

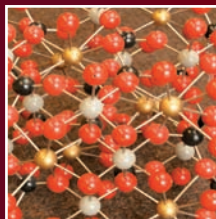
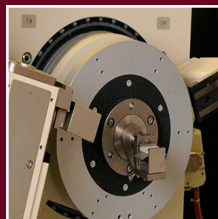
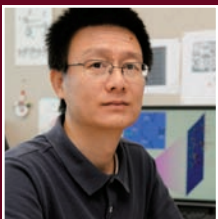


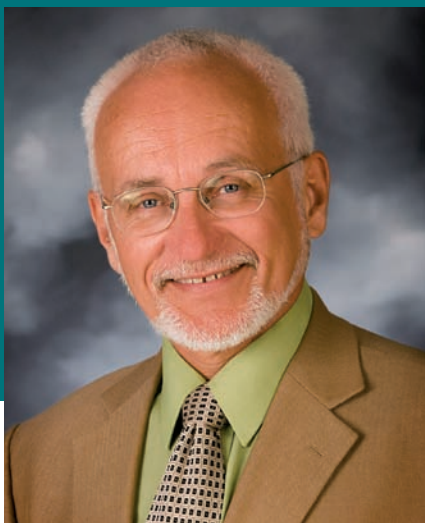
MSE NEWS

Materials Science and Engineering ■ www.mse.mtu.edu ■ Fall 2010



MICHIGAN TECHNOLOGICAL UNIVERSITY





A Message from Department Chair Mark Plichta

Chair Chat

Dear Friends:

As I gather my thoughts to write this letter, I am delighted by the many accomplishments the MSE department has made over the past year. As the Chair, it has been an exciting and fulfilling year for me. After reading this newsletter, I think you will agree that the department is poised on the brink of national recognition once again.

The department saw a 50 percent increase in graduate enrollment last fall, and all of these students currently have faculty advisors and are committed to funded research projects. Undergraduate enrollment remained steady, with hopes of increasing in the next three to four years. Three new professors joined the department last fall (see pages 3 and 4) and are vigorously pursuing research, teaching undergraduate and graduate courses, and actively participating in the department's strategic plan.

On a much sadder note, we lost a very dedicated educator, Dick Heckel, to pancreatic cancer in late May. His loss has impacted the materials community greatly and will continue to do so in the years to come. Dick was a friend and mentor, and I truly miss his casual visits to my office to chat about everything from the local weather, family, and politics, to current research in the materials field, his business (Engineering Trends), which specialized in engineering education analyses and statistics, and various other interesting topics.

Many alumni may recall our colleague and friend, Professor Tom Courtney. Tom passed away in January 2003. He was an icon in the metallurgy and materials field, the epitome of a true professor and researcher. Since his passing, several graduate students whom Tom advised during his career have approached me about establishing an undergraduate scholarship and a graduate fellowship in his name. I wholeheartedly concurred that this was the perfect opportunity to bestow honor upon Tom's memory and to recognize his contributions to education and research within the materials science profession. You may recall that the Tom Courtney Endowed Undergraduate Scholarship was established a few years ago. This endowment continues to grow slowly, and additional gifts are welcomed and encouraged. Now, we launch a new campaign to create the Tom Courtney Endowed Graduate Fellowship. Please consider making a direct contribution to assist with either or both of these very worthy undertakings by completing the form on the attached envelope.

In the near future, we will be establishing an undergraduate scholarship endowment in honor of Professor Dick Heckel. This will likely be in collaboration with the National Honor Society of Alpha Sigma Mu. We will provide details for this endowment in the coming issues of this newsletter.

I would like to sincerely thank the many alumni and friends who continue to support all of our programs. Your involvement and leadership are truly needed to sustain the high-quality educational programs we continue to offer our students.

As always, please feel free to contact me with any questions, comments, or ideas regarding the department and its programs.

Best regards,

A handwritten signature in black ink that reads "Mark R. Plichta". The signature is fluid and cursive.

Mark R. Plichta
Professor and Chair

MSE Brings Family Together Again



Yongmei Jin

MSE Department
Welcomes New Professor

After four years working at Texas A&M University, Yongmei Jin joined the Michigan Tech MSE department as an assistant professor.

Jin's expertise is in phase field modeling and simulation of phase transformations and microstructure evolutions in crystalline materials. Her research interests include decomposition; ordering; electromigration; elastic, magnetic, and electric phenomena and their interplay in mesoscale domain processes in shape memory alloys; giant magnetostrictive materials; magnetic storage media; microelectronic interconnects; and solders.

