Chair’s Corner

Dear Alumni, Colleagues and Friends,

Greetings from Rolla! Every year when I help assemble the newsletter I find myself thinking “we’ll never be able to top this year.” But once again I marvel at the accomplishments of the students, faculty, and alumni this past year.

Ceramic and Metallurgical Engineering both have healthy enrollments (85 MetE and 99 CerE Fr/Soph/Jr/Sr) – a number down 9% from last year, but a number we can better handle in terms of lab facilities and placement. With 17 faculty our student:faculty ≈ 12:1, a highly desirable ratio, but one that carries with it a responsibility to maintain a high research productivity. It’s no accident that MSE still leads the campus in research/faculty member by over a factor of two. A simple matter of maintaining standards set by faculty 50 years ago. We stand on the shoulders of giants; Professors Planje, Moore, O’Keefe, Day, Wolf, Straumanis, Anderson, Askeland, Kisslinger, Kohser, Leighly, Ownby etc. laid the foundation for what we do today, and we strive to honor them by giving today’s students the very best as well.

This newsletter reports on many items that all reflect one thing: student success is priority #1. I know you will enjoy reading about all the great things going on. You can be proud of the student groups and all of the service activities they do to inspire the next generation of engineers and scientists. It’s no wonder they won national awards again this fall at MS&T 2012. Thanks again to Bill Horst (’51 MetE) and his wife Ann for endowing the Thomas J. O’Keefe Student Professional Fund – having a budget allows the student groups to strategically plan activities throughout the year. Also this year many distinguished alumni and leaders came to the department to give lectures, most notably Ben Winter (MetE ’80), the Thomas J. O’Keefe Lecturer, and Dan Shechtman, the Golick Lecturer. Professor Shechtman received the 2011 Nobel Prize in Chemistry! Both gentlemen gave inspiring seminars to the students. This fall Scott Morrison (’85 Ph.D. MetE) gave the 4th O’Keefe lecture – details are herein.

The Phonathon will be held a little later this year: October 25th, 28th - 31st, November 1st and 4th. You probably received this newsletter just a few days before the event. As always, we’ll have a hard-working group of students calling for your help. Last year the MetE and CerE students raised a total of $69,347 down 12.5%. Thank you for helping the future generations of Metallurgical and Ceramic Engineers!

You may not realize this, but it is not an understatement to say that without the strong support of our alumni the department would cease to exist. Alumni created the endowments that allowed us to give $342K in scholarships to the undergraduates this year, provided over $100K to help run the labs, purchased $136K of new (desperately-needed!) metallography equipment every student in the department will use, and provided a new $2.8M endowment that allowed us to create the Roberta and G. Robert Couch Assistant Professors of Materials Science & Engineering. This endowment allowed us to attract our two newest faculty members, Mohsen Asle Zaeem and Caizhi Zhou. Both men are experts in computational materials science.

Is it even possible to appropriately thank you for such tremendous support? The only way imaginable is to focus our undivided attention on giving today’s students the tools they need to succeed. It’s our passion, and our responsibility. And you may be rest assured that we are steadfast in this mission.

We hope this newsletter finds you and yours in good health & spirits.

Wayne Huebner
October 2012
Congratulations Graduates!

The past two semesters almost all of the MSE graduates had a job when they walked across the stage. The average starting salary of MSE 11/12 graduates:
Met: $60,437
Cer: $58,736

The accompanying figures show where the CerE and MetE graduates have been employed over the last six years.

StudentNews

Keramos & Material Advantage Groups win National Awards at MS&T 2012

FEF College Industry Conference

The 64th annual conference was held in November in Chicago. Over 225 industry executives from 60 companies, students (87), and key professors were in attendance. In total $47,500 in scholarships and awards were presented – Evan won the Robert Wolf Memorial Scholarship and David won the Carl Loper Scholarship Award.

Professor Von Richards is a FEF Key Professor, and makes sure our students always are in the hunt for CIC and FEF scholarships and awards!

L to R: Chris Ferguson, Von Richards, David Hengst, Evan Kluesner, Jamie Fitzgerald, Clint Ratliff and Scott Pisarik

New Academy Scholars inducted at the Spring Mines and Metallurgy Academy

L to R: Catie Mohrmann CerE, Scott Pisarik MetE
The fall semester is in full swing and Gaffers Guild is on the move. To get the year going right, we had a BBQ and made it rain! One would have thought this would not have been a problem with the ongoing drought and conveniently, it quit raining when we stopped eating. We have expanded our membership in the last year. It is estimated that we have roughly doubled in active members. We hope to sustain this trend. The group is hoping to bring a professional glass artist to campus to teach the group more advanced techniques. A major project the group has decided to undertake is the creation of a mobile glass shop. The hope is not to limit ourselves to a single location and spread further awareness in Rolla as well as in neighboring communities. The group has purchased a trailer and conceptual designs have begun. The group hopes to create a 40ft to 50ft glass tank furnace that can be ramped up and down in the course of 36 hours. Already acquired equipment includes the 12 inch gloryhole furnace and an annealer furnace skeleton. Gaffers Guild hopes to acquire enough funds to build and customize the trailer to fit their needs in the next year. We hope to have a successful year and continue to share the passion of glass.

