

Materials **Matter** @Purdue

2012 Annual Report



MSE Announces
New Head of School

A Message From the Head



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Dear Friends of Purdue Materials,

I'd like to introduce myself as the new Head of Materials Engineering at Purdue. For those of you that have already spoken with me, thank you so much for the warm welcome (back) and support of the dynamic MSE program here at Purdue. For those I haven't talked with, I look forward to meeting you in the future.

The start of the school year is always an exciting time. Campus switches in the span of a week, from the summer schedule of research and the graduate students having easy access to the refrigerator in the Efron Lounge to crowded hallways, confused first year students looking at maps, seniors selecting their year-long design projects, and the infectious feeling that you can achieve anything you set your mind to.

Materials Engineering has its own specific excitement, and I'd like to share a few changes, some of which are further highlighted in the newsletter. We welcomed three new faculty to campus in 2012 (Dr. John Howarter, Dr. Kendra Erk, and Dr. Volkan Ortalan), bringing our full time faculty membership to 23, with another 12 faculty with adjunct or courtesy appointments. And of course, if you've noticed any of the news at Purdue, you may recognize that our own Prof. Timothy Sands is currently the acting University president. At the same time our enrollment is booming: in addition to our current 132 BS, 18 MS, and 66 PhD students enrolled in Fall 2012; we graduated 38 BS, 7 MS, and 15 PhD's in the past year. Our students continue to be more diverse than ever before; MSE was recently awarded the 2012 Purdue Minority Engineering Program "Wings to Succeed" award, and our undergraduate and graduate programs enroll 24% and 36% women, respectively.

Of course, growth comes with its own set of challenges. I enjoy interviewing the incoming sophomore students, but there are almost 50 this year! And this means our labs are bursting at the seams. We'll be continuing to emphasize continuous improvement and support for equipment to ensure we maintain the hands-on experience that our alumni and students (and employers of our students) value so highly. We'll continue to look for more partners to broaden our senior design projects to handle growth and reflect the broad range of materials and industries our students are interested in.

We have 24 new graduate students on campus this fall, the largest graduate class in Materials Engineering's history. This reflects the growth in research programs of our faculty, with over \$4.6M in expenditures last year. In future news, I'll be emphasizing some of the exciting research occurring, and letting you know where you can help partner with us in propelling our research into the top tier of the nation and help us attract outstanding students and research projects to campus. Our graduate students continue to come from all around the country and world, from Colorado to Columbia and Iowa to India, as well as some excellent students that decide to continue their studies after finishing their BS at Purdue.

In closing, I'm looking forward to working with you in the future as Materials Engineering continues to make the stuff that all our other makers on campus make things out of.

Hail Purdue,

Dr. David F. Bahr

Professor and Head of Materials Engineering

PURDUE
UNIVERSITY



On the Cover

(Center) Dave Bahr

(Right) MSE Alumni: (L to R) Mary Lee Gambone, Tim McCrea, Kathy Kansky Giannini, Linda Sarros, Jim Karl

SCHOOL OF MATERIALS ENGINEERING

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Head • **Dr. David F. Bahr**

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We welcome your comments, opinions, and questions. Please send them to the following address:

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CO-OP Hall of Fame Inductee *John Storm (BS 1977)*

On October 12, 2012, MSE Alum (BS 1977), John Storm was inducted into Purdue Engineering's Co-Op Hall of Fame. Mr. Storm has been a leader and pioneer in the Materials Engineering community for more than 35 years. As founder, President and CEO of Contour Hardening, Inc. (CHI) based in Indianapolis, Indiana, he has developed numerous processes for heat-treating gears, shafts, and other products for the automotive, aircraft and other industries. As a result of his innovations, he holds 85 U.S. and international patents on a variety of processes and applications in these areas. Contour Hardening employs a staff of 67 and boasts annual sales of \$20M.



Mr. Storm led CHI into design and manufacturing of ultra lightweight transmission gears utilizing patented thermal process as well as a partnership with Treadway Racing for first and second place at the Indianapolis 500 in 1997. In 1998, he formed Contour Performance Products, a division of CHI, to pursue the development and marketing of gears in the racing and high performance industries.

In 2003, Mr. Storm created a new product and business unit, Real Power, which focuses on producing electrical power on mobile vehicle platforms.