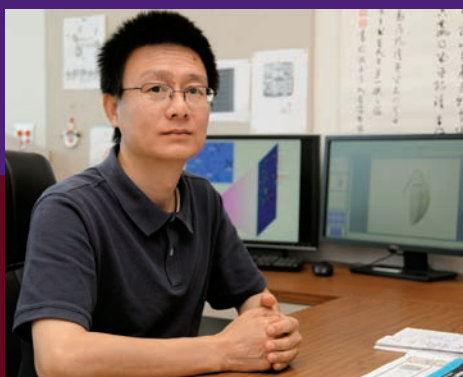
Jin holds BE and ME degrees in Mechanical Engineering from the University of Science and Technology in China and a PhD in Materials Science and Engineering from Rutgers University. She held a postdoctoral appointment at Rutgers from 2003–05 before becoming an assistant professor in the Department of Aerospace Engineering

at Texas A&M. In August 2009, Jin and her husband, Yu Wang, joined the MSE department.

"Michigan Tech," Jin said, "is a defining event in my life—a family reunion and the return to a materials science department. I enjoy working in a department with strong traditions of quality education and research."

At Texas A&M, Jin taught undergraduate courses in materials science for engineers and mechanics of advanced aerospace structures, as well as graduate courses in continuum mechanics; materials modeling of phase transformations; and microstructural evolution. At Michigan Tech, she teaches the undergraduate course Materials Processing II and the graduate course Mechanical Properties of Materials.

"Our two children go together to Houghton Elementary School, and we go together to work," she said. "My family likes the captivating scenery of the Keweenaw Peninsula, a natural land of beauty and peace."



Yu Wang

MSE Department
Welcomes New Professor

Yu Wang, who was hired as part of Tech's Strategic Faculty Hiring Initiative (SFHI), joined the MSE department's faculty in 2009.

Wang centers his research on phase transformations in materials for advanced properties, including dielectric, piezoelectric, and magnetostrictive materials, as well as polymer-matrix composites. He also works on in-situ, 3-D synchrotron X-ray diffraction and coherent scattering; interference effects of nano-domained single crystals; and self-assembly of particles in colloidal suspensions and block copolymers. His research, which is sponsored by the National Science Foundation, the Department of Energy, and General Electric, involves experiments and intensive computations for modeling, simulation, and data analysis.

"What I like best about working at Michigan Tech," he said, "is the fine tradition of excellence in physical metallurgy and phase transformations, which touches my heart whenever I am in the MSE department—through my colleagues, and even the settings of offices, hallways, libraries, and labs in the MSE building."

Wang holds an undergraduate degree in mechanical

engineering from the University of Science and Technology in China and a PhD in Mechanical and Aerospace Engineering from Rutgers University. He held a postdoctoral appointment at Rutgers from 2001–04 before accepting a faculty appointment in Virginia Tech's MSE department in August 2004.

In August 2009, Wang came to Michigan Tech as an assistant professor and was promoted to associate professor with tenure in fall 2010.

At Virginia Tech, Wang taught the undergraduate course Elements of Materials Engineering and graduate courses in Mathematical Methods in Materials Research and Materials Modeling and Simulation. At Michigan Tech, he is teaching Computational Materials Science and Engineering and Introduction to Materials Science and Engineering.

Outside the office, Wang spends time with his family on the Keweenaw Peninsula's rivers and lakes.

"I enjoy the natural scenery of Lake Superior's beaches, the picturesque sunrise and sunset over the waters, and also the flying snow on the frozen canal in the long winter, which I see right out of my office window, feeling the eternal dynamics of the world," he said.

Paul Sanders

MSE Department
Welcomes New Professor



By Autumn Sanders, ten-year-old daughter of Paul Sanders

Eighteen years after graduating with a BS in Metallurgical and Materials Engineering from Michigan Tech, smart Paul Sanders returned to his alma mater in 2009 as an assistant professor of materials science and engineering.

The 1991 alumnus is better than most on high strength, low alloy aluminum design, testing, and optimization; casting of aluminum and iron; processing structure and properties of lotus-structured metallic foams; and application of Six Sigma techniques to materials design.

