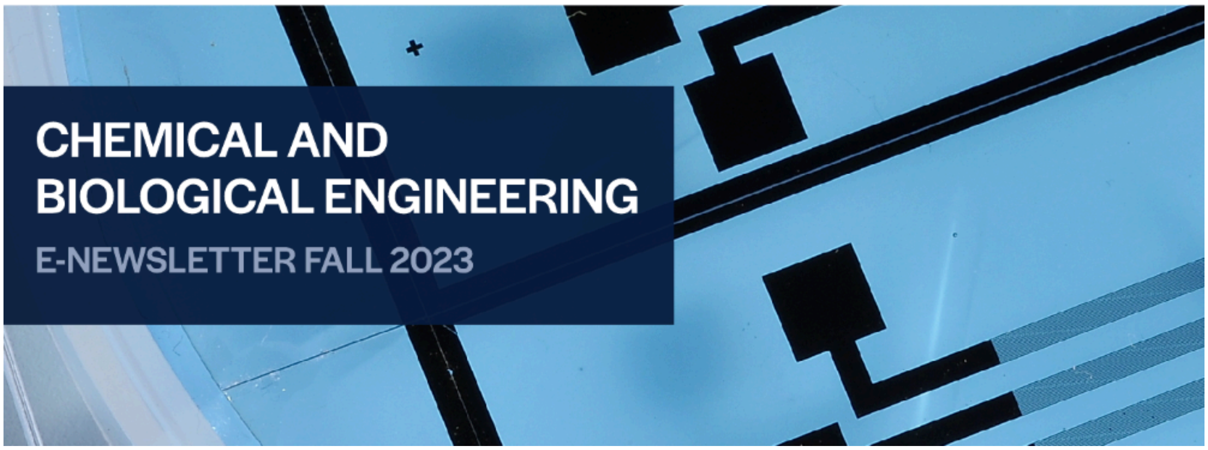
COLORADO SCHOOL OF MINES



CHEMENG.MINES.EDU

FROM THE TOP

Dear Friends & Supporters of CBE,

I am delighted to bring you the latest news from the Chemical & Biological Engineering Department at Colorado School of Mines. This newsletter is brimming with exciting updates, accolades, and advancements within our department, highlighting the exceptional work being carried out by our dedicated faculty, talented students, and accomplished alumni.

I am Nanette Boyle, an associate professor of chemical & Biological engineering and the new interim department head. I started my career at Mines in 2013 as an assistant professor and have benefitted greatly from the guidance and support of my colleagues. Now is my turn to try to give back. I am looking forward to leading our department through the next year as we search for a new department head.

This newsletter is filled with remarkable faculty achievements, such as Tracy Gardner being named a University Distinguished Teaching Professor, Matthew Crane was awarded a National Science Foundation grant for Quantum

company, GelSana Therapeutics. Our esteemed faculty members have been making significant contributions in research, education, and industry, further solidifying our department's reputation as a leader in chemical and biological engineering.

Additionally, we celebrate the success of our outstanding students and alumni, including those who have been recognized with prestigious awards and fellowships, such as the ARCS Scholarship and Forbes 30 Under 30 list.

The dedication, innovation, and passion of our community continue to be a source of pride for the Chemical and Biological Engineering Department. We invite you to explore the newsletter to learn more about the remarkable individuals and research that make our department shine. Thank you for your ongoing support, and please feel free to share this newsletter with a friend to help spread the word about the exciting developments happening in our department.

Warm regards,

Nanette

TOP STORIES

Matthew Crane, assistant professor in the CBE department, was awarded **35 under 35 award** in Materials and Chemistry from the American Institute of Chemical Engineers (**AIChE**).

Congratulations Matthew!

Read the full story here >>

CBE's Tracy Gardner named a University Distinguished Teaching Professor!

Tracy Gardner (second from left) was granted the title of University Distinguished Teaching Professor. This honor is granted to those who have brought recognition to Mines through the impact of their work. We are thrilled to have her in our department!

grant from the National Science Foundation!

The grant covers research on Quantum Manufacturing: Developing a Deterministic, 3D Printer for Quantum Defects.

Read more about the grant here >>

Melissa Kreb's GelSana was a top 10 finalist in the Coolest Thing Made in Colorado competition for their hydrogel wound dressing, Cleragel.

