



# c&peNEWS

Chemical and Petroleum Engineering Newsletter

Friday, November 13, 2020



KU DEPARTMENT OF CHEMICAL &  
PETROLEUM ENGINEERING

## *Fall 2020 AIChE Events*

 Sunday, November 15th | 9:00 - 4:00PM (PST)

AIChE / ASC Student Recruitment Fair [\[attendee guide\]](#)

 Wednesday, November 18 | 3:00 - 5:00PM (PST)

AIChE Reception with 4 breakout rooms [\[conference schedule\]](#)

- Alumni

- Grad School Q&A

- REU Q&A

- Faculty Search

Two faculty positions (tenure track assistant professor and assistant teaching professor)

Learn more about the department @ [cpe.ku.edu](http://cpe.ku.edu) | Link to Faculty Position Postings @ [jobs.ku.edu](http://jobs.ku.edu)



## ***Join Us!***

We are holding a Virtual Reception during the AIChE conference -  
Wednesday, November 18th from 5:00pm - 7:00pm (CST) / 3:00pm - 5:00pm (PST)

## ***Find Us!***

Each day of the conference, between Nov 16th - 20th, we have half a dozen posters or presenters. Click the image above for a full list.

[Link to AIChE Conference Login](#)

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## ***FACULTY SPOTLIGHT***

### **Brandon DeKosky joins American Lung Association COVID-19 Action Initiative**



"As the COVID-19 pandemic reached the United States, the American Lung Association announced the COVID-19 Action Initiative, designed to accelerate the search for COVID-19 solutions. Through this initiative, the organization announced a new research award, immediately expanded its existing research clinical trial infrastructure to include COVID-19 research and placed an urgent call for applications for the most promising research studies on COVID-19. Today, the American Lung Association announced the 12 new COVID-19 research award recipients.

The awardees for the inaugural COVID-19 and Respiratory Virus Research Award are funded at \$100,000 a year for two years. This award explores important avenues to find better treatments to reduce the burden we have experienced due this virus.

***We wish Dr. DeKosky and the team all the best as they work to develop solutions to this crazy pandemic!***

[Click here for full press release](#)

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## **Kevin Leonard Named Recipient of the 2020 John E. Sharp and Winifred E. Sharp Teaching Professorship**



It gives us great pleasure to announce that *Associate Professor Kevin Leonard* is the recipient of the 2020 John E. Sharp and Winifred E. Sharp Teaching Professorship. About his selection, the committee stated, "Professor Leonard's proven excellence and innovations in the classroom, in required undergraduate as well as graduate courses, were deciding factors for the committee. The comments from his former students and his teaching reviews were outstanding. His reimagining of courses to include modern software and other tools show, with the assistance of this three-year Sharp Teaching Professorship, that he will continue to be an educational leader in the department and the School for many years to come."

We are sure this announcement comes as no surprise to the many students who have learned so much from Prof. Leonard over the years. We thank him for his sincere dedication to the education of our future engineers.

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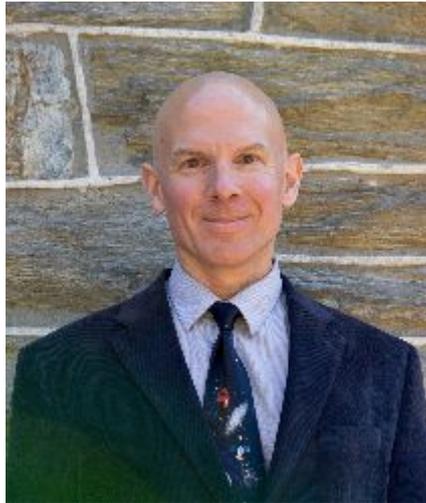
# New Department Welcome Video

(Click image to play)

## CHEMICAL & PETROLEUM ENGINEERING DEPARTMENT WELCOME TO KU



### **KU JOINS INDUSTRY PARTNERS TO ADVANCE GAS-SEPARATION WITH GREEN MATERIALS FIRST CREATED FOR SODA BOTTLES**



LAWRENCE — A \$1 million, 18-month collaboration between the University of Kansas School of Engineering and the RAPID Manufacturing Institute for Process Intensification launched in 2017 by the American Institute of Chemical Engineers will develop technology to separate gas using renewable, high-performance furanic-based polymers that were originally developed for replacing PET-based soda bottles. The research is supported by a new \$384,927 grant from the Department of Energy (DOE) and includes collaborations with [DuPont](#), [Hills Inc.](#) and [Air Products](#).

The investigation at KU, dubbed “Project H22020,” could result in membranes that reduce capital costs by a factor of 10 and increase hydrogen recovery by 20% while reducing both waste and the cost of separation by 20%. Such a breakthrough would be a boon to companies that refine oil and produce hydrogen fuel cells, replacing gas-separation technology used today made from materials developed in the 1970s and 1980s.

“These are furanic-based polymer membranes — it’s a new material that the DuPont Company is commercializing,” said Mark Shiflett, Foundation Distinguished Professor at the KU School of Engineering, who is leading the work. “Think of it as a new plastic. The ultimate reason that they’re making it is as a replacement for PET, the plastic that’s used to produce most beverage bottles. So, when you buy a two-liter Coke or liter of water, the bottle is made out of PET (polyethylene terephthalate) that ultimately comes from petroleum. These furanic-based polymers will replace PET to manufacture what are basically green water and soda bottles. These furanic-based polymers don’t come from petroleum but natural starting materials like fructose.”

The KU researcher said furanic polymers are an ideal material to use for industrial gas separation because they’re largely impermeable to larger gas molecules.