During the fall of 2007, CHI created a satellite location in Silao, Guanajuato, Mexico. This facility includes purpose-designed utilities, computerized gear inspection equipment, and a complete metallurgical laboratory to support their customers in Central and South America.

As a result of his significant accomplishments, Mr. Storm has been the recipient of numerous awards including Outstanding Young Engineer of the Year from the Society of Manufacturing Engineering (SME), Distinguished Engineering Alumnae from Purdue University, Outstanding Materials Engineer from Purdue University, and Triangle Fraternity's Distinguished Alumnus Citation. Currently, Mr. Storm also serves on the Advisory Committee for the School of Materials Engineering at Purdue University.



COEP and Cummins Partnership

Exciting things are happening in the Purdue School of Materials Engineering! MSE Alum and Chief Engineer at Cummins, Inc., Steve Ferdon, Purdue MSE Academic Programs Administrator, Vicki Cline, and Purdue Graduate Student Andrew Ferdon (Civil Engineering), recently traveled to the College of Engineering Pune (COEP), India to discuss the expansion of the study abroad relationship between Purdue, COEP, and Cummins. Also participating in the discussion were Babu D., India Materials Functional Excellence Leader, and three members of the COEP faculty including, Dr. S.T. Vagge, the Head of the Metallurgical and Materials Science Department.

The program design centers around Cummins' identifying a real-world problem affecting one of their facilities, and then utilizing students at both Purdue University and COEP to work together as a team to design and present a solution to this problem. During the duration of the project, which will last about three weeks, the students are paired with an engineer from Cummins who will serve as a mentor and advisor to the team.

Although the two universities are located in dramatically different parts of the world, students at both institutions study a similar curriculum, which makes this an ideal partnership. This hands-on research opportunity allows students to tackle a problem similar to one they might encounter in their professional career as an engineer, while gaining experience working with a diverse group of people.

Students interested in participating will go through an application process and be selected by a committee composed of Purdue University, COEP, and Cummins' representatives. Selected students will receive financial assistance from Cummins as well as academic credit from their respective university. The first project is expected to begin in the summer of 2013.



UPDATED MSE PROGRAM'S EDUCATIONAL OBJECTIVES

Over the last year, the School of Materials Engineering has been updating the program educational objectives — the broad overarching statements of what we hope our graduates will achieve in the first few years after graduation. We've solicited feedback from alumni and the MSE Advisory Committee, but would like to offer one last chance for our alumni to weigh in on their opinions about the objectives. Please review the revised objectives below and complete the short alumni survey at <http://tinyurl.com/amelwhp>

The updated objectives are:

The degree program in Materials Engineering will provide the educational experiences to produce graduates with the knowledge and skills to excel in materials science and engineering related positions or to pursue graduate study. Within a few years after graduating, our students will:

- 1) Be successful in top graduate schools and/or in materials science & engineering or other professional positions;**
- 2) Contribute their Materials Engineering expertise effectively as members of engineering teams; and**
- 3) Demonstrate professional skills including continued professional development, participation in professional societies and organizations, and engagement in leadership positions.**

MSE Welcomes Three Faculty Members

The School of Materials Engineering
is pleased to announce the addition
of three Assistant Professors for 2012.



Dr. John A. Howarter received his BS in Materials Science and Engineering from The Ohio State University (2003) and his PhD in Materials Engineering from Purdue University (2008). Prior to joining the Purdue University faculty, he served as National Research Council Post-Doctoral Fellow at the National Institute of Standards and Technology (NIST). Dr. Howarter has 11 peer-reviewed publications and has served in numerous leadership roles including Post-Doctoral Association Leadership Team and Polymers Division Representative at the SACNAS Conference. Dr. Howarter's research interests are centered around reducing the operational energy footprint of polymer membranes through material design. This includes a focus on material improvements of polyamide membranes used in desalination and functional composite membranes for targeted separation of industrial wastewater. Dr. Howarter has a joint appointment between the School of Materials Engineering and Environmental and Ecological Engineering.