Sanders has published 37 refereed publications in his 42 years. His information-filled, new SAE reports tell questioning humans about the wonders of friction material compressibility, wheel dust measurements, airborne brake wear debris and break friction coefficients, liquid titanium solute diffusion, nano-crystalline copper, and also kinetic models for rapid alloy solidification in CO₂ welding of magnesium.

After working for a PhD in Materials Science from

Northwestern University in the state of Illinois in 1996, hardworking Sanders served as a postdoctoral fellow at the Argonne National Laboratory in Argonne, Illinois, and the Division of Engineering and Applied Science at the famous Harvard University.

In 1999, he made his money as a technical expert on brake and chassis development for Ford Motor Company's Safety Department, Research and Advanced Engineering, in the city of Dearborn, Michigan. In 2004, his money came from a job as a technical expert for Ford's Jaguar Land Rover Research in Coventry, England, tackling brake system design. In 2007, he returned to Dearborn, working on light weighting, aluminum design, coating design and process for Ford's Materials Science Department.

"I think I was meant to come to Michigan Tech. It is the next part of my journey," Sanders explained when he was asked why he came to this college in Houghton.

Sanders taught the enchanting classes of Metal Castings and Advanced Metalworking Enterprise (with Dr. Mark) in the 2009–10 year, and in 2010–11 he will again teach Metal Castings and Advanced Metalworking Enterprise, along with interesting Senior Design with Six Sigma.

Richard W. Heckel Professor Emeritus Passes



Richard W. Heckel, who served as professor of materials science and engineering for twenty years, died May 25 in Wisconsin Rapids, Wisconsin, following a battle with pancreatic cancer.

Heckel joined the MSE faculty in 1976 and was known both for his rigorous teaching and dedication to research. He mentored numerous graduate students in the area of powder processing of materials.

After he retired in 1996, he formed Engineering Trends, a consulting firm capitalizing on his long-standing interest in engineering education.

"Dick was a dedicated and conscientious educator," said Chair Mark Plichta. "He took a lot of pride in his teaching. He also was very outgoing, friendly, and caring. He cared about other people, particularly his students and their success. We'll all miss him."

Heckel had a forty-foot boat named for his late wife, Peggy Ann. "His big love was boats," said Heckel's friend and colleague, Professor Bruce Pletka. "Every year, he and [the late department chair] Tom Courtney would go out to Isle Royale after spring quarter and bring two or three other people." Heckel enjoyed the finer things, and compared to most Isle Royale trips, his were lavish, Pletka said, featuring

steaks and margaritas. "I treasure those memories. He's also the only person I've ever known who could write a paper or proposal in his head. I'd go through umpteen iterations, and his first draft would be his final draft. He was amazing," according to Pletka.

Heckel was known in the University community for his honesty and conviction. "He would really call a spade a spade," Pletka said. "When Dick told me something, I knew he believed it and would stand by it."

He was born in 1934 in Pittsburgh, Pennsylvania, and earned his BS, MS and PhD degrees in Materials Science and Engineering from Carnegie Mellon University. Heckel worked as a metallurgist at the E.I. duPont de Nemours and Co. Inc., in Wilmington, Delaware, from 1959-1963, before joining the faculty of Drexel University in September 1963. He subsequently was named department head at Carnegie Mellon in 1971.

Heckel was a member of the American Society for Engineering Education and the Engineering Workforce Commission. He was a life member of the Minerals, Metals, and Materials Society and a fellow and life member of ASM International, which awarded him the Bradley Stoughton Young Teacher of Metallurgy Award in 1969.

Alumna Achieves Milestone



First Female FEF President
Kathy Hayrynen

South Range native and Tech alumna Kathy Hayrynen has come a long way since earning her PhD in Metallurgical Engineering in 1993.

Hayrynen, presently of Livonia, Michigan, is currently second vice president of the Foundry Educational Foundation (FEF) and will become the first female president of the organization in 2012.

Hayrynen has been technical director of Applied Process, Technologies Division, since 1998. She served in a similar capacity with the related Applied Process Inc. from 1995 to 1998.

In addition to FEF, Hayrynen is active in the Ductile Iron Society, ASTM International, SAE International, the American Foundry Society, and is a fellow of ASM International, which also awarded her the 2009 George A. Roberts Award. Her service to Alpha Sigma Mu spans twenty-five years; she served as president of the Michigan Tech student chapter in the mid-1980s and was named to its national board of directors in 2010.

The ASM Education Foundation recently honored Hayrynen for her educational outreach in materials engineering, including organizing the ASM International Teachers' Materials Camp each July at the University of Michigan. She also helped establish an ASM Camp at Michigan Tech.

