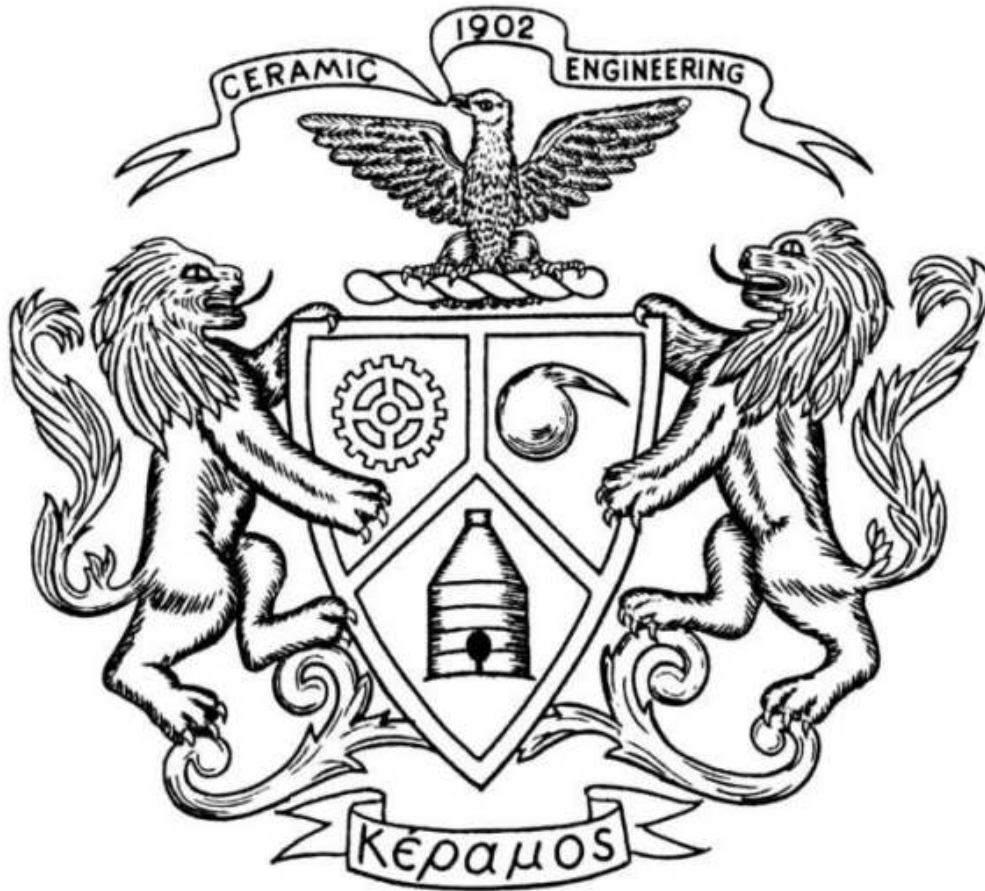


The Colorado Chapter of Keramos



2022-2023 Annual Report

Chapter Advisor Executive Summary

It's an amazing time to be at Mines as ceramics take hold and officially has been approved as a new major to be offered this upcoming fall. For Keramos, this not only brings along more opportunities but also more diversity and spotlight. As we reflect on this year past, a good word to sum everything up would be *transformation*. Ceramic engineering is changing the footprint of the Metallurgical & Materials Engineering Dept with three new faculty members joining with focuses in ceramics applied to impactful areas. This addition will also cement the department's strength in materials as the areas of metals & ceramics complement one another as powerhouses for all engineering fields. As we go deeper into the post-covid world, it's also great to see a return to in-person activities & field trips. Our students have had an active year from sweeping at the MS&T conference mug drop & aesthetic mug competitions, getting more involved in artistic ceramics with slab and pottery wheel workshops, and venturing out to learn about all things bricks from the Summit Brick Company field trip. As the spring semester draws to a close, the brainstorming and creativity is just ramping up as the mug drop team looks to defend the title in the fall, our rising seniors step into more leadership roles of inspiring the underclassmen to get involved in outreach and all things fun in ceramics, and the planning begins for new activities and field trips. One of the most satisfying parts of taking over as faculty advisor for Keramos and getting settled in as the teaching professor leading the three new ceramic engineering lab courses has been watching our students' enthusiasm and curiosity continuously grow. This has been an amazing year of growth and I cannot wait to see where the possibilities will take us.