Dr. Kendra A. Erk obtained her BS (2006) and PhD (2010) in Materials Science and Engineering from Purdue University and Northwestern University, respectively. Prior to joining the MSE faculty, Dr. Erk was an NRC Postdoctoral Research Associate in the Polymers Division of the National Institute of Standards and Technology. She has 8 published archival journal articles and has been the recipient of numerous awards including the National Research Council Post-doctoral Research Associateship in 2010. In 2009, she was awarded the Northwestern Graduate Leader of the Year as well as the Jane G. Hines Endowed Scholar (the P.E.O Sisterhood). In addition, Dr. Erk was a finalist for the APS Padden Award for Graduate Research in Polymer Physics in 2011. She is a member of the American Chemical Society, American Physical Society, The Society of Rheology and the Materials Research Society. Dr. Erk's research interests broadly focus on characterizing the structure-property relationships that control the mechanical properties of soft materials and complex fluids, which includes polymer gels and surfactant-stabilized emulsions. Her current focus is on understanding the controlling mechanisms of interfacial friction in these materials, a topic which is directly relevant to the study of biological lubricants and biomaterial mechanics.



Dr. Volkan Ortalan, formerly, a postdoctoral scholar at Physical Biology Center for Ultrafast Science and Technology at California Institute of Technology, began his undergraduate studies at the Middle East Technical University in Turkey and received two BS degrees in Metallurgical and Materials Engineering and in Mechanical Engineering. He received his PhD from University of California-Davis in 2010, where he received the Microbeam Analysis Society Distinguished Scholar Award (2009) and Microscopy Society of America Poster Awards (1st Place Physical Science in 2008 and 2009). He was a visiting scientist at the National Center of Electron Microscopy at Lawrence Berkeley National Laboratory in 2007-2008 and at the Advanced Microscopy Laboratory at the Oak Ridge National Laboratory in 2008-2009. His research interests include the development of ultrafast dynamic transmission electron microscopy for atomic-scale visualization in space and time and applications of in situ (ultrafast dynamical) TEM to phase and structural transformations, materials under extreme conditions, nucleation and growth of nanomaterials, molecular-level dynamic imaging of biological structures and high resolution environmental TEM for heterogeneous catalysis. He has published 19 journal articles in the peer-reviewed literature.

Dustin Ruh (BS 2003)



In less than a decade, engineering alumni Dustin Ruh (BS MSE 2003) & Sara Venn (BS IDE 2004) have experienced success in industry and have found a way to make an impact at Purdue. This year, Ruh and Venn created an endowment to fund a scholarship for the School of Materials Engineering. The proceeds of this endowment will help undergraduates with financial obligations associated with studying abroad; a program that they feel is important in developing well rounded engineers.

Both Ruh and Venn understand the importance of having a global perspective. In his current role as Director of Sales for Alcoa's Forgings & Extrusion Division, Ruh is directly responsible for the company's commercial activities in North America and key aerospace supply chains in Asia & Europe. As a Senior Program Manager in T-Mobile's B2B Division, Venn oversees enterprise projects that rely on international partnerships and coordination with T-Mobile's parent company in Germany, Deutsche Telekom. Together, the Boilermaker couple has experienced both international travel and business abroad; they see the need for exposing students to culture outside of North America, and their hope is the endowment will give engineering students the ability to gain global perspective.

As a sophomore, Ruh had the benefit of studying at the University of New South Wales outside Sydney, Australia. "The experience of studying in another country and adapting to another culture was helpful in expanding my ways of thinking," Ruh says. "I believe it is important for students to have the opportunity to explore the diversity abroad. The hope that my wife and I have for this scholarship

is that it will allow undergraduates a better opportunity to experience academics in another country."

Ruh and Venn met as freshmen at Purdue in the fall of 1999, introduced through mutual friends in engineering. They both were extensively involved with activities on campus during their time in undergraduate studies. Venn participated in EPICS and held multiple roles with Purdue Student Government (PSG) including serving as student body vice president in 2003. Ruh participated in a variety of organizations including PSG, Old Masters, President's Council and selection into Mortar Board in 2002. After graduation, the couple reunited in Southern California where they started dating and were later married after moving to their current residence outside Seattle, Washington. Ruh and Venn have continued to support Purdue since graduation and they are excited about the opportunities that their endowment will bring to students well into the future.

Through his work with the Materials Engineering Advisory Committee, Ruh has remained close with the School of Materials Engineering. When asked why he felt it was important to give back to Purdue and MSE, Ruh replied, "The four years that I spent in West Lafayette were incredible. The people I met, the friends I made, and the experiences that I had at Purdue helped shape the person that I am today. I met my wife at Purdue and the start of my career with Alcoa can be attributed to connections that the MSE department had with Alcoa's Lafayette Operations. I believe that Purdue and the MSE department can continue to have that level of influence on today's students, and we want to be a part of that support."

