior of low-alloy and stainless steels; high temperature corrosion and the selection of high-temperature alloys; methods of corrosion prevention (e.g., coatings, inhibitors, cathodic protection); and case studies of corrosion failures. To support the lectures, each student was given the booklets Corrosion- Causes and Control (provided by Carpenter Specialty Alloys) and Design Guidelines for the Selection and Use of Stainless Steels (provided by Specialty Steel Industry of North America), together with a preprint of a book chapter written by Gleeson entitled High Temperature Corrosion of Metallic Alloys and Coatings. Larsen drew upon his extensive consulting experience to provide the students with actual examples of the various forms of corrosion and the ways in which they could have been mitigated. The workshop was very well received by the students and has laid the foundation for future workshops.

## Gifts

The MSE department is grateful for the generosity and commitment of its alumni and industrial partners. Participation from our partners makes our program stronger.

The department recently received two gifts that will assist in enhancing our educational and research efforts.

Dean Wiley, BSCerE'68, recently contributed \$10,000 to MSE. The gift has not been earmarked for a special purpose but may be used to support scholarships and student activities like field trips and attendance to professional meetings. Wiley's contribution may also be used to assist the department with its recruitment efforts.

In addition to his Iowa State degree, Wiley has an MBA from Southern Illinois University. Wiley and his wife, Marjorie, a 1986 Iowa State liberal arts graduate, live in Michigan.

Another alumnus, Wes Demmon, of the Iowa-based company Guardian Glass, played in a key role in a donation of one ton of tempered glass to the department. The glass is worth about \$8,000.

Throughout the year, faculty and staff in the department give demonstrations to prospective students using tempered glass. The demonstrations are visual and exciting, and often motivate young students to consider a career in materials science. The glass is expensive, however. But thanks to Guardian's partnership in this effort, the department will be able to continue its unique demonstrations.

There are many ways for alumni and business representatives to become involved with MSE. For more information, call the department office at (515) 294-1214.

# 1999-2000 MSE Industrial Advisory Council

The Materials Science and Engineering Industrial Advisory Council is comprised of 10 members from business and industry who serve three-year terms. Members provide a vital link between industry and the department. The group meets twice a year to assess the current status of the department; advise MSE faculty and staff on issues dealing with industry, changing technology, educational programs, and research directions; and set future goals for the department.

We are pleased to introduce the members of the 1999-2000 MSE Industrial Advisory Council.

## **Bruce Boardman**

Manager, Metals Research  
Deere and Company  
John Deere Technical Center  
Moline, IL 61265

## **Donald J. Bray**

General Manager, R&D  
POCO Graphite, Inc.  
Decatur, TX 79234

## **Nicole Cavanah**

Ceramic Engineer  
Rockwell-Collins  
Cedar Rapids, IA 52498

## **Darrell R. DeGeus**

Technical Director, Abrasives Laboratory  
3M Abrasives Systems Division  
3M Center  
St. Paul, MN 55144-1000

## **Gerald (Skip) Fehr**

Vice President, Technology  
Integrated Packaging & Assembly Corp.  
San Jose, CA 95131

## **Larry D. Hanke, PE**

Principal Engineer  
Materials Evaluation & Engineering Inc.  
Plymouth, MN 55441

## **Dr. Harry J. Leamy**

Director  
C.C. Cameron Applied Research Center  
University of North Carolina-Charlotte  
Charlotte, NC 28223-0001

## **Michael J. Readey**

Program Manager  
Advanced Ceramic Technology  
Technical Center-E/854  
PO Box 1875  
Peoria, IL 61656-1875

## **Neal F. Rinehart, PE**

Director  
Performance Services Hydrocarbon Ind.  
Fisher Controls International, Inc.  
Marshalltown, IA 50158-0190

## **Dick E. Stilwell**

Consultant  
Maytag Corp.  
Newton, IA 50208



## **Akinc Appointed**

Professor and Chair **Mufit Akinc** has received an appointment as an Office of Naval Research International Field Office Adjunct Scientist. The appointment recognizes his international reputation, technical qualifications, and interest in facilitating international cooperation. Through reports, assessments of various projects, and workshops, Dr. Akinc will play a pivotal role in increasing the exchange of knowledge between U.S. scientists and engineers, and their counterparts in Europe, the Middle East, and Asia. The one-year appointment was made in June.