With a successful corporate management position in the heat-treating industry, Hayrynen's eleven years as a student at Michigan Tech still shape her today. "My boss is passionate about education and teaching," she says. "He supports and encourages me to fulfill my teaching and mentoring interests."

She is a frequent guest lecturer for the metal castings class. Her love of teaching was encouraged and flourished at Michigan Tech. As a graduate student for Professor Emeritus Karl Rundman, she would lecture for Rundman when he was out of town.

"He was teaching the class and wanted to give the students an exposure to real-world casting application," she said. "In fact, when I left Michigan Tech for my

present job, Karl told me that my gift to the profession would be teaching. I just hadn't come to that realization."

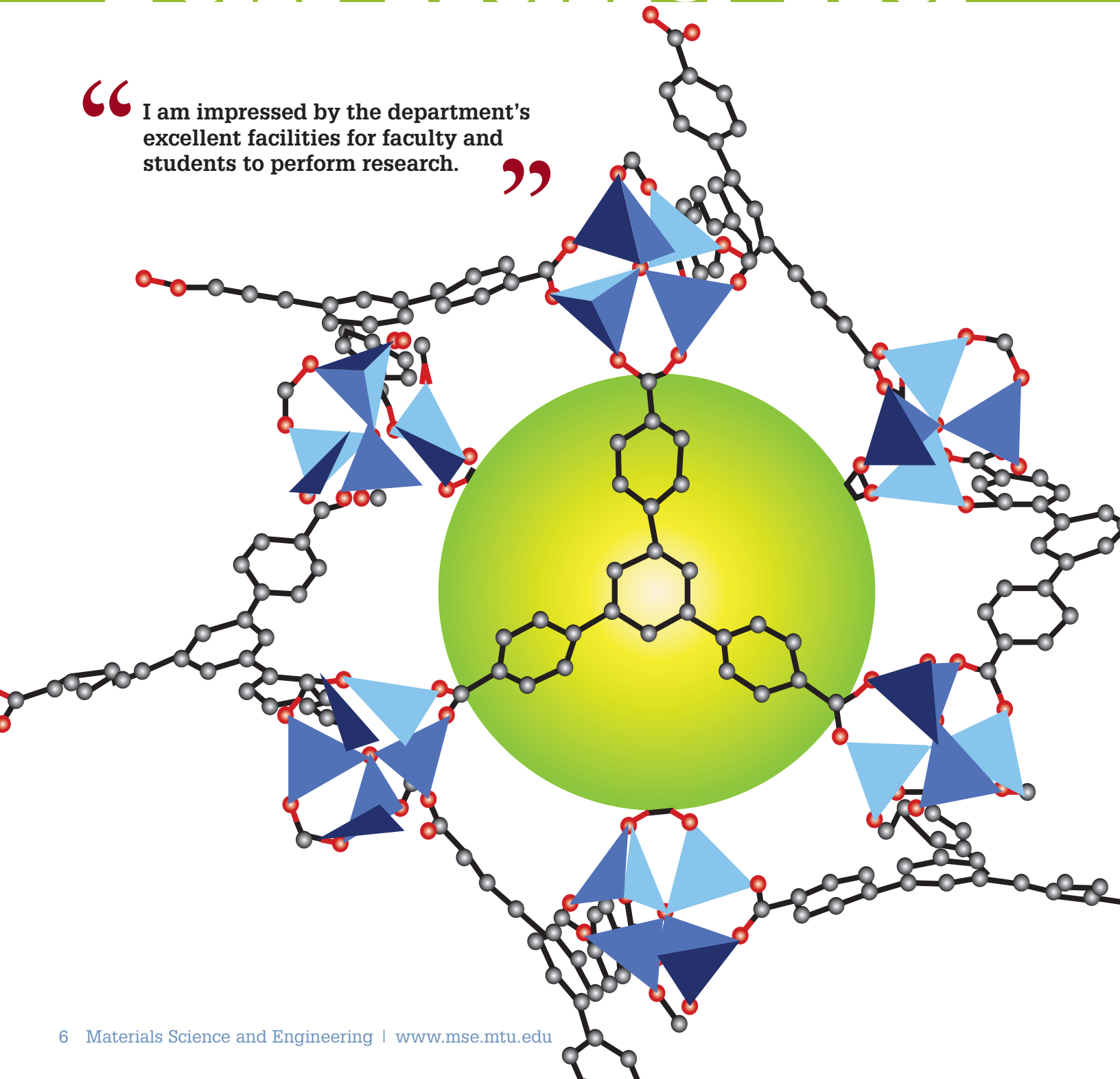
To Hayrynen, the MSE department "still feels like home." She helped move equipment from the old Chem-Met building into the present one [Minerals and Materials]. "It's kind of like I moved in, but never really moved out," she said.