On October 13, 2012, Dustin Ruh received the Young Alumni Award presented by the College of Engineering Alumni Association.

"I believe it is important for students to have the opportunity to explore the diversity abroad. The hope that my wife and I have for this scholarship is that it will allow undergraduates a better opportunity to experience academics in another country."



Undergraduate Student Profile

Amanda Cooper

Hometown: Monrovia, Liberia

Woodbury High School, Woodbury, MN

What attracted you to Purdue University and specifically, Materials Engineering?

During my junior year of high school, I attended a Materials Science Camp hosted by ASM, and I have been hooked on the subject area ever since. Having the ability to not only identify key material properties and selection for various applications, but also improving current technology and innovating novel solutions with that knowledge excites me. As for the reason why I chose Purdue, aside from the excellent engineering program, it was the only school (and still is) that made me feel at home. And the Materials Engineering Department, specifically, is really my home away from home. Between the college town feel, diverse student population and welcoming professors, I've found a secure niche here at Purdue that builds me up academically, prepares me for social networking while exposing me to a wide range of people and culture.

What has been your greatest achievement during your time in the School of Materials Engineering?

My greatest achievement in the MSE Department has not just been one moment, but a collection of experiences that has contributed to my overall development as an individual and student. I've stayed in engineering because it challenges me, and I judge my success by how well I face those challenges, not just if I surpassed them. Coming out of high school into my freshman year, I didn't have the confidence in my work so that if someone questioned my answers I'd be able to dispute. But now, when I solve problems I feel assured in the assumptions I've made and can logically reason through the solution without turning to the professor first for help.

What has been most rewarding about your time in Materials Engineering?

Networking. Getting to know and work with my fellow classmates is always rewarding because I not only learn so much, but am proud when I'm able to help others understand a concept. As an engineering ambassador I interact a lot with the staff and faculty outside of classes. It's comforting to know that there are other adults besides my parents who are concerned with my success here at Purdue and will reach out to me to make sure I stay on track. It's always easy for me to talk to students and parents about the MSE program because the people here really make it worthwhile.

Please briefly discuss any participation in study abroad and how the experience was beneficial.

I just recently traveled to China for the 2012 Maymester program. Although the trip was less technical and more about intercultural teamwork, it was an eye-opening experience. Jobs have become a global workplace and being able to work efficiently with our international technical counterparts is vital to project success. During my study abroad, we not only observed cultural differences in social settings, but also focused on the impact it has on businesses. For instance, opposite to Western culture, the Chinese business practices are more indirect. They tend to 'beat around the bush' before coming to a decision and there's more formalities such as dining with clients or discussing personal life. These customs may not apply to me directly at this moment, but I learned that just being aware of and respecting foreign customs can go a long way to insure successful teamwork.

Please discuss any participation in co-op or internship programs and how the experience was beneficial.

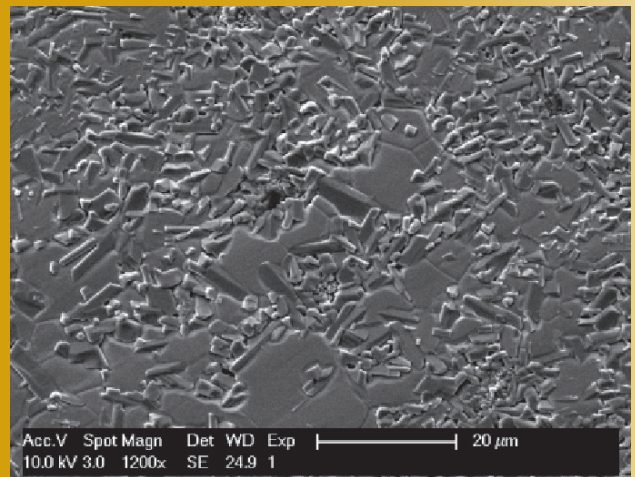
I've had amazing opportunities to work in both industry and government settings. Just working in the 'real world' has helped me understand and appreciate the importance of what we learn in class. From talking to supervisors and co-workers, I've also realized how valuable we, as students, are going into the workforce. Students usually have the mindset of being lucky if they get an offer from a company, but really it's the other way around. Companies are just as lucky to have fresh new ideas that are tuned in to current technology and novel methods for accomplishing tasks. My work experience has given me the confidence to not only make sure I am a good fit for a company, but that the company also meets my needs.

