Dear Alumni, Colleagues and Friends,

Greetings from Rolla! We are finishing this newsletter a month after the beginning of the fall semester, and S&T is bursting at the seams! Enrollment is up across campus (6,154 students on campus, and 661 off-campus), and growth in the Mines & Metallurgy departments is near the record levels of 1982. Ceramic and Metallurgical Engineering both have record numbers of freshmen this fall (47 total) – a direct result of recruiting activities and the economy. We will work hard to give them the education they need, and expose them to the job opportunities they deserve. Of course, this success in recruiting new students has placed a heavy load on the departments, particularly in terms of giving students the hands-on lab expertise employers desire in the students. Indeed, this is a tradition that distinguishes our graduates. This newsletter reports on many of the important issues that affect student success, our #1 priority. Almost every measure we gauge ourselves on is on the increase, including enrollment, scholarships awarded, average starting salaries, research productivity, and student and faculty awards and recognitions. This is a direct result of the quality of our students, staff and faculty. I know you will enjoy reading about all the great things going on.

Last year brought the sad news of Professor Tom O'Keefe’s passing. This year brings the great news that his name will forever be affiliated with two endowed activities. Joe Rupp (’72 MetE) and his wife Sally endowed the Thomas J. O’Keefe Lecture Series, and Bill Horst (’51 MetE) and his wife Ann endowed the Thomas J. O’Keefe Student Professional Fund. The lecture series will bring a prominent alum back to campus each Homecoming to deliver an inspiring speech to the students, staff and faculty. This year on Thursday October 22nd at 3:30 p.m. in G-4 Schrenk Hall, Bob Tooke (’62, ’66, ’72 MetE) will give the inaugural address. The Horst’s endowment will be used solely to support the activities of MSE’s award-winning student groups, Materials Advantage, AFS, Alpha Sigma Mu and Keramos. Can you imagine better ways to honor Professor O’Keefe’s 43 years of dedication to the students? I think not. I extend my sincere thanks to Joe, Sally, Bill and Ann for their generosity and wisdom.

The Phonathon is coming up on October 18th-22nd, and 25-26th. As always, we’ll have a hard-working group of students calling for your help. Last year the Metallurgy and Ceramics departments raised $59,993. Thank you for helping the future generations of Metallurgical and Ceramic Engineers! Thanks also go out to all of the alumni who visit us regularly - believe me when I say it impacts the students when you come to our banquet, attend the reception at the convention, talk to them in the hallways when you’re on campus and participate in our Advisory Board.

The only bad news to share is that for the first time in a long time all of our students weren’t placed at the May graduation; only 68% of the students had a job locked down, and hence a few are still looking right now. So if you have or know about any job openings, please contact us so we can post them on the departmental website (http://mse.mst.edu/currentstudents/careerop.html). This website is also accessible to alumni, and I encourage you to contact us if you are in the hunt.

At the beginning of each semester I give a “state-of-the-department” address that emphasizes what a great department we have, and I always report on the many ways alumni support the students. I do this with purpose — we all stand on the shoulders of giants, and our students’ ability to succeed is a direct result of the dedication of our alumni. You inspire them. As such, I know they will remember and give back to future generations as well. It’s the best way to thank you, just as we are recognizing the tireless efforts of the people who helped us achieve our dreams.

Wayne Huebner
September 2009
The accompanying figures show where the CerE and MetE graduates have been employed over the last 9 years. Most of our students head to industry, although with the downturn in the economy many more stayed in school to pursue a graduate degree.

Enrollment Still on the Rise
As the accompanying graph shows, enrollment in CerE and MetE continues to grow. On the first day of classes MSE had:
- 191 undergraduate students (104 Met/87 Cer)
- 47 declared freshmen for Fall 09 (17 Met/30 Cer)
- 64 graduate students (18 Met/15 Cer/31 MSE)

The accompanying figures show where the CerE and MetE graduates have been employed over the last 9 years. Most of our students head to industry, although with the downturn in the economy many more stayed in school to pursue a graduate degree.