Hayrynen maintains her ties to Tech. She has been a member of MSE's External Advisory Board since 2005, a member of the Academy of Materials Science and Engineering since 2006, and a member of the Presidential Council of Alumnae since 1998.

Hayrynen stays involved because "it is my turn to pay it forward—to provide a sense of community to the next generation of engineers who will enter my profession."

Yun Hang Hu

“ I am impressed by the department's excellent facilities for faculty and students to perform research. ”





In Yun Hang Hu's three years in the MSE department, he has already written twenty papers for peer-reviewed journals, was named a finalist for the Distinguished Teaching Award in 2010, and became a member of Tech's Academy of Teaching Excellence. In March of 2010, a paper he coauthored with PhD candidate Lei Zhang on hydrogen storage was recognized as "Most Accessed Paper" in the prestigious journal *Advanced Materials*. The paper was published in the January 2010 issue.

"Yun is a tireless worker who epitomizes what it is to lead by example, which is why he is so widely respected as a researcher and admired as a teacher," said Chair Mark Plichta. "We are extremely honored to have him in our department."

The MSE department's "outstanding reputation in both teaching and research, combined with excellent culture," drew Hu, recently promoted associate professor, to Michigan Tech.

"I am impressed by the department's excellent facilities for faculty and students to perform research," he said.

Hu's personal research interests include hydrogen storage materials, CO₂ conversion into solid materials, nano-materials for solar energy, biomass conversion into fuels, non-stoichiometric compounds for energy, and catalysts.

Much of his research is supported by the National Science Foundation. He received NSF awards for work on "Catalytic Activation, Spillover, and Storage of Hydrogen on Transitionmetal/ Metal-Organic Frameworks," "Promoting Effects of Anions on Hydrogen Storage Reactions of Li-N Based Materials," and "Acquisition of an In-Situ AFM/STM-TEM System

for Interdisciplinary Nano-Research and Education at Michigan Tech."

In addition, Tech's Research Excellence Fund supports his work on "Initiative Research on High Reversible Hydrogen" and "Acquisition of a Nanorobotic System for the Manipulation of Nano- and Micro-scale Materials in Scanning Electron Microscope."

Hu's "most accessed paper" is titled "Hydrogen Storage in Metal-Organic Framework." Hu and Zhang evaluate the relationships between hydrogen capacities and structures, emphasizing the roles of surface area and pore size. They explore the challenges in obtaining high hydrogen capacity at ambient temperature.

"Metal-organic frameworks (MOFs) are very attractive materials because of their ultrahigh surface areas, simple preparation approaches, designable structures, and potential applications," Hu explains. "In the past several years, MOFs have attracted worldwide attention in the area of hydrogen energy, particularly for hydrogen storage."

Zhang is one of six students Hu advises at Michigan Tech. He teaches the graduate course Materials for Energy Applications and the undergraduate course Materials Processing I (Thermodynamics).

"I have excellent students in my research group," he said. "Their dedication to research is highly appreciated. More importantly, I have outstanding colleagues, particularly Dr. Mark [Plichta]. I would like to thank all of them for their strong support and great help."

In addition to serving as program chair of the American Chemical Society (ACS) Fuel Chemistry Division until 2013, Hu is a member of ASM International and the American Institute of Chemical

Engineers. He is organizing a symposium on hydrogen storage for the 242nd ACS National Meeting in 2011.

Hu earned a PhD in Chemistry from Xiamen University, an MS in Chemistry from the Chinese Academy of Sciences, and a BS in Chemistry from Nanchang University. He came to MSE in 2007 after working as a chemical and biological engineering research professor at the State University of New York (SUNY) at Buffalo. Prior to that, he was a senior staff engineer at ExxonMobil Research and Engineering Company in New Jersey. He also taught in the College of Chemistry and Chemical Engineering at his alma mater, Xiamen University, in China.

