

# Missouri Chapter of Keramos

2015 Annual Report

*Excellence • Scholarship • Tradition*

MISSOURI  
**S&T**

University of  
Science & Technology

## I. Chapter Advisor Executive Summary

This past year has been another very productive year for the Missouri Chapter of Keramos. As always the Chapter and the officers set aggressive goals for the year and accomplished them while maintaining high coursework standards, displaying the professional we have come to expect from Keramos.

The year began shortly after the last annual report was submitted with 10 Keramos members heading off to Washington, DC for the National Science and Engineering Festival. It was an amazing event for the students and for the estimated 350,000 people who attended the 3 day event. The students worked a booth for more than 20 hours that weekend and I can't begin to imagine the number of young people to whom they were able to show and explain materials related concepts. Truly amazing. I was so proud that Keramos had taken on such a project, organized so many students (50+) to help complete the preparation work (10,000 mini demo kits) and then interacted with so many kids, many of who will be the next generation of engineers and scientists. As the year draws to a close the Keramos members are actively planning the department banquet, an event that I am certain will be as successful as ever. Given the increased turnout during the past few years, the banquet has been moved to a Saturday night and additionally the chapter has brought Alpha Sigma Mu in as a co-host to help increase the visibility of that society and likely increase banquet attendance as well.

Of course between the two events mentioned, a great many things have been accomplished as well and details of many of them are included in this report. I want to take time to highlight two of them, each of which addresses an area that our chapter has long struggled to address. The first is the trip to the University of Illinois for the 100 year anniversary of that Keramos chapter. Getting a few students to take time out of the semester to go visit another chapter is difficult. The distance between chapters is large, travel costs money and quite frankly chapters know very few members of other chapters. Couple those issues with the fact that a major storm placed a sheet of ice on the highways between Rolla and Urbana, the fact that 16 Keramos students from Rolla made the trip to celebrate the birthday of the first Keramos chapter is incredible. The second issue is indirectly related. Our Keramos chapter has always had great ideas, but seldom has the finances necessary to implement those ideas. This year the students began doing odd jobs for donations to the chapter. On top of everything else they do, many members are still willing to donate their own time to go rake leaves or stack firewood, or whatever else people need help with. What makes it more remarkable is the fact that at times the donation is far less than one would hope and the students laboring are likely to graduate prior to seeing the money used to support a Keramos effort. Selfless dedication to the betterment of their chapter...inspiring.

As I have said before and say again today, the Keramos students at Missouri S&T make me proud to be a member of Keramos.

Jeffrey D. Smith

Faculty Advisor of the Missouri S&T Chapter of Keramos

April 14, 2015

## II. Annual Plan for Upcoming Year

During the next year through my role as President, I plan to build on the successes of the chapter in previous years in three particular areas. Certain changes in the use of committees could make them even more advantageous. The chapter should also try to make use of newly-initiated Keramos members, who are eager to contribute to the success of the chapter in many ways. I would like to use all available communication resources to ensure the involvement of current students with the activities of the chapter, as well as to inform alumni of those activities. At the end of this year, I hope to have expanded the role of the chapter within the lives of both current students and alumni, while encouraging all members to contribute to the success of the chapter.

The use of committees in the chapter has greatly increased student involvement, allowing all members to contribute to the planning of events for the chapter. During my involvement with committees, the efforts of the committees have been split between generating ideas for activities as well as doing the leg-work to make those activities happen. The executive board will, before the start of the upcoming term, develop a list of objectives which will be given to each committee at the start of the year. This plan will allow the efforts of the committees to be focused on the execution of the plan, rather than creating the plan themselves. For example, I may task the networking committee with coordinating events with organizations outside the department such as the Climbing Club or the Eagle Scout Association, in order to expand the horizons of our members. Until recently there was an outreach committee, but it was disbanded upon the agreement that outreach events would be coordinated by all the Materials Science organizations, rather than relying on one group. By removing some of the ambiguity in the direction of committees, I believe it is possible for the committees to accomplish more than they already have.

The activities of the committees require the time of students within the chapter. However, the juniors and seniors in Keramos are already heavily taxed either with their coursework or with involvement in other extracurricular activities. The newly-initiated Keramos members on the other hand are often excited about their recent induction into the chapter and have both the ability and the desire to participate more in Keramos activities. Keramos is well-designed to provide an opportunity for these students to be involved early on in their academic careers, due to the presence of committees and to the emphasis in the fraternity on traditional ceramics. I will in the upcoming term encourage our chapter's newest members to use committee involvement as a way to contribute to the success of the chapter. Participating in a committee allows students to build relationships with upperclassmen and faculty within the department, as well as with students from outside the department. The emphasis of Keramos on traditional ceramics is also advantageous for our newest members, who have taken courses dealing with slip casting and clays early in their academic careers. The Mug Drop and Disc Golf competitions at the MS&T Conference provide a tangible goal toward which these activities can be directed. By promoting the involvement of our newest members in working with traditional ceramics toward goals such as these competitions, I believe these students will be able to distinguish themselves from their peers as they seek professional opportunities such as internships.

At Missouri S&T, student organizations are provided with the OrgSync system, which allows students to learn about organizations on campus and organizations to share news, calendars, and other information with its members. Over the past year, OrgSync has been used extensively by Keramos to keep its members informed about the activities of the chapter. I will continue to seek new ways to use OrgSync in the upcoming year. However, alumni of Keramos do not have access to this tool. Maintaining alumni awareness of the activities of the chapter is as important as maintaining student awareness. A website for Keramos has been a work in progress for the past year, and I believe that it will be completed during the upcoming year. I will use the website as a complement to the Keragram and to the OrgSync system in keeping both current students and alumni members apprised of the activities of the chapter.