Have you been involved in any student organizations while at Purdue? If so, which ones?

I've been involved with several organizations over the past four years. Since my freshman year I've been a member of the National Society of Black Engineers (NSBE). Starting out on the chapter level as the Freshmen Council Chair and then Vice President, I've implemented national programs such as academic seminars to help first years succeed in the engineering program, planned professionalism workshops to help members stand out at recruiting events, and helped manage the executive board. I'm currently planning the regional conference as Conference Planning Chair on the Region IV executive board.

Global PhD Work

Fourth year PhD candidate **Chris Fancher**, who received his BS in Multi-Disciplinary Engineering from Purdue in 2009, traveled to Germany for a summer internship at the Technical University of Darmstadt. Chris, who is co-advised here at Purdue by Professors Bowman and Blendell had the opportunity to work with Professor Jurgen Rödel and his research group on Lead-free piezoelectrics while in Germany. A scholarship provided by The Integrated Graduate Student College supported Chris during his four months there. A continuing collaboration between Purdue MSE and TU Darmstadt that includes previous attendees Professor Jacob Jones (Purdue PhD, University of Florida MSE Faculty) and Professor Robert Moon (Purdue MSE Faculty), allowed Chris to work on cutting edge piezoelectric characterization equipment. These experiments, unique in their kind, enable researchers to observe the bi-axial strain state of these materials while under a high electric field. Chris has also found that crystallographic texture affects the high-field strain response, meaning at a fixed field strength the material will deform more if there is a texture.



When used in a device, fatigue through phase transformation during electrical cycling often will reduce the lifetime of a piezoelectric material; therefore, information on the detailed volumetric changes of the material is crucial. Experiments like these provide information on the potential longevity of these piezoelectric materials in applications such as sensor modules and high precision microscopes. Chris is planning to present his summer's work at the Electronic Materials and Applications conference in January 2013.

Since my sophomore year I've been an ambassador for the College of Engineering, which encompasses interacting with prospective students, alumni and administrative figures. From luncheons and banquets to football games and recruiting events, I've shared my Purdue experiences to help students decide if Purdue engineering is right for them, convince Alumni that their sponsorship is valuable and provide feedback to faculty and staff on the successful programming as well as areas of improvement. More recently, I've had the honor of being initiated into the 86th Class of Mortar Board Barbara Cook Chapter and to serve the Purdue community under the three pillars of scholarship, leadership and service.

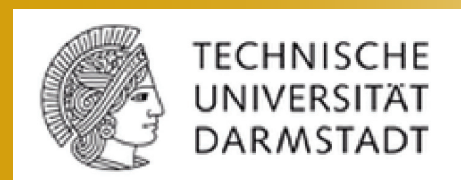
And as traditionally uncharacteristic as it may seem, I've also been an active member of the Argentinian Tango Club. Dancing is a passion and I've been able to satisfy that through the club. I've traveled to Indianapolis, Chicago, Ann Harbor and even DC for festivals and interestingly enough I've met more technical professionals through tango than any other extracurricular activity.

Why would you recommend this department to others who are still deciding on an area of study?

We are everywhere, we do everything, and options are limitless. Material considerations are at the center of most, if not all, engineering challenges. To increase profit, manufacturing and processing costs have to be considered, and material selection influences those factors. Electronics can be designed to run faster for longer, but they can't last without a material to endure the consequent stresses. Surgical instruments can't even be considered if the material of the device is not biologically compatible. Those who institute policies, such as environmental standards, need to understand material degradation and impact on environment. There will always be a need for innovative problem solving and cutting edge technology, which requires thinking up new ways to use current materials or novel ones. The Materials Engineering Department here at Purdue not only prepares students to successfully integrate to industry or academia, but also does so in an encouraging fashion that fosters individual growth.

How do you plan to use your knowledge and experience gained at Purdue University in the future?