Hu's honors precede his time at Tech. He was named an Outstanding Researcher by the US Immigration and Naturalization Services, an Excellent Young Faculty at Xiamen University, an Excellent Young Chemist by the Chinese Chemical Society, and he received a Young Investigator Grant Award from the National Natural Science Foundation of China.

Hu is the editor of the ACS Series Book, *Advances in CO₂ Conversion and Utilization*, published in 2010, and the guest editor of *Internal Journal of Energy Research*. He has also served as peer reviewer for two dozen publications, including the *Journal of the American Chemical Society*, *Chemical Physics Letters*, *Physics Letters A*, and the *Journal of Catalysis*.

Hu, who enjoys tennis and watching TV, is grateful to his wife, Nianying, and children, Bo and Phoebe, for their love, inspiration, and support.

"I very much appreciate their sacrifices during the time I spent performing my research," he said.

Student Accomplishments

Undergraduate Expo

The ninth annual Undergraduate Expo took place on April 15, 2010, and student teams from the Enterprise, Senior Design and Undergraduate Research programs presented their projects.

Second Place

MSE undergraduate researchers Patrick Bowen and Helen Ranck for their poster, "Testing and Refining Rehydroxylation Ceramic Dating: Testing a New Dating Tool for Archeology," advised by Jarek Drelich.

Honorable Mentions—MSE Senior Design Teams

- Nicholas Johnson, Michelle Loomis, Mark Twilley, Donald Wagle, Jon Sanders, and Dale Goodloe for "Uniform Quenching of Strip Steel," advised by Paul Sanders and Mark Plichta and sponsored by ArcelorMittal.
- Kenneth Brooks, Steve Klimowicz, Jason Sallgren, and Nathan Wilkie for "Carbon Dioxide Sequestration from Steelmaking Exhaust," advised by Stephen Hackney and sponsored by ArcelorMittal.
- Jacob Edick and Nikki Long for "Bioabsorbable Metal Stent Degradation Simulation," advised by Jarek Drelich (MSE) and Jeremy Goldman (Biomedical Engineering) and sponsored by Boston Scientific.

Student Awards

Woman of Promise

MSE senior Britta C. Lundberg was honored as a Woman of Promise by the Presidential Council of Alumnae. The award recognizes female students who have demonstrated academic achievement, campus and community leadership, good citizenship, creativity, and other characteristics of high-achieving individuals. "Britta is the ideal student," said Chair Mark Plichta. "Not only does she work hard on her studies, but she eagerly participates in extracurricular activities without missing a beat. It is clear Britta will be very successful in all she does."

AFS Award

Junior Michelle Loomis received a \$1,000 scholarship from the Northeastern Wisconsin Chapter of the American Foundry Society.

Departmental Scholar

MSE junior Kyle J. Deane was elected Departmental Scholar for the academic year 2009–10. Each year, the University recognizes those students who represent the best of student scholarship within the department, participate in research or scholarly activity, show a high level of intellectual curiosity and creativity, and demonstrate exemplary communication skills. Kyle is a member of the Advanced Metalworks Enterprise (AME). "Kyle is focused and thorough, often explaining complex topics to other students," said Chair Mark Plichta. "I am very impressed with his natural leadership talents when working with his AME teammates." Kyle received a \$200 award and was recognized at Michigan Tech's 16th Annual Student Awards Banquet, held on April 25.

2010 FEF Scholarships



Receiving scholarships from the Foundry Educational Foundation are: Front row, L to R: Tom McDonough (MSE), Jon Borlee (ME), Mark Twilley (MSE). Back row: Brett Anderson (ME), Mike Tiry (ME), Nate Thomas (ME), Ken Brooks (MSE).

Staff News

Laitila Recognized for 'Making a Difference'

MSE Engineer Honored for Creating Connections



MSE Research Engineer Edward Laitila received a Michigan Tech “Making a Difference” award in December 2009, which recognizes staff for their contributions to the University’s educational, research, and public service missions.

Laitila was nominated for the Creating Connections Award by the MSE Professional Development Committee, which praised him for his initiative in revising the department’s website—gearing it toward outreach and recruitment by creating online modules that offer virtual experiments to web users. Laitila also was singled out for superior mentoring of graduate and undergraduate students through teaching and research, as well as his broad technical expertise of X-ray diffraction and X-ray fluorescence.

Said Chair Mark Plichta: “Ed indeed ‘wears many hats’ within the department—as laboratory technician, instructor, electronics expert, undergraduate recruiter, and website specialist. He exemplifies a level of dedication and commitment to the department, University, students, alumni, community, and the MSE profession that is truly deserving of recognition.”