### III. List of Officers for Upcoming Year

Name: Michael Walden Office: President Address: [REDACTED] Phone Number: [REDACTED] E-mail Address: [REDACTED]	Name: Elizabeth Robinson Office: Herald Address: [REDACTED] Phone Number: [REDACTED] E-mail Address: [REDACTED]
Name: Austin Martin Office: Vice President Address: [REDACTED] Phone Number: [REDACTED] E-mail Address: [REDACTED]	Advisor: Dr. Jeff Smith Address: B53 McNutt Hall Missouri University of Science and Technology Rolla, MO 65409 Phone Number: (573) 341-4447 E-mail Address: jsmith@mst.edu
Name: Jason Pelliccione Office: Secretary Address: [REDACTED] Phone Number: [REDACTED] E-mail Address: [REDACTED]	Historian: Paul Brune Address: [REDACTED] Phone Number: [REDACTED] E-mail Address: [REDACTED]
Name: Jonathan Lapeyre Office: Treasurer Address: [REDACTED] Phone Number: [REDACTED] E-mail Address: [REDACTED]	Nominations Chair: Andrew Schlup Address: [REDACTED] Phone Number: [REDACTED] E-mail Address: [REDACTED]

### IV. List of Active Members

<u>Undergraduate Members</u>		
------------------------------	--	--

Barber, Evin	Kennedy, Sean <sup>4</sup>	Robinson, Elizabeth <sup>1</sup>
Boillat, Rachel <sup>1</sup>	Korklan, Nicole	Roesch, Daniel <sup>3</sup>
Bretzke, Anna <sup>1</sup>	Lapeyre, Jonathan <sup>3</sup>	Sattman, Tyler <sup>1</sup>
Carder, Nichole <sup>3</sup>	Latty, Blake <sup>3</sup>	Shoaib, Noor <sup>1</sup>
Chernoff, Aleksander <sup>1</sup>	Learn, Calum <sup>1,4</sup>	Showalter, Lucas
Cornish, Morgan <sup>3</sup>	Li, Daemon <sup>4</sup>	Schlup, Andrew
Courtney, Emily <sup>3</sup>	Linder, Houston	Rothove, Elizabeth <sup>2</sup>
Diebold, Thomas	Lonergan, Jason	Snow, Britni <sup>2</sup>
Domann, Kenneth	Martin, Austin <sup>1</sup>	Stanfield, Austin
Feldmeier, Michael <sup>1,4</sup>	Mattione, Anna	Vieth, Angela
Ferris, Myranda <sup>4</sup>	McGuire, Aaron	Volz, Steven <sup>4</sup>
Fosdyck, Robert <sup>3</sup>	Mitchell, Auben	Walden, Michael
Gilfoil, Katherine <sup>1</sup>	Murphy, Caroline	Waldo, John
Gordon, Joseph	Muskovin, Eric <sup>1</sup>	Weidhas, Cora <sup>4</sup>
Grant, Tyler <sup>1</sup>	Nolte, Elizabeth <sup>4</sup>	Whanger, Jacob <sup>1</sup>
Grueninger, Angela	Pelliccione, Jason <sup>1</sup>	Williams, Katrice <sup>1</sup>
Heywood, Patrick	Piper, Alexandra <sup>3</sup>	Zorn, Jacob <sup>1</sup>
Hilmas, Ashley	Purnell, Mallory	
<b><u>Graduate Members</u></b>		
Brune, Paul <sup>2</sup>	Goetschius, Kathryn <sup>2</sup>	Ronchetto, Erica
Els, Andrea <sup>2</sup>	King, Derek <sup>4</sup>	Wittmaier, Connor <sup>2</sup>
George, Jaime <sup>4</sup>	Neuman, Eric <sup>2</sup>	
<b><u>Research Faculty</u></b>		
Dr. Jeremy Watts		

<b><u>Faculty</u></b>		
Dr. Richard Brow	Dr. Wayne Huebner	Dr. Ron O'Malley <sup>3</sup>
Dr. Fatih Dogan	Dr. Scott Miller	Dr. Mary Reidmeyer
Dr. Bill Fahrenholtz	Dr. Mohsen Asle Zaeem <sup>3</sup>	Dr. Von Richards
Dr. Greg Hilmas	Dr. Matt O'Keefe	Dr. Jeff Smith
<b><u>Emeritus Faculty</u></b>		
Dr. Darrel Ownby	Dr. Delbert Day	Dr. Harlan Anderson

Fall 2014 Initiate<sup>1</sup>

Fall 2014 Graduate<sup>2</sup>

Spring 2014 Initiate<sup>3</sup>

Spring 2014 Graduate<sup>4</sup>

### *New Members*

The Missouri Chapter of Keramos has continued to increase in numbers over the past year. On November 20th of the 2014 Fall Semester, fifteen new members were initiated. Two of these members were Metallurgical Engineering undergraduates who have demonstrated an interest in the field of ceramics. As our chapter consists mostly of Ceramic Engineers, they were a welcome addition to our fraternity. On April 16<sup>th</sup> of the 2015 Spring Semester, the chapter will initiate twelve more members. Of these twelve, four are Metallurgical Engineering professors who wished to join our fraternity. They participated in an abridged initiation process that included the initiation ceremony and receipt of a Keramos plaque.

For new student members, the initiation process consists of several tasks all of which promote professional development in the hope that this will translate into the everyday habits of our members. We are constantly looking for ways to improve this process, as evidenced by the creation of an initiation pamphlet last year, and changes to our plaque-making procedure this year.

Our chapter currently uses an application process to select students for initiation into our fraternity. We use the applications to find out more about the student's interests, involvement on campus, and motive for becoming members of Keramos. The latter is the most important because our chapter strives to bring in those who we believe will become leaders both during and after their time as a student.

After acceptance as an initiate, we required the students to attend a chapter-hosted etiquette dinner. At this dinner, initiates were seated with active members and professors to learn about professional dining etiquette. This event is set up to encourage initiates to interact with and learn more about current Keramos members and the professors. This year the presenters were Dr. Bill Fahrenholtz in the Fall Semester and Dr. Richard Brow in the Spring Semester.

