

Mudslinger

A newsletter for MSM/UMR Ceramic Engineering Alumni & Friends

Greetings from UMR!

I know what you are thinking- "The *Mudslinger* is here already? Doesn't this thing usually show up in January? Does this mean that the department's phonathon is just around the corner?" My responses? 'Yes, yes and yes (starts October 13th)'.

Our new *Mudslinger*/phonathon schedule is just one of the many changes that have occurred to and around the ceramic engineering program over the past year. Let's start with the biggest change: The ceramic engineering and metallurgical engineering programs now form the heart of the new Materials Science & Engineering (MSE) Department, now the largest department in the new School of Materials, Energy, and Earth Resources (SoMEER). The old School of Mines and Metallurgy has been reconfigured into a new School with three academic departments (MSE, Geological Sciences and Engineering, and Mining & Nuclear Engineering), which remain home to the original seven undergraduate disciplines.

A search is presently underway to identify a permanent Dean for the new SoMEER; Mariesa Crow, professor of electrical engineering and associate dean of the School of Engineering, is presently acting as the 'Transitional Dean.' And -- speaking of changes, Gary Thomas recently announced that this year would be his last as UMR's Chancellor. He will finish his five year run and turn over the reins in time for the arrival of the 2005 freshman class.

What do these changes mean for our students and our program? We will remain an ABET-accredited ceramic engineering program and our undergrads will graduate with B.S. degrees in ceramic engineering. Our students and faculty will continue to participate in meetings of the American Ceramic Society. All donations from the alumni of the ceramic engineering department, gathered through our phonathon and other events, will be used for

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scholarships or other support of students pursuing ceramic engineering degrees. (Are you sensing a pattern here?)

The formation of the MSE Department will produce some changes. Our faculty meetings have suddenly become larger. We have created a new minor degree in materials that we are marketing to students in other engineering disciplines. We will likely tweak curricula to eliminate some of the overlap in a couple of MetEng and CerEng courses. We will create new graduate degrees in Materials Science & Engineering to draw in a wider range of graduate student candidates. (We have no plans to create an undergrad degree in MSE). Most importantly, the new MSE Department is well-positioned to expand the materials-related research and educational opportunities at UMR and to become a nationally recognized academic organization. How do we stand against our national peers? A 2003 survey of over forty materials-related academic programs in the United States found that the average program has sixteen faculty members, awarded 21 BS degrees, and 19 graduate degrees in a year, and had a research budget of \$5.8M. Last year, the two UMR MSE programs (18 full-time faculty members) awarded 41 B.S. degrees, 20 graduate degrees, and had \$5.8M in research expenditures. Add up all the numbers and we find that UMR now has one of the three largest materials-related undergraduate programs in the U.S.- and we have a graduate research program that competes nationally (and is far-and-away the largest

What's New at UMR? How About...

- Ceramic Engineering is in a new department: Materials Science and Engineering
- The department is in a new school: School of Materials, Energy and Earth Resources:
- The School is engaged in a nationwide search for a new Dean:
- UMR will begin a nationwide search for our next Chancellor

research effort on campus).

So- our challenge is to position the new department in a way that provides new opportunities for our students and faculty. But in the meantime, great things are happening for UMR Ceramic Engineers. You will learn about some of these things from the articles in this *Mudslinger*- but let me list a few highlights:

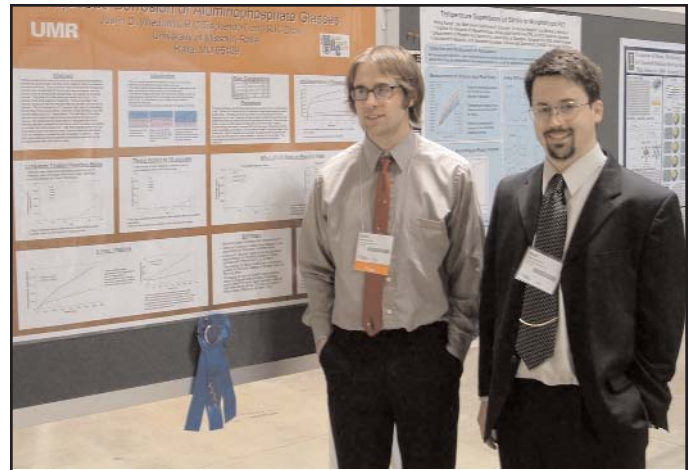
● Curators' Professor Emeritus **Delbert Day**, (CerEng '58) will be inducted into the *National Academy of Engineering* this October. Delbert is the first active faculty member from UMR to receive this most prestigious honor. In recognition of this achievement, Delbert was invited to be the Spring 2004 commencement speaker, only the second MSM/UMR faculty member in history to be so recognized.