Kimberly Scott

Keramos Faculty Advisor – Colorado Chapter

Keragram Summary Article

Of all the words to describe the past year, interesting is certainly one of them. The Colorado School of Mines Keramos chapter has continued to grow, and the start of a formal Ceramic Engineering undergraduate degree promises more exciting growth in the future. There has been renewed interest in Keramos from underclassmen, undergraduates, and faculty alike, and this has caused a surge of new ideas, from new social events to a drive for industry tours, and an overall enthusiasm for change.

We have maintained traditions such as Skeramos, and found new event opportunities such as Cheeramos, our new signature holiday event where members create custom ornaments from clay and bond with each other, much like the coalescence of particles during a kiln fire process. While diminished in frequency, lunch and learns are still a strong part of regular Keramos meetings, teaching students about diverse topics and the possibilities of ceramic engineering, with discussions including the frontiers of carbon capture technology (its bricks and glass which absorb carbon during weathering) and how to engage diverse audiences in technical materials topics – the knowledge and skills acquired within these talks will last a lifetime, and help our members no matter where the wide field of ceramics sweeps them. Collaborations with Materials Advantage have extended Keramos' reach in outreach events such as Discover and Explore Mines, as well as enabled Keramos to help with local events such as Mitchell Elementary's math and science night, where Keramos and Materials Advantage members were able to demonstrate key ceramics and materials science principles and examples and inspire the next generation of ceramists.

Finally the Colorado School of Mines Keramos chapter's flagship items, its pottery studio and glass shop have continued to be runaway successes, the artistic side of ceramics allowing CSM Keramos to attract and inspire new members and future ceramists. It was Keramos' equipment and the passion of students that allowed CSM Keramos to win both the artistic and dropping categories of this year's mug drop, and studio time and collaboration has been cited as a key reason of interest for prospective members. On the glass side, it is sales of pumpkins, flowers, birds, elephants, and more which provides key funding for Keramos events, and the Keramos-run course "The Art and Science of Glassblowing" is the most popular elective on Mines campus bar none.

This year has been a year of challenge, growth, setback, and opportunity. We look forward to continuation of a story of exploration, of new traditions, new events, and the sharing materials science and ceramics with engineers and scientists of all ages.

Aidan Ravnik

President

2022-2023

Annual Plan for the Upcoming Academic Year

This upcoming academic year will be a year focused on growth, connection, and impact. The Colorado School of Mines Keramos chapter has always prided itself on being a place where students can connect with other students interested in ceramics. We want to maintain this as our primary mission. To this end, in this upcoming school year we have started planning events that focus on bringing students together and participating in ceramics. Some of these events include a finals plate smash, where students can destress by smashing a plate of their design or play with clay events where students can enjoy each other's company. The re-emergence of Soda Lime Saturdays, a longstanding collaboration with the glass shop, is also expected once the shop is up and running again. These events provide an opportunity for students to connect with ceramics and each other.

Additionally, our chapter wants to increase our reach and impact. To accomplish this, we are planning on becoming much more involved with outreach events in our community. We will continue our longstanding collaboration with the Colorado School of Mines Materials Advantage Chapter to collectively work together to further the spread of ceramics and materials engineering. We also seek to improve our impact at home as well. With the recent addition of the ceramics engineering major, we have an incredible opportunity to grow both our chapter and ceramics.

The new ceramics major opens new doors for our chapter, providing us with new resources and capabilities. We plan to use these new resources to create new events for students to enjoy. One such event is recycled glass bottle slumping. This event will see students bringing in glass bottles and decorating them before they get slumped into bowls and trays. We also hope to send several students to MS&T to participate in the mug drop competition. Additionally, our chapter plans to take full advantage of the opportunities that the American Ceramics Society offers to connect students to internships and jobs.

As a chapter, the Colorado School of Mines Keramos chapter anticipates a year of new growth and new opportunities, of creating new and solidifying old connections, and of new ceramicists and friends.

Jack Dorsey

President

2023-2024

List of Officers

Outgoing Officers (2022-2023)

































Position	Name	Email	Address	Phone
President	Aidan Ravnik	[REDACTED]	[REDACTED]	[REDACTED]
Vice President	Brendan Engebretson	[REDACTED]	-	[REDACTED]
Treasurer	Gilly LeFevre	[REDACTED]	-	[REDACTED]
Secretary	TBD	TBD	TBD	TBD
Herald	Shannon Rogers	[REDACTED]	[REDACTED]	[REDACTED]
Glass Shop Manager	Alexa Rennert	[REDACTED]	[REDACTED]	[REDACTED]

Incoming Officers (2023-2024)