Soon afterwards, the initiates were required to attend the semester's Missouri S&T sponsored Career Fair. Each candidate had to return with a copy of the resume they submitted to companies as well as business cards from two different companies. These proved the initiates had at least begun the process of networking with potential employers.

Throughout the semester, initiates worked on creating their Keramos plaques. The plaques were made of glazed, clay bodies in the shape of the Keramos badge in the fraternal colors. All initiates were required to complete every step in the process for their own plaques. In the Spring semester, the plaque making procedure was changed. Rather than glazing with blue and gold glaze, cobalt oxide was added to the body to change the plaque body to blue. Impressions were made of the word Keramos, the moon, and the stars. These impressions were then filled with a slip that had been colored yellow. A yellow glaze was used for the border, and a clear glaze was applied everywhere else.

After finishing the plaques the initiates were required to pass a pledge quiz. This quiz consisted of questions about the history of Keramos, the history of the Missouri Chapter, the workings of the department, and basic knowledge of ceramics.

After all requirements have been met, the candidates were initiated. All students in attendance of the ceremony were required to dress in business attire, and the professors dressed in caps and gowns. After completion of the ceremony, all members new and old alike proceeded to a celebratory dinner. During the dinner event, initiates were encouraged to have the back of their plaques signed by all members in attendance. During the dinner, the award for the best plaque, as chosen by the faculty, was handed out.

## V. Graduating Members

### **Fall 2014**

#### **Undergraduate:**

Paul Brune Address: [REDACTED] Phone: [REDACTED] E-mail: [REDACTED]	Elizabeth Rothove (Reidmeyer) Address: [REDACTED] Phone: [REDACTED] E-mail: [REDACTED]
Britni Snow Address: [REDACTED] Phone: [REDACTED] E-mail: [REDACTED]	Connor Wittmaier Address: [REDACTED] Phone: [REDACTED] E-mail: [REDACTED]

#### **Graduate:**

Andrea Els Address: [REDACTED] Phone: [REDACTED] E-mail: [REDACTED]	Kathryn Goetschius Address: [REDACTED] Phone: [REDACTED] E-mail: [REDACTED]
--	--

Eric Neuman Address: Phone: E-mail:	
--	--

**Spring 2015**

**Undergraduates:**

Thomas Diebold Address: Phone: E-mail:	Michael Feldmeier Address: Phone: E-mail:
Myranda Ferris Address: Phone: E-mail:	Sean Kennedy Address: Phone: E-mail:
Calum Learn Address: Phone: E-mail:	Daemon Li Address: Phone: E-mail:
Caroline Murphy Address: Phone: E-mail:	Elizabeth Nolte Address: Phone: E-mail:
Steven Volz Address: Phone: E-mail:	Cora Weidhas Address: Phone: E-mail:

**Graduate:**

Jaime George Address: Phone: E-mail:	Derek King Address: Phone: E-mail:
---	---



## VI. Missouri Chapter Honorary Keramos Nomination



The Missouri Chapter of Keramos formally nominated Mr. Mike Carson for honorary membership in Keramos for the 2014-2015 academic year. Mike Carson is a Staff Engineer working in the Advanced Development and Vitreous Support division of Kohler Co., at Kohler, Wisconsin.

While at Kohler, Mike has helped launch new colors, developed new slips and glazes which reduce fuel consumption and costly additives during production and is working on clean water efforts. He travels to other plant locations in North America and abroad to participate in development projects, continuous improvement efforts and technical troubleshooting. He also acts a mentor to many of the ceramic students on co-op or internship with Kohler Co.

On Wednesday, September 24, 2014 Mike gave a presentation at a Lunch and Learn event put on by the Missouri S&T Keramos chapter. He spoke in detail about his professional development throughout his transition from a potter to a technical ceramist. His visit provided the students with a different perspective on how developing experience in the workplace leads to future success. We feel that members of the Missouri S&T Chapter of Keramos benefited greatly from his presentation.

Mike became an honorary member because of his diversified background. Mike is not only an accomplished potter, but has also been very successful in the technical side of ceramics. We feel that his transition from a potter to a ceramic engineer at Kohler, developing new technologies in the Advanced Development and Vitreous Support division is a huge inspiration to many students in field of ceramic engineering, greatly qualifying him for honorary membership into the Keramos fraternity.

## VII. Treasurer's Report

Bank Account				
Date	Memo	Debit	Deposit	Total
5/8/2014	Initial Total			541.58
5/15/2014	Graduation Cords Payment	-321.84		219.74
9/2/2014	Cords Payment		100	319.74
9/22/2014	Initiation Dues Collected		445	764.74
9/23/2014	Initiation Dues Deposited	-230		534.74
10/8/2014	Initiation Dues Deposited	-40		494.74
10/29/2014	October Lunch and Learn Payment	-72.86		421.88
11/3/2014	Etiquette Dinner Payment and Small Denominations Replenishment	-100	245	566.88
11/17/2014	Miner Jobs for Major Cash Fundraiser Collection		300	866.88
11/20/2014	Alex's Initiation Pizza Payment	-310.73		556.15
12/6/2014	December Lunch and Learn Payment	-133		423.15
1/21/2015	September and December Lunch and Learn Reimbursement; Shirt Payment		206.25	629.4
2/9/2015	October Lunch and Learn Reimbursement, Miner Jobs for Major Cash Fundraising, and T-Shirt Sales		402.86	1032.3
11/17/2014	Quarter Bowling Payment	-67.5		964.76
2/20/2015	Keramos Hats Inventory Payment	-276		688.76
3/16/2015	Keramos Hats Sales; Centennial Trip and Etiquette Dinner Reimbursement		507.5	196.3
Pending	Keramos Hats Payment	-260		936.26