● Professor **Greg Hilmas** received tenure and was promoted to Associate Professor in 2004- ensuring for many more years that our students will be well-versed in the mechanical and thermal properties of ceramics and in the (so-called) superiority of those who drive Fords on the NASCAR circuit.

● The new Masters degree program in Biomaterials is now on the books. Professor **Len Rahaman** deserves the credit for shepherding this through the UM Board of Curators.

● Professor **Bill Fahrenholtz** was awarded a prestigious CAREER award from the National Science Foundation to support his research on reactive processing of high temperature materials. Bill is apparently the first faculty member affiliated with the old School of Mines & Metallurgy to ever receive this award.

● Our students pulled in a number of awards at the spring 2004 ACerS meeting in Indianapolis: Our design team won the 'ceramic putter' contest (and **Greg Baird**, CerEng '06, became the first competitor in the history of the contest to sink his putt); **Justin Wieduwilt** (CerEng '04) won the undergrad research poster competition; **Michelle Schaeffler** (CerEng '05) won the undergrad ceramographic competition. Also at the ACers meeting, **Bill Fahrenholtz** was elected president of the Ceramic Educational Council; **Bob Schwartz** was named vice president of the Keramos National Board of Directors; **Jeff Smith** was named to the



Justin Wieduwilt, CerEng '04, (left) placed first in the undergraduate research competition at the 2004 annual meeting of the American Ceramic Society in Indianapolis. Justin's research mentor was Brad Tischendorf (right), a Ph.D. candidate in ceramic engineering.

ACerS Board of Fellows; and, by the way, **Delbert Day** received the W. David Kingery Award, in recognition of his 'distinguished lifelong achievements involving multidisciplinary and global contributions to ceramic technology, science, education, and art.'

● **Stefanie Ricca (Jaeschke)** (CerEng '04) was one of the student marshals at the Spring 2004 commencement.

● **Sam Conzone** (CerEng PhD, '99) will be on campus in October to receive the UMR 'Young Alumni' award.

In summary, despite the administrative changes going on around us, I think it is safe to say that one thing remains unchanged: UMR remains the home of the nation's pre-eminent ceramic engineering program. Our students and faculty and staff remain committed to the highest standards of education and research- and we look forward to continuing to build on the UMR/MSM tradition of excellence in ceramic engineering.

A handwritten signature in black ink that reads "Richard K. Brown".

By the way, let us know what you think about the new MSE program, about the new *Mudslinger* format, or anything else. Drop us a line at mseumr@umr.edu or by snail mail at 223 McNutt Hall Rolla, MO 65401.



Delbert Day, right, Curators' Professor Emeritus of Ceramic Engineering, with Chancellor Gary Thomas. Delbert was the commencement speaker and honorary degree recipient at the May 2004 ceremony.

Keep track of the Ceramic Engineering program at our new website:

<http://mse.umr.edu>

Materials Outreach Program Starts Second Year

The creation of the new Materials Science and Engineering Department has led to an expansion of the 'Materials Outreach' activities. New brochures and literature are being created, websites completely revised, and the ceramic engineers are practicing how we communicate who we are. For the Materials Outreach program, some of the biggest changes involve updating our website (<http://mse.umr.edu>). In visiting this new site, you may see much is still under construction and you may have to look harder for the link to the Materials Outreach Program. If you are having trouble locating it, find the Faculty Directory and click on Mary R. Reidmeyer, a hyperlink to the Materials Outreach pages. Please bear with us as we work our way through all these changes. Mary's email address remains the same, maryrr@umr.edu so if you need help finding information just email Mary.

During the past year, progress was made on developing experimental and demonstration materials kits for high school teachers. Currently there are six complete kits that are available for distribution and three additional kits nearly completed. The "Tempered for Safety" kit is the most popular and versatile demonstration, excellent for any age and delightfully destructible. And alumni: if there is a school in your community that you have the opportunity to visit or interact with, please contact Mary and request a Materials Kit. This is your opportunity to help us spread the word about the world of materials.



"If your company is interested in contributing supplies for our kits or display please contact Mary Reidmeyer." maryrr@umr.edu

The Materials Outreach program is looking for ideas and materials for these kits. If you would like to contribute to the program, please contact Mary (maryrr@umr.edu or 573-341-7519). The ceramics engineering program is also working on expanding our collection of ceramic products and materials that are displayed in the hallways and used extensively during recruiting visits. (See the empty display case pictured below.) If your company is interested in contributing material, product samples, literature, electronic images, etc, we would be delighted to hear from you.

