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UNIVERSITY OF ILLINOIS AT URBANA-CHAMPAIGN

Keramos Annual Report  
Fall 2015 – Spring 2016

University of Illinois at  
Urbana-Champaign

# Annual Plan for the Coming Year

The University of Illinois Keramos Chapter has big plans for next year. We have decided to streamline the executive board in order to be more agile in an increasingly competitive student organization environment. We will also be working more closely with Material Advantage to provide support for the whole Materials Science and Engineering undergraduate community. We will continue to hold weekly Play with Clay sessions and regular Professor Lunches, service events, and social events. Working with organizations from other departments will further improve these types of events. We will expand fundraising from the new, successful Ceramic Rose initiative and will maintain a steady flow of new initiates. Overall, the future is bright for the Illinois Chapter.

# Officers for the Upcoming Year

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**Vice President**

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**Herald**

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# Current Members

Adam Brown <sup>1</sup>	Deepa Kote <sup>1</sup>	Kai Wells <sup>1</sup>	Pritam Bhattarai <sup>2</sup>
Alex Trick <sup>1</sup>	Deepak Mani <sup>1</sup>	Kenneth Jabon <sup>1</sup>	Pritam Dev <sup>3</sup>
Allyson Brusich <sup>1</sup>	Derek Kwok <sup>1</sup>	Kimberly Campbell <sup>1</sup>	Qing Lin <sup>3</sup>
Andrew Buhl <sup>2</sup>	Devon Papanicolas <sup>5</sup>	Kirsty Feng <sup>2</sup>	Renhan Wang <sup>1</sup>
Anisa Nuanes <sup>2</sup>	Diane Kuai <sup>1</sup>	Konrad Ryba <sup>1</sup>	Samantha Tatar <sup>1</sup>
Anna Jedralski <sup>1</sup>	Dustin Reisberg <sup>2</sup>	Kyle Berglund <sup>3</sup>	Samuel Kaufman <sup>1</sup>
Arjun Balwally <sup>1</sup>	Elisabeth Lang <sup>5</sup>	Kyle Scott <sup>4</sup>	Sankara Madalika <sup>3</sup>
Arvind Ramaiah <sup>1</sup>	Emily Foley <sup>3</sup>	Lauren Smith <sup>3</sup>	Sarah Fraser <sup>2</sup>
Athena Lin <sup>1</sup>	Emily Lindgren <sup>2</sup>	Lucas Firpo <sup>2</sup>	Sarah Jean Gurns <sup>5</sup>
Audrey Lee <sup>5</sup>	Erica Belvin <sup>3</sup>	Marek Mroczek <sup>1</sup>	Satoshi Takekuma <sup>2</sup>
Benjamin Perkinson <sup>5</sup>	Frank Kelly <sup>3</sup>	Matthew Cheng <sup>1</sup>	Sean O'Neill <sup>2</sup>
Benjamin Knipfer <sup>2</sup>	Gabriel Velarde <sup>1</sup>	Melissa Goetter <sup>1</sup>	Sean Patrick <sup>4</sup>
Brendan Eng <sup>1</sup>	Grace Pakeltis <sup>1</sup>	Michael Hu <sup>1</sup>	Shamalee Goonetilleke <sup>1</sup>
Brendan Wolan <sup>5</sup>	Heer Majithia <sup>5</sup>	Michael Toriyama <sup>5</sup>	Soham Ali <sup>1</sup>
Brian McDonald <sup>1</sup>	Jai Karnik <sup>2</sup>	Mitchell Owens <sup>5</sup>	Steven Hoppe <sup>1</sup>
Bridgette Lafaye <sup>3</sup>	Jared Cooney <sup>1</sup>	Mitchell Schroeder <sup>5</sup>	Suraj Dhanak <sup>1</sup>
Brittany A Lung <sup>5</sup>	Jize Zhang <sup>3</sup>	NaKyung Lee <sup>1</sup>	Timothy Chiu <sup>1</sup>
Caitlyn Deegan <sup>4</sup>	Joanna Lin <sup>2</sup>	Nayung Kim <sup>5</sup>	Vasyl Bruchko <sup>4</sup>
Cameron Rosenthal <sup>1</sup>	John Mead <sup>3</sup>	Nick Palcheck <sup>1</sup>	Wenzheng Hu <sup>3</sup>
Christopher Beck <sup>5</sup>	John Miller <sup>1</sup>	Nikolas Van Winkle <sup>1</sup>	Xiaolan Sun <sup>3</sup>
Collin Anderson <sup>5</sup>	John Shimanek <sup>3</sup>	Olivia Rogers <sup>1</sup>	Yiyuan Yang <sup>1</sup>
Connor Bailey <sup>1</sup>	Joseph Cohen <sup>2</sup>	Paul Ng <sup>2</sup>	Yiyue Luo <sup>3</sup>
David Christianson <sup>1</sup>	Joshua J Khazanov <sup>5</sup>	Perry Ross <sup>4</sup>	Yuliya Semibratova <sup>1</sup>
David Litt <sup>1</sup>	Julia Zuo <sup>1</sup>	Phil Kagebein <sup>3</sup>	Zach Hoffman <sup>2</sup>
David Schmit <sup>3</sup>	Justin Betancourt <sup>1</sup>	Pierce Randle <sup>3</sup>	
David Yoon <sup>1</sup>	Kacper Lachowski <sup>1</sup>	Piush Behera <sup>5</sup>	

