Message from the Chair

"to fill our vacant faculty position in mineral processing. Not only do we need to find the right person, but we need to find the salary for such a person, since past budget cuts eliminated funds for this position. As always, your help is appreciated, especially at this particular time. As anticipated in our last newsletter, ABET full accreditation of our undergraduate program in Metallurgical Engineering is now official. Furthermore, review of our graduate program has been completed, and I am pleased to report that we received high marks. The graduate review included both an internal university committee and an external committee. Both were pleased with our program and recognized it to be of very high quality with an excellent record in education, research and service. The committees mentioned that the excellence of our program is recognized at the international level, and has been so for many decades, a tradition our faculty holds with considerable pride.

The department, college, and university are excited to have our alumnus Dr. Manoranjan Misra join our faculty as a USTAR Professor in May 2011. The addition of Mano will expand our research activities in the energy area, particularly in renewable.

All were sorrowed by the passing of J. Gerald Byrne, Professor Emeritus and former Department Chair. Gerry provided the plans and basis for our current physical metallurgy program and faculty. We remember Gerry with great appreciation for his contributions. A scholarship fund in his name has been established, and you are most welcome to contribute. A tribute to Gerry is included later in the newsletter.

Joseph Gerald Byrne Scholarship

To honor Gerry for his outstanding service, the department is creating the Professor Joseph Gerald Byrne Endowed Scholarship Fund to assist students focusing their studies in metallurgical engineering. Our goal is to raise $50,000 by June 1st of 2011 to establish the endowment. If the goal is not reached by December 30, 2011, the funds will be used at the department chair’s discretion to assist students.

Join us in honoring Gerry by helping metallurgical engineering students achieve their academic goals and prepare for a fruitful career. You may donate by credit card through the U’s secure donation site or by mailing a check, payable to Joseph Gerald Byrne Scholarship Fund, to The University of Utah Department of Metallurgical Engineering 135 S 1460 E Rm 412 Salt Lake City UT 84112-0114

New Scholarship for Women

Through a generous gift of $50,000, from donors who request anonymity, the Department of Metallurgical Engineering has established an endowed scholarship to defray educational costs for female graduate and/or undergraduate students majoring in Metallurgical Engineering.

It is the donors’ contention that women have not had equal opportunities in general, but specifically in the pursuit of degrees and careers in Metallurgical Engineering. They explain, “We want to maximize the intellectual potential of women and encourage them to pursue careers...” With this new scholarship, women will have the opportunity to receive significant funding to support their pursuit of degrees in Metallurgical Engineering.

The donors state that they were afforded great opportunities through their educations at the University of Utah and it is their desire to gratefully give back. It is their hope that the recipients likewise will be “inspired to give back and keep the torch lit bright and shining.”
New USTAR Professor

When Manoranjan Misra (PhD 1981) joined our department as a grad student in the fall of 1976, it was hard to imagine that he would return to the U’s Department of Metallurgical Engineering 34 years later. We are pleased to announce that he will join the department this spring after 23 years at the University of Nevada, Reno.

Misra is presently a Professor of Chemical and Metallurgical Engineering, and the Director of the U. of Nevada’s Renewable Energy Center, where he has coordinated all aspects of renewable energy, including solar, biofuel, energy storage, power systems, geothermal, and educational and outreach activities. Over the years he managed $25 million in research, and he has more than 195 publications and many patents that cover a wide range of subjects starting from mineral processing to energy generation to sensing applications.

DOE Energy Innovation Center

The University of Utah recently received one of five Department of Energy (DOE) Energy Innovation Ecosystem awards of $1.2 million to create the Energy Commercialization Center for renewable energy and energy efficiency technologies.

While much innovative energy technology is being developed at US research institutions, the commercial implementation in the US has been slow and difficult. The national objectives are to create a robust renewable energy and energy efficiency industry in the US that will help us meet our future energy needs, reduce our dependency on foreign oil, create green energy jobs, improve the environment and reduce carbon dioxide emissions.

The Energy Commercialization Center (ECC) at the U will create an open, aligned “ecosystem” of the key stakeholders required for successful commercialization of new clean and renewable energy technologies coming out of research institutions in the western US. We will foster success through early collaboration with industry associations and investment capital groups, and by creating revenue-generating opportunities through sponsored research and licensing and by supporting spinoff companies.