Laitila also received the 2009 Youth Programs Award for “Engaging Youth in Learning.” It recognized his unique talent to engage young students in hands-on, discovery-based learning. His team received the 2009 Youth Programs Award for Most Popular Engineering Session in Women in Engineering (WIE) and Explorations in Engineering (EIE).

This is the third consecutive year that MSE staff have won “Making a Difference” Awards. Owen Mills received the Innovative Solutions Award in 2008, and Ruth Kramer received the Creating Connections Award in 2007.

Jack Simon

Alpha Sigma Mu Honor Society Distinguished Life Member Award



Alpha Sigma Mu Honor Society will present its highest honor, the Distinguished Life Member Award, to MSE alumnus Jack Simon at the MS&T meeting in Houston in October 2010. Simon was first elected to Alpha Sigma Mu as a student at Michigan Tech in 1962 and is now the society's international president and chairman of the board.

Simon founded the highly successful ASM International Teachers Camps and Materials Camps. They are growing rapidly throughout the US and abroad, with twenty-eight teacher camps and twenty-four student camps

being held this year. The camps help high school teachers and exemplary science students gain hands-on training and knowledge about the exciting opportunities in materials science and engineering.

Simon has been duly recognized for his achievements in promoting his field. In 2004, he received the George Roberts Award, the highest award bestowed by the ASM Materials Educational Foundation. In 2009, he was elected as honorary member of the American Ceramic Society (ACS), its second-highest award. This past May, Simon was selected by Saginaw's Arthur Hill High School as its 2010 Honor Alumnus.

In his speech in Saginaw, Simon advised the students that jobs in scientific fields are still in high demand. "You can greatly improve your chances of having a successful career by majoring in fields that will always be in demand, such as careers in science and technology, medicine and health care, and alternative and renewable energy," he said.

Simon spent thirty-three years at General Motors Corp. in a variety of manufacturing, engineering, research, and business development positions. He played an important role as a Fellow in the Science Office of Presidents Ronald Reagan and George Bush Sr. He personally received a Presidential Commendation from President Bush for helping to negotiate the FSX Fighter Plane deal with General Dynamics and the Government of Japan.

In 1998, Simon was elected to the Academy of Materials Science and Engineering at Michigan Tech. A year later, he received the ESD Gold Medal Award for Engineer of the Year for Southeast Michigan, as well as the ASM Robert Shoemaker Award for lifelong service to the field of engineering and technical societies.

Simon is president of Technology Access Inc., a consulting firm that specializes in developing partnerships between industry and government.

He earned his BS in Metallurgical Engineering from Tech in 1963. He went on to earn his MBA from Central Michigan University in 1987 and a PhD in Business Management from LaSalle University in 1991.

Richard Bauer

Herman H. Doehler Award North American Die Casting Association



When Richard Bauer '74 learned that the MSE department needed a proper die-cast machine, he helped the department acquire one at a low cost. Bauer also was instrumental in getting die-casting modules introduced to the MSE curriculum. "There's a lack of engineers out there who understand how die-cast machines work," he says.

In recognition of outstanding contributions to the industry, the North American Die Casting Association (NADCA) presented Bauer with the 2010 Herman H. Doehler Award. Bauer's father, the late Richard J. Bauer, received the award in 1982. The Bauers are the first father and son to be awarded this distinction. The NADCA commended Bauer for supporting Michigan Tech and his induction into the Academy of Materials Science and Engineering in 2006.

Bauer is president and COO of Eastern Alloys Inc. and president of the aluminum trading company Service Aluminum Corp. Besides being a leader in the industry, he also has been an advisor to the US Secretary of Commerce on trade policy.

Alumni and Corporations Help Upgrade Seminar Room



"We are extremely grateful for the generous support from alumni, Charles '50 and Carroll McArthur and John '43 and Virginia Towers, as well as corporate donations from Alcoa Howmet and Ladish Company, all of which helped make the renovations a tremendous success," said MSE Chair Mark Plichta. "Our seminar series has been flourishing in recent years, under the direction of Professor Jarek Drellich. The renovations to the seminar room were extensive and included dismantling walls to make the room larger, a new seating configuration, comfortable furniture, carpeting, sound panels, and state-of-the-art A/V equipment and computer capabilities. The students and guest speakers now have a seminar venue that is functional and aesthetically pleasing."