First Positions: Ceramic Engineering BS, 2000-2009

First Positions: Metallurgical Engineering BS, 2000 - 2009

Congratulations Graduates!
The accompanying pictures contain all of the December ‘08 and May ‘09 graduates of CerE and MetE. While placement was down (68% of student had a job when they walked across the stage). The average starting salary of MSE 2008-09 graduates:
- Met: $59,289
- Cer: $57,100

At the career fair held on September 29th over 176 companies came to campus to recruit students. Of these 42 were seeking CerE and MetE students.
Freshmen Demographics at Missouri S&T

- Women (22.5%), Men (77.5%)
- 79% Missouri, 20% out-of-state, 1% international
- 9.1% Underrepresented/minority students
- 34% are 1st generation college students
- Average ACT = 27.7

Captain America now Dr. America

MS&T student MAJ Ryan Howell successfully defended his dissertation titled “Microstructural Influence on Dynamic Behavior of FeMnAl Steel Alloys” on the 17th of June this past summer under the direction of his advisor, Dr. David C. Van Aken. MAJ Howell’s thesis was focused on reducing weight in a complex geometrical steel cast component for armor application. MAJ Howell’s work at MS&T has led to perforated armor weight reduction of 13% and the establishment of a new casting alloy with material properties matching that of rolled homogeneous steel armor; a first for a casting alloy. MAJ Howell is currently stationed at Aberdeen Proving Grounds and is the Executive Officer for the Survivability Materials Branch of the Army Research Lab’s Materials Directorate. Responsibilities of his new post include team leader for transparent armor, branch lead for manufacturing technologies (MANTECH) programs in armor and materials manufacture, and substitutional responsibilities to the branch chief. Future projects and goals include technology transition spinouts from existing MANTECH programs to current legacy systems (e.g. M1 Abrams, M2 Bradley, Stryker) and assembling plans for development of next generation integrated armor solutions.
The 61st annual conference was held in November in Chicago. Over 265 industry executives, students, and key professors were in attendance. In total $54,000 in scholarships and awards were presented, and S&T student, Angela Schulte, received the Ron Ruddle Scholarship.

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!

**New Academy Scholars inducted at the Mines and Metallurgy Academy Meeting on April 16th**

**Edward J. Dulis Scholarship**

Micah Morrison won the Edward J. Dulis Scholarship, which is awarded by the ASM Materials Education Foundation. This scholarship is awarded to an outstanding undergraduate member of the ASM at the junior or senior level who demonstrates exemplary academic and personal achievements as well as an interest and potential in metallurgical engineering.

**MetE students win Speaking Contest at AISTTech 2009, May 4-7 in St. Louis**

Missouri S&T students won one first and second place in the speaking competition:

- Joe Evans, Pat Lueckenhoff and Wes Everhart - 1st Place for Modeling of I-beam Cooling at Nucor-Yamato Steel
- Elizabeth Savage - 2nd place for Optimization of Rail Steel Properties at Steel Dynamics

Third place went to the University presenter from Brazil.

We also won the Attendance Challenge for Materials Advantage Chapters (4th year in a row).

**Keramos & Material Advantage Groups win National Awards**

**2009 Student Representatives on the ASM Board**

Josh Holzhausen was named as one of the 2009 Student Representatives on the ASM Board of Trustees, along with Kelsi Hurley from the University of Washington and Natasha Rajan from the University of Alberta.

**Missouri S&T**

**FEF College Industry Conference**

Bill Peach, Kyle Borgmann, Angella Schulte, Von Richards, Tony Clark, and Darryl Kline.

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Cross-sectional micrograph of a diamond film on WC. Dotted lines outline the grains; Pt is used as protective surface layer during milling with a Ga ion beam used to cross-section the sample.

Laser assisted, combustion flame method for depositing diamond films.

Diamond Thin Film Deposition

Prof. Matt O’Keefe and PhD candidate Travis McKindra are collaborating with researchers at the University of Nebraska-Lincoln and Prof. Hai-Lung Tsai’s research group in the Mechanical Engineering department at S&T to investigate laser-assisted deposition of diamond films in open atmosphere. As part of a Multi-University Research Initiative (MURI) sponsored by the Office of Naval Research, the project is looking at the effects of multiple energy sources on the deposition of materials with unique properties, such as ultrahigh hardness. Utilizing a tunable CO2 laser and a combustion flame with different gas ratios, the UNL group has demonstrated that carbon films can be deposited in open atmosphere onto tungsten carbide (WC) substrates. Potential application for the technology includes on-ship repair and replacement of hard coatings. Characterization of the films at S&T by x-ray diffraction, micro-Raman spectroscopy, and electron microscopy indicated that under the proper conditions that the films were predominately composed of polycrystalline (111) and (200) oriented diamond grains. Cross-sectional analysis of samples using the latest generation focused ion beam (FIB) electron microscope in McNutt Hall showed that the diamond grains could be up to a few microns in size and that grain size increased with distance from the film/substrate interface. Additional work is being done to understand the nucleation and growth mechanism of the films as well as how the laser effects diamond formation.

