



The Pennsylvania Chapter of Keramos

Annual Report
April 2015

I. Chapter Advisor Executive Summary

PENNSTATE



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April 14, 2016

National Keramos Officers:

It has been my pleasure to advise The Pennsylvania Chapter of Keramos during the academic year 2015-2016. Over the past year the Penn State Keramos chapter has made great strides in maintaining the organization's prowess as a student professional development organization at Penn State.

We began the year with what has become a new tradition, Keramos Industry Tour. We took 16 students, by coach, on a 3 day trip to Covestro, Alcoa, and Owens Corning. The trip took place the week before the start of the fall semester. The chapter took over 30 students to MS&T in Columbus in the fall. We had an Honorary Inductee in the spring, David Babb, from the Department of Meteorology at Penn State University. Dr. Babb is an avid glass blower and has been instrumental in training dozens of MATSE student glass blowers over the last 10 years, as well as, providing assistance to student group activities. Speaking of which, Penn State Keramos raised \$1500.00 in their annual glass flower sale during valentines' season; a new record. The success of this annual fund raiser would not have been possible without the dedication of Dr. Babb. For the second year in a row, Keramos sponsored the 492W white paper presentation reception. MATSE 492W is a competition course in which students propose ideas to solve one of the 14 Grand Challenges set forth by the National Academy of Engineering. The white paper presentations are given to an external board of investors. Once all the teams have presented, the Keramos reception provides an opportunity for immediate exchange of ideas and feedback, plus networking opportunities. Of course we continue to successfully execute our speaker series of faculty and industry leaders. We are already looking forward to building on our successes next year.

In closing, I hold the achievement of the past year of The Pennsylvania Chapter of Keramos in highest regard. The new officers for 2016-2017 feature 4 rising juniors who will be led by a senior, and 3-year member of Keramos. As a consequence, membership enthusiasm is at the highest level in recent memory. I look forward to working with the new officers in the coming year.

Sincerely,

A handwritten signature in dark ink, appearing to read "Robert M. Keramos", with a stylized, flowing script.

II. Annual Plan for the Upcoming Year

2015 was a phenomenal year for the Penn State Chapter of Keramos. In the coming year we hope to continue many of our annual events and continue to improve and add new opportunities for members. The current members of Keramos sought to reach out to underclassmen to raise awareness and increase membership in years to come; this year, we will also speak with professors of the materials science classes for younger students and explain the goals and purpose of Keramos to build our member base. One problem our chapter faces is definition of a goal and purpose throughout membership. This year we will work to prepare our student members for the professional materials environment. We intend to emphasize this goal through a general push for students to connect with professors and network with industry professionals outside the university.

At the beginning of the year, members will be encouraged to join research groups. The executive board will help students who want to pursue the opportunity to research find a match between their interests and professor needs. We look to create better connection with industry as well through a speaker series and networking events. The executive board will look to involve members of Keramos beyond the classroom setting to prepare students for a diverse set of careers related to materials science, materials engineering, and the business aspect that comes with those fields.

In terms of projects, the Penn State Keramos chapter intends to design a set of mugs for the mug drop competition at the Materials Science and Technology Conference in October for the first time. Work is currently underway for this competition with a team interested in ceramics. Another of our goals for the upcoming year is to increase hands-on work for students and interaction of students with faculty; working toward the mug drop competition supplies opportunities for both. Another opportunity to work with professors is our annual glass flower making event which serves as our main fundraiser. Our goal is to give students the skills they need to enter the materials field and talk about their craft beyond just what they learn in the classroom. Working with molten glass and

slip casting ceramic mugs provide a real chance to understand the hazards and problems, and the joys, of processing materials that is difficult to convey via lecture.

Outside of the lab we hope to take some of our more mobile experiments to younger students of all ages to provide demonstrations of what materials scientists and engineers get to explore, discover, and create. By providing these opportunities we hope to both increase the skills and marketability of our members and also reach out to the community, ensuring the future of the materials field and expressing the importance and fascination of our work to a diverse crowd.

In the next year, Keramos at Penn State will work to organize and advertise events in advance to grow our number of participants who work with outreach and increase the size of our audience for those events. We would also like to partner with other ceramics and materials science-based clubs to spread awareness of our mission and develop a community for students seeking the ceramics and materials industries. A combination of continuing our strengths and expanding our outreach and communication will help us to reach our goals in the coming year with Keramos.