Cash Account				
Date	Memo	Debit	Deposit	Total
5/8/2014				421
Semester Collection	Student Dues (22)		330	751
	Teacher Dues (3)		75	826
Semester Sales	Cords (4)		60	886
	T-Shirt (1)		10	896
	Pad Folio (1)		12	908
9/2/2014	Deposit	-100		808
9/12/2014	Etiquette Dinner Award –plate	-12.02		795.98
9/18/2014	Etiquette Dinner Award -Kent Jewelry	-37		758.98
9/21/2014	Etiquette Dinner Guests (3)		75	833.98
9/21/2014	Plaque	-7.5		826.48
9/22/2014	Dues Deposit	-445		381.48
9/24/2014	Lunch and Learn Payment	-55		326.48
9/29/2014	Ice Cream Social Payment	-46.5		279.98
11/1/2014	Initiation Pizza Payment	-22.51		257.47
11/3/2014	Sales Deposit-Denominations Withdrawal	-245	100	112.47
11/20/2014	Alex's Pizza Student Help		35	147.47
12/3/2014	Dec. Lunch and Learn Payment	-21.1		126.37
12/3/2014	Dec. Lunch and Learn Payment	-18		108.37
Semester Sales	Shirt Sales		190	298.37
	Pad Folio		5	303.37
	Hat Sales		240	543.37

1/21/2015	Check Shirt Deposit	-15		528.37
2/9/2015	Cash Shirt Deposit	-180		348.37
2/15/2015	Etiquette Dinner Payment		160	508.37
3/3/2015	February Lunch and Learn Payment	-13.21		495.16
3/14/2015	Centennial Trip Reimbursement		162.5	657.66
3/16/2015	Cash Deposit	-507.5		150.16

## VIII. Chapter Activities

### ***A. Fundraising***

Our fundraising activities this year began with the sale of our inventory of t-shirts from previous years. In addition, all of the remaining black padfolios embossed with the Material Science department logo were sold. Because many of our students use these padfolios during the Career Fairs, more are being ordered for sale in the fall semester. Fundraising efforts continued with the sale of blue and grey hats. These hats were embroidered with gold or black letters spelling "Keramos" in Greek letters on the front of the hat, and had the option of having the fraternity motto of "Through Fire to Perfection" on the back of the hats. Thanks to the planning of the fundraising committee and the efforts of the members the chapter was able to support, and even expand upon, all of its monthly networking events.



This year's fundraising committee decided to initiate a new fundraising program called 'Miner Jobs for Major Cash', where volunteers dedicate their time to assist professors in exchange for donations. This year we painted fences, shoveled ashes, organized a tool shed, and did lawn work for our professors, and had lots of fun doing so. This year's donations totaled \$450, with additional donations pending – a resounding success. 'Miner Jobs for Major Cash' has sparked a lot of interest within the department and has the potential to become a larger scale program as public awareness grows.

### ***B. Educational Outreach***

Each year, the Missouri Chapter of Keramos makes it a top priority to reach out to younger students and introduce them to the STEM fields with an emphasis in Ceramic Engineering. This year we continued to reach out to high school, middle school, and elementary school students through department demonstrations and other events.

## ***Open House***



Students in the Materials Science department, including Keramos members, help staff Open House programs each semester. High school students from all over the country come to Missouri S&T to tour the university and to learn about the different engineering degree programs. Students from ceramics and metallurgy take the visiting families on tours of our labs and perform various demonstrations. We allow students to pour molten glass, pull fibers, break tempered glass, see piezoelectronics in action and much more. The prospective students learn about the various opportunities in the ceramics field. Families are able to get a feel for what materials science is and are able to ask any questions that they may have directly with our students.

## ***WYSE Academic Challenge***

The Worldwide Youth in Science and Engineering (WYSE) finals for Missouri are held at Missouri S&T every spring. Dr. Bill Fahrenholtz, a Curator's Professor of Ceramic Engineering at Missouri S&T, organizes the WYSE program for the state of Missouri. Teams of high school students compete in various test subjects including Chemistry, Physics, Computer Science, and more. Keramos was tasked with coordinating volunteers to proctor exams and hand out t-shirts.

## ***Boy Scout Merit Badge University***

Merit Badge University is an annual event hosted in February where boy scouts from all over Missouri congregate on the Missouri S&T campus. Dr. Wayne Huebner, professor and chair of the Materials Science and Engineering Department, led a session on composites for the scouts to earn their composite materials merit badge. The scouts satisfied one of the many requirements for their badges by gluing a layer of tissue paper around the outside of a Styrofoam airplane, which increases the plane's tensile strength. Dr. Huebner organized the project and sent a call out for student volunteers for this event. Keramos members answered the call and assisted Dr. Huebner by overseeing the scouts and answering questions. Throughout the day, scouts took tours of our materials labs on campus including the composites lab and the foundry. At the end of the day, the scouts flew their planes outside to test their planes for increased durability.

## ***Materials Camp***

In the summer of 2014, Keramos members assisted Dr. Mary Reidmeyer with the annual Materials Camp. Young high school students spent a week at Missouri S&T learning about materials and campus. Keramos students were mentors to small groups of high school students who were tasked with performing an experiment throughout the week. One such group studied different ways to make colored glass through: the addition of metal dopants, growing nanocrystals to scatter the light, solarizing, and phase separating. Other groups participated in

projects including: studying the effects of strengthening glass through the ion exchange process, alumina slip casting, and making clay ocarinas. These projects gave the high school students an opportunity to experience materials in a hands-on way. Working in small groups allowed the Keramos members to bond with the students and mentor them throughout the week by answering questions about college and career opportunities.