Position	Name	Email	Address	Phone
President	Jack Dorsey	[REDACTED]	[REDACTED]	[REDACTED]
Vice President	TBD	TBD	-	TBD
Treasurer	Scott Dahl	[REDACTED]	[REDACTED]	[REDACTED]
Secretary	TBD	TBD	TBD	TBD
Herald	TBD	TBD	TBD	TBD
Glass Shop Managers	TBD	TBD	TBD	TBD
	Alexa Rennert	[REDACTED]	[REDACTED]	[REDACTED]

List of Active Members

Name	Email	Initiation Date
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Aidan Ravnik		Spring 2021
Hayden Delius		Fall 2021
Melanie Torres		Fall 2021
Tatum David		Fall 2021
Amber Lively		Fall 2021
Daniel Moreno		Fall 2021
Alex Hopkins		Fall 2021
Addison Wong		Spring 2018
Mitchell Lensing		Fall 2021
Brendan Engebretson		Fall 2021
Jack Dorsey		Fall 2021
Larissa Pelleteris		Fall 2021
Jessica Stanfel		Fall 2021
Lydia Hines		Fall 2021
Andrew Lesuer		Fall 2021
Caleb Schenck		Fall 2021
Alexa Rennert		Spring 2021
Shannon Rogers		April 2018
Gillian Lefevre		Spring 2021
Allison Perna		Spring 2022
Claire Vozel		Spring 2022
Sam Ware		Spring 2022
Michaela Vail*		Fall 2022
Jaime Gonzalez*		Fall 2022
Nate Bernstein*		Fall 2022
Rachel Chase*		Fall 2022
Pandora Picariello*		Fall 2022
Andrew Smith*		Fall 2022
Chris Currie*		Fall 2022
Anya Mulligan*		Fall 2022
Scott Dahl*		Fall 2022
Jack Burnham*		Fall 2022

Leah Wenzel*	[REDACTED]	Fall 2022
Claire Kelleher*	[REDACTED]	Fall 2022
Peter Vos*	[REDACTED]	Fall 2022

* new initiate

Active Graduate Members

Name	Initiation Date	Email	Phone Number
Shannon Rogers	April 2018 (Alfred University)	[REDACTED]	[REDACTED]
Allison Perna	Spring 2022	[REDACTED]	-
Pandora Picariello	Fall 2022	[REDACTED]	-

Active Faculty Members

Name	Initiation Date	Email	Phone Number
Sarah Harling	Fall 2021	[REDACTED]	[REDACTED]
Geoff Brennecka	Fall 1997	[REDACTED]	[REDACTED]
Brian Gorman	Fall 1993	[REDACTED]	[REDACTED]
Allison Caster	Spring 2020	[REDACTED]	[REDACTED]
Gerald Bourne	Fall 2017	[REDACTED]	[REDACTED]
Kim Scott	Fall 2022	[REDACTED]	[REDACTED]

Initiation

Our chapter initiated 13 new members for the 2022-2023 academic year, honoring Keramos tradition even as our chapter continues to grow.

Graduating Members

Graduating Members

Name	Graduation Date	Email
Aidan Ravnik	May 2023	[Redacted]
Hayden Delius	May 2023	[Redacted]
Melanie Torres	May 2023	[Redacted]
Tatum David	May 2023	[Redacted]
Daniel Moreno	May 2023	[Redacted]
Alex Hopkins	May 2023	[Redacted]
Mitchell Lensing	May 2023	[Redacted]
Brendan Engebretson	May 2023	[Redacted]
Andrew Lesuer	May 2023	[Redacted]
Caleb Schenck	May 2023	[Redacted]
Alexa Rennert	May 2023	[Redacted]
Gillian Lefevre	May 2023	[Redacted]
Allison Perna	May 2023	[Redacted]
Claire Vozel	May 2023	[Redacted]
Sam Ware	May 2023	[Redacted]
Jaime Gonzalez	May 2023	[Redacted]
Anya Mulligan	May 2023	[Redacted]
Leah Wenzel	December 2023	[Redacted]

*Mines email addresses remain valid for one year post graduation

Honorary Member

It is with great enthusiasm that the Colorado School of Mines Keramos Chapter would like to nominate Amanda Bellafatto (bellafatto@mines.edu) as their honorary member during the 2022-2023 school year. Amanda's work as a master's student at Drexel University and now a PhD candidate in the lab of Dr. Ivar Reimanis have contributed to a modern understanding of the mechanical behavior of glasses and composites, especially relevant as modern engineering calls for lighter, stronger, and tougher transparent materials at cost.