<sup>1</sup>Spring 2014 <sup>2</sup>Fall 2014 <sup>3</sup>Spring 2015 <sup>4</sup>Fall 2015 <sup>5</sup>Spring 2016

# Treasurer's Report

Between the dates of 4/15/15 and 4/14/16, Keramos at the University of Illinois at Urbana-Champaign has taken in a total of \$4,522.81 in membership dues and other source of economic support. Our expenses over the same period have totaled \$5,847.94 for many of the events that we have hosted for our general body. Further expenses for the rest of the Spring 2016 semester have not been included.

Spring 2015	Date	Transaction	Income	Expenses
	4/20/2015	Pottery Wheel		\$798.88
	4/28/2015	Spring 2015 Initiation Dinner		\$150.07
	5/1/2015	Spring 2015 Initiate Fees	\$800.00	
	5/13/2015	Play with Clay Awards		\$30.00
		Total	\$800.00	\$978.95

Fall 2015	Date	Transaction	Income	Expenses
	6/30/2015	FY 14 Interest Allocation	\$111.57	
	9/3/2015	Student Panel Food		\$87.82
	9/12/2015	MatSE BBQ Food & Supplies		\$109.82
	9/16/2015	September GM Food		\$134.66
	9/16/2015	Fall 2016 Initiate Dues		\$150.00
	10/1/2015	"Just Google It" Food		\$53.45
	10/1/2015	Play with Clay Supplies		\$54.82
	10/2/2015	Keramos Poster		\$47.41
	10/4/2015	Keramos Travel Reimbursement	\$150.0	
	10/7/2015	Tie-Dye Event		\$53.91
	10/21/2015	October General Meeting Food		\$98.54
	11/2/2015	Tour of Establishments Shirts		\$446.36
	11/15/2015	Fall 2015 Initiation Dinner		\$112.75
	11/16/2015	Fall 2015 Initiate Fees	\$220.00	
	11/18/2015	November GM Food		\$81.16
	11/20/2015	SORF MS&T Funding	\$997.24	
	12/3/2015	EC MS&T Funding	\$385.00	
	12/8/2015	MatSE Game Night Food		\$59.04
	12/10/2015	Finals Review Session Food		\$31.20
	12/22/2015	MS&T Reimbursements		\$2604.82
		Total	\$1863.81	\$4125.76

Spring 2016	Date	Transaction	Income	Expenses
	1/7/2016	Illini Grove Rental Invoice		\$88.00
	2/14/2016	Ceramic Rose Fundraiser	\$269.00	
	2/17/2016	February GM Food		\$85.97
	3/3/2016	MA MS&T Reimbursement	\$300.00	
	3/3/2016	Laser Tag with OXE		\$70.00
	3/3/2016	Small Orange Website Payment		\$15.00
	3/6/2016	EOH Supplies		\$11.87
	3/10/2016	Tour of Establishment Shirts	\$420.00	
	3/16/2016	March GM Food		\$87.12
	3/17/2016	EC Winter Funding	\$70.00	
	3/30/2016	Engineering Open House Food		\$163.80
	4/10/2016	Spring Initiation Dinner		\$111.97
	4/10/2016	Spring Initiate Fees	\$800.00	
	4/13/2016	April GM Food		\$109.50
		Total	\$1859.00	\$743.23

Initial Balance	Annual Income	Annual Expenses	Annual Net	Current Balance
\$6885.82	\$4522.81	\$5847.94	-\$1325.13	\$5560.69

# Chapter Activities

## Educational Outreach

Educational outreach is one of the most important things that the Illinois Chapter of Keramos does each year. While Engineering Open House is the biggest event, smaller events such as High School Visit Day and Destination Technology that occur throughout the year are what really matter.