### ***Science Fair Judging***

In March of this year, Keramos members in the department volunteered their time to judge the Science Fair at St. Patrick School in Rolla. This event was coordinated by Curator's Professor of Ceramic Engineering, Dr. Richard Brow. Volunteers focused on asking the participants questions about their projects including how they conducted their experiment, what they would change, and what they learned. Aside from judging, the S&T students worked to encourage the participants to continue to pursuing careers in the STEM fields. Many of the projects were very impressive and seventeen of the students moved on to the next level of competition.

### ***Family Fun Night/STEM Night***

Along with the various on-campus events, Keramos also participated in off-campus outreach this year. Family Fun Night was held at the local Rolla Middle School. There, student volunteers broke glass, torched a space shuttle tile, played with Silly Putty, zapped students with a piezoelectric, and amazed with nitinol memory wire. Although the materials booth was



one of many, the table was always packed with young minds, eager to learn. Additionally, several Keramos members volunteered their time over Spring Recess to help with STEM Night as requested by an alumnus. The volunteers drove to O'Fallon, Missouri to give demonstrations to 300 elementary school students and their families. Families were able to interact with our students and learn about materials such as: nitinol wire, tempered glass and many others. Students were also given a packet with Jolly Ranchers to take home, melt, and draw fibers.

### ***National Science Festival, Washington DC***

Last April, Keramos sent twelve students and three faculty members to represent Missouri S&T and the Materials Science department at the USA Science and Engineering Festival in Washington DC. Students from Keramos and her sister organizations spent over 300 man-hours assembling 10,000 demo kits. These kits included UV beads, nitinol memory wire, heat treated nails, Jolly Rancher 'glass', and silly putty. They were distributed to the attendees of the festival free of charge and provided a hands-on demonstration of material properties.

This event was incredible because of the diversity of the audience. Over 300,000 people of all age groups attended the festival last spring. Students took turns manning the various demos at the table: tempered glass, silly putty, Jolly Rancher fibers, and nitinol memory wire. The diversity of the audience presented a challenge, students presenters had to work hard to explain their demonstration at the level of their audience, whether they were adults with a



science background or a two year old. Many parents and educators praised our group of students on their ability to teach our audiences. Even though larger booths from companies such as Lockheed Martin and NASA drew large crowds, our table was always crowded.

## ***C. Professional Development***

### ***Etiquette Dinners***

On September 21, 2014, Keramos held their fall etiquette dinner. Dr. Bill Fahrenholtz gave a presentation over the 'do's and don'ts' of a formal meal to the 47 students in attendance. This prepared the students for formal occasions of all kinds such as dinner interviews with potential employers or what to do when dinner goes wrong. The etiquette dinner was planned around the Fall Career Fair because many students would soon attend similar formal dinners with potential employers. Another etiquette dinner was held in the spring due to the second initiation class. This dinner was also a great success with Dr. Richard Brow presenting.

To foster a networking atmosphere, the students were seated with people they did not

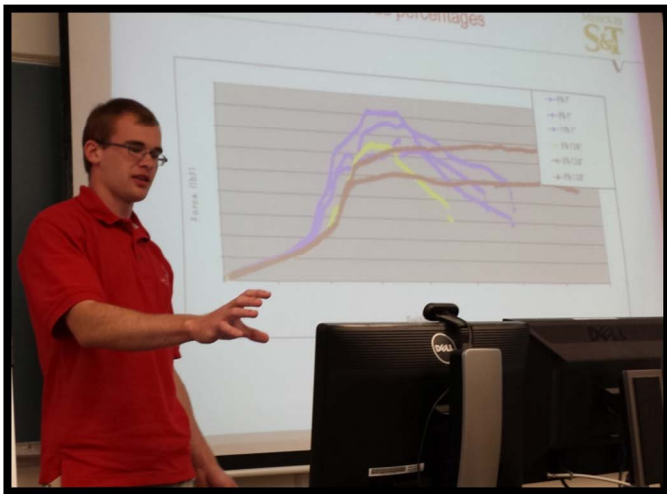


know well so they could practice skills like small talk and toast making. We do this in a fun and informative way by inviting professors to give a presentation complete with goofy photos of what not to do and stories of dinners gone wrong with peers and clients. While this seems childish, it is a fun and effective way to remember how one should act at a formal business dinner.

## **Monthly Lunch and Learn**

Last year Keramos began having monthly seminars known as Keramos Lunch and Learn. This provides the members with a monthly seminar geared towards the interests of the undergraduate students. Topics range from graduate students presenting their research to how Keramos has been important in the professional career of a professor. Lunch is always provided and attendance averages thirty to forty students.

This past September's Lunch and Learn, Mike Carson, a ceramic engineer from Kohler Co. Advanced Development and Vitreous Support North American division, presented the story of how he grew into his career starting as a fine arts major just making ends meet. Food was provided by Keramos, Dr. Jeff Smith, and Myranda Ferris.



For the October Lunch and Learn, students Myranda Ferris and John Waldo each spoke for half an hour about their co-op or internship experience. The presentations were very interactive with questions and open discussion, and positive feedback was received afterwards. Sandwiches were served for lunch for the 30 students in attendance.

The December Lunch and Learn was given by Dr. Ronald O'Malley. He spoke about mold flux in continuous casting of steel. This was a special Lunch and Learn because it bridged the gap between ceramic and metallurgical engineering. Because of this, the room was filled with a mixture of ceramic and metallurgy students, many of whom were not members of Keramos. Dr. O'Malley tailored his lecture to be pertinent to both groups of students. This was a fun topic and we hope to find more topics that can benefit a wide range of students in the future.

The February Lunch and Learn was given by students Andrew Schlup and Lucas Showalter, who presented on their recent co-op experiences at Daltile and Halliburton respectively. The audience seemed very engaged and had many questions for our presenters.