Missouri S&T’s youngest gaffer!

Using fundraised monies, the group is hoping to bring a professional glass artist to campus to teach the group more advanced techniques. A major project the group has decided to undertake is the creation of a mobile glass shop. The hope is not to limit ourselves to a single location and spread further awareness in Rolla as well as in neighboring communities. The group has purchased a trailer and conceptual designs have begun. The group hopes to create a 40ft to 50ft glass tank furnace that can be ramped up and down in the course of 36 hours. Already acquired equipment includes the 12 inch gloryhole furnace and an annealer furnace skeleton. Gaffers Guild hopes to acquire enough funds to build and customize the trailer to fit their needs in the next year. We hope to have a successful year and continue to share the passion of glass.
Four Horsemen of the Apocalypse are all Curators’ Professors

Professor Dick Brow, President of the American Ceramic Society
Curators’ Professor of Ceramic Engineering

Professor Peaslee, President of the Association for Iron and Steel Technology
Kenneth J. Iverson Steelmaking Chair

Professor Bill Fahrenholtz named 2012 Curators’ Professor and Mines & Metallurgy Academy Professor

During the Glass and Optical Materials Division of the American Ceramic Society meeting in St. Louis, MO on May 20-24, 2012, a Festschrift was organized to celebrate the research career of Delbert E. Day, Professor Emeritus of Ceramic Engineering at Missouri S&T. Technical sessions were organized that highlighted Prof. Day’s long and productive career, including sessions on phosphate glasses, the mixed alkali effect, glass nucleation and crystallization behavior, and bio-glasses. Many alumni, colleagues and former students participated.

Festschrift for Professor Delbert Day

Material News, Volume 1, Number 8

Badge University - February 2012

Student Groups Assist with Merit

Faculty and Staff News

Dr. Mohsen Asle Zaeem joined the department this August as Roberta and G. Robert Couch Assistant Professor of Materials Science & Engineering. Prior to joining Missouri S&T, Dr. Zaeem was a postdoctoral fellow and an assistant research professor in the Computational Manufacturing and Design group within the Center for Advanced Vehicular Systems (CAVS) at Mississippi State University. Mohsen received his B.S. (2003) and M.S. (2006) degrees in Mechanical Engineering from Shiraz University, Iran, and his Ph.D. in Mechanical Engineering from the School of Mechanical and Materials Engineering at Washington State University (2010). As a graduate student, he received the Outstanding Teaching Assistant award of Washington State University (2010). As a graduate student, he received the Outstanding Teaching Assistant award of Washington State University. He is a member of ASME, TMS, ASM International, ASEE, and IIIS. Dr. Zaeem has authored or co-authored more than 30 journal and conference publications. His current research interests include developing different phase field–finite element models for predicting nano- and micro-structural evolution during solidification, grain growth, and solid state phase transformation in light-weight and high-strength metallic alloys. His main research goal is to develop multi-scale computational tools to predict and improve mechanical and other properties of materials for different engineering applications. Mohsen is married to Sanaz Yazdanparast, who is currently a Ph.D. student in the Department of Materials Science and Engineering at Missouri S&T.

Dr. Michael Moats joined the department this August as an Associate Professor. He returns to us from the University of Utah where he has been a faculty member in their department of metallurgical engineering for the past seven years. Mike is an alum having received his B.S. and M.S. degrees in metallurgical engineering from UMR in 1992 and 1995, respectively. His M.S. advisor was Thomas J. O’Keefe. He received his Ph.D. in materials science and engineering from the University of Arizona in 1998 for his work on copper electrowinning and the problem of anode passivation. Besides his academic experience, Mike has worked for ARMCO Grinding Systems at their Kansas City operation as a researcher and manager developing ceramic coated titanium anodes for industrial electrolysis. Dr. Moats holds four patents, has authored or co-authored 65 publications and one book (Extractive Metallurgy of Nickel, Cobalt and Platinum Group Metals). His main areas of research are related to the primary processing of non-ferrous metals by hydro- and electro-metallurgical methods. He has been the project leader for AMIRA’s $1.5 million P986 (Improving Crushed Ore Agglomeration) project and will be leading their P705C (Base Metal Electrowinning) project in the future. He has worked with many large mining companies including Freeport-McMoRan, Rio Tinto, BHP Billiton, Newmont and Vale. Dr. Moats is very active in service as he is on the SME-MPD Executive Committee, helped organize Electrometallurgy 2012 and is serving on the organizing committees for Ni-Co 2013 and Copper 2013 for TMS. He is also the coordinator for the Copper Refinery Group, an industrial consortium of eight North and South American copper refineries. Mike is married to Michele (Keith) Moats, an alum of UMR (EE, B.S. 1993 and M.S. 1996) and has two daughters Mallory (8) and Morgan (5).
Schlesinger Awarded Eiriksson Fellowship