The ECC’s Director is Dr. Jack Hamilton. Adjunct Associate Professor of Metallurgical Engineering, Dr. Hamilton worked for the Dow Chemical Company for seventeen years and has a background in both petroleum exploration and mining. He was the Associate Director of the Utah Engineering Experiment Station at the U for twelve years before coming to the Technology Commercialization Office two years ago. He also teaches MetE 1001, Energy Resources in a Sustainable World. The class has grown from a handful of students to approximately fifty this year.

The ECC currently has three full-time employees: Dr. Hamilton, Elise Brown, formerly the Renewable Energy Coordinator for the State of Utah, and Meghan Golden, who was with the State Energy Program. Other research institutions in the western US who are participating members of the ECC include BYU, Utah State, Oregon State, Idaho State, Boise State, the U. of Idaho, and Idaho National Laboratory.

Student Recognition

Senior student Ryan Morrison received a $2,000 Mineral & Metallurgical Processing Division (MPD) scholarship. Ryan has received merit-based scholarships each year and received the department’s Outstanding Freshman Award. He has a 3.86 GPA. During the school year, he worked on several metallurgical research projects within the department. He is president of Tau Beta Pi fraternity and the SME student chapter. He uses his Spanish fluency as an interpreter at Primary’s Children Hospital. One of Ryan’s goals is to travel to or live in South America while working in the minerals processing industry.

One of Misra’s goals at the U’s Department of Metallurgical Engineering is to expand and integrate his research, teaching, and technology development in alternate and renewable energy. In his graduate and postdoc years at the U, he used metallurgical principles for extracting energy value from Utah tar sand. Today he is using nanostructured materials for solar energy harvesting, biofuel synthesis and energy storage. Misra is also active in the area of the reprocessing of spent nuclear fuels and new materials for high temperature nuclear reactors.

His research is highly innovative and has been well recognized at the national and international level. He received numerous awards from the University of Nevada, Reno and from the State of Nevada, such as the 2010 Board of Regents Researcher Award, the Outstanding Researcher of the University of Nevada, Reno, and the Foundation Professor. He was the 2002 recipient of the Gunnerman Award for Excellence in Science and Technology.

Misra will have a joint appointment in Chemical and Metallurgical Engineering. This will be a great opportunity to bring together the talents of faculty from the Colleges of Engineering and of Mines and Earth Sciences to expand the energy and materials research portfolio at the U. Welcome home!

Miguel Olivas-Martinez was awarded a Graduate Research Fellowship Award of $15,000 by the Graduate School for his proposal, “Computational Fluid Dynamics Modeling of High Temperature Synthesis of Inorganic Nanopowders.”

The Best Teaching Assistant Award went to Haitao Wang.

Jun Quo received the award for best student presentation at graduate seminar for her seminar on March 31, 2010, “A New Method for Making Functionally Graded WC-Co By Carburizing Heat Treatment of Fully Densified WC-Co.”

Tyler Tucker received the Oblad Silver Medal for Excellence in Metallurgical Engineering.

The 2009–10 Outstanding Student Awardees were:

Freshman — Abraham Jurovitzki
Sophomore — Alexander Derrick
Junior — Justin McAllister
Senior — Tyler Tucker

Tyler Tucker
ECC Director
Field-Flow Fractionation Laboratory

The department has a new laboratory for size characterization of nano and micron-sized particles, polymers and macro-molecules using field-flow fractionation (FFF) technology. The lab is equipped with sedimentation and thermal FFF instruments. Plans have been made to obtain a flow FFF instrument as well.

Field-flow fractionation is a chromatography-like technique that determines size distributions of samples by measuring properties such as diffusion coefficient, buoyant mass and thermal diffusion coefficient. Particles ranging from 1 nm to several microns in size can be analyzed. The lab will be used to detect and characterize nanoparticles, biomacromolecules, polymers and minerals. Such characterization is particularly important with regard to the toxicology of nanoparticles and their properties. A research program supported by FLSmidth uses the FFF lab to examine clay mineral particles. Dr. Shoeleh Assemi, who is working in Prof. Miller’s group on surface and colloid chemistry, is responsible for the lab.