Finally, after the department recruits and educates these future engineers, we want to help them develop employment opportunities. If your company has a position available (permanent, summer, COOP) please contact us and we will help you fill that position with one of our outstanding engineers.



Display case needs items for promoting ceramic engineering!

Help Wanted!

Full-time position in high visibility location; influence and capture the awe of others; open to those with ceramic products and materials; Immediate occupancy.

UNITECR '05

9th Biennial Worldwide Congress
on Refractories



The Unified International Technical Congress on Refractories (UNITECR) will be held during the second week of November 2005, in Orlando, FL. This marks the third time the biennial congress has been held in the US; the first in 1989 in Anaheim and the second in 1997 in New Orleans.

Jeff Smith was selected as the 2005 Technical Program Chair and is currently working to construct a three day

program that consists of more than 200 manuscripts and technical presentations and approximately 12 special symposia. Some of the symposia topics include: Environmental Sustainability, Coatings and Surface Modifications, Ultra High Temperature Materials (coordinated by **Greg Hilmas** and **Bill Fahrenholtz**), Worldwide Raw Materials as well as industry specific symposia related to Steel, Aluminum, Hydrocarbons, and Rock Products. There will also be an Education Symposium in memory of **Bob Moore**, a testament to the long tradition he and UMR had in the education of refractory engineers.

Special events planned during the Congress include an opening reception at Seaworld and a banquet. Exhibits will be open during the three days of technical sessions.

Planning for UNITECR '05 began more than two years ago and although still more than 15 months away, many deadlines for the Congress are fast approaching. The next critical date is the abstract submission deadline on November 30, 2004. For complete details on UNITECR '05, refer to the website www.unitecr.org.

GAANN Fellowship Program Awarded

The department was recently awarded a Ph.D. Fellowship Program in Interdisciplinary Graduate Education in Materials Engineering through the Department of Education's Graduate Assistance in Areas of National Need (GAANN) initiative. The successful proposal was written by **Bob Schwartz**. The program is designed to encourage some of the best students from the United States to pursue their Ph.D. degrees, and it offers them a multi-faceted approach that provides hands-on research, community outreach and management experience. Each student can receive up to \$41,511 a year for up to three years based on financial need, which includes tuition and fees. When the GAANN scholarship is finished, UMR is still committed to supporting the students until the completion of their degrees. UMR will receive approximately \$750,000 from the Department of Education through this grant to provide financial assistance to the fellows and to cover educational expenses including the cost of textbooks and other materials, computer hardware and software, travel to professional meetings and seminars, membership in professional organizations, involvement in research and training, and involvement with professional research grant-writing.

Students currently funded through the program (and their advisors) include Andrew Buchheit (Dr. Hilmas), Adam Chamberlain (Dr. Fahrenholtz), Lynell Gilbert (Dr. Schuman), Travis McKindra (Dr. O'Keefe), and Amanda Young (Drs. Hilmas and Schwartz). Dr. Schwartz serves as the Principal Investigator on the program.



GAANN recipients from the left: Travis McKindra, Lynell Gilbert, Amanda Young, Andrew Buchheit and Adam Chamberlain

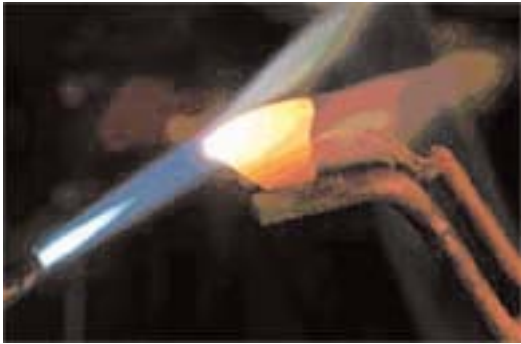
UMR/MSM Ceramic Engineering 2004 Research Highlights

Ultra-High Temperature Ceramics Research at UMR

In the past three years, Dr. **Greg Hilmas** and Dr. **Bill Fahrenholtz** have built a significant research effort in the area of ultra-high temperature ceramics (UHTCs). Ultra-high temperature ceramics are a family of compounds that can be used in “extreme environments” such as those associated with atmospheric re-entry, hypersonic flight, and rocket propulsion. Some other applications for UHTCs include molten metal crucibles and high