III. List of Officers

2014-2015 Academic Year

President

Alexander Hall

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]@psu.edu

Vice President

Hunter Rauch

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]@psu.edu

Treasurer

Alex High

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]@psu.edu

2015-2016 Academic Year

President

Jacob Cordell

[REDACTED]

[REDACTED]

[REDACTED]

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Vice President

Henry Trabue

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]@psu.edu

Treasurer

Elizabeth Ancin

[REDACTED]

[REDACTED]

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[REDACTED]@psu.edu

Secretary

Jacob Cordell

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[REDACTED]

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[REDACTED]@psu.edu

Herald

Rachel Sherbondy

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]@psu.edu

Secretary

Catherine Pomorski

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]@psu.edu

Herald

Jacob Griffith

[REDACTED]

[REDACTED]

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Delegates for 2016 Annual Meeting

Jacob Cordell and Henry Trabue

Alternate Delegates for 2016 Annual Meeting

Liz Ancin, Catherine Pomorski, and Jacob Griffith

IV. List of Active Members**2015-2016 Inductees**

Hala Al-Sadeg

Sven Alagic

Elizabeth Ancin

Nicholas Bonsignore

Gray Bryan

Victoria Christensen

Isabelle Gordon

Jacob Griffith

Seth Kreider

Courtney Mensch

Divyesh Patel

Catherine Pomorski

Aaron Selnick

Henry Trabue

Rebecca Walton

Luke Yost

Yitian Zeng

Undergraduate Members

Nicole Kirchner

Rachel Sherbondy

Rafael Vila

Sarah Newby

Jacob Cordell

Graduating Members

Mohammed Abu Al-Saud
Michael Brova
Emily Fucinato
Ramya Gurunathan
Alexander Hall
Jie Mou
Patrick Walker
Paige Stetson
Alex High
Alex Constable
Hunter Rauch
Yitian Zeng

Graduating Members Emails

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██████████████████@gmail.com
██████████@gmail.com

Graduate Members

Jason Lapano
Frederick Lia
Arkapol Saengdeejing
Stephen Weitzner
Beecher Watson
Yihuang Xiong
Nicholas Simonson
Rebecca Walton
Jarrett Rice

Faculty Members

James Adair
Susan Trolie-McKinstry
Karl Spear
David Shelleman
Carlo Pantano
Clive Randall
Paul Painter
Suzanne Mohny
Gary Messing
Zi-Kui Liu
R. Allen Kimel
John Hellmann
Venkatraman Gopalan
L. Eric Cross
Long-Qing Chen
Paul Brown
James Runt
David Babb

V. Honorary Member Biography

Dr. David Babb is an Assistant Professor in the Department of Meteorology at The Pennsylvania State University in the College of Earth and Mineral Sciences. He specializes in curriculum design for non-traditional learners and oversees the Department's online meteorology certificate program. David holds a Bachelor's degree in Atmospheric Science from the University of Kansas and a doctorate from Penn State. Early in his career, he worked with deconvolution techniques applied to cloud radar retrievals. However, in 2001, David joined a team of instructors who began work on the Department's flagship online meteorology course. Three more courses were developed from 2004-2005, completing the Certificate of Achievement in Weather Forecasting. The certificate approaches meteorology from a conceptual, rather than mathematical, framework, which allows non-traditional, non-science students from diverse backgrounds to learn practical skills in weather forecasting. The program is now in its tenth year and is approaching 200 alumni.

David began blowing glass after a meteorology student recommended he observe a class hosted by the Department of Material Science and Engineering. One visit to the studio was sufficient to inspire him to begin lessons. For the next ten years, David studied both the science and art of making and shaping glass under the mentorship of Carlo Pantano, Bill Gudenrath (Corning Studio), and others. Since 2012, David has served as the manager of the Penn State Glass Studio. In addition to overseeing funding and maintenance needs of the studio, David teaches glass blowing to several new students every year. He also facilitates the use of the studio for interdisciplinary courses with components involving glass as well as outreach activities, both in the College and for the University as a whole.

Recently, David has helped the Penn State Keramos chapter prepare for their annual Valentine's Day glass flower sale. He has trained and overseen students working in the glass studio, and has been instrumental in continuing this outreach tradition.