## **Trivedi honored**

Professor **Rohit K. Trivedi** was one of six faculty members honored this fall at the annual College of Engineering Honors and Awards Convocation. He received the David R. Boylan Eminent Faculty Award in Research, which recognizes national and international accomplishments in research and academic excellence. Professor Trivedi's contribution in the science of phase transformation and industrial processing of metals, alloys, intermetallic compounds and semiconductors has led to practical applications outside the realm of materials science - in particular, medicine, biology, and food processing. For example, his work in freezing will enable medical doctors to preserve human organs for appropriate recipients instead of the current practice of completing the transplant immediately.

## **Award for Excellence**

Professors **Karl Gschneidner Jr.** and **Vitalij Pecharsky** were honored at the International Appliance Technical Conference for their paper titled, "Magnetic Cooling for Appliances." Along with co-author **Carl Zimm** of Astronautics Corp. of America, the pair received an award of excellence for the paper, which explored the use of magnetic refrigeration in refrigerators, freezers, and air conditioners. The conference was held in late spring in West Lafayette, Ind.

## **Scholarship update**

Through the generous support of MSE alumni, the department is able to provide numerous scholarships each year to promising students. Two newly established scholarships were awarded for the first time this academic year: **Darin Adolphs** is the first recipient of the David Peterson Scholarship, and **Joel Dobson** is the first recipient of the Otto and Martha Buck Scholarship. Profiles of both students will appear in the spring issue of the Elements newsletter. A student-initiated campaign was formed this past spring to establish an endowed scholarship in memory of former professor **Frank Kayser**, who died in 1998. Approximately \$9,000 has been contributed toward the \$15,000 goal that the campaign would like to see met by the end of 1999. An additional incentive to achieve the goal has been presented by **Jean (McGregor) Johnson, BSMetE'78**, who offered to match up to \$5,000 of the gifts from alumni who graduated between 1974 and 1983. Adjunct assistant professor **Martha Selby** is the department contact for the scholarship. "As a member of the MSE department, it is an honor for me to be involved in such a worthy cause as fundraising for a memorial to Frank. He truly cared about his students and he is certainly missed," she said.

For additional information on supporting the department with a scholarship donation, please contact Selby at 3111 Gilman Hall, Iowa State University, Ames, IA 50011. Telephone: (515) 294-0195; e-mail: mselby@iastate.edu.

## **Elizabeth Severin dies**

**Elizabeth W. Severin, 45**, the wife of Dr. **Sherman Severin, PhD'81**, died of cancer in Sherwood, OR in July 1999. With Sherman, Elizabeth co-founded United Epitaxial Technologies, which the couple sold to Dow Chemical Company in 1987. She then founded and managed MonChade Gallery in Lake Oswego, OR until her death. Sherman and Elizabeth have two daughters, Chade Shirl, 13, and Cirsten Sherwood, 8. Those wishing to extend their condolences to the family can do so by writing to Sherman Severin, 14315 SW Westfall Road, Sherwood, OR 97140.

# Honors and Awards

The National Technological University (NTU) recently named Professor and Chair **Mufit Akinc** chair of its materials science degree program. Akinc is the curriculum chair until 2001.

Secretary **Krista Briley** was a recipient of the Outstanding Service Award to the College of Engineering for academic year 1999. The determination of the award is made by Iowa State's engineering students.

Assistant Professor **Brian Gleeson** was appointed to the International Advisory Board of the new monthly Wiley-VCH, peer-reviewed journal "Advanced Engineering Materials."

A paper authored by two MSE faculty received the Award of Excellence for a Technical Paper at the 50<sup>th</sup> Annual International Appliance Technical Conference. Titled "Magnetic Cooling for Appliances," the paper was written by Distinguished Professor **Karl Gschneidner Jr.** and Associate Professor **Vitalij Pecharsky** with assistance from **Carl Zimm** of Astronautics Corp. of America. Gschneidner also presented the 1998 Iowa Distinguished Faculty in Engineering Annual Lecture at the University of Iowa last fall.