From left: Shi Zhang, Greg Hilmas, Bill Fahrenholtz, Adam Chamberlain, Sean Landwehr, Andrew Buchheit, Jim Zimmermann, Stefanie Ricca, and Robyn Goacher.



temperature electrodes. In these applications, materials are exposed to high temperatures (e.g., above 2000°C) and chemically aggressive atmospheres (e.g., monatomic oxygen, air, or rocket exhaust). UHTCs generally have a melting temperature above 3000°C and are stable in oxidizing atmospheres. Most UHTCs are borides, carbides, or nitrides of early transition metals such as ZrB₂, TaC, and HfN. The figure left shows a ZrB₂ based UHTC fabricated at UMR being exposed to an oxy-acetylene flame. Experiments that simulate re-entry conditions are being performed in an arc-jet facility in conjunction with researchers at NASA-Ames in Moffett Field, CA. The UMR research is sponsored by the U.S. Air Force, US Army, and the National Science Foundation and presently supports 6 grad students and 7 undergrads.

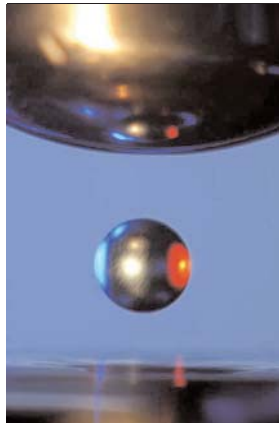
Extreme Home: UMR Researchers Investigate Construction On The Red Planet

(from UMR Public Relations)

As NASA continues to focus on sending explorers to Mars, two scientists at the University of Missouri-Rolla are working on ways to house the astronauts when they arrive on the red planet by building with Martian minerals.

“When we begin to think about going to places like Mars – beyond the moon – for more than an hour’s visit, we will have to utilize some of the resources that are there,” says Dr. **Delbert Day**, Curators’ Professor emeritus of ceramic engineering at UMR. “Astronauts can stay in the landing vehicle for a short time, but eventually we’ll need to construct some type of structure for people to stay in.”

Because of the limited resources available on Mars, Day and Dr. **Chandra Ray**, research professor of ceramic engineering at the Graduate Center for Materials Research at UMR, are examining the properties of glass formed by melting simulated Martian soil. “You can think of it as making concrete without cement,” Day explains. “You would gather up Martian soil and rocks and then glue them together with glass, rather than cement. A solar furnace could be the source of heat to melt the material.”



A melt sample is suspended inside a chamber by static electricity. (photo courtesy of NASA)

What remains unknown is how the lower gravity field would affect the process of forming glass. Day and Ray have conducted glass-melting experiments for more than 20 years, including two aboard the space shuttle Challenger in the mid-1980s, and plan to conduct another experiment on the International Space Station in the future.

“There are many things on Earth that interfere with our study of the crystallization process,” Day explains. “On the Earth, any liquid has to be held within some type of container and those container walls can cause crystals to grow. When you heat water in a pan, the bubbles always form at the wall first.”

The surprising result of these first experiments was that when melts in space were cooled, they tended to form glass easier than they did on Earth. In other words, fewer crystals were formed in the glass. For the International Space Station experiment, the researchers want to explore why fewer crystals formed, because gravity is not included in the mathematical equations that govern the crystallization of a melt.

UMR material scientist and collaborators report on superconductivity in Nature

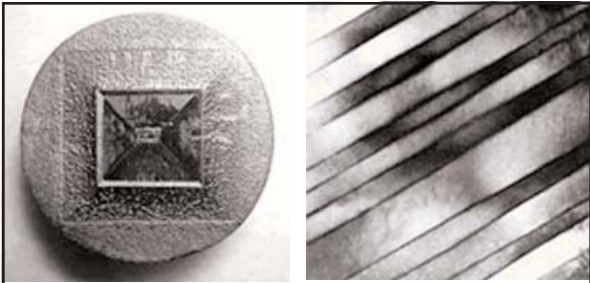
By UMR PUBLIC RELATIONS

The latest advance toward understanding the electron transport mechanism of high-temperature superconductors, as reported in the June 3 issue of the British journal *Nature*, relies on materials provided by Dr. **Fatih Dogan**, a professor of ceramic engineering at UMR. The paper, "The structure of the high-energy spin excitations in a high-transition temperature superconductor," by Dr. S.M. Hayden of the University of Bristol in the United Kingdom, Dogan, and a group of other researchers, brings science a step closer to finding the "missing link" between the creation of novel superconductors with higher transition temperature and their electronic structure, says Dogan.