[Read Full Press Release](#)

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### **Prajna Dhar highlighted in School of Engineering Newsletter**

This month Dr. Molly McVey was pleased to highlight a few of our awesome Engineering faculty and share how they have adapted to this semester and how things are going. From our department, Prajna Dhar was featured (see below). Dr. McVey said that if you are a faculty member who would like to join the MS Teams group for Engineering Flex Teaching Support, [sign up here](#). Also feel free to email her ([mollymcy@ku.edu](mailto:mollymcy@ku.edu)) or [schedule](#) a consultation for teaching support!



Class and Format: C&PE 211, Material and Energy Balances, 103 students.

Course is taught using cohort hybrid model- lectures and worked out problems are posted for review asynchronously, while the class time is used for active learning. Students may come to class once per

week to ask questions facilitated by their GTAs during active learning, online twice per week in addition to an online calculations lab. Students not in-person attend a synchronous Zoom session that is facilitated by the instructor on all three days.

Technology: Zoom, Blackboard, Teams, Gradescope

Changes to the Course: I turned each topic of the course into a module containing a 10-15 minute lecture video, a very detailed example problem, in-class problems, and homework problems. I created an infographic for each week that reminds students what needs to be done for each topic, and when it is due. I now use Teams for small group meetings and problem solving, use Zoom to facilitate the online portion of students, and hold office hours via Zoom or Teams. I also use Gradescope now for homework problems and exams. I am spending more contact hours with students than during a normal semester. In previous years, students were not required to watch the lecture videos before class, and the in-class problems were not graded. A Normal Week from the Student's Perspective: Prior to coming to class (in-person or online), students much watch a 10-15 minute lecture video and review a worked out example problem. In class, I take questions on the content of the video and example for the first 10-15 minutes, do a readiness assessment quiz via Zoom poll, and then students work on an in-class problem that must be turned in within 24 hours. The problem is turned in and graded via Gradescope. Finally, the "calculations lab" is an online meeting each week where I work through longer calculations/problems. Students may watch this as an example of how I would think through and solve more involved problems before they start work on their homework problems for the topics discussed in the Calculation Lab.

Bright Spots: Several students have reached out, unsolicited, to offer thanks and appreciation for the work that I am doing to facilitate their learning in this environment. Students have emailed me or dropped in to online office hours just to tell me that it is clear I care and want them to learn.

Challenges: Motivating students to make sure they are keeping up with the material while making sure their mental health is taken care of, and they are not overwhelmed is a challenge. More generally, I also think there needs to be more communication with students and their parents about the "value" of the education that is being provided in this environment. I think it needs to be clear to students that often what we are offering them in this online or hybrid environment is not a commodity and something they can just go and get elsewhere. They are often getting MORE contact time with us, and more effort and focus is going into teaching than ever before. So it bothers me when I hear criticism about the "value" students or parents are getting, and I think it should be communicated more clearly. Something you've Learned this Summer/Fall: I am still making good progress on my research by carving out time each day to work on it even though teaching is overwhelming. Unfortunately, this is coming at the expense of self-care and family time. I've learned that I can still succeed at all that is being asked of me but it is coming at a price to me, personally.



## **STUDENT SPOTLIGHT**



### Adrian Romero wins ExCEL Award

Romero, a senior in chemical engineering with an environmental emphasis, is vice president of student outreach for the Engineering Student Council and a regional student representative for the Society of Hispanic Professional Engineers. He participates in the University Honors Program and has been a resident assistant for KU Student Housing since 2018. He is an undergraduate research assistant in water sustainability and resource recovery, and he helps perform COVID-19 testing in wastewater samples in Douglas and Johnson counties. He was an engineering student senator and a student assistant in the Office of International Admissions. He interned in the water technology group at Black & Veatch in summer 2020 and participated in a summer research project at West Virginia University in 2019. He is an IHAWKe Exceptional Scholar and was named a Student Housing Staff Member of the Year in 2019.

Read more about this award and the other winners [by clicking here.](#)

Read his University Honors profile [by clicking here.](#)



### Student Marah Shulda Selected as a 2020 Global Scholar

The department is thrilled to announce that **Marah Shulda** (pictured above), Sophomore in Chemical Engineering, has been selected as a 2020 Global Scholar. The university program is designed to provide students with an exciting opportunity to address an important topic in contemporary society. Scholars in the program will also be connected with a faculty mentor who will help develop their academic interests and can connect them to opportunities for research and community involvement. Learn more about the scholarship by [clicking here.](#)

Alongside her studies, Marah is involved in the Marching Jayhawks, Alpha Delta Pi sorority, iHAWKE, Society of Women engineers, and is a weekly volunteer at the Lawrence Community Shelter. She is from Shawnee, KS and attended Mill Valley High School. Marah is very excited for the opportunities that come with this accomplishment and is very thankful for the great mentors that she has had thus far.

***Congratulations, Marah and Adrian!***



## Safety Seminar

Reminder about the CPE department will be holding a monthly safety meeting on the 3rd

Wednesday of each month from 9 - 10 AM in the Beren Center in Slawson Hall. The next one is scheduled for Wednesday, November 18th.

Zoom Meeting Details

Meeting ID: 915 3822 6380

Passcode: 264403

<https://kansas.zoom.us/j/91538226380>



**HELPFUL LINKS**

Assistance with learning/teaching remotely @ [Remote Learning Resources](#)

Stay up-to-date with all department news @ [CPE News page](#)

Learn about active research programs @ [CPE Research](#)

Commonly needed [Engineering Forms](#)

Find campus-wide events @ [KU Calendar](#)



We hope you're having a safe and productive Fall semester!

Please wear a mask and help protect others.



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Rock Chalk  
Jayhawk