S&T Teams with Alumnus Mike Koenigstein to Develop Rebar Coatings

A new material developed by a ceramic engineering alumni has led to a substantial collaboration between the MSE and Civil Engineering programs at Missouri S&T. In the Spring of 2007, Mike Koenigstein (BS CerE 1993) contacted the MSE Department for advice on a new coating that he was developing at Roesch, Inc (Belleville, IL) for the Army Corp of Engineers. The coating is a modified enamel to be applied to steel rebar used to reinforce concrete structures. The coatings significantly increase the bond strength between the steel and concrete, while offering enhanced corrosion-protection for the steel. Prof. Richard Brow (MSE) was interested in how the coatings worked and in optimizing the enamel formulation, and Prof. Genda Chen (Civil, Architectural and Environmental Engineering) was intrigued by the anticipated improvements in the performance of reinforced concrete structures. Since that first meeting, Chen, Brow, Koenigstein and other MS&T colleagues have received research support from the Leonard Wood Institute, the Missouri Department of Transportation, and the National Science Foundation to develop the technology into one that can be applied in the field for large-scale infrastructural applications. The Army Corps of Engineers is now building test structures in Texas and Hawaii to evaluate the coated rebar, and Koenigstein is involved in a new spin-off company (ProPerma Engineered Coatings) to commercialize the materials.

The A. Frank Golick Lectureship

This year’s A.F. Golick Lecture was delivered by Dr. Gregory B. Olson, the Wilson-Cook Professor of Engineering Design and Professor of Materials Science and Engineering at Northwestern University. He is also Director of the Materials Technology Laboratory/Steel Research Group and a founder of QuesTek Innovations LLC, the first computational materials design company. The author of over 200 publications and a Fellow of ASM and Fellow of TMS-AIME, his research interests include phase transformations, structure/property relationships, applications of high resolution microanalysis, and materials design. Recent awards include the ASM Campbell Memorial Lectureship and the TMS-SMD Distinguished Scientist/Engineer Award. Dr. Olson’s lectures, entitled "Forging the Dragonslayer: Science & Economic Stimulus” and “Making Steel Fly: Computational Materials Science,” were well-attended by students and faculty from all across campus.
New Endowments
♦ Joe & Sally Rupp, MetE, ’72, $100K for the Thomas J. O’Keefe Lecture Series
♦ Bill and Ann Horst, MetE, ’51, $300K for the O’Keefe Student Professional Development Fund
♦ Arthur Shrubsall, MetE, ‘33, $50K, unrestricted
♦ Earl Weaver, Cer E, ‘65, $45K, unrestricted
♦ Edward P. Lasko, MetE, ’58, $660K, unrestricted
♦ Tom Wetteroth, CerE ’79 & ’83, $5.5K, scholarship
♦ David Kroeter, MetE, ‘73, $5K, scholarship

AIST Scholarships
MetE students were again the top university in North America in receiving scholarships from the steel industry through the AIST Foundation.

Andrew Mann  AIST Willy Korf Memorial Scholarship
Eric Thomas  AIST Willy Korf Memorial Scholarship
Michael Renkoski  AIST William E. Schwabe Memorial Scholarship
Roger Rettig  AIST Foundation Premier Scholarship ($20,000 - $10,000/year for 2 years)
Lucas Jaster  Ferrous Metallurgy Education Today Scholarship ($10,000 - $5,000/year for 2 yrs)
Kevin Williams  Ferrous Metallurgy Education Today Scholarship ($10,000 - $5,000/year for 2 yrs)

Ruppert receives Distinguished Alumnus Award
Ted Ruppert was honored by the students at the MSE spring banquet by receiving the distinguished alumnus Award. He was honored for his sustained support of the department. Ted was instrumental in raising the funding for two new CLC’s in McNutt hall, as well as purchasing over $250K of equipment for the MSE undergraduate labs.