In March, Ryan Grohsmeyer and Parker Freudenberger presented their experience preparing for, selecting, and entering graduate school. Ryan spoke about his prior experiences as an undergraduate at Alfred University in New York and what led him to select Missouri S&T. Parker spoke about her selection of Missouri S&T through Dr. Richard Brow. There was then a panel-style question and answer session between the speakers and the audience.

Dr. Yew San Hor of the Missouri S&T Physics department will be speaking about superconductors on April 29<sup>th</sup> for this month's Lunch and Learn.



## ***Graduating with Honors***

Graduating with Honors is a special privilege awarded to the most dedicated members of Keramos. Students who meet the criteria will be awarded a certificate and a Keramos pin at the Spring Banquet. They will also be allowed to wear honor cords at graduation. This honor is based on a weighted point system that considers their involvement in the Material Science Department, with other registered student organizations, and through professional development. The criteria are further explained below:

- (i) Departmental Activity: Involvement in student groups such as Keramos, Material Advantage, etc; serving as an officer of said organization; involvement with recruitment for the department.
- (ii) Professional Development: Participation in etiquette dinners; participation in research on/off campus; working as intern or co-op student; presentation for a seminar, Lunch and Learn, or to a class; poster presentation of research/job completed; attendance at the annual Materials Science and Technology (MS&T) conference or similar activities.
- (iii) Campus Involvement: Involvement with other student groups affiliated with Missouri S&T; serving as an officer of said organization.

Students who meet the criteria will be awarded a certificate and a Keramos pin at the Spring Banquet. They will also be allowed to wear honor cords at graduation.

## ***D. Networking Events***

Networking events are designed to encourage socialization and connections within Keramos, with professors and faculty, with other Missouri S&T organizations, and with other Keramos chapters. These events were organized through the networking committee and included fun activities, community service, and study nights. The goal for this year was to have a networking event monthly.

### ***Fall 2014***

In September, Keramos began hosting work days for students to make clay artwork. These work days continued until November when Keramos sponsored a department-



wide pit fire and BBQ at Dr. Mary Reidmeyer's home. Keramos members also took the opportunity to help remove dead trees from the property which were used to fuel the fire. A potluck was held to feed the volunteers, and then the clay pieces were fired in a pit dug by the students.

In October, a demo training work day was held to introduce new members to the demonstrations Keramos uses in our outreach events. New students watched as the experienced members showed how to do each demo, then the new students practiced themselves. This practice allowed the students to gain confidence when speaking to others about their degree, just as doing the demos helps students gain much needed public speaking practice.

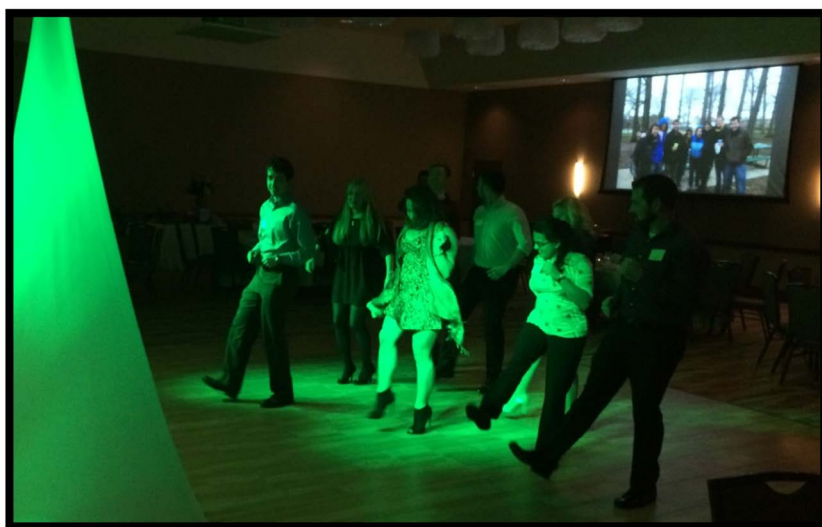
Bowling night was held in November, to help new members get to know older members in a fun, relaxed environment. Keramos paid for the cover charge and games of all eleven members in attendance.

In December, Keramos hosted a study night during the week before finals for anyone in the Materials Science Department to attend. Several professors were invited to attend and help students study. Snacks and soda were provided. During finals week, Keramos volunteers handed out coffee and donuts to students in the McNutt commons. This provided an early morning breakfast to all students who were on their way to their finals. This will be continued in the Spring Semester.

### ***Spring 2015***

On February 1st, our chapter gathered to watch the Super Bowl. Dr. Jeff Smith hosted the event while other faculty and students brought food to share. Watching football was a fun way to build student-faculty relations.

This year marked the 100<sup>th</sup> anniversary of Keramos at the University of Illinois at



Urbana-Champaign. While our chapter had no hand in planning and executing the Centennial Celebration, we did send a delegation of 16 students to attend the event. Despite the weather, we had a fun time meeting the members of the Illinois Chapter and learning about the origins of Keramos. We had such a good time that we are planning on having another networking event with them next year.

Tuesday trivia night at the Locker Room is a fun tradition that many members of the Materials Science Department enjoy. This year beginning in March, Keramos hosted a “Mets vs. Ceramics” night where students from the department split into teams based on their major. While neither team won the overall trivia night, the ceramists pulled out a win over the metallurgists. The night was such a success that many students have continued to go and the friendly rivalry has continued each week.

Coming up this semester is a park clean up and barbeque at Lion's Club Park with Material Advantage. The two groups will spend about an hour picking up trash around the park. Afterwards we will socialize through a barbeque with food provided by Keramos and games including Bocce ball, washers, corn hole, and Frisbee. Also this semester Keramos set up a social with Miners in Space, another campus organization. We will be carpooling out to Lane Springs with them for a hike and picnic.