External Advisory Board

The department's External Advisory Board (EAB) met on campus April 15 and 16, 2010. Current EAB members include: front row, l to r: Jim Brusso, Engel Metallurgical; Sally Klaasen, formerly with IBM Microelectronics; Tom Wood, GS Engineering; Greg Olson, Northwestern University; back row, l to r: Paul Prichard, Kennametal Inc.; Joe Nowosad, ArcelorMittal; Al Lecz, Southeast Michigan Community College Consortium. Missing from photo: Kathy Hayrynen, Applied Process; Mike Johnson, Caterpillar Inc.; Brian Schultz, ThyssenKrupp Waupaca.

Aaronsonian Idiosyncrasies

Featured in New Book

A new, 685-page book, titled *Mechanisms of Diffusional Phase Transformations in Metals and Alloys* (CRC Press, May 2010), honors the late Hubert "Hub" Aaronson, a well-respected faculty member who taught at Michigan Tech from 1972–79.

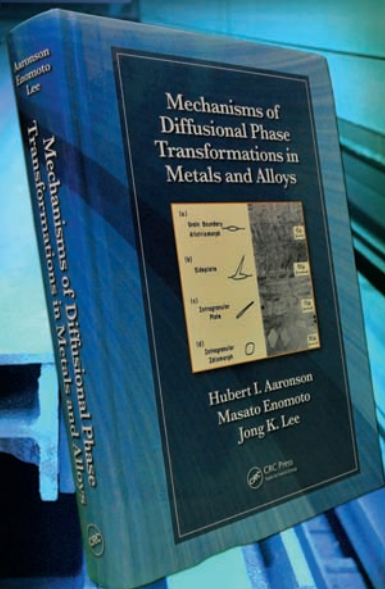
The book features a collection of Aaronson's lecture notes, detailing the fundamental principles of phase transformations in metals and alloys, upon which processing in steel and other metals industries is based. The collection is devoted to solid-solid phase transformations that are controlled by diffusional processes. In particular, the fundamentals of nucleation and growth, as well as interfacial migration, form the foundation of this publication.

The book is coauthored by MSE Professor Emeritus Jong Lee, who taught at Tech from 1975–2007, and Ibaraki University Professor Masato Enomoto, who was a graduate student

at Tech from 1978–79 and later moved with Aaronson to Carnegie Mellon University. As the R.F. Mehl Professor Emeritus at Carnegie Mellon, Aaronson continued his professional activities until his passing on December 13, 2005.

Integrated with information from a number of key papers and review articles, this volume reflects Aaronson's revered and influential way of introducing well-established theories and knowledge in a systematic way. At the same time, the book introduces, in great detail, how a new idea or interpretation of a phenomenon emerges, evolves, and gains its current status. The collection is full of unique "Aaronsonian idiosyncrasies," which add immense value as a powerful tool for learning and understanding this challenging materials field.

Proceeds from book royalties go to the Aaronson Memorial Fund in support of student scholarships.



MSE graduates gathered with their families at the Graduation Reception on April 30, 2010



Alumni Updates

Jeffrey Molnar '95 is a microscopist working with the Process Enhancement Group of ITT Night Vision.

Emanuel Marinaro Castilla '09 is attending graduate school at the Instituto Balseiro in Bariloche, Argentina. His work will focus on ceramics used in orthodontic and polymeric adhesives.

Ben Church '97 is an assistant professor in the materials department at University of Wisconsin-Milwaukee. His research program is focused on alloys for SOFC systems and related components, as well as high-temperature oxidation/corrosion and processing/characterization. Prior to his position in academia, Ben worked at Modine Manufacturing in Racine, Wisconsin.

Ward Rietz '03 is a materials engineer for HEICO Aerospace Corporation in Hollywood, Florida, after working at Lockheed Martin-Michoud Operations in New Orleans for five years. His work focuses on reverse engineering and failure analysis of aircraft components.

Sarah Spanninga '02, '04 graduated from the University of Michigan with a PhD in Macromolecular Science and Engineering in April, 2010.

Emil Lesner '88 works for A-Lab Corporation, a division of Gray America, in Dayton, Ohio.

Jessica (Bomhof) Abercrombie '08 is an engineer at Aerojet Ordnance in Jonesborough, Tenn. She and her husband, Shelby, a fellow metallurgist, are busy working on their MS degrees in materials via distance learning from the University of Florida. The couple is building their own home.