New Academy Members inducted at the Mines and Metallurgy Academy Meeting on April 16th

Departmental Scholarships Set a New Record
Over the last seven years tuition and fees at Missouri S&T have increased ≈60%, a direct result of a shrinking state budget. Now less than one third of the campus’ total budget comes from the state. For a student entering S&T this fall the annual tuition and fees amount to $9,438 for in-state students, and $20,530 for out-of-state students. Add on $7,632 for room and board, and it’s clear that any scholarship support a student receives can go a long ways towards making college affordable. Still, S&T is one of the best deals in the country, with the average student being $21K in indebtedness upon graduation. With starting salaries averaging over $57K it’s hard to imagine a better return on investment. The department is blessed with many alumni-endowed scholarships (the most on campus!).

MSE Alumni Support the Students!
♦ Metallurgy scholarships: $192,250
♦ Ceramic scholarships: $102,175
♦ MSE undergrads also received over $125,000 in scholarships from professional organizations (FEF, WAAIME, AIST, SW AcerS, Copper Club, Modern Casting, US Steel, Rio Tinto)

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

DeWitt Scholarship – Angella Schulte
Angella Schulte was the recipient of the American Institute of Mining, Metallurgical and Petroleum Engineers ‘2008-2009 Henry DeWitt Smith Scholarship.

Angella Schulte won the student technology poster contest at AFS Casting Congress in April 2009 at Las Vegas, and received a $1,000 prize. Her poster was titled “Quality Improvements of Cast Lightweight Steel P900 Armor”. It included solidification and fill modeling to using Magma and Fluent to eliminate cold shuts and other casting defects.
Our sixth year of hosting an ASM International Residential Student Materials Camp drew the largest attendance ever. Fifty-three high school students spent the full week of July 26-31 on the S&T campus learning about the career opportunities in metallurgical and ceramic engineering. The participants, who will be entering either their junior or senior years of high school, came from nineteen states.

During their stay, they heard presentations on: Materials Engineering as a Career Field (Dr. Huebner), Environmental Aspects of Materials (Dr. Peaslee), Role of Materials in Recorded Music (Dr. Schwartz), Forensic Metallurgy (Dr. Ramsay), Aerospace Materials (Dr. Newkirk), High-Temperature Materials (Dr. Fahrenholtz), and the S&T Competition and Project Teams (Dr. Hirtz). During the morning hours, the students broke into small groups and conducted projects under the guidance of department faculty, grad students, and undergrads. The afternoon hours included activities and demonstrations at a variety of laboratory facilities, including the High Temperature Materials Lab, Friction Stir Processing Lab, Foundry, Electron Microscopy Laboratory, Mechanical Testing Laboratory, Ceramic Processing Lab, and the Glass Processing and Thin Films Laboratories of the Materials Research Center. On Tuesday afternoon, the group traveled to the Rolla industrial park to be the guests of Mo-Sci Corporation (Dr. Day’s business), where the students were exposed to the high-tech aspects of glass microspheres used for a variety of medical and industrial applications. The bulk of Wednesday was an all-day field trip to the Bodine Aluminum foundry in Troy, Missouri (die and permanent mold casting of aluminum parts for Toyota automobiles) and O’Fallon Casting in O’Fallon, Missouri (investment casting of non-ferrous metals).

Thursday evening was a capstone activity, beginning with a presentation by Dr. Huebner highlighting the involvement of our materials engineering department in a wide variety of campus research activities. This was followed by our infamous “Walk-on-Water” contest. On Monday, the students were grouped into teams of approximately seven individuals and challenged to design and build “shoes” that would attach to their feet and allow a member of their group to “walk” across the university’s indoor swimming pool. They could spend up to $50 on their “shoes” which needed to address the features of buoyancy, stability and propulsion. Design commenced on Monday night, and materials requisition lists were submitted on Tuesday morning. The materials were delivered on Tuesday evening, and construction commenced. While some of the designs were unique and creative, none of our teams were successful in crossing the pool. All had fun trying, however, and everyone learned a bit about engineering design and materials.

ASM requires that its Materials Camps be totally FREE to the participants! Financial sponsorship for this summer’s program came from ASM International, two divisions of Nucor Steel, and Chevron Corp. Co-directors were Dr. Ron Kohser and Dr. Mary Reidmeyer.
Can Drive for Grace:

Faculty Crush the Material Advantage Group

In April the world witnessed one of the greatest come-backs in Can Drive history. Down by over 400 points early in the race, the MSE Faculty rallied from behind to beat the students 3,196 pts to 1,333 pts. All the food and cash donations benefited Grace, a local food bank. The reward? Faculty were allowed to pie the student group leaders.