X-Ray Microtomography

Mineral processing research in characterization, analysis, and simulation of multiphase particulate systems uses Xradia’s high-resolution x-ray microtomography (HRXMT). The HRXMT laboratory is managed by Research Prof. Chen-Luh Lin. One of the more recent tools acquired to help provide a foundation for improved mineral processing technology is high-resolution cone beam X-ray micro-computed tomography (CT). Future collaboration with Xradia is considered.

Software tools for 3D characterization, analysis, and simulation of packed particle beds using HRXMT are being developed with studies in particle damage and preferential grain boundary fracture, liberation-limited separation efficiency, including coal washability, and pore network structure of packed particle beds and simulated flow using the LB method of computational fluid dynamics. Students involved in the CT research include Ken Hsieh, Alex Meija, Juan Francisco Medina, and Sandro Marino.

Surface Chemistry of Mineral Systems

Dr. Jan Miller’s surface chemistry group uses atomic force microscopy, surface vibrational spectroscopy, and molecular dynamics simulation, as well as more traditional experimental techniques, for its research on the surface chemistry of mineral systems. This research includes the surface chemistry of nonsulfide minerals (DOE Basic Science), dewatering of clays and fine tailings (with support from FLSmidth), and the flotation of sulfide, bauxite, and phosphate ores.

Grad students Vishal Gupta and Xihui Yin are studying the surface chemistry of clay minerals, particularly kaolinite, and have made significant progress on flotation technology, particle aggregation, and sedimentation. Dr. Xuming Wang and Sandro Marino will be looking at flotation of bauxite ores from China, India, and Brazil using a new reagent schedule that does not require desliming. Juan Francisco Medina has been joined in his study of sulfide flotation by Ayush Tserendagva, a grad student from Mongolia supported by Rio Tinto. Grad students Xihui Yin and Xia Zhang are considering fundamental research on interfacial water structure and surfactant organization. New students in the surface chemistry group include Jing Liu and Bo Pan.

Bioprocess Engineering

Dr. Jack Adams and his PhD student Ola Opara are developing a technology for microbial production of methane from complex hydrocarbons, such as coal, shale and waste biomass. The study is in collaboration with Dr. Michael Free, Dr. John McLennan of USTAR and the Chemical Engineering Department, and Dr. Jack Hamilton of the Technology Commercialization Office and Energy Commercialization Center.

Under patent-pending clean-technology-based protocols, the group has tested the methanogenic potential of various natural microbial consortia in different coal samples. Procedures developed increase methane production from coal six times and the overall methane production by over sixty-fold compared to conditions in the literature and current patents.

Dr. Adams and PhD student Mike Peoples are marketing their electrobiochemical reactor (EBR) through a university spinoff company, INOTEC, which was recently announced as the Rocky Mountain Regional award winner in a national clean technology competition.

EBR technology represents a new concept in water treatment. All chemical and biological reactions require the addition of electrons and electron acceptors to proceed. The EBR technology supplies these electrons and conditions, using low voltage and no current, in a manner that makes conventional microbial systems more robust, efficient, cost-effective, and controllable.

Dr. Miller’s 2010 graduates

Aleksandra

“Ola” Opara

MS in Environmental Engineering. “Membrane Separation of Cyanide Species”

Ola got her Bachelor’s in Environmental Protection from Gdansk University of Technology, Poland. After coming to the US, she continues to be interested in the fate of the environment. Ola is currently working on her doctorate in the environmental microbiology lab with Dr. Jack Adams.

Phanindra Kodali

MS. “Pretreatment of Copper Ore Prior to Heap Leaching”

Phani is from India, where his undergrad degree was in mechanical engineering. After an internship at the Kennecott concentrator, he is starting a job at Mineral Park Mine in Kingman, Arizona. He would like to further improve his skills in mineral processing while working on future projects. In his free time he likes sports and watching movies.