## ***E. Services to the Community***

### ***Park Clean Up***

Over the past few years, the Missouri S&T Keramos chapter has been involved with helping our local Lion's Club keep their park clean. This year the cleanup will take place at the end of April. We plan on cleaning the pavilions and eating areas of the park, as requested by the Lion's Club. Afterwards, our members will enjoy a BBQ at the park. Over a dozen students have signed up to attend this excellent opportunity for community service.

### ***Canned Food Drive***

The members of Keramos are always willing to provide a helping hand and go beyond the call of duty for people in the community. This was demonstrated in the Fall of 2014, when our chapter participated in our department's annual canned food drive. Keramos, along with Martial Advantage and other student organizations, managed to raise over \$2000 worth of food for people in need. To increase interest in this event, the metallurgy and ceramic students



teamed up with faculty from the opposite degree to see who could donate the most food. The 'winning' team got to pie the other at the end of the donation period. The competitive nature of the metallurgy students and ceramic faculty beat out the ceramic students and

metallurgy faculty, but it was the local food pantry that really won.

### ***Senior Farewell***

At the end of every semester, Keramos helps to sponsor a 'senior farewell' dinner. The faculty and students take time out of their busy schedules to get together and celebrate the seniors' achievement of graduating. This is usually the last opportunity of the graduating

seniors to be sociable with the professors before they leave. It is a very joyous occasion and is open to any and all students and faculty who wish to celebrate the senior's accomplishments.

### ***Spring Banquet***

This year we will celebrate with the Materials Science and Engineering Department at the annual Spring Banquet. The Spring Banquet will be held on April 25th, and will take place at Matt's Steakhouse. The banquet, hosted by both Keramos and Alpha Sigma Mu, is held to celebrate the achievements of both students and faculty over the past year. At this event, awards such as outstanding Ceramic/Metallurgist undergraduate, graduating senior, graduate, and faculty member will be handed out. These awards are voted on by the students and faculty members in the weeks preceding the event. At the banquet Keramos will announce that Mike Carson is our honorary member for the 2014-2015 year. This is a great opportunity to not only network with students and faculty in our department, but also to honor the achievements they have made.

## ***F. Alumni Engagement***

### ***Career Fair Meet and Greet***

Many members of Keramos attended the Material Science and Engineering Department's annual Fall Picnic held at Lions Club Park the day before our fall Career Fair. Representatives from Nucor, Kohler, California steel, Alcoa, General Electric, and Honeywell all attended. Many of the representatives were alumni from Missouri S&T and Keramos. The afternoon provided students with an opportunity to network with employers before the Career Fair. The alumni also get an opportunity to reconnect with the faculty and students in a relaxed, informal setting. During food preparation, students and faculty participate in a game of softball.

In the spring, Keramos members attended the Materials Department Spring Dinner that Materials Advantage hosted. The students, faculty, and alumni representatives from Kohler, General Electric, Saint Gobain, Pittsburgh glass, and Nucor networked with each other while enjoying a meal from Lee's Famous Recipe Chicken. Similar to the Fall Picnic, the dinner was hosted the day before the spring Career Fair and provided the students with a chance to make a favorable first impression on an employer.

### ***Missouri Chapter Keragram***

This year Keramos introduced the first installment of the Missouri S&T Chapter Keragram. The Keragram consisted of four pages of information about our chapter's activities over the year, with letters from the head of our department as well as our current president Miranda Ferris. This method of reaching out to alumni will allow us to better keep in touch with our alumni, update them on the activities of the chapter, and also create an accurate database of our alumni. Any donations received from alumni as a result of the Missouri Chapter Keragram will go to the funding of outreach and networking events for our student members.

## **G. Convocation and Conferences**

### **Annual Convocation**

This year, the Missouri Chapter of Keramos attended the National Convocation in Pittsburgh, Pennsylvania. Two delegates attended the meeting to discuss best practices and debate amending the by-laws. The slide show session provided insight into what other chapters do throughout the year. At the end of the meeting, awards were handed out. The Missouri Chapter was honored to accept the Diamond Award for High Achievement and the Most Outstanding Chapter Award. Our chapter was thrilled to find Dr. Richard Brow was the Career Speaker this year, so after the business part of the meeting was over; about a dozen of our members went to hear him speak.

Next semester, our chapter intends to send another two delegates to convocation. Michael Walden and Austin Martin have tentatively volunteered to represent the Missouri S&T Chapter.

### **MS&T Conference**

Keramos brought over thirty students to last fall's Materials Science and Technology conference. Students attended technical talks, networked with potential employers at the career center, and mingled with students from schools all over the country. The experience gained by attending this conference was felt by all of our members.



In addition, Keramos members entered all of the student competitions. Myranda Ferris and Elizabeth Nolte both submitted mugs in the mug drop competition, and Jake Ivy submitted a mug for the aesthetic mug competition. During the ceramic disc golf competition, Connor Wittmaier and John Waldo both threw discs they made. While none of the Missouri S&T mugs or discs won, the experience of researching and developing the ceramics was invaluable. Auben Mitchell represented Missouri S&T at the student speaking competition, and he gained valuable experience with public speaking by doing so.

## ***USACA Conference on Composites, Materials, and Structures***

In January, two of our members attended the United States Advanced Ceramics Association's 39th Annual Conference on Composites, Materials, and Structures as Student Pages. Because this conference was an ITAR restricted conference, USACA selected Student Pages from four universities to check in all participants and work security at the doors of the sessions.

Not only was sending two of our students a great honor, it also provided an invaluable networking opportunity. The students saw industry leaders on a daily basis for a week and had extensive conversations with them on multiple occasions. In addition, they spent time with peers from other materials programs and created lasting friendships.

### ***H. Inter-Chapter Communications***

Communication between chapters is important, both to keep everyone up to date and on track with their many events and projects, but also to share ideas (what works, what does not) so that all chapters can be continuously improving. This past year, the Missouri Chapter of Keramos has had the opportunity to network with students from other chapters around the nation more than in the years before. Our chapter attended the both the National Convocation and the MS&T conference, kept up to date with other chapters during the monthly teleconferences, and attended the Illinois' Chapter Centennial Celebration in the spring.