Melissa Krebs, associate professor of chemical and biological engineering, is the founder and CEO of GelSana and developed the technology right here at Mines! GelSana Therapeutics’ Cleragel is a novel technology that improves wound healing for diabetic ulcers and other wounds. The highly elastic hydrogel system offers unique wound healing properties that can stretch and conform across any wound, accelerate wound closure, generate strong epidermal layers post healing, and enable controlled delivery of therapeutics to benefit chronic wounds. Learn more about GelSana >>

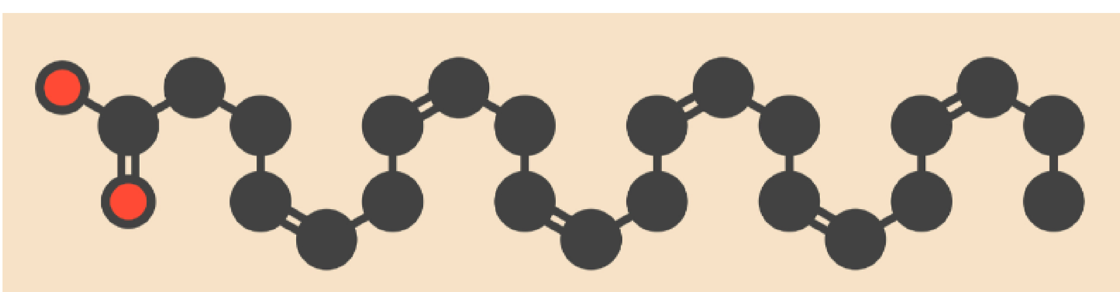
students on their awards!

Juniors:
Kagan Killough
Omar Mansurov
Seniors:
Leah Bandy
Gordon Huang

FACULTY NEWS

Nanette Boyle named CBE Interim Department Head

We are thrilled to have her in the department office, leading our trusty team while a search is done for the next DH.



Mines team creating hydrogen membranes for use in nuclear fusion power plants

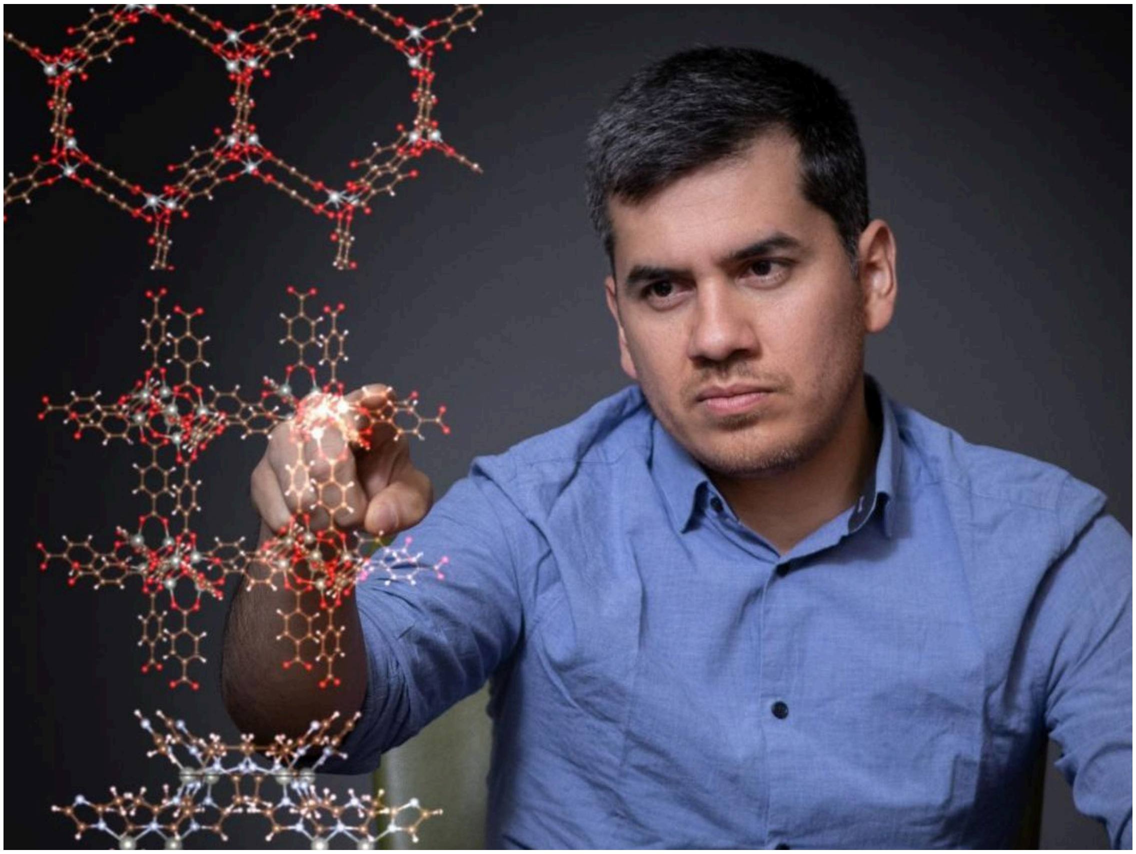
project began in January 2021 and might be a key part in making fusion a realistic source of clean energy in the future. The focus is not on the fusion process itself, but on generating and purifying the hydrogen isotopes that are the fuel for a fusion reactor.