Through my experiences here at Purdue, both in and out of the classroom, the resounding theme of what I've learned has been to bring a diverse and creative thought process into any situation. So, I foresee using this skillset in both the workplace and other professional settings.



Highlighted MSE Challenge Match **Dave Ellis (BS 1984)**



When Dr. David Ellis (BS, Purdue University, 1984, PhD, Case Western, 1989) committed to attending Purdue University, he knew he was enrolling in a university with an excellent international reputation, reasonable tuition, and a location that allowed him to stay close to home. What he didn't know back then, was that he would make lifelong connections and memories that he would carry with him forever.

Dr. Ellis' interest in Materials Engineering began at an early age. He vividly recalls taking several trips to the Kennedy Space Center and watching launches of Saturn V rockets. Actually, it made perfect sense that Dr. Ellis would discover a love of materials, as his father was a metallurgist in the steel industry, and his grandfather and uncle both worked with metals. "Seeing what they did, I decided at a very early age, that I wanted to do something similar," says Ellis.

As a graduate student in 1985, Dr. Ellis began working with NASA Glenn Research Center, which had become involved with intermetallic compounds for structural applications and replacements for superalloys. Through

his work, Dr. Ellis determined that adding small amounts of chromium to NiAl stopped hot corrosion – an exciting discovery!

From that point on, Dr. Ellis has remained with NASA Glenn Research Center. Over the years, his research has involved developing everything from a new liner for the Space Shuttle Main Engine Main Combustion Chamber (SSME MCC) to a 100kW electrical power supply that could be used to power spacecraft or a lunar outpost. Currently, Dr. Ellis is working on the testing and selection of materials for a landing vehicle that can withstand the harsh environment of Venus. Despite the extraterrestrial nature of his research there have been earthbound benefits, including the creation of a company in the business of advanced materials for the electronics industry.

Even after he left Purdue, Dr. Ellis never forgot the wonderful times he had in West Lafayette. He recalls the special relationships that he made with his professors and fellow classmates, and this kept him interested and engaged in the department in the years following graduation. It was these fond memories that inspired him to make annual financial gifts to Purdue in order to support the institution that had given him so many opportunities.

In 2010, Dr. Ellis decided to increase his level of giving to Purdue. With the help from the MSE Challenge Match, he was able to create The David L. Ellis Scholarship, which will forever benefit MSE undergraduate students. Dr. Ellis says he was motivated to endow this scholarship because "education and students are important" and because of the matching funds from the School which allowed him to double the impact of his gift.

Dr. Ryan K. Roeder Named OMSE

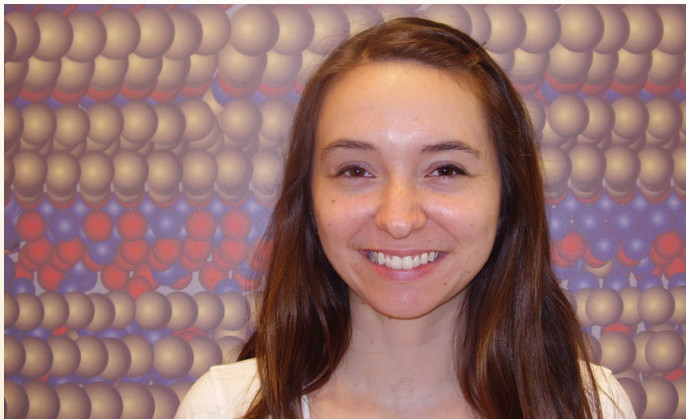
Dr. Ryan K. Roeder, associate professor in the Department of Aerospace and Mechanical Engineering at the University of Notre Dame, has been named the 2012 recipient of the Purdue University Outstanding Materials Science and Engineering (OMSE) Award for his demonstrated excellence in the area of biomedical applications of materials and his dedication and service to the School of Materials Engineering at Purdue University.

Dr. Roeder earned BS and PhD degrees from Purdue University in 1994 and 1999, respectively, and has held a faculty position with the University of Notre Dame since 2001. He has co-authored 40 archival journal articles, holds four patents, and has served on numerous grant review boards for such organizations as the Air Force Office of Scientific Research and the National Science Foundation.