During High School Visit Day, approximately 30 prospective high school students came to campus to be introduced to the Materials Science and Engineering department. They met faculty and students and watched various demos. These included pouring a liter of water into a diaper to highlight the absorbing properties of polyacrylamide and heating one side of a ceramic tile from a space shuttle while holding the other side with their hand to show the insulating properties. Our members led a tour of the labs that undergraduate MatSE students can enroll in. Some of these lab spaces are used by every MatSE student during their college career while others are tailored to the five concentrations in our department: polymers, metals, ceramics, electronic materials, and biomaterials. Each of the labs had an experienced student describe some of the experiments that were completed in their course work and answer any questions that the parents or prospective students asked. Sometimes a sample was presented, such as a metal dog bone that fractured during a tensile test.

## Engineering Open House

Every year, thousands of people from all over Illinois visit the College of Engineering for the annual Engineering Open House in March. These include elementary, middle school, high school, and college students; their teachers, professors, and parents; and members of the community interested in general science and engineering. For two days the whole engineering campus is transformed as student engineering societies, research groups, and student project-based teams display their work. There are more than one hundred demonstrations ranging from virtual reality headsets and race cars to basic science exhibits. There are also guest speakers and a Tesla coil concert performed on the engineering quad at night. Each exhibit is judged on its educational merits and prizes are awarded in several categories.

Keramos hosted three exhibits this year: oobleck, geopolymers, and break-a-plate. Oobleck, a mixture of cornstarch and water, is an example of a non-Newtonian fluid. The faster you try to move it, the more it resists flowing. Kids of all ages love to play with oobleck and it's a great introduction to more advanced fluid dynamics. Geopolymers are an area of intense research in our department and have many potential applications as an environmentally friendly replacement for Portland cement. A novel use on display at this year's exhibit was as a fade-resistant coating for wood or steel. Everyone has broken a plate, but why are ceramics so brittle compared to metals and polymers? Explaining the differences in mechanical properties between these material classes was the goal of this exhibit; visitors were encouraged to break plates and other ceramic articles as an interactive component.

## Destination Technology

Destination Technology is a program hosted by Caterpillar Inc. that brings science and technology ideas to students in Peoria, IL. Keramos members visited these students in September, October, and April with various science experiments and helped the students with different design competitions. In March the students visited the University of Illinois campus to experience Engineering Open House. This year the science experiments and design competitions focused on energy: where it comes from, how it can change form, and how it is used to do work. The design competitions were to build a catapult and to build a rubber-band-powered car.

## Service

In addition to Destination Technology, the Illinois chapter participated in several community service activities. The biggest was iHelp, an annual day of community service held in September in Urbana-Champaign. About a dozen members attended and we all helped clean up the public spaces around the engineering campus. We also volunteered in October at the Sustainable Student Farm, a local student-run produce farm. We partnered with Material Advantage to pick potatoes and help out for an afternoon. In November we participated in a Holiday Food Drive. We collected canned and non-perishable food items from our members and donated them to families in need.

## Play with Clay

The Illinois Chapter continues to encourage member bonding and artistic expression through weekly Play with Clay sessions. The Heralds teach members about slip-casting, glazing, and firing ceramic articles. Attendance was down this year despite our new pottery wheel purchased last year. We plan to address this by holding a session on clay throwing to give members the knowledge to take full advantage of our facilities.

A better understanding of how our kiln functions has greatly improved the turnaround on fired articles with new pieces going from slip to glazed and fired in as little as two weeks. We have begun to explore creating new slip cast molds and replacing old ones with some success in creating discs for the MS&T competition. The Heralds briefly explored glass forming using molds, but discovered that our kiln does not quite reach the required temperature for viscous flow of common glass formulations.