Read more about the project here >>

Colin Wolden was also awarded $1M grant from DOE to advance low-cost hydrogen delivery systems. On September 20, 2023, the U.S. Department of Energy (DOE) announced more than $47 million in funding for 16 projects across 13 states to accelerate the research, development, and demonstration of affordable clean hydrogen technologies. Projects funded under this opportunity will focus on lowering technology costs, enhancing hydrogen infrastructure, and improving the performance of hydrogen fuel cells—supporting DOE's efforts to reduce costs and enable commercial-scale deployment of clean hydrogen

Dr. Anuj Chauhan's research group received an R01 award from the National Institutes of Health (NIH).

The project is titled ***"Back of the eye delivery: novel contact lenses, pathways, and in-silico modeling"***. This project has the potential to revolutionize drug delivery to the back of the eyes by replacing the invasive intravitreal injections with novel contact lenses. It has significant translational



Diego Gomez-Gualdrón, associate professor of chemical and biological engineering, is using machine-learning models and advanced computation to accelerate findings in material science.. And it's emblematic of research underway at the National Science Foundation's Institute for Data-Driven Dynamical Design (ID4), housed at Mines, which aims to accelerate findings in material science by harnessing artificial intelligence.

Gomez-Gualdrón's work on nanosponges — which can be made of materials known as metal organic frameworks — centers on their porous nature, just like the sponge in your kitchen. But nanosponges can be formulated to attract specific molecules while leaving others behind.

Read more about this research here >>

Faculty promotions, awards and honors

a **Society of Petroleum Engineers international award recipient** for her outstanding contributions to the petroleum industry! She was awarded the Projects, Facilities, and Construction Award.

Congratulations Carolyn!

Ramya Kumar was awarded an **Exploratory/ Developmental Research Grant Award** from the NIH National Institute of Biomedical Imaging and Bioengineering (in collaboration with col Prof. Luis G. Villa-Diaz at Oakland University). Her proposal focused on unravelling how glycocalyx-mimetic cell culture coatings impact the expansion and genetic modification of mesenchymal stem/signaling cells.

Justin Shaffer was awarded the **Fryrear Chair for 2023-2026**. He will be working on promoting discipline-based education research (DBER) by offering workshops, faculty learning communities, and a yearly symposium.

Anuj Chauhan was recently appointed to the Editorial Boards of two journals: **Expert Opinion on Drug Delivery** and **Journal of Ocular Pharmacology and Therapeutics**.

More faculty news »

Joining the CBE department office alongside Office Manager Carrie Artman and Department Manager Katie Hurley, our new Program Assistant Laura Ragsdale will be assisting with student facing contracts, student hiring, and department programs.

STUDENT NEWS

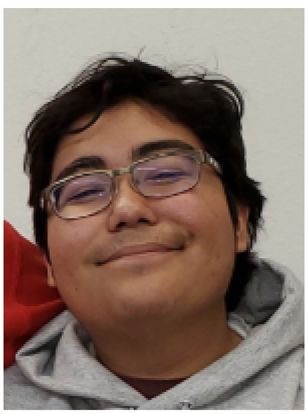
have been named 2023 recipients of the ARCS Scholarship. The ARCS Foundation advances science and technology in the United States by providing financial awards to academically outstanding STEM students.