Dr. Roeder was recognized as an Early Career Faculty Fellow by the Minerals, Metals, and Materials Society in 2007 and has served on the Advisory Committee for the School of Materials Engineering at Purdue University since 2009. In addition, Dr. Roeder was named the Top Reviewer for the Journal of the Mechanical Behavior of Biomedical Materials in 2008 and is an honorary member of Pi Tau Sigma, University of Notre Dame Sigma Beta Chapter.

Congratulations to Dr. Roeder for being chosen as this year's OMSE!





Graduate Student Profile

Valerie Wiesner

Hometown: Lawrence, Kansas

Carleton College, MN - BS in Physics

What attracted you to Purdue University's graduate programs?

After participating in a summer MSE undergraduate research program at Purdue University after my freshman year of college, I knew Purdue would be a great fit for me. The people, variety of research projects, top-notch facilities and upstanding reputation attracted me to pursue my graduate studies at Purdue.

What has been most rewarding about your time in Materials Engineering?

I have worked with eight (and counting) MSE undergraduate students on SURF and 499 projects over the past few years. I have really enjoyed seeing students learn and progress as researchers and engineers throughout the duration of a research project whether it lasts a summer or several years.

What is your area of research?

In two words: ceramic processing. More specifically my research here at Purdue is based on room-temperature injection molding of complex-shaped ceramic components for aerospace applications.

Have you been involved in any student organizations while at Purdue? If so, which ones?

Yes! I have been involved in the Materials Science and Engineering Graduate Student Association (MSEGSA) as secretary (2010-11) and Recruitment Committee member (2011-present). Outside of MSE, I actively participate in the Women in Engineering Program (WIEP). Since arriving at Purdue in the fall of 2009, I have been involved with the WIEP Graduate Mentoring Program (GMP) and have been a part of the leadership team for the past two years (2011-present). I also enjoy working with Purdue programs that encourage youth to engage in science and engineering. In addition to serving as a chaperone for WIEP engineering camp sessions for middle and high school girls for two summers (2011-12), other Purdue outreach and service efforts that I have participated in include Purdue Space Day (2009-present), Introduce a Girl to Engineering Day (2010-12), Society of Women Engineers' Girl Scout Day (2010), and Seminar for Top Engineering Prospects (STEP) and Multiethnic Introduction to Engineering (MITE) Programs (2009-2011) to introduce materials science and engineering-related topics to students through engaging activities.

I also recently worked as a project leader for X97/Engineering Projects in Community Service (EPICS) Global Alternative Power Solutions (GAPS) here at Purdue in collaboration with four Colombian universities to bring solar power to two communities in Chocó, Colombia. My classmates and I attended and presented at the International EPICS Workshop in Medellín, Colombia, that was held this past March along with several Colombian universities.

Have you been involved with any organizations outside of Purdue?

Before entering grad school, I spent a year abroad teaching English and doing translation work for the Musashimurayama Board of Education in western Tokyo with the government-sponsored Japan Exchange and Teaching Program (JET), and I am still involved with the JET alumni association.

Why would you recommend this department to others who are still deciding on an area of study?

Very few fields of study combine principles from both general sciences and engineering. So, I encourage anyone who wants to apply knowledge from a variety of disciplines to creatively solve problems to consider materials science and engineering at Purdue.

How do you plan to use your knowledge and experience gained at Purdue University in the future?

My varied experiences in and out of the classroom and lab at Purdue have allowed me to grow as a researcher and educator. Although I have not decided whether my career lies in academia or industry, the knowledge and tools I have developed while at Purdue will, no doubt, allow me to be successful in my career regardless of the path I choose.



MS&T Conference

During the week of October 7th, MSE traveled to the MS&T Conference, which was held in Pittsburgh, PA. Purdue MSE boasted the third largest student attendance from a university with a total of 35 undergraduate students and 9 graduate students. Students had the opportunity to attend lectures in their areas of interest and network with students from other universities as well as industry professionals.

On Monday, October 8th, MSE held an alumni event at Tonic Bar & Grill located across the street from the convention center. Alumni, students, faculty, staff and guests from other institutions gathered to reminisce about fond memories of the school as well as to discuss the exciting initiatives going on within the school. We hope to see you next year on Monday evening in Montreal for another fantastic MSE alumni event.

"The experience was great for networking opportunities, great practice involving professionalism skills, and presenting yourself to prospective employers for years to come."

*Anthony Hill,
Class of 2013*

"MS&T was a great experience for me because I got to learn about advanced topics through technical lectures. I also received an interview which lead to an internship in 2011 and an interview which will hopefully lead to a job offer when I graduate."

