



Missouri Chapter of Keramos

2014 Annual Report

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I. Chapter Advisor Executive Summary

It is a real pleasure to be the faculty advisor for the Missouri chapter of Keramos. Even in the few down years that I have witnessed over the years, the chapter has still been quite active and accomplished many good things. This year was certainly not a down year and in fact, I would characterize it as the most successful year that I have ever seen. I don't take this comment lightly. This executive board, led by President Steven Ashlock, has taken on more and accomplished more than any Keramos group ever. Along with successful implementation of the standard events that previous executive boards had initiated, this group decided to expand its outreach significantly, leaving the confines of Missouri and striving to have a national impact. A goal that was realized with the successful initiation of the ceramic disc competition, the assistance in the initiation of a new chapter, the assistance in plaque-making provided to other chapters and perhaps most significantly, the spearheading of US Science Festival participation by the department and actually the entire university. Preparation for this event alone amounted to more than 300 man-hours devoted to fabricating 10,000 mini-demo kits to be distributed to youth attending the event at the Washington DC convention center. As advisor, I had to continue to remind the students that, as much as they might like to do even more, they needed to not spread themselves so thinly that things would not be provided the appropriate level of attention. To my surprise, they just continued to involve more and more people, whether Keramos members or not, so that they could maintain the high standards people have come to expect from the Missouri chapter of Keramos.

I could not be more proud of the accomplishments of Keramos this past year. Can next year's group maintain this pace? As advisor I would say likely not. Steven Ashlock had the same concern but instead of just grabbing his diploma and letting the next executive board figure out how to juggle all the events, he initiated discussions with the president of our Alpha Sigma Mu chapter. Many ceramic engineers are members of that honor fraternity and to be quite frank, it has not been as involved in the department activities as it once was. The two presidents have discussed how to involve Alpha Sigma Mu in events that have historically been Keramos activities, through co-sponsorships and where appropriate to let Alpha Sigma Mu take the leadership role. This would get more metallurgical engineers involved in these activities and allow Keramos to focus on the activities that are critical to the health of the chapter. It is really a pleasure to have students who show true vision and dedication to the long-term success of the Missouri chapter.

It may already be obvious, but I must state it anyway; Steven Ashlock is the best president this chapter has seen in a very long time.

As always, it is a joy to serve as faculty advisor to the students of the Missouri chapter of Keramos. They make me proud to be a member of Keramos.

Jeffrey D. Smith
Keramos Faculty Advisor – Missouri Chapter 2013-2014

II. Annual Plan for Upcoming Year

Thanks in no small part to the excellent organization of this year's student executive board, involvement and interest in Keramos has grown substantially over this year. As Keramos continues to grow, it is important that we insure that our members have the tools to succeed in the professional world they are about to be thrown into.

To accomplish this goal, the chapter must continue to push student involvement in Keramos. We will accomplish this through a variety of methods including forming student committees and effectively communicating events and meetings. Student committees, like the fundraising and networking committees formed last year, allow interested members to really get involved in Keramos projects. They give our officers the experience in leading a group and making decisions, and the students the chance to get their voices heard. We will continue this practice and may expand the number of committees to help us finish some on-going projects. Orgsync was a wonderful communication tool this last year, allowing us to effectively correspond with all members as well as keep an accessible calendar. The chapter will continue to use this site next year and possibly expand our use of it as we learn more about the program.

As stated above, our goal next year is to give our members the tools they need to succeed in the professional world. We will do this as we have done in years past, by creating opportunities for members to both professionally and mentally excel. We did this last year through volunteer events like the canned food drive and the park clean up; by introducing professionals to the chapter through seminars and our monthly Lunch and Learns; by hosting events, like our annual etiquette dinner, designed to develop our members professionally; and much more. The chapter will continue these excellent practices and expand upon them. One opportunity we would like to bring to our members is an increased awareness and experience with other colleges that offer materials science degrees, both for networking opportunities and for those members interested in pursuing graduate degrees. We are still thinking about how to implement this idea and will bring the problem to the chapter at large next semester.

Finally, there are also several tasks the chapter has been working on for several years now that we plan on addressing. One of these tasks is the construction of an accurate and up to date history of the chapter. Our current historical records have several large gaps where little was recorded, which we have been working on correcting. While we have begun making progress in this area, there is still quite a lot to do in that regard. In the past, this has fallen on our historian to work on when they can, but the time-commitment involved has proved to be a bit much. With help from other executive board members, and by breaking the work up into manageable pieces, we hope to mitigate the overwhelming nature of the task and actually complete it. The second task we need to complete is continuing to work on an official chapter website, possibly through the creation of a website committee. An updated chapter website has been something we have wanted to do for several years now. It would expand our online presence considerably, allowing us to promote ceramics to others through yet another venue. Interested students could be given the chapter website to learn more about Keramos and ceramic engineering.