High-temperature superconductors are ceramic materials that carry electric current — with no loss of energy — at relatively higher temperatures using liquid nitrogen instead of liquid helium. Discovery of new materials, which would become superconducting at room temperature or higher, would be revolutionary. But the mechanism that makes them work is still not understood, says Dogan.

Dogan and his colleagues have been researching this for 10 years. "With each step we make progress, but the mechanism of high-temperature superconductivity is so complex," says Dogan. The group will continue the research until the mechanism is discovered, either by them or someone else in the field.

Dogan uses novel techniques to process yttrium barium copper oxide materials, which are investigated by neutron scattering experiments. He forms the elements into a single crystal that is tailored for measurements using neutrons. His colleagues then use the measurements as a tool to understand the electronic structure of superconducting materials. "The microstructural development of the single crystals is very crucial to neutron scattering experiments and requires a clear understanding of solidification processes of complex material systems through nanoscale science and engineering," says Dogan.



A high temperature superconducting YBa₂Cu₃O(7-x) single crystal (left), 2.5 cm in diameter, grown by top-seeded melt texturing process at UMR. The crystal facets as squares on the a-b plane indicate isothermal growth patterns at different holding times. Such ultrahigh-quality YBa₂Cu₃O(7-x) single crystals are required for neutron scattering measurements towards understanding of the puzzling mechanism of high temperature superconductivity. TEM bright field image of twin boundaries in orthorhombic YBa₂Cu₃O(7-x) (right).

Winter '03 and Spring and Summer '04 M.S. and Ph.D. Graduates

Adam Lang M.S. - "Failure Characteristics and Durability of Phosphate Glass"

Jacob Gross M.S. - "Gadolinia-stabilized Zirconia as a Possible Material for Thermal Barrier Coatings"

Kristine Miller M.S. - "Zinc Iron Phosphate Glass for Enameling Applications"

Haobo Pan M.S. - "Hydrothermal Deposition of Hydroxyapatite Particles and Coatings"

Sandeep Patil M.S. - "Hydrothermal Deposition of Barium Titanate Heteroepitaxial Thin Films"

Yang Ye M.S. - "Grain Size Dependence of the Dielectric Breakdown Strength of Titanium Dioxide Dielectrics"

Xilin Xu Ph.D. - "Characterization of Hexabarium 17-Titanate and its Effects on the Dielectric Properties of Barium Titanate Ceramics"

Brian Gorman Ph.D. - "Processing and Characterization of Thin Film Solid Oxide Fuel Cell Structures"

Nisanart Navapan Ph.D. - "Effects of Stress on Materials Properties, Intrinsic and Extrinsic Behavior, and Electromechanical Response of Stress-biased Actuators"



Spring 2004 graduates. From the left: Kurt Kaiser, Josh Mattingly, Amy Trujillo, Eric Minard, Bill Maass, Justin Wieduwilt, Katie Ellis, Megan Hammon, Stefanie Ricca (Jaeschke).

For more information about what ceramic engineers at UMR are doing visit our website at:
<http://mse.umn.edu>

Donations and Scholarships

Last winter, over 200 alumni pledged \$25,261 to the department through the phonathon (an average pledge of nearly \$125), up from the \$23,955 in phonathon donations collected the previous year. Overall donations to the department, from all sources, were up 25% over the previous fiscal year. **Thank you** for your generosity and your commitment to Ceramic Engineering at UMR! We have listed on the following pages the names of those alumni who participated in last year's phonathon (or otherwise made donations to the department). Please accept our apologies if we misspelled your name, or worse yet, left you off the list.

We use the phonathon funds to support the Ceramic Engineering Alumni Endowment Fund, established several years ago by **Doug Mattox**, and this year we provided scholarships for twelve freshmen who have committed to ceramic engineering, and to support activities associated with our undergraduate teaching and recruiting efforts. For the current academic year, the department was able to distribute nearly \$65,000 in scholarships and loans, and distributed book vouchers to nearly every undergraduate student in the department. In addition to money raised during the phonathon, funds came from several endowments created by our alumni and their families, including the *J.B Arthur Family*, the *Family of Theodore J. Planje*, *Joan and Kent Weisenstein* (CerEng '60), *Jennifer Wang* (CerEng '76), and several anonymous donors. We will award this year the first *Robert E. Moore Scholarship* from an endowed account created by **Bob Moore's** family and supported with over \$16,000 in donations from many of our alumni and friends. Finally, we plan to use funds generated by the *Ellis J. &Carolynn K. Smith Family Endowment* to support our senior design projects. This year's project involves the design and manufacture of ceramic armor. (Got any good ideas for this project? Contact **Greg Hilmas!**) If you are interested in making a donation to any of these programs, please contact us directly.