Dr. David Babb



David Babb leading a glass blowing session

VI. Treasurer's Report

For the 2015-2016 academic school year, The Pennsylvania Chapter of Keramos raised \$2,177.30, primarily through membership dues and the glass flower sale. Our chapter was very certain that the flower sale would accrue significant revenue. Due to this success, our officers were very interested in using funds to promote interest in Keramos. The glass flower sale primarily offset the expenses from promoting our chapter through social activities. These social expenses totaled \$1,737.26. Additional expenses were incurred from traveling to MS&T as well as from paying outstanding dues owed to the national board. Additionally, we were able to make a charitable donation of \$100 to The Penn State IFC/Panhellenic Dance Marathon thanks to the overwhelming success of the flower sale. The final balance of our Chapter was \$3,136.17, marking a net change of +\$4.64 from the beginning of the year.

Beginning Balance:	\$3,131.53
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Costs

Food for Meetings/Social Expenses	\$1,737.26
Travel Expenses	\$235.40
Outstanding Dues	\$100.00
Charitable Donations	\$100.00
Total:	\$2172.66

Income

Convocation Travel Reimbursement	\$315.00
Dues	\$320.00
PSU Organizational Interest	\$2.30
Glass Flower Sale	\$1,500.00
General Reimbursement	\$40.00
Total:	\$2177.30

Final Balance:	\$3,136.17
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VII. Chapter Activities

a. Educational Outreach

Discovery Space

December 2015

At the Discovery Space, a local science museum with exhibits targeted at kids ages 3-13, Keramos members took a weekend to present demonstrations to hundreds of children from local schools who came in with their parents to have fun and learn. We were able to convey some of our lessons and expertise with ceramics, metals, and polymers to the kids and were fascinated by which exhibits interested which age groups and eager to teach just as the children were eager to learn and play with the hands-on demos. An experiment exhibiting the differences between crystalline and glassy metals seemed to be one of the most popular attractions of the day. The event allowed Keramos members to volunteer in an area where we could utilize our materials knowledge and boost interest for materials science in pre-K through 8th grade students.

Exploration U

January 2016

Centre County creates many opportunities for students to be involved in scientific outreach, one of which is Exploration U. Exploration U events are held at high schools and middle schools around the county, with the goal of bringing science close to home. The event is aimed at elementary school and middle school aged children, which is a perfect age for instilling the values of scientific curiosity. The students brought a variety of materials science demos to appeal to many ages. The younger children were very interested in the sodium polyacrylate “snow,” while older children were more interested in the shape memory alloy demos. Overall, the night was exciting for the children and enjoyable for the students as well.

EMEX

April 2016

Every year the College of Earth and Mineral Sciences participates in the Earth and Mineral Exposition, basically a student run



open house, for prospective students to come talk to professors, students and graduates of the College to see if Penn State is the right fit for them. Many students helped give demonstrations and talked about majors, clubs, and student life. Keramos and MA were two of the student organizations for the department of MatSE that did demos and gave tours of the Steidle building and the MSC. This event aimed at getting prospective students interested in attending Penn State in the department of MatSE.

b. Professional Development

Industry Trip

September 2015

During the week preceding the Fall 2015 semester in coordination with the Penn State Chapter of Materials Advantage, our chapter sponsored an industry trip, with the goal of exposing students to facilities used in professions that are of interest to the students. This three day trip took our group to the following facilities: Covestro (formerly Bayer) in Pittsburgh, PA; Alcoa in Cleveland, OH; and Owens Corning in Granville, OH. At Covestro, students were introduced to the polymer products and the research and development that are required for making these products. The highlight of Alcoa for many students was the 50,000-ton forge, which towered over the entire plant. Additionally, the new experience of walking the floor of an aluminum plant made the trip worthwhile. The final stop at Owens Corning provided insight into the company history, as well as a view into the product testing that is conducted to ensure the highest quality. Students learned about the symbolism of the color pink in Owens Corning's products. Furthermore, a tour of the testing facilities demonstrated the power of a sound-insulated room and displayed the force of a flame tunnel. These opportunities gave students a look at the professional world, while boosting camaraderie within the chapter.

MS&T

October 2015

The Materials Science and Technology conference is a fantastic opportunity for students to be around other students, professionals, and cutting-edge research. A few Keramos officers went to Columbus ahead of the other students to participate in a workshop and network with other officers. They also had an inspiring speaker, Dr. Susan Trolier-McKinstry, who is one of Penn State's own professors. During the rest of the conference, the students attended many presentations given by leaders in research from across the globe. One of our Keramos members, Victoria Christensen, won the student speaking contest, and the fraternity was happy to have been able to support her. The students also had the opportunity to interact with their colleagues during the student



mixer and form lasting networking contacts. Former fraternity members were also in attendance as grad students and alumni, and they were warmly received by our current members. Overall, the experience was a fantastic chance to form networking contacts and to learn about the materials science discoveries that drive the industry.