Wenjing Xu

MS. “Breakage of Multiphase Particles and Analysis of Fragmentation in Three Dimensions”

Ola Opara kayaking on Pineview Reservoir near Ogden.
The Advanced Fuels Group.
From left, Sivakumar Vasireddy, Wlodek Zmierczak, Balu Veerappan Vaithilingam, Jan Miller, and Paula Buitrago

Paula, above, assembles a catalytic reactor for producing fuels for the next generation of aircraft and rockets.

The company is focusing use of the EBR technology in the mining sector for removal of metal and inorganic contaminants and has completed their first pilot-scale test. Mike and Dr. Adams are preparing for additional pilot-scale tests this year as well as for the first full-scale application. At the same time, lab testing is improving and fine-tuning its operation.

Advanced Fuels Development

Prof. Wlodzimierz Zmierczak and Jan Miller are doing pre-commercial optimization of a composite catalyst for single-stage production of dimethyl ether (DME), a novel universal fuel and a chemical building block. A first version of this catalyst has demonstrated excellent performance compared to the benchmark, a catalyst commercially demonstrated by JFE in Japan. Further optimization is required to maximize its performance in a commercial slurry reactor under long-term industrial conditions.

In mid-2011 a project will be initiated on a production process for a new generation of hydrocarbon fuels from DME. The project will develop a new family of catalysts, which are anticipated to make production possible of fuels for the next generation of aircraft, rockets, and second-generation reusable space launch vehicles.

The sponsor, Ambre Energy Pty Ltd, of Brisbane, Australia, has initiated several commercial projects on energy production in Wyoming and Montana. It is expected that the DME technologies developed in our department will, in the near future, be incorporated into these operations.

Chemical and Electrometallurgy

Prof. Free’s research group has enjoyed another great year.

Dan Darlington joined this year to work on by-product recovery research related to zirconium processing. Yakun Zhu joined our Navy corrosion modeling project, and Mark Robison is working on electrodeposition modeling. We had the opportunity of working with Megan Marshall (BS 2010) for a few months, and we recently added her brother Urian, an undergrad, to our group. We have enjoyed working on a part-time basis with a postdoctoral associate, Amarchand Sathyapalan, and were pleased to have Mohamed Aboutkhashem (PhD 1989), a professor in Libya, who came for part of this year as a visiting scholar.

This past year our work on predicting corrosion damage in aluminum alloys that have specific naval applications expanded to include longer-term modeling, and we have been fortunate to have assistance from Prof. Keith Prisbrey with some molecular dynamic simulations. Our work to produce new materials and manufacturing methods for solar cells has resulted in publications and a patent application. With team members Jack Adams, Jack Hamilton, and John McIlennan, we have been working on a new project to recover methane from coal using a variety of chemical, biochemical, and transport technologies. This year we initiated testing to understand impurity control in electrorefining and, in collaboration with several other researchers around the world, a new project to model metal deposition in commercial electrowinning applications.

Hydrometallurgy and Electrometallurgy

Pressure leaching of zinc concentrates is in progress with Xiaoying Li and Jianrong Peng, visiting researchers, under Research Assoc. Prof. Xuming Wang’s supervision. Xiyun Yang, a visiting researcher from China, is using thiourea and thiocyanate for leaching studies on the hydrometallurgy of gold. Research on the MDS of cyanide complexes and their adsorption/desorption by activated carbon is in progress.

Prof. Michael Moats and his group have published twelve papers since the last newsletter, related to gold leaching, copper electrowinning, copper electrorefining and zinc electrowinning. Sadegh Safarzadeh is exploring novel methods to treat enargite (a copper-arsenic sulfide) in an environmentally benign way.

Prashant Bagri is examining the effect of substrate materials on coated titanium anode lifetime. Francis Elathan is finishing his dissertation on the effect of current reversal on coated titanium anode while starting a new project in copper electrorefining. All of these projects are funded by industrial sponsors.

Dr. Free’s 2010 graduates

Prashant Kumar Sarswat
MS. “A Study of Integrated Leaching and Electrowinning of Copper from Chalcopyrite Ore Using Chloride Media”

Prashant is from an industrial town in India, Kanpur. He enjoys making animations, oil painting, and blogging in his spare time. He is continuing for a PhD, developing new methodology to develop photovoltaic materials from environmentally friendly materials.