III. List of Officers for Upcoming Year

Name: Myranda Ferris

Office: President



Name: Austin Stanfield

Office: Vice President



Name: Elizabeth Nolte

Office: Secretary



Name: Houston Linder

Office: Treasurer



Name: Sean Kennedy

Office: Herald



Advisor: Dr. Jeff Smith

Address: Materials Science and Engineering Department

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Phone Number: (573) 341-4447

E-mail Address: jsmith@mst.edu

Committee Chairs:

Networking: John Waldo

Nominations: Steven Volz

IV. List of Active Members:

Undergraduate Members	Snow, Britni Michelle
Ashlock, Steven ³	Stanfield, Austin ¹
Barber, Evin ¹	Tomaszewski, John ³
Bova, Coti ^{1,3}	Veith, Angela ²
Brune, Paul Michael	Verity, Susan Elizabeth ³
Calandro, Bridget ^{1,3}	Volz, Steven ²
Davis, Brittany ^{1,3}	Walden, Michael ¹
Diebold, Thomas ¹	Waldo, John ²
Domann, Kenneth Andrew ²	Weidhas, Cora ^{1,3}
Ferris, Myranda	Winseck, Mark ^{1,3}
Gerlt, Austin Robert Cole ³	Wittmaier, Connor
Grueninger, Angela ²	
Guenther, Derek ³	Graduate Members
Heywood, Patrick ²	Els, Andrea
Hilmas, Ashley ¹	George, Jaime
Ivy, Jacob ¹	Goetschius, Kathryn
Johnson, Griffin ¹	Neuman, Eric
Kennedy, Sean ²	Smith, Charmayne
Krev, Kathryn E	Ronchetto, Erica
Korklan, Nicole ²	
Lapeyre, Jonathan ¹	Research Faculty
Li, Jialun	Dr. Jeremy Watts
Linder, Houston ²	
Loyet, Shannon ³	Faculty
Mattione, Anna ¹	Dr. Richard Brow
McGuire, Aaron	Dr. Fatih Dogan
Mitchell, Aubin ²	Dr. Bill Fahrenholtz
Murphy, Caroline	Dr. Greg Hilmas
Nolte, Elizabeth	Dr. Wayne Huebner
Otto, Anna ¹	Dr. Mary Reidmeyer
Padgett, Sean	Dr. Jeff Smith
Powell, Amber Sierra ³	
Purnell, Mallory ¹	<i>Emeritus</i>
Reidmeyer, Elizabeth Rose ³	Dr. Darrel Ownby
Santoro, Nicholas Adam ²	Dr. Delbert Day
Schroeder, William ³	Dr. Harlan Anderson
Schlup, Andrew	
Showalter, Lucas ²	

Fall 2013 Initiates¹

Spring 2014 Initiates²

Spring 2014 Graduate³

New Members

The Missouri Chapter of Keramos continues to grow by recruiting the best materials students in the department. We hope that all of our initiates have a desire to become professional leaders both during the remainder of their time as students and after graduation. Our chapter uses an application process to select new members of the fraternity. These applications help the current officers learn about the applicant's interests, personal and career information as well as the applicant's reason for pursuing membership in Keramos. This was put into practice to find members that will be committed to putting forth the time and effort it takes to make Keramos the best organization possible.

The Missouri Chapter of Keramos has grown over the past year, as many new members were initiated into the organization. During the 2013 fall semester, fourteen qualified and outstanding new members were initiated on December 12th. The chapter also initiated eleven qualified and outstanding members in the 2014 spring semester.

The initiation process has several requirements each new member must complete. Each task was designed to further the professional development of the incoming members and increase the familiarity and unity of both the new and old members.

The first task was attendance at an etiquette dinner hosted by the chapter. This was a formal dinner designed to teach students proper etiquette during a professional dining setting. A slide show was prepared and given by Dr. Huebner both semesters, and it was a great first opportunity for the new recruits to get to know other Keramos members.

Potential members were also required to attend the fall or spring Career Fair. Each student had to submit a resume to Keramos and then visit at least three different companies. The students provided at least three business cards to prove that they had completed the task. This encouraged the students to become familiar with talking to potential employers and helped to develop their interpersonal skills. . In the event that potential members were unable to attend the career fair, they were required to instead research companies and find at least three job openings for a ceramic engineer, and then submit a description of the requirements for each position.

Another requirement was the creation of Keramos plaques. This year, plaques were made of clay. Each pledge was required to roll out his or her own clay piece and cut it to the standard of the fraternity badge. The plaques were fired and each initiate glazed the plaque in the Keramos colors. Pizza was served and several current members came to help the initiates. Many of the recruits commented that it was a nice way to get to know both new and old members. Several have also said that they would make sure to help out next year with plaques in order to provide a similar experience for new recruits.

The last requirement for initiation into Keramos was the completion of a pledge quiz. Initiates must pass a pledge quiz that contains questions regarding the history of Keramos, the Missouri Chapter, and ceramics in general. The quiz is also another way for new members to interact and network with older members.

Following the completion of all requirements, the recruits were initiated. Initiation attendees were required to wear business attire and the professors dressed in caps and gowns during the formal event. Following the ceremony, the new members were treated to a congratulatory dinner. A plaque signing event was held during dinner, during which other Keramos members and faculty signed each new member's plaque. The best made plaque was chosen by the faculty members and this new member was awarded a prize.