Dr. Susan Sinnott Career Talk

November 2015



In Fall 2015, during her first semester as the Department Head of the Materials Science and Engineering program, Dr. Susan Sinnott volunteered her time to give members of our Keramos Chapter a look into her career. Dr. Sinnott was excited to inform students of her undergraduate education at The University of Texas, followed by graduate studies at Iowa State University. She further outlined how she used her experiences at these universities to pave the way for her future. She went on to describe her experiences when working in materials science at The University of Florida, among other jobs. She advised members as to how to make smart decisions regarding their

careers, and how to begin to network with people from the nationwide Materials Science community. The entire Materials Science community here at Penn State looks forward to continuing to learn from Dr. Sinnott as she strives to lead our department towards future innovation.

Gilson Snowboards

March 2016

On March 28th, 2016; Nick Gilson, on behalf of Gilson Snowboards came in to speak about his company; how it began and where they are now. He started as a middle school teacher and from there, while working on projects with his students and another teacher, began researching how snowboards could move through the snow faster. He related the snow and the shape of his boards to ships moving through water, since they are both means of transport that move through water. One of the boards he presented was known as a 'Catamaran,' due to the shape on the board and its 3D design of two parallel hulls coming out of its base. It was extremely interesting to learn about the science behind its design and the techniques and materials used to improve upon the standard snowboard, making it faster by 26%, more flexible for different styles of riding and stunts and an overall smoother ride for the snowboarder.

492 W Reception

March 2016



As part of the junior year curriculum in materials science and engineering at Penn State, students take a class on project development which simulates the pitching of an idea to a board of

investors. In an effort to make the presentations true to life, successful businessmen among Penn State's College of Earth and Mineral Sciences alumni are asked to be the mock investors. The juniors in the class were asked to prepare a five minute speech about their idea, and present it to the board, after which the board would ask questions. At the end of the event, there was a reception hosted by Keramos in which the students could

network with the alumni to obtain feedback from the event and advice about how projects are developed in the business world. The reception involved hors d'oeuvres supplied by the fraternity which helped to facilitate lengthy conversations among the alumni and students.

c. **Service to the Ceramics Community**

Glass Flower Sale

February 2016



This year, our chapter was able to organize the glass flower sale, which was unable to be held last year. Chapter members were trained to work with the glass and were then able to form the floral shapes to their preference. Dr. Carlo Pantano graciously allowed our members to use his glass lab to make the flowers. Dr. Pantano and our new initiate, Jarrett Rice, supervised the training and the flower-making process. In our process, molten glass was set onto colored ceramic particles, reheated, and then pulled to create the petal and stem shape.

The main purpose of this sale was to provide flowers for students and faculty to purchase for Valentine's Day. These flowers were very popular due to their longevity in comparison to real flowers. Additionally, this sale served as fundraiser for our chapter, so that future events like this one could be organized. Thanks to the overwhelming success of the glass flower sale our chapter was able to raise \$1,500 and decided to donate a portion of the proceeds to charity. Our charity of choice was The Penn State IFC/Panhellenic Dance Marathon which is the largest student run philanthropy in the world and benefits children battling pediatric cancer. In late February our president, Alex Hall, was lucky enough to participate in



THON weekend as a dancer where he was not able to sit or sleep for 46 hours straight! In total, Penn State was able to raise \$9,770,332.32 for The Four Diamonds Fund at The Hershey Medical Center and Keramos was honored to be able to take part and contribute to such a phenomenal cause.

d. Alumni Engagement

MS&T Student Alumni Reception

October 2015

Back in October, Penn State brought over 30 undergraduate students to MS&T, many of whom were Keramos members. Penn State's stay at the conference culminated in an alumni reception, held in the same hotel as the Keramos functions, where dozens of students, professors, speakers, visitors, and recent graduates came together. The dean of Materials Science and Engineering at Penn State spoke about the past, present, and future of the program, pointing out many of the individuals responsible for the progress and growth it has and will experience.