Student Groups Raise Funds for Habitat for Humanity

The campus chapter of Habitat for Humanity conducted a fund raiser by inviting students to vote (with cash) for the professors they would most like to see “pied.” Dr. Kohser was one of the “winners” and over the lunch hour on April 15th received 5 pies – three from Met seniors, one from a Met sophomore, and the fifth and final one from none other than our faithful department secretary, Joyce Erkiletian. Might there be some correlation to those years when Ron served as department chairman?
The highest rank a professor can achieve on campus is that of curators' professor. Only two awards are given out each year, and last December Professor Mishra and Van Aken earned the rank of curators' research professor and curators' teaching professor, respectively. MSE is now home to five curators' professors (Dick Brow, Kent Peaslee and Jim Drewniak are the other three). Professor Emeriti Day and Anderson were curators’ professors as well as Professor Moore and O’Keefe, both deceased.

The past year has been another exciting one! During the fall of the 2008, I was on research leave, which meant that I was not teaching any classes. This provided flexibility in my schedule that allowed me to attend some additional conferences and meet with potential collaborators in an effort to continue to pursue new research opportunities. Based in part on the time spent last fall, Professor Hilmas and I have been awarded four new projects to investigate the processing, microstructure, and properties of ultra-high temperature ceramics (UHTCs). As a result of the new projects, we needed to add students to the UTHC research group. Two students with MSE degrees from Purdue (Greg Harrington and Alex Olp) have joined the group as well as Eric Neuman, who received an undergraduate degree in Ceramic Engineering from Missouri S&T in spring 2009. The three new graduate students join seasoned students Jeremy Watts, Harlan Brown-Shaklee, and Matt Thompson and research scientist Shi Zhang in the UHTC research group.

Also related to UHTCs, Professor Hilmas and I were part of a team that organized a workshop this past summer. The AFOSR Workshop on Aerospace Materials for Extreme Environments was held August 3-5, 2009 in Clayton, MO. Over 80 researchers from around the world attended the workshop. Participants came from universities, government research laboratories, and companies in the U.S., China, Italy, France, the U.K., Japan, and Ukraine. The agenda included ~25 invited oral presentations and ~20 additional poster presentations. One of our co-organizers, Laura Riegel from the Extreme Environments Materials Group at Boeing, organized an afternoon reception and tour of the Large Core Arc Tunnel facility. After the workshop, Professor Hilmas and I hosted a reception for two of the Chinese scientists as shown in the photo below. The workshop was a great success.

I have also continued to collaborate with Professor Matt O’Keefe on environmentally friendly coatings for corrosion protection of aluminum alloys. Our project on developing a coating system that is free of volatile organic compounds (VOCs), hazardous air pollutants (HAPs), and chemicals on the Toxic Release Inventory (TRI) will conclude in December 2009. We will continue to investigate the mechanisms for corrosion protection for cerium-based conversion coatings and primers that utilize rare-earth compounds as corrosion inhibitors as part of a second project. Currently, the coatings research group includes graduate students Simon Joshi, Will Pinc, Daimon Heller, Andrew Thomas, and William Gammill and post-doctoral scholars Surender Maddela, Becky Treu, and Beth Kulp.

Finally, I have been elected to serve on the Board of Directors of the American Ceramic Society. This is a three year term starting at MS&T (the Materials Science and Technology meeting, not to be confused with Missouri S&T ;-) ) in October of this year. I look forward to continuing the strong presence that the department has enjoyed in the leadership of ACerS that has included a past president (Delbert Day), an editor of the Journal of the American Ceramic Society (Harlan Anderson), and a recent member of the Board of Directors (Richard Brow) among other contributions.