V. Missouri University of Science and Technology Honorary Keramos Nomination



The Missouri Chapter of Keramos nominated Jaci Huebner for honorary member for the 2013-2014 academic year. Jaci has been a lab technician for the Materials Science and Engineering Department at Missouri S&T for the last seventeen years. Jaci has been a mentor for numerous undergraduates at Missouri S&T, striving to promote both professional and personal development in her mentees. She is proficient in ceramic processing methods such as powder synthesis, tape casting, and hot

pressing, as well as characterization techniques such as SEM, XRD, and BET surface area analysis. In her time working at Missouri S&T she has been able to pass these skills on to numerous students who went on to use them in their Ceramic Engineering careers.

She provides guidance in graduating seniors' job searches and helps undergraduates determine their desired career paths. Many students stay in contact with Jaci after graduation, which fosters good relationships between alumni and the department. Jaci's dedication to the promotion of ceramics has been demonstrated by her continued work in the department. Jaci participates in many research projects and provides practical knowledge of ceramic processing. Jaci previously spoke at our October Lunch and Learn about her current research. The Keramos members enjoyed her talk and feel that her combination of dedication to the promotion of Ceramic Engineering, professionalism, and value to the department makes her an excellent candidate for honorary Keramos.

VI. Treasurer's Report

A. Bank Account

Date	Description	Debit	Deposit	Total
5/6/2013	Spring Banquet and awards		1534.75	1685.41
5/9/2013	Deposit from cash bag		122.00	1807.41
5/10/2013	Padfolios	418.00		1389.41
5/10/2013	Spring Banquet	1110.00		279.41
5/17/2013	Plate Engraving	4.73		274.68
10/2/2013	Padfolios		604.00	878.68
10/7/2013	Fall Etiquette Dinner	768.25		110.43
10/31/2013	October Lunch&Learn	43.91		66.52
11/4/2013	September Social	40.00		26.52
11/8/2013	Cords and Etiquette Dinner		1093.25	1119.77
12/18/2013	November Social	39.39		1080.38
12/18/2013	Graduation Cords	323.30		757.08
2/4/2014	Executive Meeting	60.00		697.08
3/18/2014	Shirts	490.70		206.38

B. Cash Account

Date	Description	Debit	Deposit	Total
8/20/2013	In cash bag			100.26
8/28/2013	August Lunch&Learn	50.00		50.26
9/15/2013	Plaque for Etiquette Dinner		20.00	70.26
9/20/2013	Dues		270.00	340.26
9/20/2013	Padfolios		150.00	490.26
9/20/2013	Etiquette Dinner (Professors)		50.00	540.26
9/20/2013	Gift for Speaker at Etiquette Dinner	20.00		520.26
9/20/2013	Graduation Cords		180.00	700.26
9/25/2013	September Lunch&Learn	88.78		611.48
9/30/2013	Padfolios and old shirts		79.00	690.48
10/2/2013	Deposit money to account	604.00		86.48
2/20/2014	Padfolios		139.00	225.48
3/19/2014	March Lunch&Learn	49.26		176.22
4/3/2014	Shirts		444.00	620.22

VII. Chapter Activities

A. Fundraising

As a continuation from last year's fundraiser, money was made selling padfolios embossed with the material science department logo. The main fundraiser for the spring semester was the sale of shirts for St. Patrick's Day. The front of the shirts contains a three leaf clover over the heart with "Missouri S&T Ceramic Engineering" written inside it while the back has "Top 10 Ceramic Engineering Pick-Up Lines" with the corresponding lines under that. The shirts were well received by the students.



This year Keramos has decided to start making pottery in the mud lab to sell to the masses. The progress has been slow going as our members have been very busy this year. Several pieces have been created and are ready to glaze and finish. We will schedule a sale when we feel we have enough to actually make money sometime in the next year. The members believe this will be a unique and effective way to raise money for your organization.

B. Educational Outreach

i. Open House

Undergraduate students, including many Keramos members, help the department host open houses during both semesters. High school students come to tour campus each year and get a perspective on the various departments. The Materials Science and Engineering Department provides a pizza lunch and there are informational department posters set up in the common area. Keramos members help out by engaging students to get them interested in materials science and the department. S&T students bring groups of potential students to our undergraduate labs to introduce them to different Ceramic topics. Demonstrations of glass, electronic materials, superconductors, silly putty, and more are all shown. Glass demonstrations include breaking tempered glass, stress and annealing, as well as pouring glass and pulling fibers. Students are

introduced to the many applications of ceramics in electronics, piezoelectric materials, and single crystals of silicon. Thermal shock demonstrations are done with quenched alumina media and bond rigidity is demonstrated by racquet balls frozen in liquid nitrogen. Keramos students enjoy talking with prospective students about the fun, as well as the challenges, of studying Ceramic Engineering at S&T. These demos are also done at many other functions throughout the semester whenever visitors come to the school. The members of Keramos have been vital in helping run and organize the demos that take place at such events.

ii. WYSE Academic Challenge

The Worldwide Youth in Science and Engineering (WYSE) 2014 finals for Missouri were held at Missouri S&T. Dr. Bill Fahrenholtz, a Curator's Professor of Ceramic Engineering at Missouri S&T, organizes the WYSE program for the state of Missouri. High school students are tested over subjects ranging from Chemistry and Physics to Computer Science and Engineering Graphics. Students are recognized for high scores in the different subjects and schools are also recognized with the highest overall scores. Although Keramos did not set up this event, members participated to assist Prof. Fahrenholtz.