Breanna Hayes

- Senior in Chemical Engineering
- Received ARCS last year as well

Katelyn Aasman

- Sophomore in Chemical Engineering
- Has been a FIRST, MURF, and SURF scholar



Marco Salgado

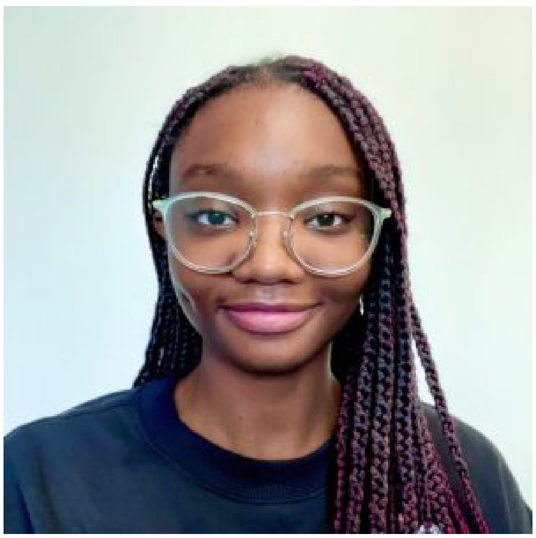
- Sophomore in Chemical Engineering
- Has been a FIRST, MURF, and SURF scholar

Manasi Vyas, a Ph.D. student in Professor Stephanie Kwon's research group has been awarded the ***DOE Office of Science Graduate Student Research Award.***

Congrats Manasi!

Brandon Reynolds, a graduate student working with Dr. Matthew Crane, was ***awarded a fellowship through the ID4 (Institute for Data Driven Dynamical Design) Center.***

Congrats Brandon!



Congratulations to the 2023 Fall Undergraduate Research Symposium poster winners!

First place went to QBE senior **Praise Olusoji**, mentored by CBE professor **Melissa Krebs** and Doctoral student **Bikram Adhikari**

Praise's poster was titled *Alginate/Chitosan hydrogels with Sustained Release of MAPK14-Targeting siRNA Knock Down Osteogenesis of hMSCs In Vitro*

Dirk Steyn, a PhD student working with Dr. Sumit Agarwal, won the ***"Best Student Presentation Award" in the area of "Characterization Methods" at the 50^{th} IEEE Photovoltaics Specialist Conference*** held in San Juan, PR, in June 2023.

Congrats Dirk!

The Chemical Engineering Graduate Association (CEGA) Welcome Back Mixer was a success!

In our first Quantitative Biosciences and Engineering field session, students explore what lives deep below ground. The interdisciplinary undergraduate program traveled to Edgar Experimental Mine to learn about underground biosphere. "The goal of our QBE field session was to investigate biological solutions for addressing plastic waste and recycling," said **Justin Shaffer**, teaching professor of chemical and biological engineering. "We did that through two projects: 1) by looking for new microbes in water and soil samples and 2) by engineering enzymes that have greater abilities to break down plastics. We are so proud of our 42 QBE students who successfully completed both projects in an action-packed three-week field session." Read more on this story >>

ALUMNI HIGHLIGHTS

Recent alum Dr. Rok Sitar was awarded a prestigious Activate Anywhere Fellowship, providing him with $400K in funding to help launch the Mines based startup Blaze Energy Technologies. His mission is to address the decarbonization of heavy industry and commercial transport by advancing ammonia as a zero-carbon alternative to fossil fuels.

Recent alum Dr. Zhenyu Zhang named to 2023 Forbes 30 under 30 list in the Energy category!

At AmmPower, Zhang is developing the world's first decentralized and electrified ammonia production unit, which uses renewable electricity, air, and water to produce green ammonia that can serve as a hydrogen carrier, carbon-free fertilizer, fuel or nitriding chemicals in the semiconductor industry. AmmPower is backed by $3 million in funding, and a prototype of commercial units for hydrogen fueling station applications is scheduled for construction in summer 2023.

Mines CBE alumnus Gabriel Adriano ('20) received an NSF Graduate Research Fellowship this year.

Mines CBE alumna Julie DuClose ('20) received an NSF Graduate Research Fellowship this year.

SUPPORT CHEMICAL & BIOLOGICAL ENGINEERING

We'd love to reconnect with alumni! Send us an email with your news and updates at CBE@mines.edu.

MINES@150 and #idigmines campaigns or through separate donations. A gift to the Colorado School of Mines Department of Chemical and Biological Engineering is an investment in the future. To learn more about supporting the department, contact the Mines Foundation.

Support CBE

THANK YOU TO OUR DONORS!

VIEW THIS NEWSLETTER AS A WEB PAGE

MINES.EDU

Forward this email to a friend