He wants to work in research and development.

Shamita Anil Shitole
MS. “Investigation of Gold Sorption by Bacteria”

Shamita received her BS from Pune University in India. She is pursuing a PhD in the U’s Department of Material Science and Engineering.

Nathan Todd Warner
MS. “Electrochemical Recovery of Metallic Palladium from Spent Electroless Plating Solution”

Nate is from West Valley City, and now lives in South Jordan, Utah. He works at IM Flash Technologies as a process engineer on the wet chemical etch team. He is married with a daughter and a son. Outside of work he enjoys spending time with his family and playing volleyball.

Nate Warner
The AMIRA P986 project led by Prof. Michael Moats has been very active this year agglomerating hundreds of kilos of ore, improving our understanding of the process and developing potential quality-control tools. The team includes faculty Mike Free, Chen-Luh Lin, Jan Miller and Raj Rajamani; grad students Nikhil Dhawan, Adirek Janwong, Mike Peoples, Tim Phipps, Thien Vethosodakda and Heather Wampler; and undergrads Kari Knott and Blaine Wilson.

The team presented findings and delivered technology transfer workshops to sponsors at meetings in Belo Horizonte, Brazil and Safford, Arizona. Trips to Africa and South America in the next 18 months are in planning as the project proceeds.

Prof. Guruswamy’s Magnetic and Electronic Materials group works on low-cost magnetostrictive alloy development, materials technologies to harvest energy from wind and ocean, and thermal diode technology for waste heat harvesting. The NSF-supported work on magnetostriction focuses on fundamental understanding of relations between structure, composition and magnetostriction in Fe-based alloys.

Biswadeep Saha, Chai Ren and Deepak Thimmegowda, who took a break due to a family

Dr. Guruswamy’s 2010 graduate
Gavin John Garside
PhD. “Probing of Local Atomic Structure Using EXAFS and Study of Magnetostriiction in Iron-Alloy Single Crystals”

Gavin was born and raised in Salt Lake, attending Alta High. He got a BS from our department in 2007. He loves to go camping, hiking, and fishing. He would like to thank his mom and dad, Colleen and Larry, and his grandma and grandpa, Edna and Paul for their never-ending support and guidance. He has joined ATI-Wah Chang in Portland, Oregon.

Dr. Guruswamy’s 2010 graduates

Emrah Tuğcan Tuzcu

Tugcan did his bachelors and masters in mining engineering at Middle East Technical University in Turkey. His special interest is in ethno-musicology and playing folkloric instruments. He has played in a group called Anatolian Band for three years all over Utah and the US.

Harini Gonegunta Naidu
MS. “Electrodynamic Separation of Metallic Granules from Mixed Waste Stream”

Harini and her husband, alumnus Amol Joshi (MS 2005), both work at James Hardie in Fontana, California.

Physical & Mechanical Metallurgy
Dr. Ravi Chandran’s group is involved in research on physical and mechanical metallurgy of materials including fatigue of aerospace materials, unconventional diffusion treatments, surface modification of titanium, synthesis of bulk nanostructured materials and armor materials.

Biplab Sarma’s research under NSF support has explored near-transus isothermal and cyclic thermal diffusion of boron into titanium to develop deep, hard, wear-resistant coatings on titanium. In collaboration with GE, Paul Chang studied competing failure modes in Rene88 type nickel base superalloys. Biplab and Paul both successfully defended their dissertations.

Madhu Jagannathan is pursuing efforts to make Li-Mg alloys for negative electrodes in solid state rechargeable batteries. We are working to commercialize the three US patents that were awarded for Center of Excellence research during 2003 to 2009.

A project sponsored by METSO, evaluating compression strength and elasticity of mineral particles, has started. Collaborative research with Ortho Development is exploring reinforcement and cladding concepts for titanium orthopedic devices.

Powder Metallurgy Group
Prof. Zak Fang and his team won the Utah Innovations Finalists award for the invention and development of functionally graded cemented tungsten carbide. This technology is being commercialized through partnerships with global leaders in oil and gas drilling, construction, and other industries.