iii. Boy Scout Merit Badge University

In the early spring, boy scouts from all over Missouri converged onto the Missouri S&T campus for the annual Merit Badge University. 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 session discussed the basics of composite materials, their applications, and how to safely handle them by understanding Materials Safety Data Sheets (MSDS). In order to earn their badges, the scouts had to complete a project using composite materials. Their project was to glue a layer of tissue paper around the outside of a Styrofoam airplane, thereby increasing the plane's tensile strength. Material Advantage organized the projects and volunteers with Keramos members and other students in the department volunteering to oversee the scouts and answer any of their questions. A few members also made their own planes. Throughout the day, the scouts took tours of the various materials labs on campus including the composites lab and the foundry. At the end of the day, the scouts took their planes outside and flew them to see how the tissue paper had increased their durability. The day was very successful for the scouts and volunteers alike.

iv. Materials Camp

In summer 2013, Keramos members assisted Dr. Mary Reidmeyer with the annual Materials Camp. Young high school students attended a week of camp at the MS&T campus. The students were split into groups and led through several materials-themed projects throughout the week. Several Keramos members helped lead these groups, through projects like making an imitation space shuttle tile with silica fiber, creating glass slurries which were fired and their densities recorded with the Archimedes method, and many more. Not only did the members lead these projects, but they also mentored their group throughout the week by answering college and career questions and by presenting themselves as peer role models.

v. Washington DC National Science Festival

This year the chapter will be representing the material science department of Missouri University of Science and Technology at the National Science Fair in Washington DC. The science fair will take place from the 24th through the 27th of April. Thirteen students and three professors will be running demos and handing out demo kits to visiting students from all age groups with an expected attendance of 250,000.

To prepare for this event, chapter members volunteered their time to put together 10,000 packets for the event, with a total of over 300 hours of labor. Several different types of demo packets were put together including optic glass beads, nitinol memory wire, heat treated nails, jolly rancher fiber pulls, and silly putty in order to showcase several material properties with an interactive and hands on method. The onsite demos will include tempered glass, silly putty, jolly rancher fiber pull, and nitinol memory wire.



C. Professional Development

i. Fall Etiquette Dinner

On September 15th, 2014, Keramos hosted the 5th annual Etiquette Dinner, with thirty one members, both students and teachers, in attendance. The annual Etiquette Dinner that the Missouri Chapter of Keramos hosts epitomizes the emphasis on professional development and growth that we proclaim. Participants gain vital skills in interviewing, socializing, and appropriate table manners in a formal dinner setting.

This etiquette Dinner consisted of a short socializing time, in which students could begin to network with peers and professors in a low-stress, but formal, environment. Afterward there were the opening remarks from our President as the participants settled into their seats. During the dinner, Dr. Huebner regaled attendees with humorous anecdotes interspersed with explanations of each course, appropriate table conversations, and helpful tips and pointers.

ii. Spring Etiquette Dinner

Keramos is very excited to announce that it has started the first annual spring Etiquette Dinner which was sponsored by Kohler. Kohler has asked Keramos if they could initiate a closer bond with the Ceramic Engineering department similar to our metallurgical department's close ties to Nucor. Three representatives from Kohler- Penny Forton, John Baumgartner, and Megan Hammon- made the trip down to interview students during the day and attend the etiquette banquet in the evening. The evening consisted of an introduction, a dinner presentation given by department chair Dr. Huebner, and a Kohler presentation at the closing of the night.

This night went extremely well. Some metallurgical faculty even attended bringing the number of participants close to seventy. This is more than double the amount of attendees when compared to the previous five etiquette dinners. Keramos truly showed Kohler how special our department is. Kohler has donated more than \$1,000 to the Spring Etiquette dinner, and Keramos is very thankful for their gift. The first spring pledge class in many years also attended the event.



iii. Weekly Seminar Speakers

The Ceramic and Metallurgical Engineering departments are some of the only departments on campus to offer a weekly seminar series. This series is a weekly opportunity to hear seminars given by invited guests, instructors, alumni, and fellow students on topics related to their field of study. Once a week the ceramists and metallurgists meet for one hour to listen to these speakers and ask questions. This is an excellent opportunity for all members of the department to learn about the state of the art processes and technologies in the material science field. The seminars are not limited to only those in the department, so it is a great recruiting tool; additionally, prospective students can meet with fellow Keramos members to talk about ceramics and the department.

The speakers cover a wide variety of topics; most have made a significant contribution to their field. The speakers for the past year were as follows:

Date	Speaker
Aug. 22	Dr. Wayne Huebner
Aug. 29	NUCOR Corporation Staff
Sept. 5	Jian Wang (Los Alamos Nat'l Lab)
Sept. 12	Prof. Mike Rigsbee (North Carolina)
Sept. 19	Dr. James Zimmermman (Corning)
Sept. 26	Adam Chamberlain (Rolls-Royce Corporation)
Oct. 3	Kathleen Richardson (University of Central Florida)
Oct. 10	Chad Essary (Cobham)
Oct. 17	Chris MacReynolds (Barclays) - O'Keefe Lecture
Oct. 24	Dr. Matt Hall (Alfred University)
Oct. 31	Dr. John Weritz (Aluminum Association)
Nov. 7	Mike Baskes (University of California)
Nov. 14	Greg Thompson (University of Alabama)
Nov. 21	Graduate Student Speakers
Dec. 5	Senior Design Presentations
Jan. 23	Dr. Wayne Huebner
Jan. 30	Tom Battle, Midrex Corporation
Feb. 6	Kim Flesner and Al Hegger Stress Engineering Services
Feb. 13	MSE 410 Seminar – Andrea Els, Jason Lonergan, Krista Limmer
Feb. 20	Megan Hammon, Penny Forton, John Baumgartner, KOHLER
Feb. 27	Dr. Ebrahim Asadi, Missouri S&T
Mar. 6	MSE 410 Seminar – Derek King, Devon McClane, Jingjing Qing
Mar. 20	Dr. Ian Suni Professor, Southern Illinois University-Carbondale
Apr. 3	Dr. Chris Schuh, Professor Massachusetts Institute of Technology, GOLICK LECTURE
Apr. 4	MSE 410 Seminar (12pm) – Jacob Bair, Scott Pisarik, Vivek Thapliyal
Apr. 10	Jump Start Your Future
Apr. 17	Dr. Simon Lekakh, Professor, Missouri S&T
Apr. 24	Dr. David Green, Penn State University
May 1	MSE 410 Seminar – Wenyuan Cui, Kramer Pursell, Mingzhi Xu, Sanaz Yazdan Parast
May 8	Senior Design Presentation

iv. Jump Start Your Future

This year Keramos sponsored a recurring event, the Jump Start Your Future seminar, that featured several student members giving presentations about various internships, co-ops, and undergraduate research opportunities with which they had been involved. This was an opportunity for students to present their work to an audience of peers. The speakers also discussed how they obtained their opportunity and gave hints and suggestions to further help students who are interested in finding work.

v. Graduating with Honors

This honor is awarded to the most dedicated members of Keramos based on a weighted point system that measured their activity in the Ceramic field and professional development. Some of the criteria included are:

- (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 other
- (iii) Other Campus Involvement: Other student groups involved with on campus; 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.

vi. Mentor Program

Last fall Keramos started a mentor program designed to help new students in the department. It is aimed at freshmen and sophomores in the material science department. The purpose of the program is to help introduce younger students to the department. A sign-up sheet was passed around the introductory ceramics course at the beginning of the semester and students interested in participating were paired with a member of Keramos. The mentors and mentees meet up at least once a month and discuss several topics relating to the department, mostly classes and the student groups.

Feedback on the mentor program was very positive, and Keramos expects to continue the practice.

vii. Practice Interviews

In the fall semester, Keramos organized practice interviews for the students in the department in the weeks leading up to the career fair. Interviews were conducted by the faculty with the help of Keramos members. The purpose of these interviews was to allow the students to practice their interviewing skills. Keramos set up these interviews because we felt like the practice interviews set up by the career center lacked the kinds of technical questions students might be asked by potential employers. The professors were able to ask these types of question as well as the character based questions the career center would have asked. Students could ask questions of the professors directly and were able to get immediate feedback and critiques. Feedback from the students indicated that they felt better prepared for future interviews after participating.

viii. PCSA

A priority of the Missouri chapter and the University as a whole is to promote materials science education, primarily ceramics, in the community. As such, a student is chosen each year to become a member of the President's Council of Student Advisers (PCSA) to the American Ceramic Society (ACerS) in order to promote this education on a national level. This past year, Steven Ashlock was the representative from Missouri S&T. He has been serving on the Outreach committee. The committee has focused their time on promoting the science kits previous PCSA members created. These kits allow teachers to purchase small materials science based demos for their students and include detailed procedures and explanations of the properties demonstrated. Steven has also helped the committee in determining which demos to add to a new ceramics only demo kit. The group will begin writing the material to go along with the kits later in the year.

viii. Monthly Lunch and Learns

This year Keramos began having monthly lunch seminars known as Keramos Lunch and Learns. This provides the members with a monthly seminar about something that interests the students. Topics range from grad students presenting their research to asking how Keramos has been important in the professional career of a professor and many more. Lunch is always provided and average attendance is fifteen to twenty students.

The first Lunch and Learn of the semester was given by Steven Ashlock in August about interviewing tips. The slide show was put together by the Human Resources Department at GE Aviation. GE allowed Steven to give the presentation and to give it to the head of the department for future use. The topic was selected because many of the students had asked for interviewing advice. The slide show gave hints such as appropriate dress, body language, questions to ask, how to calm your nerves, etc.

The September Lunch and Learn featured Carlos Castano, a graduate student at Missouri S&T. The focus of the talk was his research and also how he came to decide to go to grad school. Many of the students were debating entering the work force or going for an advanced education and were interested in how Carlos made the decision to go to school.

In October, our Honorary Keramos nominee, Jaci Huebner, spoke on her involvement in the department. She discussed a few of her current projects and gave advice on how to get involved with research on campus.

The November Lunch and Learn was cancelled due to the speaker's wife having a baby. December was a short month and also went without a Lunch and Learn.

The new semester started off the Lunch and Learn series with a bang in the month of February. Three students used the lunch seminar series to present about their co-op experiences from the previous semester. These students were: Paul Brune with Kohler, Elizabeth Nolte with Watlow, and Elizabeth Reidmeyer did a presentation on her time at DalTile. The students presented some of their work and each gave hints to the group on how to get a job. Each member had a different experience and gave very helpful advice.