Our phonathon begins on October 13th!! We have been trying for several years to move our phonathon from February to the Fall, and this year our request was granted. It turns out that the Mets will be phoning their own alumni at the same time we are contacting you. As you would expect, a healthy competition between the programs is brewing. We have a couple of disadvantages- our alumni pool is significantly smaller than theirs- and our alumni are not yet tuned into the new Fall phonathon schedule. We do have some advantages, however- our alumni are among the most generous on campus- and our students are among the most enthusiastic (and deserving). So- I hope you keep this 'Met challenge' in mind when you hear from us in October. We always look forward to speaking with you and we thank you (in advance) for your continued support. (We recognize that this will be the second time you will hear from us this calendar year. We will *not* be calling again in February and we expect to stay on the 'fall semester' Phonathon cycle for the foreseeable future.) And remember: all phonathon pledges from ceramic engineering alumni will be used exclusively to support ceramic engineering students.



Three UMR undergrads received 2004 scholarships from the Southwest section of the American Ceramic Society. From the left: Rachel Grodsky, Patrick Driemeyer and Jennifer Gilmore, with Richard Brow.



Future ceramic engineers pose in McNutt Hall. Each of these students received scholarships made available by generous donations from MSM/UMR ceramic engineering alumni.

2004 Donors to Ceramic Engineering

Donors who contributed more than \$200 have their names in **bold face** -- *our thanks to everyone!*

Alumni

Larry Addington 1970
John Ainsworth 1963
August Altenbaumer 1999
Dean Anderson 1982
Harlan Anderson
Christine Andonian 1983
Tracy Austry 1989
Paul Baker 1977
Amy Barnes 1997
John Bartel 1952
Justin Bechtel 2003
Daniel Beck 1986
Dustin Beeff 2001
Holly Bentley 2002
Mark Biznek 1989
James Blank 1950
David Blauvelt 1975
Edward Boulos 1971
Julie Brunner 1988
Vernon Burdick 1967
David Carter 1964
William Carty 1985
James Cauthorn 1953
Chieh-Cheng Chen 1988
Carol Click 2000
Albert Copp 1962
Timothy Coppinger 1989
Brandon Cordts 1993
Delbert Day 1958
Elizabeth DeBraul 2002
Israel Denlow 1970
Fred Dice 1959
Matthew Donelon 1991
Clemons Drag 1968
Edward Duderstadt 1958
David Dumoulin 1966
Cathy Edwards 1997
Benjamin Eldred 1996
Benita Engle 1998
Fran Erickson 1979
Chad Essary 1998
Michael Fair 1971
Howard Fields 1962
Brian Flandermeyer 1976
Mikael Fredholm 1988
Aaron Freese 1987
Cheryl Gardner 1984
Ronald Gaus 1971
Vicky Gerber 1992
Carl Gioia 1973
Guy Givan 1969

Maurice Green 1964
Donald Griffin 1950
William Griffin 1951
Mary Grimm 1996
Robert Gruver 1956
Gene Haertling 1954
Scott Haling 1993
Matthew Hall 1998
John Halloran 1973
Andrew Hanser 1992
Timothy Harster 1993
Robert Hart 1970
Wendell Haubein 1956
William Headrick 1991
Edgar Hellriegel 1950
James Hemrick 1997
James Hill 1964
Katie Hillstrom 1999
Glenn Hollenberg 1967
Wayne Huebner 1982
Kurt Humphrey 1978
Orville Hunter 1960
Ann Ihms 1981
Paul Inman 1967
Timothy Johns 1998
Wayne Johnson 1968
Raymond Jones 1946

Christopher Leach 1992
Douglas Legel 2002
John Lewis 1947
Michael Long 1987
Mark Louder 1990
Peter Lucido 1952
George MacZura 1952
Mark Martin 1968
Eric Mast 1987
Robert Masters 1970
Michael A. Matthews 1993
Michael W. Matthews 2000
Willie McCullah 1968
Lane McCullough 1963
Daniel McIntyre 1991
Robert McNamara 1968
Philip McPherson 1983
Thomas Miller 1991
John Mitchell 1959
Michael Modde 1963
David Moore 1967
Edward Mueller 1948
Donald Myers 1961
Timothy Neumann 1981
Jackye Noyes 1991
Frank O'Brien 1974
Brian Osborne 1990
Darrell Ownby 1962
Patrick Pautler 1982
Marvin Pennell 1988
Paul Pericich 1986
Jerry Plunkett 1951
Charles Pokross 1970
Jeffrey Porter 1990
Neil Portnoff 1970
Darren Proctor 1999
Edgar Quick 1968
Roy Ramey 1970
Kevin Reiche 1984
Allen Reisinger 2000
Frances Rensvold 1972
Richard Reynolds 1974
Erika Rezek 1999
Don Roloff 1951
Brian Rowden 1997
Kelly Rowden 1997
Ray Rucker 1954
Eugene Rusert 1959
Heidi Rutz 1985
Angela Sabo 1987
Donald Schilling 1978
Robert Schneider 1992