The original DOE project on hydrogen storage materials concludes in early 2011. Research will continue with an NSF grant for hydrogen storage based on light metal alloys.

An on-going project employing a new powder metallurgy technology, direct sintering of titanium hydride powders, is funded by China Yunnan Metallurgical Corp and the Chinese National Science and Technology Administration.

A new DOE project aims to develop an energy-efficient process for producing TiO$_2$ pigment. If suc-
cessful, the technology will dramatically reduce CO\textsubscript{2} emissions inherent in conventional chloride process of making the pigment.

The powder metallurgy group currently has twelve members including Research Asst. Prof. Peng Fan, research associate Dr. Xu Wang, eight grad students, and two undergraduates. Dr. Haibo Zhang has left the group and joined Megadiamond in Provo, Utah. Hongtao Wang and Vineet Kumar successfully defended their dissertations in October. Vineet has accepted a job offer from Kennametal of Latrobe, Pennsylvania. Hongtao will stay here to lead our effort on titanium materials and processes development.

**Pyrometallurgy**

Prof. H. Y. Sohn’s AISI project aims at a new technology to produce iron directly from iron ore concentrate by a suspension process, thereby getting rid of the energy-intensive and pollution-prone coke making and pelletization steps. The process will drastically reduce, if not eliminate, CO\textsubscript{2} emissions from the steel industry.

Prof. Sohn, with PhD student Tyler Bronson, started new research, funded by ArcelorMittal, on aerosol dynamics of zinc fume in steelmaking off-gas cleaning systems.

Dr. Chang Hun Keum, a Visiting Scholar for ten months from POSCO, Pohang, Korea, arrived in May. Dr. Georgina De Micco, from Centro Atómico Bariloche, Rio Negro, Argentina made a three-month stay to research chlorination of tungsten minerals. Brent Randall came on-board as an undergraduate research assistant. Andrew Katsohirakis and Oliver Taggart were high-school interns. Dr. Moo Eob Choi, a former student, is a new Postdoctoral Fellow in Prof. Sohn’s group.

Dr. Sohn and his group published seventeen papers in 2010. Ongoing projects include math modeling of synthesis of silicon compounds from waste sludge, chemical vapor synthesis of metal hydrides for reversible hydrogen storage, making ferro-manganese using low-grade ores, removal of phosphorus during smelting of manganese ores, characterization of magnetite ore, thermodynamics of magnesium crown refining, and sulfur and nitrogen control in mass scrap smelting.

---

**Alumni News**

**1960s**

One of the most challenging R/D problems Kisoon Park (PhD 1966) was called upon to solve at the technical center of Union Carbide Corp. (now Dow Chemical) was catastrophic corrosion inside an extensive network of stainless steel pipes at a chemical plant. At corrosion rates of one to two inches per year, plant workers referred to it metaphorically as “Alka-Setzer in water.” Lacking alternatives, the company had to replace many pipe sections with prohibitively expensive titanium pipes. An easy-to-implement solution was eventually found through analysis of process corrosion data and lab experiments designed to test a set of premises. Finding the solution required in-depth knowledge of stainless steel’s corrosion behavior and of sensitization of the metal surface by certain organometallic species present in the process stream.

-preventive coatings. The process, sometimes called chemiphoresis (he was not its inventor), employs controlled metal dissolution in an acidic medium, which releases multivalent metal ions that coagulate anionically charged emulsion polymers (lattices). Upon baking, the deposited polymer produces a corrosion-resistant surface proven effective on a variety of steel parts. The chemiphoretic coating process was commercialized in the late ’70s at a Chrysler auto plant.

Following a 20-year R/D career at Union Carbide, Dr. Park founded a company specializing in development and manufacture of fiber-optic coding coatings for the telecommunications industry. The company was acquired by DSM, NV of the Netherlands in 1996. After a few years at the merged business unit, he started a consulting practice in management and product development. Dr. Park has eight U.S. patents in his name. He currently works as a volunteer business counselor at the Chicago Chapter of SCORE (Counselors to America’s Small Business), a resource partner for the U.S. Small Business Administration.