The executive board also continued the annual tradition of thoroughly cleaning the Play with Clay space. We all spent a few hours scrubbing, dusting, and vacuuming the accumulated clay dust and debris; by the end the whole room was spotless (at least for a century-old basement). Afterwards, we continued to bond over excellent barbecued meats.



## Professional

In 2015 we provided many professional development opportunities to our members. To finish up the spring semester we helped organize a tour of the University of Illinois Research Park where many companies, ranging from two-person startups to John Deere and Yahoo, have labs and offices. This great resource for part-time and summer employment is not advertised enough on campus and we felt that it was important that our members learn more about the opportunities available there.

To start the fall semester we held a “Sunday Sundaes” resume review where upperclassmen helped incoming freshmen and other underclassmen improve their resumes while enjoying delicious frozen treats. This was followed up by a “Just Google It” workshop where Melissa Goetter, our Professional Chair, presented tips, tricks, and best practices for taking advantage of Google apps and services. She dove deep into how best to use these tools to communicate, organize, and manage group projects. We finished up the semester with an Internship Panel where students talked about their experiences doing summer internships and co-ops including what it’s like living in an unfamiliar city, what different corporate cultures are like, and some tips on how to get an internship.

In both Fall 2015 and Spring 2016 we held regular Professor Lunches where students can sit down with our department’s faculty in an informal setting to learn more about their career trajectory and current research, as well as to get to know them on a more personal level. We started with Prof. Krogstad, one of our newest and youngest professors. She had some great insights on how to balance research with raising a family. Next we sat down with Profs. Braun and Chen to compare and contrast the experiences of a more established professor with that of a brand new one. Finally we lunched with Profs. Shoemaker and Huang, two of our newer professors, and discussed how to decide if grad school is the right choice for you.

## MS&T

During the 2015 Materials Science and Technology (MS&T) Conference held in Columbus, Ohio we sent 13 students to attend talks, participate in student competitions, and network with students from other universities around the country. The Illinois Chapter was represented by Kimberly Campbell, Kai Wells, Jai Karnik, and Michael Hu. Other local members who also attended included Alex Trick, Pierce Randle, Emily Lindgren, and Sean Murray. Our chapter was honored to receive the Sapphire Chapter Award at the Annual Keramos National Convocation and to be recognized at a reception later that day for celebrating its centennial. Sean Murray participated in the Student Speaking Competition and made it to the top four speakers.





For the mug drop competition we prepared four mugs: two for dropping and two for aesthetics. These won first place in both drop height and aesthetics and were made by Michael Hu and Kimberly Campbell, respectively. An extra mug that we brought survived a fall from more than ten feet on its first drop. We also prepared four disc golf submissions: two for throwing and two for aesthetics. These did not win any awards, though the judges mentioned that they particularly enjoyed one of the aesthetic discs.

## Freshman Mentorship

Fall 2015 saw the return of the freshman mentorship program in our department. This was a joint effort between our chapter and the local Material Advantage chapter that paired incoming freshmen with upperclassmen to help integrate them into the community. This included several sports and social events including volleyball, bags, the Back-to-School BBQ, and trivia night. Points were awarded to mentor-mentee teams for participating in events, with additional points given for winning a game or sending in a photo of the pair interacting outside of a scheduled event. The team with the most points at the end of the month was awarded a pan of brownies baked by a member of the executive board. Many Keramos general and executive board members volunteered to be mentors.

## Review Sessions

One of the new initiatives this past year has been review sessions for some of the harder courses in the Materials Science and Engineering Department. Upperclassmen who did well in the course fielded questions and gave general advice as midterms and finals approached. Usually this was paired with snacks to help increase member turnout and provide stress relief.

## Fundraising

In February 2016 our chapter raised \$269 by selling ceramic roses to students all over the University of Illinois campus in the days leading up to Valentine's Day. Members donated their time by making these roses during our weekly Play with Clay sessions. In total, more than 80 ceramic roses were sold over three days. We are also exploring options for creating glass roses for next year.



## Intersociety Conference

On November 15 we took part in the Engineering Council Intersociety Conference. Kimberly Campbell, Michael Hu, and Jared Cooney met with representatives from other engineering societies on campus to discuss professional, social, and service events. The topics of discussion included how to keep members active in the society, how to balance working on an executive board with coursework, how to provide support for struggling colleagues, and how to promote general well-being in a society.