Blue-White Tailgate

April 2016

As is tradition at Penn State, the materials science department will hold a tailgate before the first football game of the year (April 16th). This event is funded and organized by the three materials student organizations on campus: Keramos, MRS, and MA. Faculty members and students, graduate and undergraduate, meet up with alumni who are invited back every year for the event to eat, drink, enjoy the rare Centre County sunshine, and get out of the lab for a few hours. Keramos executives enjoy the chance to work with the leadership of MRS and MA as well as the faculty members who help organize the time and resources. This is a fun time for everyone, and also acts as a casual networking event.

e. Participation at the Annual Convocation and Business Meeting

MS&T Convocation

October 2015

Pennsylvania chapter officers traveled to Columbus a day in advance to prepare for the Annual Chapter Convocation. Early in the morning, officers from all national Keramos chapters convened to discuss chapter plans and methods to improve interest in the organization. This meeting also served for networking between the various chapters.

After an hour of the students' meeting, the Executive Board joined to discuss the direction of the fraternity. Chapter awards were handed out, and the keynote speaker, Dr. Susan Trolier-McKinstry from our very own Penn State, talked



about her career story. This event marked a productive and successful convening of the chapters for the purpose of improving the fraternity for the years to come.

MS&T 100th Anniversary Reception

October 2015

2015 was a special year, marking the 100th anniversary of Keramos. Penn State, along with the other active chapters, prepared posters for the event that showed their achievements and activities. Attendees talked to Keramos members from other colleges and met previous members. Many Penn State faculty members are Keramos members and came to the event, and even more names from Keramos and Penn State's shared history were listed during the presentation.

f. Interchapter Communications and Collaboration

Back to School Picnic

August 2015

On a Friday afternoon in late August, undergraduate Keramos members met for a back to school picnic. We socialized and played backyard games while enjoying grilled chicken sandwiches and mashed potatoes. It was great to rekindle with everyone in a relaxed setting after spending months apart for the summer.

Monthly Phone Calls

September 2015 – April 2016

The executive board participated in many of the national phone calls this year. The alternating schedule helped to get different members to join in when possible. Next

year, having a full executive board from the start of the semester thanks to our increased membership will help ensure that we can attend all of the calls.

Student Faculty Luncheon

March 2016



Undergraduate students met with graduate and faculty Keramos members at our 2nd annual student/faculty luncheon where students bonded with professors discussing everything from research and career plans to travel and vacation adventures.

The event was held in the Millennium Science Complex which houses the Materials Research Institute at Penn State. Students were able to make valuable connections in an informal setting while professors were able to share their work with an engaged audience respective of the growing era of materials scientists all over a nice catered lunch.

Break Stuff Night

April 2016

Keramos members met up at the undergraduate lab on an otherwise quiet Tuesday night. Execs brought liquid nitrogen and food items to chill and subsequently smash with a hammer. Safety glasses equipped and garbage bags protecting the floor, we set to work demolishing some marshmallows, apples, oranges, peppers, and tomatoes. This was a good stress relief and team building event, and is another of our favorite traditions at Penn State.



VIII. Article for Keragram

See final attached page for article.

The Keramos chapter at the Pennsylvania State University is busy as ever; inducting 17 qualified new members in the fall, the chapter has grown to spread the mission of Keramos across academic departments. The Penn State chapter is working to expand ties amongst ceramics students of all levels of education promoting scholarship and character while sharing professional aspects of the trade of ceramics.

Undergraduate students were able to meet with graduate and faculty Keramos members at our student/faculty luncheon where students bonded with professors discussing everything from research and career plans to travel and vacation adventures. Our chapter's honorary inductee this year, Dr. David Babb, came from a background of meteorology and glass science playing an instrumental role in one of the chapter's favorite events: glass flower making.



In December, Keramos faculty and graduates shared the craft of glassblowing with undergraduates who took on the task of handling and shaping a variety of patterned flowers from a glass melt. The Keramos lab workers made hundreds of flowers and we sold our creations to students, faculty, and staff of the university as well as visitors who happened by our stand. Customers of all backgrounds were eager to hear how the flowers were made especially because the work was done by undergraduates in a campus facility. Through the sale we were able to raise awareness of the organization and explain the role we play in ceramic professional development.

Penn State members appreciated the opportunity in October to meet and share ideas with chapters at the Keramos Convocation in Columbus, Ohio and we look forward to converging with fellow chapters in Utah this year.