*Erin Cummings,
Class of 2013*

"I had a fantastic experience at MS&T. There I was able to attend informative lectures, network with industry professionals and feel a part of the greater Materials Science community."

*Michael Brant,
Class of 2013*

Alumni Weekend BBQ



On Friday, September 28th, in conjunction with Family and Alumni Weekend on the Purdue campus, MSE held an alumni barbecue which brought together several generations of alumni from 1954 - 2012 along with current students, faculty and staff. Alumni had the opportunity to network with students and faculty as well as meet the new head of the school. Look for more news about upcoming MSE alumni events!



Alumni Updates:

Purdue Materials Engineers inducted into the ASM International 2012 Class of Fellows

ASM International, the largest professional materials engineering society with 36,000 members, has recently inducted its 2012 class of Fellows. ASM International established the honor of Fellow of ASM in 1969 to provide recognition to ASM members for their distinguished contributions to materials science and engineering. ASM Fellows are a select group of technical and professional leaders who have been recognized by their colleagues and now serve as advisors to the society. In 2012, ASM International inducted 25 new Fellows including two Purdue MSE alumni:

Dr. Janet M. Sater, Research Staff Member, Institute for Defense Analyses, Alexandria, VA, was inducted "For outstanding technical contributions to Department of Defense metal matrix composite and morphing materials programs." Dr. Sater received a BS degree from Grove City College in Metallurgical Engineering in 1983 and a MS and PhD in Materials Engineering from Purdue University in 1985 and 1988, respectively.

And our own **Prof. David F. Bahr**, Professor and Head of Materials Engineering, Purdue University, West Lafayette, IN, was inducted "For significant contributions to the understanding of small scale mechanical behavior, particularly through nano indentation." Dr. Bahr received a BS and MS in Materials Engineering from Purdue University in 1992 and 1993, respectively, and a PhD in Materials Science from the University of Minnesota in 1997.

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MSE STUDENT NIGHT 2012

April 26th proved to be a memorable evening as Materials Engineering students, faculty, and staff, along with several alumni came together with corporate sponsors at the annual MSE Student Night celebration. The Ross-Ade Suites were the perfect setting where attendees had the opportunity to mingle and network with each other while enjoying superb refreshments. The undergraduate Senior Design teams showcased their projects and personally presented them to the project corporate sponsors. The projects and presentations were quite impressive.

Professor Slamovich, Interim Department Head, presented several awards to outstanding graduating MSE students, along with the OMSE and teaching awards. Special recognition was given to Joseph Muth, for Outstanding Graduating Senior. He also received the John L. Bray Memorial Award along with Joseph Flanagan. Graduate student awards went to John Koppes for Outstanding Graduating Graduate Student, Heather Meredith for the Estus H. and Vashti L. Magoon Graduate Teaching Award, and Mitchell Wood for the Outstanding Graduate Student Teacher Celebration of Graduate Student Teaching. Along with these outstanding students, MSE Alumni, Dr. Ryan K. Roeder, associate professor in the Department of Aerospace and Mechanical Engineering at Notre Dame, received the Outstanding Materials Science and Engineering Award. Professor John Blendell was also recognized as the Reinhardt Schuhmann, Jr. Best Undergraduate Teacher for 2012.

Dr. Roeder reflected on his time spent here at Purdue, offering encouragement and sound advice for the soon-to-be Materials Engineering grads. He was among several distinguished guests and alumni in attendance for this event.

The annual event culminates the end of the school year, celebrating graduating MSE students and alumni. Senior Design Groups benefit from the chance to personally express their gratitude to corporate sponsors in attendance. The evening was an excellent opportunity for students and prospective employers to network and visit in a relaxed setting. A fantastic evening was enjoyed by all.

MSE Outstanding Graduating Graduate Student

John Koppes

MSE Outstanding Graduating Senior

Joseph Muth

John L. Bray Memorial Award

Joseph Muth

Joseph Flanagan

Estus H. and Vashti L. Magoon Graduate Teaching Award

Heather Meredith

Outstanding Graduate Student Teacher (CETA)

Mitchell Wood

Reinhardt Schuhmann, Jr. Best Undergraduate Teacher Award

Professor John Blendell

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