Our chapter sent delegates to the National Convocation this past year. During convocation, student leaders from Keramos chapters all over the nation had the opportunity to discuss best practices, meet face-to-face, and establish lasting connections. At the MS&T conference, our students were able to share design and fabrication ideas in addition to competing with the other chapters.

Monthly teleconferences with the National Board have been the medium for most of the communication outside of annual conferences during the year. The meetings gave our chapter the chance to coordinate a trip to visit the Illinois Chapter during their 100<sup>th</sup> anniversary celebration and arrange a department tour.

The trip to Illinois was a phenomenal networking opportunity for our members. Sixteen students attended the Centennial Celebration in Urbana-Champaign, Illinois. The group toured the Material Science student labs and learned more about the classes and programs the Illinois students worked on over the years. Missouri and Illinois Keramos members had a great time talking about their respective school work and extracurricular activities. Our students even had the chance to mingle Illinois professors during dinner. While we were there, the student leaders also had the chance to start laying the groundwork for a yearly student meeting to be held in the spring with a rotating host chapter. Both chapters have agreed to keep in contact while this idea is fleshed out.

The Missouri Chapter has also been involved in helping the Colorado School of Mines form a new chapter of Keramos. Colorado graduate student Jake Ivy is a Missouri Chapter alumni who is spearheading the project. He has been in contact with the Missouri executive board while working on the paperwork to form the new chapter.

Overall, this has been a good year for inter-chapter communication. Not only did our students have many opportunities to network with other students from all around the nation, but the Keramos chapters have been keeping in contact as well.

## IX. Executive Summary

The year the Missouri Chapter of Keramos worked very hard to maintain, and exceed, the momentum of last year. This progress is apparent as interest and participation in Keramos has grown continuously over the year. We had two initiation classes for the second year in a row, and many of those initiates have become heavily involved in our activities this year.

As our numbers increase, the number and attendance of our activities also increases. Much of the networking and fundraising event planning was delegated to our committees this year, which had the dual benefit of increasing interest (as committee members had a vested interest in each event) and giving more of our members, the committee heads especially, valuable leadership experience.

Keramos really took the reins with respect to K-12 outreach this year. Our members consistently stepped up to the plate, volunteering their time and energy to raising materials science awareness in the community and in our school. Open Houses, road trips to elementary and middle schools, and more gave our members the opportunity to demonstrate their knowledge and expertise in the materials field to people of all ages.

Our fundraising committee began an initiative this year which we believe will have a lasting presence in our department, 'Miner Jobs for Major Cash'. Through this initiative, professors can donate to Keramos in exchange for work done by the students. Interest in this initiative has been high, and proceeds have allowed us to increase the number of activities that we do throughout the year.

Professional development has been a major focus this year. This is especially evident in our Lunch and Learns. A range of topics have been covered this year including an enlightening lecture from our Honorary Keramos Member nomination, Mike Carson. These lectures are casual versions of our department's weekly seminars, allowing our students to have frank discussions about pursuing academia or industry careers. We have also continued our traditional etiquette dinners, which are a great introduction to fine dining etiquette and dinner interviews.

Mike Carson was chosen as an Honorary Member of Keramos this year, and we are very proud to have been involved in his nomination. His involvement, not only as one of our Lunch and Learn speakers, but also as a frequent recruiter at Missouri S&T's career fairs and mentor to many of our Kohler Co-ops make him an excellent candidate. We are looking forward to seeing him again at our Spring Banquet where he will 'officially' receive his award.

Finally, our chapter had the opportunity to visit the Illinois Chapter during their Centennial Celebration. This was a wonderful opportunity for the sixteen members who attended to network with Keramos members from another chapter. We also toured the Materials Science student labs while we were there, which gave us the opportunity to learn more about the campus. We left Illinois with a renewed purpose, great contacts, and the desire to meet in a similar manner in the future.

Overall, the Missouri Chapter of Keramos has had a full year. Our growth as a chapter is apparent in the increase in the activity of our members, and our growing number of initiates each year. Our chapter has remained the one of the most active organizations in our department, and we will work to keep it so.

## Keragram Article

The Missouri Chapter has been very busy this semester! We have been focusing our efforts on increasing student involvement in our outreach, fundraising, and professional development events. This was done by creating committees last semester, and this semester we have continued to refine the committees, something that will be ongoing.

Both new and old members have worked hard to ensure that Materials Science is brought to both our community and to prospective students. Our members demonstrated



their knowledge and expertise at both of Missouri S&T's Open House events this semester. Senior members 'passed the torch' to the sophomore and junior members, giving the younger students the opportunity to teach others. We also traveled to several schools to show elementary and middle school students the

amazing things materials engineers do.

The networking committee is working to expand our horizons this semester by organizing a hiking trip with the Miners in Space organization. We will also be cleaning up our local Lion's Club Park in April with Material Advantage members. The fundraising committee has also organized two 'Miner Bucks for Major Cash' events this semester. Our members painted a fence at Dr. Richard's home in February, and in April our chapter will be doing some yard work at Dr. Smith's house.

For the second year in a row, we had an initiation class in both semesters. We initiated eight new students, and four faculty. Our new students made plaques, visited the career fair, and attended our etiquette dinner. This year, our etiquette dinner was hosted by Dr. Richard Brow, who spoke about fine dining etiquette (and told some entertaining stories about dining mishaps as well). This dinner has been a staple tradition for our chapter, and our members enjoy both the food and the valuable education.

Finally, we had the opportunity to attend the Illinois Chapter's Centennial Celebration this year. Sixteen of our members drove to Illinois to attend the celebration. We had a wonderful time networking with the Illinois Chapter students, listening to the speakers, and touring the campus.