Graduate student **Vitali Ivchenko** won the Student Meritorious Paper Award at the International Cryogenic Materials conference held last summer in Montreal. He is a student of professors **David Jiles** and **Vitalij Pecharsky**.

**David Jiles**, professor of MSE and EE and a senior scientist at Ames Lab, was elected to a second three-year term on the administrative committee of the Magnetics Society. Jiles and Adjunct Assistant Professor **S. Bulent Biner** received an NSF grant for \$148,892 to research "Development of Theory and Applications."

Adjunct Assistant Professor **Dan Sordelet** with Adjunct Associate Professors and Ames Lab Scientists **Matthew Kramer** and **Tom Lograsso** earned Outstanding Scientific Accomplishment awards at the U.S. Department of Energy's Materials Science Research competition. They were honored for "Surface Properties of Quasicrystals."

Professor **Steve Martin** received two significant research grants. He was awarded \$105,135 by the Office of Naval Research to investigate "Development of New Fast Proton Conducting Chalcogenide Glassy Electrolytes." He also received \$254,376 from NSF to research "Dynamics and Structure in Complex Disordered FIC Electrolytes."

Professor **Tom McGee** was an invited speaker at the Pacific Rim Ceramic Conference held in Korea.

Associate Professor **Vitalij Pecharsky** was appointed to serve as a technical editor for the "Advances in Cryogenic Engineering, Vol.45" - Proceedings of the Cryogenic Engineering Conference/International Cryogenic Materials Conference held in Montreal in July.

Associate Professor **Alan Russell** was selected Outstanding Materials Science and Engineering Professor by the Engineering Student Council.

**Doug Bailey, BSMetE'91**  
Williamsport, Pennsylvania  
[dbailey@lycoming.textron.com](mailto:dbailey@lycoming.textron.com)  
Doug is a metallurgist for Textron Lycoming, an engine manufacturer for small aircraft. His primary function is failure analysis of engine components.

**Ken Bratland, BSCerE, MSMSE'98**  
Urbana, Illinois  
[bratland@uiuc.edu](mailto:bratland@uiuc.edu)  
Ken is a graduate student at the University of Illinois, Urbana-Champaign

**Jaephil Cho, PhD CerE'95**  
Chon An, Korea  
[jpcho@samsung.co.kr](mailto:jpcho@samsung.co.kr)  
Jaephil is working on the development of cathode materials for using Li-ion cells at Samsung Display Devices Co.

**Craig S. Clark, BSCerE'96**  
Hiawatha, Iowa  
[CChangin@aol.com](mailto:CChangin@aol.com)  
Craig is a production engineer at PMX Industries, Inc. He works in the casting department with responsibilities in quality and R&D for new alloy development.

**Patrick A. Downey, BSMetE'96**  
Fort Calhoun, Nebraska  
[pdowney@oppd.com](mailto:pdowney@oppd.com)  
Patrick has relocated from Philadelphia to Omaha, Neb., where he recently joined Omaha Public Power District as a nuclear design engineer.

**John Gajda, MSCerE '90**  
Lindenhurst, Illinois  
[JGajda@C-T-L.com](mailto:JGajda@C-T-L.com)  
John is employed as a senior engineer with CTL where he works on thermal properties of cement and concrete.

**Jason Grau, BS/MS CerE'94**  
Chicago, Illinois  
[jason\\_grau@alum.mit.edu](mailto:jason_grau@alum.mit.edu)  
Jason is currently employed by Boston Consulting Group, Chicago.

**John T. Harper, Jr., BSCerE'93**  
Norcross, Georgia  
[jt\\_harper@yahoo.com](mailto:jt_harper@yahoo.com)  
John is currently employed by Venture Solutions, Inc., as an information technology consultant specializing in design, implementation and maintenance of Microsoft and/or UNIX-based networks.

**Bob Kennedy, BSMetE'79**  
Harriman, Tennessee  
[amn@bayousteel.com](mailto:amn@bayousteel.com)  
Bob holds the position of plant manager at Bayou Steel Corporation.