## Social

The Illinois Chapter held a number of social events this past year. One of the first was the September Back-to-School BBQ where we invited all students in Materials Science to join us for an afternoon of grilling, frisbee, volleyball, and good times at a local park. This event was heavily marketed at freshman introductory courses as a part of welcoming new students into the department and there was a good showing. In October we held a Tie Dye event as part of the freshman mentorship program. Despite the early fall chill, many students participated and made some radical clothing - someone even dyed a lab coat!



Later in October we co-hosted a trip to Curtis Orchard with Material Advantage. We spent the afternoon picking apples, enjoying hot cider, and taking funny pictures. As Halloween approached we held a pumpkin carving event which produced some very interesting and artistic results. Around the same time we also helped organize a Trivia Night as a part of the freshman mentorship program where mentor-mentee teams faced off answering trivia questions

about science, music, and history. As the fall semester came to a close we held a Game Night where students could unwind before Reading Day with video games and board games. In February we met up with OXE, the chemical engineering honors society, to play laser tag at a local arcade. We also participated in Engineering Week, a series of friendly competitions between teams from the various engineering societies around campus. Throughout the year MatSE Happy Hour is a weekly staple where students of all ages can enjoy age-appropriate beverages, talk, and decompress after a long week of work. We also held two Tours of Establishments, scheduled visits to various Campustown establishments: one in November and another in April. Custom shirts were designed, made, and sold before the event so that attendees could identify one another during the tours.

# Chapter Summary

The University of Illinois at Urbana-Champaign Keramos Chapter is flourishing with about 100 active members. As the Materials Science and Engineering Professional Society at our university, we are dedicated to enriching the academic and professional lives of all our members. We foster strong relationships throughout the college experience to create strong ties for alumni. We take great pride in our alumni relations and the opportunities they provide for our members. By offering a number of academic, professional, and service opportunities to our members we maintain a reputation of honor on campus.

The policy in our chapter is for members to attend monthly meetings in which we discuss opportunities and ask members what sorts of opportunities they would like to see in the coming month. We try to pair these general meetings with a social, academic, or professional development presentation or activity. The secretary of our chapter also sends out weekly email updates to inform members of upcoming events. These often include events and opportunities hosted by the other engineering honors and professional societies on campus. We have weekly Play with Clay sessions where members are encouraged to learn more about ceramics processing techniques. New initiates are required to attend at least 2 hours of these sessions to create their own ceramic article in addition to 4 hours of other Keramos-sponsored activities. We believe that our members will create lasting memories of the traditions of ceramics and improve their future academic and professional prospects.

The chapter holds a variety of professional and academic enhancement opportunities throughout the year. We keep a running list of company information sessions on campus so that members can seek information on companies in their area of interest. Personnel from Engineering Career Services have come to general meetings to present on best practices and do resume reviews for our members. We believe these professional events prepare our members for post-graduation opportunities.

# Keragram

This year has been a busy one for our Keramos Chapter. Much of our time in the fall semester was spent focussing on the newly resurrected freshman mentorship program. We hope that providing interesting and meaningful experiences for incoming students will help maintain the number of initiates that we induct each semester. As usual, the spring semester was dominated by preparing for Engineer Open House (EOH).

We had three exhibits at EOH this year: oobleck, geopolymers, and the mechanical properties of ceramics. Oobleck (a non-Newtonian mixture of corn starch and water) was a crowd favorite. We also provided a tour of our facilities for a group of middle school students from Peoria.

We wish to provide more professional opportunities and events throughout the year. In addition to professor lunches, we would like to host more events with alumni in industry.

We continued to hold weekly Play with Clay sessions in our basement with our brand-new throwing wheel. We have also been exploring new avenues with glass molding.

As always, we hosted a number of social events this year. We kept up the tradition of game night, which had a great turnout. In addition to video games, there was a strong showing in new and exotic board games. We also co-hosted a laser tag outing with OXE, the chemical engineering honors society, which was a lot of fun.

Finally, we have elected a new, more streamlined executive board! We have a lot of ideas for how to improve the chapter in the coming year and have confidence that the smaller board will have the agility to accomplish these goals.