In March Keramos branched out beyond the department for our speaker. Miss Emily White, a geological engineer, asked if Keramos would be interested in hearing her presentation on ceramic pots for water filtration in Guatemala. She explained how the pots were made, how they worked, and showed the study they conducted about the amount of bacteria in the water

before and after filtration. Having a speaker from outside the department was informative and attracted the highest number of attendees to a Lunch and Learn.

Keramos will be taking a break again in April as a large amount of the group will be headed to Washington DC for the National Science Festival.

D. Networking Events

Keramos believes networking helps provide professional development to one's college experience. Networking events are organized by the networking committee that is led by the Herald. It helps give students a time and place to interact outside of the classroom. Each semester, we try to host at least one networking event each month. These often last for a couple hours and include bowling, barbecues, and board game nights. Each networking event averages about 15-20 members.

Wednesday night quarter bowling is a great way to kick off each semester since it is a very easy event for freshman to attend. After attending bowling they usually feel more comfortable coming to the other events. Additionally, many students take the opportunity during bowling night to work on class assignments and take home tests together. Once again, this is an easy way for older members to interact with the newer by assisting with assignments in a relaxed setting.



Dessert and board game night is another favorite among Keramos. During these events, everybody bakes their favorite snack and brings it to game night. Group games such as Apples to Apples generate the most laughs! This is often scheduled during finals week to help relieve tensions before an intense round of testing.



Our Keramos chapter also enjoys having barbeques at the park. Not only is this another great way to meet outside of the classroom, but the barbeques typically follow Keramos-organized park cleanups, and serve as an extra incentive to encourage students to participate in our community service events. Frisbee is always a popular choice during these events, as our faculty advisor and many of our officers are avid disc golfers.

The networking highlight of this year though was most likely the one year birthday celebration of Dr. Smith's daughter's birthday. Almost all of Keramos, new and old, as well as most of the faculty came out to his house for the celebration that included several home cooked foods and cake. The event lasted several hours and gave many of our chapters members a chance to connect with the faculty outside of the classroom.



Keramos also put on several other successful networking events this year which include a grill and Apples to Apples night, a cookout/Super Bowl gathering, and a kickball game in the spring.

In general, we all agree that the high level of both student and faculty attendance at all of our networking events is what makes them so successful and beneficial. The interactions between both faculty and student help foster a better sense of community and comradery throughout our department. We believe networking events are one of the main aspects of our organization that helps us stand out from the other student groups.

E. Services to the Community

i. Park Cleanup

In October 2013 Keramos sponsored and ran a park clean up at the Rolla Lion's Club Park with the help of Materials Advantage. Fifteen students participated in cleaning up trash throughout the park. The students split up in to groups to cover as much ground as possible. One group cleaned up trash on the disc golf course in the park while other groups swept the grounds around pavilions and playground equipment. At the end of the event the group had collected twelve bags of trash. The students that helped were rewarded with hot dogs and hamburgers. This was a great way to help our local community as well as get together over food for some organizational bonding.



ii. Lights at Lion's Club Park

In December, a few Keramos students volunteered to help the local Lion's Club set up Christmas lights in the park. The park has a drive through light show each year. Four brave students showed up on a day when there was snow on the ground and the warmest temperature reached was six degrees Fahrenheit. The team was able to stay warm and set up over twenty fifty foot long strands of lights.



iii. Canned Food Drive

In the fall semester, Keramos joined Material Advantage, AFS, Gaffer's Guild, and Alpha Sigma Mu to sponsor a canned food drive. The cans collected were given to a local food pantry to help those in need. The students challenged the faculty to see who could collect the most cans. The collection period lasted for one week. In that week the students were able to collect 2604 cans yet lost the competition to the faculty who collected 2929 cans. As a result of the loss, the student group leaders were pied in the face by their faculty advisors.

iv. Senior Farewell

Each semester, Keramos holds a farewell dinner for graduating seniors. Students and professors meet up for dinner and to spend time together. Dinner for the graduating seniors is paid for and turn out is usually quite good. Several professors and non-graduating upperclassmen attend along with almost all the graduating seniors. It is a good opportunity for the students and professors to interact outside of the classroom one final time.

v. Spring Banquet

To close off the year, Keramos will sponsor the seventh annual Spring Banquet on May 1, 2014. Unlike the other dinners during the semester, this one is not to teach etiquette. The Spring Banquet celebrates the accomplishments of the faculty and students throughout the year with more than 120 guests. Matt's steakhouse will provide a delicious banquet which will allow faculty, students, and guests to network and relax before finals and summertime.

Keramos also sponsors many awards for the night. Awards are given to the outstanding graduate student, graduating senior, undergrad, and faculty member of each part of the materials science department. The faculty picks a list of three for each category and the students vote for the winner. Lastly, Keramos reveals the "Honorary Keramos member". This year, we are proud to say Jaci Huebner will be receiving the award. Jaci Huebner has become a department favorite with her positive attitude and reliability along with her dedicated work to professors and post-docs.