Amanda attended Drexel University for her bachelor's in Materials Science and Engineering and her master's in Mechanical Engineering. At Drexel, Amanda developed a strong interest in the mechanical properties of and evolution of stress in composites and glass, and after defending her master's thesis on the toughening mechanisms of DGEBA composite epoxy, Amanda joined the Colorado School of Mines in the Materials Science PhD program. Amanda will be defending her PhD shortly, where she has investigated stress field evolution in glasses as they are indented, as well as failure mechanism and fracture progression of various glasses under Ivar Reimanis. When Amanda is not advancing human understanding of ceramic mechanical properties, she is gardening, cooking, and giving affection to her incredible dog, Bert.

The Keramos Chapter at Colorado School of Mines believes that inducting Amanda would be a benefit to our chapter and the national organization. Her continuing work in understanding the complex mechanical behavior of glasses and composites has growing relevance to the materials challenges of the future, which should be recognized by both the Colorado School of Mines and Keramos at large.



Treasurer's Report

The Colorado School of Mines Keramos' chapter organized both funds Keramos and the Hot Shop during the 2022 - 2023 academic year. Coming out of the pandemic, Keramos branched out into running a pottery club that functioned as an opportunity to expose students and faculty in other departments to ceramic engineering while partaking in throwing lessons. While Keramos manages the Hot Shop funds, sales made by Keramos and the Hot Shop went into only their relative fund indexes. Keramos initiation dues and fundraising for the 2021-2022 academic year amounted to \$20.00, but a grant was acquired to purchase two *Shimpo* VL-Whisper pottery wheels amounting to \$3,296.

Dues were collected by students during initiation and deposited into the student activities account. Throughout the academic year, the hot glass shop held multiple sales that were very successful, most prominently the pumpkin sale. All of the funds made through the official glass shop sales were deposited into the student activities account through SAIL as they were of fundraising nature. These funds were then used to facilitate our new series of lunch and learns, social events such as our game night, and plan initiation. Throughout the year, the glass shop required a few purchases to maintain equipment and replace broken tools, including a large purchase of a new element for the melter when it went down. Additionally, a grant has been submitted to purchase an entirely new melter, though the outcome of this is unknown. These purchases were in addition to the typical expenses of the glass shop including the purchases of clear glass, colored frit, and typical maintenance. Efforts this year to create a pottery studio on campus have lead to many purchases, including clay, glazes, wheels, and other miscellaneous equipment. The pottery studio has started to hold off-campus fundraisers for their creations, which will go directly into the hot shop account, as it is not directly affiliated with the university.

Chapter Activities

Educational Outreach

Despite challenges encountered over the course of the year due to school and public gathering requirements, the Colorado Keramos chapter was able to continue completing outreach activities to engage and encourage future generations towards materials science and ceramic engineering.

Discover & Celebration of Mines

Keramos partnered with the Colorado School of Mines Materials Advantage Chapter to host booths at the Discover Mines and Celebration of Mines events. At Discover Mines, hundreds of students from all over the country visited Mines to learn about the majors and clubs offered. Keramos represented ceramics and materials at Mines through a table where Keramos members discussed their work in the glass shop, pottery, and undergraduate research. Members additionally demonstrated engineered ceramic properties with piezoelectric pellets and a ZTA armor plate. The Celebration of Mines event has similar demonstrations, but with an eye towards attracting current Mines students to joining Keramos.

Mitchell Elementary Math and Science Night

This fall Keramos worked with the Colorado School of Mines Materials Advantage Chapter (CSMMAC) to demonstrate materials science concepts and introduce children to the scientific method through a series of exhibitions at Mitchell Elementary in Golden. Math and Science Night is intended to introduce young students to science as a field and build enthusiasm from an early age. The event saw diverse demonstrations such as shape memory effects, piezoelectrics, and the breaking of prince rupert's drops, and was extremely well received by students, parents, and teachers alike.

Professional Development

Lunch and Learns

Keramos has continued offering semi-regular lunch and learn lecture sessions on various topics relevant to ceramics and science as a whole. These lunch and learns included talks from professors, graduate students, and industry professionals. The lectures were typically technical in nature, with diverse topics including carbon capturing bricks, and advanced magnetism development. Non-technical talks included resume review options and a workshop on effectively communicating and engaging non-technical audiences in materials topics. These lectures were intended to expose students to the extreme variety of work present in ceramic engineering, and to

connect students with potential employers and research opportunities. Especially at a metallurgy focused school like the Colorado School of Mines, it can be tough to find ceramics opportunities and experience the breadth of the ceramics world, which the lunch and learn series has helped students overcome.