Are you planning to return to UMR for Homecoming this year? Plan to join the Ceramic Engineers for an ice cream social on Friday, Oct. 13, 1:30-3:30 pm at McNutt Hall



Gordon Jungquist 1971
Daniel Kammler 1997
Christine Kasitz 1998
Kenneth Kasten 1950
Vernon Kasten 1945
Walter Kiburz 1946
Irving Klaus 1950
Karen Koenigstein 1993
Michael Koenigstein 1993
Daniel Krueger 1994
Lawrence Krull 1988
Donald Kummer 1955
Glen Larsen 1970
Rodney Larson 1985
Valerie Latimer 1985
James Lawrence 1981
Billie Leach 1970

Samuel Schneider 1952

Keith Schoby 1992

Laura Schoenbeck 2002

Samuel Schoenberg 2002

Patrick Schroeder 2000

Douglas Schwarz 1972

Matthew Seabaugh 1994

Narayan Sedalia 1962

James Shelby 1965

Cynthia Simpson 1988

Andrew Skoog 1986

Erica Skouby 1984

Ellis Smith 1955

Geri Smith 1983

Jeffrey Smith 1982

Thomas Smith 1958

Roger Smith 2001

Agnes Snyder 1980

Timothy Snyder 1979

Jacqueline Spetz 1992

William Steinkamp 1964

Walter Stephens 1991

Everett Stevens 1952

David Suiter 1974

Joseph Szabo 1997

George Taylor 1964

Scot Taylor 1969

Heather Teitelbaum 2000

Patrick Tepesch 1991

Carl Tucker 1989

Joseph Tutka 1994

M.W. Vance 1965

Maurice Vandenberg 1974

Natalie Vanderspiegel 2002

Sarah Vehige 1999

Jennifer Wagner 1999

Michelle Weimert 1999

Kent Weisenstein 1960

Roy Werner 1943

James Westhoff 1991

John Weyand 1964

Kenneth Wilhelms 1946

Eric Wilkins 1990

John Witham 1990

Joshua Wojcik 1997

Heather Woodward 1994

John Young 1953

Weiming Zhang 1997

Xiao-Dong

Corporations and other Friends:

Alcoa Foundation

American Ceramic Society

ANH Refractories Company

Jennifer Beccard

Birkenmeier Chiropractic CTR, LLC

BJC Healthcare

Deaun Blumberg

Boeing/McDonnell Douglas Foundation

Richard Brow

Caterpillar Foundation

L.L.C. Cedrus

Ceramics Consultants, Inc.

Christy Refractories Company

Colliers Turley Martin Tucker

Cooper Industries Foundation

Mark Eustis

Exxon Mobil Foundation

William Fahrenholtz

General Electric

Barbara Gillam

Harold Hall

Shirley Headrick

Gregory Hilmas

J.B. Arthur Foundation Charitable Trust

Rita Lange

Bevelyn Littleton

Lockheed Martin Corporation

Magneco/Metrel, Inc.

Fredna Mahaffey

Joseph Morgan

Motorola Foundation

Cheryl O'Connor

Patricia Ottolino

Ottolino Winters Huebner, Inc.

PPG Industries Foundation

Proctor & Gamble Co.

R.E. Moore & Associates, LLC

Refractories Institute

Murray Renick

Robert Russell

Charles Schacht

Marlene Schalon

Robert Schwartz

Laurel Sheppard

Gary Thomas

University of British Columbia

VESSELL MINERAL Products Corp

Whirlpool Foundation

Whitacre-Greer Fireproofing Co.

O.J. Whittemore

John Wilson

XL Sci-Tech, Inc.



Alumni Notes

Bernard J. Eck, CerE 1950: Continuing to work part time consulting in the railroad supply industry.