F. Alumni Engagement

i. Fall Picnic

Members of Keramos attended the Materials Science and Engineering Department's annual fall picnic held on Monday, September 23, the day before the fall Career Fair. The fall picnic consists of a large barbeque and a softball game. The department invites alumni and representatives from all of the companies that are looking for materials science majors. Employers and alumni are also encouraged to join in the softball game. The picnic provides alumni the chance to learn about the current events on campus while students have the chance to meet and interact with alumni and learn about potential employers in a fun and informal setting before going to the Career Fair.

ii. Distinguished Alumni Award

The Missouri chapter continued the honor accomplished alumni of Missouri S&T (formerly UMR/MSM). With the guidance of the faculty, Geoff Brennecka was selected to be honored as the ceramic distinguished alumni. Dr. Brennecka will be presented with an award at the Spring Banquet on May 1st.

Geoff Brennecka graduated with BS and MS degrees in Ceramic Engineering from the University of Missouri-Rolla (now Missouri S&T) in 2001 and 2002, respectively, before going to the University of Illinois at Urbana-Champaign for a PhD in Materials Science and Engineering in 2006 (for which, fortunately, he still wasn't required to know anything about the Fe-C phase diagram). He immediately took a post-doc position at Sandia National Laboratories in Albuquerque, NM, where he currently works as a Principal Member of the Technical Staff. Geoff's work centers on enabling new functionality through the clever integration and processing of ferroelectrics and other electronic oxides for a variety of high reliability and high power applications. He has more than thirty refereed journal publications and twenty-five invited talks. Geoff is active in the leadership of the American Ceramic Society, including serving on several

committees, as an officer of the Electronics Division, former President of the National Institute of Ceramic Engineers, and will be joining the ACerS Board of Directors this fall. Geoff received the ACerS Emerging Leader Award in 2010 and the Karl Schwartzwalder Professional Achievement in Ceramic Engineering Award in 2013. He is also active in the Ultrasonics, Ferroelectrics and Frequency Control Society (UFFC) of the IEEE, which selected him as a member of the International Ferroelectrics Committee in 2011. Geoff has organized more than 20 technical symposia at national and international meetings, and currently serves as an Associate Editor for the Journal of the American Ceramic Society and the Journal of Electronic Materials.



G. Convocation and Conferences

i. Annual Convocation

As in past years, the Missouri Chapter of Keramos attended the National Convocation in Montreal, Canada in October. This year's meeting was devoted to the induction of the new Connecticut chapter, discussing the difficulties of the new disc golf competition and ways to improve the challenge, fundraising ideas, and ways to keep members interested in the organization. In addition to these discussions each chapter prepared and presented a slide show outlining the events they took part in during the past year. This was a good way to get new ideas for our chapter. Our chapter was also delighted to learn that a member of our chapter, Dr Wayne Huebner, was given the Greaves-Walker Roll of Honor Award at this year's meeting. At the end of the meeting awards were handed out and the Missouri chapter was honored to receive the coveted Chapter of the Year award.

ii. MST

Missouri S&T had an exceptional student showing at the Materials Science and Technology conference in Montreal, Canada with 33 students in attendance. The students attended technical talks, visited the career center, and walked around the various booths in the convention center. Each activity was attended by at least a few students. Overall, Missouri S&T was well represented during the events at the conference.

Our school also had a strong showing in the various student competitions this past year. One mug was submitted for dropping and one for the aesthetic competition. The mug designed by Myranda Ferris won the dropping competition and the mug created by Jake Ivy won the aesthetic competition. The students were also very excited to participate in the new Ceramic Disc Golf competition. Three discs were submitted from Missouri S&T by Steven Ashlock, Andrew Etzold, and Austin Gerlt. The hand blown glass disc submitted by Austin Gerlt won the aesthetic competition and the disc thrown by Steven Ashlock tied for first place in the event with Breden Mil-Homens and Mackenzie Merrick, both from the University of Connecticut. Additionally, Austin Gerlt participated and tied for third in the undergraduate technical speaking competition presenting on ceramic coating research done at Missouri S&T.



iii. TMS

This year, Keramos sent two members to the 143rd annual TMS meeting and exhibition in San Diego, California, Steven Ashlock and Austin Gerlt. While there, the members participated in the TMS Materials Bowl as part of the team representing Missouri S&T. The other two members of the team were Calum Learn and Krista Limmer. Apart from the Materials Bowl, the students also attended several technical talks during each day they were in attendance, took part in the student mixer, and made several connections with members of sister material science programs at Ohio State, Colorado School of Mines, Illinois, and many others.

This was a conference we have typically not sent Keramos members to in the past. As such, this trip served to expand our awareness of and connection to many peers in our field, and will likely result in increased participation from our chapter in future years



H. Inter-Chapter Communications

This year the Missouri Chapter of Keramos has had more opportunities to interact with other chapters around the nation than in years past. This has been in large part due to both the MS&T conference and the monthly teleconferences with all of the chapters. At this year's convocation and MS&T conference, leaders from the Missouri chapter were able to meet other student leaders from various schools. At the convocation meetings, best practices were shared and connections were established. Later in the week, the Missouri chapter met up with members from both the Pennsylvania and New York chapters to discuss best practices over dinner. The other two chapters were very interested in how well the Missouri chapter keeps members involved. Communications between the three have gone on throughout the year about topics such as initiation, group email and messaging strategies, and fundraising events.