**1980s**

Yang-Ki Hong (PhD 1981) taught and researched for ten years at the U. of Idaho’s Department of Materials Science and Engineering before moving in fall 2006 to the University of Ala-
bama as the E. A. "Larry" Drummond Endowed Chair Professor in the Department of Electrical and Computer Engineering and a Professor of the Materials Science Ph.D. Program. His research focuses on magnetism, magnetic materials and magnetic devices.

Sue Anne Sheya (BS 1983) is self-employed as a flute teacher and performer under the name of Lyrical Flute. She was laid off from her last engineering job over a year and a half ago, and job prospects in California are still slim in her area. So, the only steady gig she’s had for the past 30+ years both in SLC and now in California has been as a musician!

1990s

Amlan Datta (PhD 1999) is with the corporate R&D of Aditya Birla Group, an Indian conglomerate with interests in aluminum, copper, cement and other sectors. He is based in New Mumbai where he heads the mineral and bulk solid processing division.

Qiang Yu (PhD 1991), senior research associate at USG Corp., helped develop Sheetrock Brand Ultralight Panels at the USG's Libertyville innovation center. His photo appeared in a write-up of the new product in the November 2, 2010 Chicago Sun-Times. The drywall is easier to handle, and scores and snaps better, speeding up installation. It is low VOC, creates less dust and is stronger pound-for-pound. Depending on their size, the panels weigh 15 to 24 pounds less than regular drywall panels, reducing transportation costs and worker fatigue, and contain up to 95% recycled content, extending the life of gypsum mines.

2000s

Keqing "Kevin" Pa (PhD 2004) changed jobs from BASF to Honeywell International Inc., a subdivision of Honeywell, Universal Oil Product (UOP), headquartered in suburban, Chicago. He is an analyst focusing on characterization of materials.

Jei-Pil Wang (MS 2006, PhD 2009) moved in August to the Department of Metallurgical Engineering, Pukyong National University in Busan.

Vamsi K. Paruchuri (PhD 2009) is doing well at IBM in Albany, New York. He manages a large group of researchers from IBM and other partner companies (he thanks Dr. Miller's excellent training). He is happily married with a girl and a boy.

In Memoriam: Joseph Gerald "Gerry" Byrne, Ph.D., 1930-2010

Joseph Gerald Byrne passed away on July 10, 2010 after a brief illness. Gerry was a devoted husband, father, grandfather, and friend and will be missed by all who had the pleasure of knowing him.

Born July 15, 1930 in Bronx, New York, he earned an M.E. (1953) and a Master of Science (1957) at Stevens Institute of Technology. He received a Ph.D. from Northwestern University in metallurgy in 1960. He was a professor at Stevens Institute of Technology and then at the University of Utah, first in the Materials Science and Engineering, then in the Metallurgy and Metallurgical Engineering, where he was appointed Ivor D. Thomas Professor of Physical Metallurgy. He was a distinguished teacher and research scientist with over 145 articles and a book.

Among his many accomplishments and awards, he helped establish a Department of Materials Science at the Universidad Central de Venezuela in Caracas in 1972, making lifelong connections there; he was appointed to the National Materials Advisory Board Panel (1972), became a Fellow of the American Society of Metals (1982), was appointed associate editor of the Materials Science and Engineering Journal (1988), and received the Eminent Engineer Award from Tau Beta Pi (1989). His teaching awards included the University of Utah Student Choice Award for Excellence in Teaching (1992-93) and the College of Mines and Earth Sciences Outstanding Teacher Award (1992-93). He had the joy of working with many grad students throughout his career.

He stepped down from department chair in 1997, retired in 2000, and was given professor emeritus status. He was an avid reader, surrounding himself with books. Gerry continued to pursue his love of learning by auditing classes each semester until his death.

Gerry had a passion for skiing that he encouraged in others by becoming a part-time ski instructor at Park West, Snowbird, and Alta. He was proud to earn his Professional Ski Instructors of America blue pin certification. He was looking forward to getting his free season pass at Alta for those over 80.

He had a great sense of humor marked especially by his dry wit. He loved traveling for both business and pleasure and had seen much of the world. He especially enjoyed traveling with his friends and family.