Rebecca (Scheidt) Shawgo, CerE 1998: Hello All, I just wanted to take a few minutes to express how grateful Ryan and I are for our experience and education at Rolla. I also wanted to take a little time to comment on a few things you guys are good at that compared to the undergrad education I observe at MIT. People at Rolla really care about teaching and the students. It is rare to hear about a really caring MIT professor and I felt the opposite was true at Rolla, especially in the Ceramics Department. At MIT, the undergrads typically only take a couple of labs; it is expected that they will learn about hands-on work through undergraduate research. The students don't have much lab sense or ability and aren't aware of what they are lacking. They are good at working very hard, at both classes and research, but often don't work wisely or efficiently. Although I am overall happy with my graduate work and education at MIT, I am exceedingly grateful not to have started off here.

Don Roloff, CerE 1951: I have sold my Steelville Charcoal Works in Steelville, MO and Industrial Supply House in Greenup, KY. Now fully retired, but keep busy as President of MidEast Silver Haired Legislature.

Sean Teitelbaum, CerE 1997: I am now in the Army Reserve as an AGR officer. I left Active Duty one day to be Active Reserve the next. My family and I are now in Huntington, WV. Things are a real shock after being in Iraq for a year. Abby is getting bigger; she will be 2 years old in December. I will keep you all posted on any changes, let me know how things are going in your neck of the woods.

Walter T. Stephens, CerE 1991: I still have more hair than Harlan.

Ann Ihms, CerE 1981: I am now teaching chemistry labs at IN Wesleyan University. We are still home schooling but will graduate our third (and last) child in two years.

Everett Stevens, CerE 1952: My wife Nancy and I have eight grandchildren and counting. We are retired in Palm Desert, CA enjoying the golf and the great weather.

Donald Griffin, CerE 1952: We will celebrate our 55th wedding anniversary in December.

Edgar Hellriegel, CerE 1950: I'm a survivor; I survived Profs Paul Herold and Ted Plange and 156 hours of MSM; 59 years of marriage and 20 years of twin daughters Barbara and Susan's military service in Korea, Germany, and Saudi Arabia as retired Lt Cols in the 101st airborne and air assault groups. For the many non-survivors of the class of 1950: *Hasta La Vista*. For the survivors: *Vaya Con Dios*.

William Griffin, CerE 1951: I retired after forty years making titanates, ferrites, laser crystals, and multi-layer packages in the United States, Europe, and Africa. I then returned to work ten years in the State Executive Office of Environmental Affairs. I am now retired finally.

Maurice Vandenbergh, CerE 1974: MO VandenBergh has recently formed VandenBergh & Associates, an independent firm offering consulting and contract services primarily to thermal spray practitioners. More information on VandenBergh & Associates can be obtained from their web site www.movandenbergh.com or by contacting them at mo_vandenbergh@earthlink.net or at 317-718-8403.

Eric Wilkins, CerE 1992: Garrik Edward Wilkins was born February 26, 2004. His big sisters, Celia (5) and Olivia (3) are very happy to help Mom and Dad take care of their brother. We moved to a bigger house to fit our growing family.

Wayne Huebner, CerE 1982: "Greetings again from the AWOL Ceramist ! I'm still lost in the land of administration as the Vice Provost for Research, so obviously nobody has figured out yet that all of the "high altitude ballistics testing research" I do is really elk hunting with Harlan Anderson and Greg Hilmas. All is well with the research mission at UMR - last year we had \$35.9M in new awards, which means we've doubled in three years. And yes, Ceramic Engineering is still the poster child on campus. You can be very proud of your department...

Last year we launched a new \$8M center on campus - the Center for Aerospace Manufacturing Technologies. This is a joint effort with Boeing funded by the Air Force. This is a great example of how our materials-related disciplines brings a unique thrust to the campus that is unmatched elsewhere. Come back to campus sometime and I'll give you a tour.

In September I'm hosting an ATF party for all of the new faculty on campus. It should be interesting to see if I can start this as a tradition that extends beyond Ceramics..."

What's New With You?

Job change? New address? New kids? Grandkids? Great vacation? Got married? Let us know. We're always glad to hear from you! We'll pass on to the Alumni Office for publication in the MSM Alumnus. We would also appreciate any comments about our newsletters, (what you would like to see, how often, etc.).

Name _____ Class Year _____

Address _____ Home Phone _____

City _____ State _____ Zip _____

Job Title _____ Employer _____

Work Address _____

Work Phone _____ Email _____

Comments:

University of Missouri-Rolla
Ceramic Engineering Program
222 McNutt Hall
1870 Miner's Circle
Rolla, MO 65409-0340

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