Another key aspect in communicating with other chapters has been the monthly teleconferences. The Missouri chapter tried never to miss one and has enjoyed sharing best practices with the other schools. One call in particular has helped open up inter-chapter communications between the Missouri chapter and the chapters of Iowa and Arizona. On this particular call, the idea of having initiates make plaques was discussed. Neither Iowa nor Arizona were making plaques and have since asked Missouri for help. The Missouri chapter has

taken upon itself the task of helping the Student Representative create a standard procedure for plaque making. This involves the procedure itself, glaze and clay types, and firing schedule.

Perhaps the most important way that the Missouri chapter was able to help another in the past year was with the initiation of the Connecticut chapter at MS&T in October. The initiation ceremony booklets used by the Missouri chapter were sent to nationals for them to be used in initiating the new chapter. Our chapter is proud to have helped welcome another to our fraternity. Additionally, this year our chapter has been working on redesigning the initiation ceremony booklets to more accurately represent the field of ceramic engineering as well as reflect the modern times. These updated booklets are on schedule to be completed before the end of the 2013 - 2014 school year and likely will be shared with the rest of the chapters if they think this would be helpful for the initiation at their school.

The Missouri Chapter under the leadership of Steven Ashlock also was able to help out Keramos nationals with the creation of the new Ceramic disc golf competition. The competition was designed and created by Steven with the help of our advisor Dr Smith. The first discs were created in Rolla and several students helped test the first prototypes. As a chapter we are very proud of this contribution and hope that the competition is able to withstand the test of time and bring joy to all that partake in the event.

While the desire to interact with the other chapters exists, it is difficult to remain in contact with all of the other chapters due to geographic difficulties. Other than email and phone calls it is very difficult to interact with the chapters at any time other than convocation. The chapter attempts to use the Kergram to notify our Alumni and the other chapters of our current events and goals. However, despite the difficulties, the chapter feels it does a good job sharing best practices and attempting to be a leader for the fraternity as a whole.

VIII. Executive Summary

This year has been another successful year for the Missouri Chapter of Keramos. The past year has seen Keramos grow in size and interest in the group is at an all time high. This is the first year in a while that we had two initiation classes in the year. We are hopeful that this is a sign that the future of Keramos will be bright at Missouri S&T.

The increase in members has allowed the organization to plan more activities. The networking committee that was introduced last year was hard at work this year to keep the members interested. While not all of our networking events are strictly professional we feel that they teach the members how to network with a diverse group of people. The networking events also create a sense of family between the members.

The other committee that was created last year, the fundraising committee, also worked hard in the past year to try and fund the ever increasing amount of networking events. We sold padfolios that were left over from last year's major fundraising endeavor. However, we realized that we would need another idea to fund everything we wanted to accomplish. The committee came up with the idea of selling shirts and they were a hit with the department. Fundraising is always the hardest thing for our chapter and we were lucky to have some dedicated people working on these shirts.

The chapter also continues to work hard on outreach in the Rolla area. We feel that teaching materials science and its importance to as many people as we can is vital. Our group has helped give demos on campus and several members have gone back to their high schools to do demos. These events not only teach materials science but also promote our school and our

department. These outreach events could persuade students to embark on a journey in materials science and help ensure that there will be a ceramic engineering major at our university.

The past year also saw an increase in our new monthly Lunch and Learns. There has been overwhelming support for the continuation of these events. The students enjoy the more relaxed learning environment. These luncheons also give our students an opportunity to practice public speaking.

We are very excited that Jaci Huebner was accepted as our Honorary Keramos Member. We feel that she has been a major part of our department for many years and is very deserving of this award. We are proud to be the Executive Committee that gives her this honor. The members are also looking forward to surprising her with this award at our Spring Banquet.

Another achievement that we are proud of was the revitalization of the mentor program. This had been an important part of the yearly plan but fell through the cracks last year. There were several road bumps along the way with getting this program running again but overall it was successful. We feel that getting in contact with the younger members of the department through this program will help build our chapter in the following years. This program also helps share the knowledge of the older students with those new to the department. The chapter plans on expanding and improving this program in the following years.

Our chapter was thrown a curve ball in the spring semester that messed with some of our plans: the Washington DC National Science Festival. The school contacted our department and asked us to do demos at the festival. They specifically mentioned the Keramos group and our past history at doing demos. Our members have spent a large amount of time getting everything made and laying out the plans. We are very excited to be the representatives for our school at such a large event. This is the perfect opportunity to promote ceramics and materials science to the masses. Details about our success will be passed along after the completion of the event.

As Keramos is a professional fraternity we have focused a lot of our efforts on promoting professionalism. The two etiquette dinners were a huge success and many students have said the dinner helped them at an interview this year. The spring dinner also had the added bonus of networking with representatives from Kohler. This and other events such as the MSE Fall Picnic allowed our members to meet potential employers. We hope events such as these will continue in years to come.

Overall, this year has been one of growth and increased interest in our fraternity. We have had the largest initiation classes in several years and attendance at events continues to grow. Keramos has cemented its standing as one of the most active organizations in the department. We will continue to grow and hope to keep up our tradition of outstanding performance for many years to come.