Mark Schlesinger has been awarded one of 38 Leiv Eiriksson Fellowships for the 2012/2013 academic year by the Research Council of Norway. He will be spending the year at the National Technical University of Norway in Trondheim, working on recycling-related projects and completing the second edition of his book, Aluminum Recycling. NTNU is closely associated with the Norwegian research institute SINTEF, and Mark intends to develop a working relationship that will lead to joint research programs down the road. He also intends to discover his Inner Viking.

Mark Schlesinger was the lead author (chief butt-kicker) for the fifth edition of Extractive Metallurgy of Copper, published last fall. The book describes the entire life cycle of copper, from geology and mining to recovery and recycling, and is considered the standard monograph in the field. Mark says the book is full of sex (“that’s how we got the solution pregnant”) and violence (“the chapter on scrap processing is not for the faint of heart”), but the author will develop a working relationship that will lead to joint research programs down the road. He also intends to discover his Inner Viking.

Welcome to our two new Senior Secretaries

Vicki Rowden

Nicole Dietiker

Alumni News

New Academy Members Ricky Martin and Phil McPherson inducted at the Spring Mines and Metallurgy Academy Meeting

Ricky Martin

Phil McPherson

CerE, ’82

CerE, ’83

Distinguished Young Alumni Award

Natalie Vanderspeigel

CerE ‘02, ‘04

Senior Manufacturing Engineer for Solar Turbines in San Diego, California

Wholly owned subsidiary of CAT

‘94 CerE Alumnus Dan Krueger named one of Ingram’s 40 under Forty

Natlie Vanderspeigel

CerE ’02, ‘04

Senior Manufacturing Engineer for Solar Turbines in San Diego, California

Wholly owned subsidiary of CAT
MSE Alumni Support the Students!

Metallurgy scholarships: $219,300
Ceramic scholarships: $122,675

MSE undergrads also received over $125,000 in scholarships from professional organizations (FEF, WAAIME, AIST, SW AcerS, Copper Club, Modern Casting...)

FEF: Foundry Education Foundation
AIST: Association for Iron & Steel Technology
WAAIME: Women’s Auxiliary to the American Institute of Mining, Metallurgy and Petroleum Engineers
SW AcerS: Southwest Section of the American Ceramic Society

Robert and G. Robert Couch Assistant Professors of Materials Science & Engineering

AIST Scholarships
Missouri S&T MetE students captured the top scholarships from the steel industry through the AIST Foundation.

Lindsay Golem AIST Foundation Premier Scholarship ($10,000/year for 2 years)
Calum Learn Ferrous Metallurgy Education Today Scholarship ($5,000/year for 2 yrs)
Andrew Russo Scholarship ($5,000/year for 2 yrs)
Jonathan Turner
Colin Welshymer

This is the 5th year in a row that a Missouri S&T Metallurgical Engineering student has received the Premier Scholarship: Jennifer DeHaven, Scott Pisarik, Roger Rettig and Tom Bailey preceded Lindsay.

Fall 2011 Phonathon Results

Total Pledge Dollars: $319,300
Metallurgy: $219,300
Ceramic: $122,675

Fall 2012 dates: October 25th, 28th, 29th, 30th, November 1st, 4th

23rd A. Frank Golick Lectureship
February 13th & 14th, 2012

Dr. Dan Schechterman
Philip Tobias Professor of Materials Science Technion Israel Institute of Technology, Israel

2011 Nobel Prize Winner in Chemistry
“For the discovery of quasicrystals.”

Dedication of the Eugene L. Olcott Metallography Laboratory

Date: Saturday, August 25th, 2012
When: 3:00 - 5:00 pm
Where: B7 McNutt lab dedication with reception afterwards in the McNutt Commons

Eugene L. Olcott was born on April 18, 1918, in St. Louis, MO. He passed away December 4, 2009. Graduated from the Missouri School of Mines with a degree in Metallurgical Engineering in 1940. He was a member of Theta Tau, an engineering fraternity. During WWII he worked as an engineer for the Department of Navy designing propellers for ships; after the war he designed nose cones for rockets. After his government service he worked for many years for Atlantic Research Corporation as a high temperature materials engineer on aerospace projects.