LAKEWOOD
BRICK & TILE COMPANY

Brick Factory Tour

Summit Brick Company is a large business which owns an enormous producer of custom bricks and tiles just down the road from the Colorado School of Mines in Lakewood. As the single most common ceramic product, it is always useful information for a ceramist to understand their production, and see the variety of processes and process controls which enable modern architecture. Members worked with faculty member Dr. Brian Gorman for a guided tour of the factory and operations, letting students see what life as a ceramist may be like, and informing their career choices, while also promoting further knowledge and connection to the broader ceramics industry.

Service to Ceramics Community

Glass Shop Management

The glass shop has experienced many trials these semesters, stemming from problems with the melter and difficulties in attracting new managers.

However, the glass shop continues to support ceramics artistically, and with fundraisers. Both the fall and spring semesters saw completely full registration for the Art & Science of Glassblowing class, with slots chosen by lottery. Open shop times have been maintained as a key element of the glassblowing program, and has allowed for the growth of many students as artists and a promotion of ceramics as a technical and artistic medium. There has been increasing outreach to local artists, with several glassworkers coming and giving demonstrations at Mines to the class. Many of these opportunities and other work in the shop were featured on the glass shop instagram, @happylittleglassshop.



Soda Lime Saturdays

Soda Lime Saturdays (SLS) have continued into the coming year, and have seen particular popularity with outreach events such as friends and family weekend. Sign up slots are consistently and completely filled, even when many SLS's are restricted to particular groups such as the Society of Women in Engineering (SWE) and the Colorado School of Mines Material Advantage Chapter (CSMMAC).

Glass Shop Sales

This year the glass shop held two major sales, including the flagship pumpkin sale in the fall semester, and an Earth Day sale featuring various animals such as peacocks, elephants, cats, and pigs, as well as an enormous flower patch. The proceeds from these sales allow the glass shop and Keramos as a whole to operate other events such as Skeramos.

Pottery Studio

The Keramos pottery studio is currently in full operation, with members regularly creating items for both technical and artistic appreciation as part of our regular 'Studio Nites'. These studio nights have been key components in member retention and activity. The slip casting materials for the pottery studio were utilized in creating the winning mugs and MS&T, and in creating ceramic hearts for a Valentines Day sale. Contributions from faculty have added new equipment to the studio, such as furnaces for glass slumping, glass casting, and tempered glass creation, further increasing the range of ceramics we can create and learn about.



Alumni Engagement

Several Keramos alumni currently attend the Colorado School of Mines for graduate school and work as professors. As the Colorado School of Mines Keramos chapter's alumni network continues to grow, Keramos has reached out to these alumni to speak at Lunch and Learns, and hopes to continue this in the future, especially as alumni become more able to provide professional opportunities through internships.

Participation at Annual Convocation and Business Meeting

Our president and another member attended the annual convocation and business meeting in Pittsburg at the MS&T conference. This allowed the chapter the opportunity to formally meet with other chapters in attendance to discuss bylaws, updates from each chapter, and other orders of business. Later in the conference, Keramos submitted two mugs to the mug drop competition, where Mitchell Lensing's mugs won both the aesthetic mug category and the overall mug drop! Keramos looks forwards to attending next semester's meeting, and based upon recent changes in mug drop rules, is already working on the next mug, with which we hope to continue our win streak.



Social Events

Skeramos

Continuing a long tradition of enthusiastic Halloween celebrations and puns, Keramos hosted Skeramos for the fourth straight year! In conjunction with materials advantage members, participants brought potluck foods and desserts, showed off their costumes in a costume contest, played card games, and watched *The Nightmare Before Christmas*. As always, Skeramos was a highlight of the semester and a needed destressing event for our members.



Cheeramos

To celebrate making it through another tough semester, Keramos started a new tradition, Cheeramos! After initiating new members, attendees drank homemade hot chocolate, socialized, and glazed custom clay ornaments for use in their own holiday celebrations, building new bonds of fellowship that will last a lifetime.



Conclusion

The 2022-2023 academic year has seen many changes in the Colorado School of Mines Keramos chapter. The chapter has continued to grow, and new engagement from faculty and new members promises new expansion in events, new perspectives in what topics we consider and how we share ceramics with each other, campus, and the world. Moving forward we want to engage a diverse group of people from all backgrounds and get them interested in ceramics. We want to grow and create new social events that anyone can get involved in. In the coming school year we will focus on creating a large number of social events and activities and continue our current traditions, like Skeramos and Soda Lime Saturdays. Our hope is that these social events will grow ceramics at our school but also provide a place for our new ceramics major to grow. With the creation of a new Ceramic Engineering degree at the Colorado School of Mines, the chapter aims to provide professional development opportunities for these students to connect them to the ceramic industry. Continued participation in the mug drop competition at MS&T will also provide an excellent opportunity for these students and the broader student body to get hands on experience with ceramic engineering.