Gerry was preceded in death by Joan Lorraine Byrne, his wife of 41 years, Linda Heinonen Byrne, his wife of 5 years, and most recently by his dear companion Renée Dec Reilly. He is survived by his children and their spouses, Beth Kucharski (Joseph), Maura Hashiguchi (Mark), Dan Byrne (Christine Davison), and Noreen Parry (Douglas); seven grandchildren; and a step-grandchild.

We’d love to hear from you. Let us and your classmates know what’s going on in your life — send us a letter or email. Photos are welcome.

Send address updates to metal-info@utah.edu.

If your company has openings for metallurgists, we can tell our students or post the position on our website. Email metal-info@utah.edu or go to www.metallurgy.utah.edu and follow the JOBS link.

Newsletter Editors: Kay Argyle and Prof. Ravi Chandran
University of Utah, Department of Metallurgical Engineering,
135 S 1460 E Rm 412, Salt Lake City UT 84112-0114, U.S.A.
fax 1 (601) 581-4937; email ravi.chandran@utah.edu.

www.metallurgy.utah.edu
www.usg.com
www.tau-beta-pi.org
Megan Jane Marshall

Megan grew up in the small town of Berthoud, Colorado where she never heard of metallurgical engineering. Upon coming to Utah, she found this amazing major and hasn't looked back since. Megan spent the summer working on research projects here at the U before she went to Poland on an LDS mission. She would like to thank her family, friends, and professors for helping her be the best she can be.

Prof. Sivaraman Guruswamy

was selected by a committee of student leaders at the U to receive the 2010 ASUU Student Choice Teaching Award. This award gives students the unique opportunity to honor outstanding professors. He experienced a personally wonderful year with his daughter’s graduation from medical school and wedding, his recognition with two teaching awards, including the Distinguished Teaching Award last spring, and supportive students and colleagues.

Dr. Jack Hamilton

received the 2010 Team of Excellence Award. He usually presents this award for us; before we finally let him in on the secret, he was getting a bit concerned that, a few hours before the Awards Banquet, we still hadn’t given him anything for his presentation.

Prof. Hong Yong Sohn

received the 2010 Mellow Met Award for Excellence in Teaching Metallurgical Engineering. He has done a lot of traveling this year. In September he visited universities and steel companies in China to develop research collaboration and promote his group’s work on a novel ironmaking technology. Other trips include presentation of a plenary lecture at a conference in Bangalore, India, December, 2009; an invited talk January, 2010 at a symposium in Osaka, Japan; a Keynote paper at the February 2010 TMS meeting in Seattle; and in June presentations in Hamburg, Germany, and Sigtuna, Sweden.

Dr. Naiyang Ma

(PhD 2000) is joining Dr. Sohn’s research group as an Adjunct Associate Professor. Dr. Ma is currently Senior Research Engineer, Energy & Recycling, ArcelorMittal Global R&D, East Chicago, Indiana.

Doctor Honoris Causa

Dr. Jan D. Miller received an Honorary Doctoral Degree, Doctor Honoris Causa, from Gdansk University of Technology, Gdansk, Poland, in May. In September, he delivered a keynote address on characterization and simulation of multiphase particulate systems using high-resolution X-ray micro tomography, at IMPC 2010, Brisbane, Australia.

Megan Jane Marshall

Megan grew up in the small town of Berthoud, Colorado where she never heard of metallurgical engineering. Upon coming to Utah, she found this amazing major and hasn’t looked back since. Megan spent the summer working on research projects here at the U before she went to Poland on an LDS mission. She would like to thank her family, friends, and professors for helping her be the best she can be.

From right, Megan Marshall with sisters April and Tina.

In response to our usual suggestion of a photo “doing something you enjoy,” Megan provided this, “because I can't think of anything more fun than spending time with them.”

Tyler Keith Tucker

Tyler was born December 31st, 1986 to Linn and Kailene. He grew up in Pleasant Grove, Utah. Tyler’s father was a metallurgist at Geneva Steel, but he had never thought about going into it himself until he received a scholarship offer from the University of Utah’s department of metallurgy. Tyler began at the U in the fall of 2005 then took two years to serve an LDS mission to Mississippi and Louisiana. Tyler received the Oblad Silver Medal for Excellence in Metallurgical Engineering.