**Lee A. Kleeman, BSCerE'48**  
[lklee@earhtlink.net](mailto:lklee@earhtlink.net)

**Vidhaya La-orchan, MSMet'84**  
Bangkok, Thailand  
Vidhaya heads the Department of Machinery.

**Jonn Nebbe, BSMetE'93**  
Belmond, Iowa  
[JonnBNebbe@eaton.com](mailto:JonnBNebbe@eaton.com)  
John is a metallurgical engineer in the engine components operation division at Eaton Corporation.

**Rick Olson, BSCerE'93**  
Fairbury, Nebraska  
[rjolson@navix.net](mailto:rjolson@navix.net)  
Rick worked for Kohler Company Brownwood, Texas until last year, when he joined Endicott Clay Products.

**Matt Osborne, BSCerE'91, MSMet'93, PhD Met'97**  
Willow Grove, Pennsylvania  
[mosborne@martnet.com](mailto:mosborne@martnet.com)  
Matt recently became a Senior Process Engineer at Kulicke & Soffa Industries.

**Jon W. Oswood, BSMetE'84**  
Cedar Rapids, Iowa  
[oswoodj@squared.com](mailto:oswoodj@squared.com)  
John currently manages the electrical contact manufacturing operations for Square D, where precious metal contacts are manufactured.

**Doug Packard, BSPhysics'96**  
Richland, Washington  
[dcpack@gte.net](mailto:dcpack@gte.net)  
Doug has retired from Siemens Power Co.

**Dan Pasker, BSCerE'88**  
Toledo, Ohio  
[Daniel.Pasker@owens-ill.com](mailto:Daniel.Pasker@owens-ill.com)  
Dan is a furnace engineer with Owens-Illinois, where he designs furnaces for the glass container industry.

**Mark A. Quillin, BSCerE'91**  
Lake Elsinore, California  
[mquillin@spectrol.com](mailto:mquillin@spectrol.com)

**Kerry Richardson, BSCerE '84**  
Arlington, Texas  
[kerry.richardson@lmco.com](mailto:kerry.richardson@lmco.com)

**Peter Shin, MSCerE'91**  
Chula Vista, California  
[peters@saehanmedia.com](mailto:peters@saehanmedia.com)  
Peter works for Saehan Media America, Inc., as a purchasing manager.

**Aaron Spaete, BSCerE'97**  
Rochester, New York  
[aspaete@ti.com](mailto:aspaete@ti.com)  
Aaron is a DSP technical sales representative for Texas Instruments in upstate New York and Toronto.

**Liap Tat Su, BSCerE'98**  
Singapore  
[liapsu@mactor.com](mailto:liapsu@mactor.com)  
Liap is the head media engineer in Mactor Corporation.

**Jessica (Porter) Taylor, BSMetE'95**  
Fullerton, California  
[taylor4473@yahoo.com](mailto:taylor4473@yahoo.com)  
Jessica works as an account metallurgist for Schlosser Forge Company in Rancho Cucamonga, California.

**Cuneyt Tas, PhD CerE'93**  
Stuttgart, Germany  
[tas@aldix.mpi-stuttgart.mpg.de](mailto:tas@aldix.mpi-stuttgart.mpg.de)  
Cuneyt is a visiting professor at Max-Planck Institute in Stuttgart.

**Wei-Cheng Wu, MSCerE'93**  
Taichung City, Taiwan  
[weicheng\\_wu@yahoo.com](mailto:weicheng_wu@yahoo.com)  
Wei-Cheng is the chief of the manufacturing technology section of the Prosperity Dielectric Co.

**Materials Science and Engineering Department**

Iowa State University  
3053 Gilman Hall  
Ames, Iowa 50011-3114

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Send comments, questions, and news items to :

**Alan Russell**  
**MSE Department**  
**Iowa State University**  
**3053 Gilman Hall**  
**Ames, IA 50011-3114**

**Phone: (515) 294-1214**  
**Fax: (515) 294-5444**  
**e-mail: [mse@iastate.edu](mailto:mse@iastate.edu)**  
**Web site: <http://mse.iastate.edu/>**

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