Van Aken named Curators’ Teaching Professor, Mishra named Curators’ Research Professor

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May 2009 Commencement Professional Degree recipients

Lou Kapernaros
MetEng, B.S. ‘50
Retired; former General Manager of
General Electric’s Diamond Products Division

Jim Stoistel
CerEng, B.S. ’88, M.S. ’91
Manager of Advanced Ceramics
Technology Organization, G.E. Aviation

Full Steam Ahead for Fahrenholtz

Faculty Awards and Honors

Awards / Honors: hot off the press!
♦ David C. Van Aken received the Governor’s Award for Excellence in Education on April 22nd in Jefferson City.
♦ The Michigan/Northwest Ohio Section of the American Ceramic Society chose Delbert E. Day to receive the 2009 Toledo Glass and Ceramic Award.
♦ Wiley-Blackwell Publishing ranked the Univ. of Missouri as the top ranked institution for publishing in the Journal of the American Ceramic Society. Rankings were based on the number of papers published, citations, and citations/paper. PSU=#2.
♦ Richard K. Brow delivered the 2009 Scholes Lecture on April 16th at Alfred University.
♦ AIST 2008 Continuous Casting Award for Best Paper, Lifeng Zhang, Yufeng Wang, Xiangjun Zuo, Shusen Li, and Wei Jin, “Transport of Fluid Flow and Inclusions in Continuous Casting Strands.”

Awards given out at Spring Banquet
Outstanding Ceramic Prof - Mary Reidmeyer
Outstanding Met Prof - Kent Peaslee
Boots Clayton - David Van Aken
Outstanding Seniors - Nate Goss and Josh Noll
Outstanding undergraduates - Jon Bock and Mike Kuba
Outstanding graduate students - Jeremy Watts, Megan McGrath and Ryan Howell

Von Richards Honored at CastExp o ’09:
Outstanding Individual Service Award: Cast Iron Division

MetE Faculty & Students Win Awards at the 113th Metalcasting Conference
April 7-10, 2009 Las Vegas, Nevada

Outstanding Individual Service Award
Von Richards, Wolf Professor of Metal Casting

Best Paper Award
Cast Iron Division

Best Paper Award
Steel Division

Materials and Processes in Manufacturing
The Materials and Processes in Manufacturing textbook, co-authored by Ron Kohser, is the #1 book in its field, and is currently being used at 93 colleges and universities.

Research Expenditures: MSE is #1
3 year average FY07-09

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MSE generates 21.2% of the research with 5.5% of the faculty on campus.

Soon-to-be Fellows of the American Ceramic Society
Greg Hilmas
Professor of Ceramic Engineering
Fatih Dogan
Professor of Ceramic Engineering
## Key Needs of the Undergraduate Labs

### Metallography
- **Cost:** $100K
- **F(x):** Sample preparation for microstructural analysis
- **Use:** UG Labs: Cer 231, Cer 242, Met 216, 218, 308, 332, and 421.
- **Impact:** 25 year old Leco stations are worn out & repair parts are unavailable.

![Streuers Abramin Polisher](image1)
![Streuers TegraSystem](image2)

### X-ray Equipment
- **Cost:** $135K
- **F(x):** New X-ray diffraction and fluorescence labs for undergraduates.
- **Use:** Cer 291: “Characterization of Materials”
- **Impact:** Current lab is a demonstration only; identified as a key weakness.

![Rigaku Desktop XRD](image3)

### Glass Hot Shop Upgrade
- **Cost:** $25K
- **F(x):** Color glass capability, cold-working
- **Use:** Support of the undergraduate course Mary Reidmeyer runs in the Hot Shop
- **Impact:** Significant expansion of current facilities; will allow us to accommodate student demand.

![Hot Shop Upgrade](image4)

### General Lab Equipment
- **Cost:** $50K
- **F(x):** Materials processing including an analytical balance, rotary viscometers, zeta potential system, and refractometer.
- **Use:** All UG labs.
- **Impact:** Will allow for multiple groups to run their experiments at one time in parallel compared to in series.

![General Lab Equipment](image5)

In 1999 the state of Missouri ceased funding the Engineering Equipment Bill, a program that gave the university $800 for each engineering graduate. These funds were used for the maintenance and acquisition of lab equipment. Without this funding the general state of the labs across campus has slowly deteriorated. Combined with the increased enrollment the pressure to go to “demonstration” labs or the complete elimination of labs is mounting. This is unacceptable to us! Last year you’ll be glad to know the Mines & Metallurgy Academy made a huge difference for all seven departments, funding over $1M worth of equipment, including two new CLCs in McNutt. MSE acquired a Leco C/S analyzer, a Microtrac/Nanotrac particle size analyzer, several small furnaces, and safety equipment for the labs. But we are still behind the curve, and this page of the Newsletter spells out critical needs. Please take a look, and consider making a donation to help us acquire the equipment.