



# C&PE NEWS

## Chemical and Petroleum Engineering Newsletter

News from C&PE | Upcoming Events | New Publications | Quote of the Month

February 2nd, 2018

### Welcome to Our New Faculty Members



Please join us in welcoming our two new faculty members who joined the CPE Department in January 2018

**Jennifer Robinson** (left) came to us after completing postdoctoral training at Columbia University. She received her PhD in Biomedical Engineering from Texas A&M University. Dr. Robinson's lab focuses on soft-to-hard tissue engineering, etiologies of sex differences in musculoskeletal tissue, and the development of sex- and age-dependent biomaterials.

Research interests include: Hormonal effects on musculoskeletal tissue, Drug delivery, and Polymeric scaffolds for tissue engineering

**Mei He** (right) did her post-doctoral research at University of California, Berkeley in Bioengineering Department. She worked with Center of Integrated Nanomechanical Systems (COINS) and California Institute for Quantitative Bioscience (QB3) to address engineering innovation for analysis of complex biological systems.

Research Interests include: Point-of-Care Biomedical Devices, Translational Challenges in Biotechnology, Diagnostics, and Therapeutics, Biotechnology Integration and Automation for Biomarker Discovery, Micro- and Nano-biotechnology for Personalized Cancer Medicine, and Functional Biomaterials Development and Characterization

### In Other News

#### Mark Shiflett's collaboration featured in the *AIChE Journal*

The title of the related article is "The Solubility of Gases in Ionic Liquids," and this is Volume 63, No. 11 of the *AIChE Journal*. The co-author on the article is one of Dr. Shiflett's collaborators, **Edward Maginn**, Dorini Family Professor of Energy Studies and Chair of the Department of Chemical and Biomolecular Engineering at Notre Dame University. They also designed the cover of the issue (right) with the assistance of Kristina David from Notre Dame.

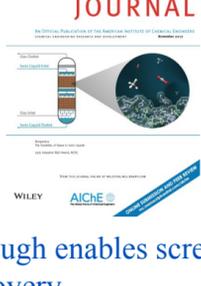


#### Joe Schroer named on the National Order of Merit for the Army ROTC

Joe Schroer, a senior in Chemical Engineering, was named #4 on the National Order of Merit list for the Army ROTC Senior Cadets. The U.S. Army Cadet Command named two University of Kansas Army ROTC cadets to its annual rankings of the top 10 senior cadets in the country. Cadet Joseph Schroer, of Denver, placed fourth, and

The CPE Department is very pleased to announce that we will be hosting Dr. Maginn at our Graduate Seminar this April 10th at 10AM in the Spahr Auditorium. We hope you can make it to the talk as this will be the perfect opportunity for faculty, staff, and students to learn more about this exciting research. To read the full Nov 2017 article, click [here](#).

Cadet Joseph McConnell, of Newton, placed sixth out of 5,536 senior ROTC cadets on the national order-of-merit list. Cadet Command compiles the list based on several criteria, including grade-point average, strong performance on the Army Physical Fitness Test, college athletic participation and performance during college ROTC training and Advanced Camp at Fort Knox, Kentucky. To read the full National Order of Merit list and related article, click [here](#).



#### Breakthrough enables screening millions of human antibodies for new drug discovery

**Brandon DeKosy** and his research group have been hard at work discovering new techniques that have "made it easier to discover new antibody drug molecules while also learning more about immune responses to vaccines and infections." A paper just published in *Nature Biotechnology* outlines a pioneering method of screening a person's diverse set of antibodies for rapid therapeutic discovery. Antibody proteins are an important part of the human immune system that specifically target foreign viruses and bacteria, and they have been the fastest-growing class of approved drugs in the past several decades.

About this research, Prof. DeKosy states, "These technologies are providing a new window on human immune protection that we have never been able to see before. They will dramatically accelerate antibody drug development and may also lead to more effective vaccines." These advances could lead to better preventions and treatments of diseases like Ebola, HIV, flu and Epstein-Barr virus. To read the full article, click [here](#).

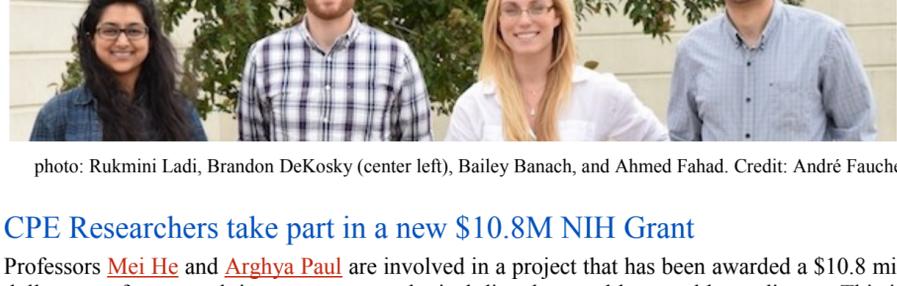


photo: Rukmini Ladi, Brandon DeKosy (center left), Bailey Banach, and Ahmed Fahad. Credit: André Faucher

#### CPE Researchers take part in a new \$10.8M NIH Grant

Professors **Mei He** and **Arghya Paul** are involved in a project that has been awarded a \$10.8 million dollar grant for research into cancer, neurological disorders, and lung and heart disease. This is the second phase of grant funding that has been provided through The University of Kansas' Center for Molecular Analysis of Disease Pathways, a National Institutes of Health Center of Biomedical Research Excellence (COBRE).

The main PI on the grant is **Professor Susan Lunte**, Ralph N. Adams Distinguished Professor of Chemistry and Pharmaceutical Chemistry and Director of the Adams Institute for Bioanalytical Chemistry. CMADP's mission is "to bring together junior and senior faculty from the physical, biological, and pharmaceutical sciences at the University of Kansas and other academic institutions in Kansas to conduct multidisciplinary research to develop and implement cutting-edge technologies for elucidating the genetic, chemical, and physical mechanisms of biological processes involved in disease." To read the full article, click [here](#).

### News from the CEBC

#### Juan Bravo Suarez, Symposium Co-chair and Invited seminar

It is a busy semester for **Professor Juan Bravo Suarez**. Earlier this week he presented his research at Oklahoma State University's Graduate Seminar. The title of the talk was "In Situ and Operando Characterization: Tools and Methodologies for the Study of Catalysts in Action." ([Link to abstract](#))

Then from March 18th-22nd Dr. Bravo will be in New Orleans, LA at the 255th ACS National Meeting and Expo. This year's theme is Nexus of Food, Energy and Water. The Division of Catalysis, Science, and Technology (CATL) will utilize Dr. Bravo's expertise as Symposium Co-Chair. His specific topic will be "Towards Comprehension of Scale-Up & Multiscale Modeling of Catalysts." For more information about the conference, click [here](#).

#### Franklin Tao and Juan Bravo Suarez Co-edit Special Issue *Catalysis Today*

The special issue in the Symposium is *Catalysis Today*, Vol 302, pp1-286 (15 March 2018): "Selected Contributions to the Symposium on Catalysts & Catalytic Technologies for Conversion of Biomass & Its Derivatives (252nd ACS Meeting and Exposition, Philadelphia, PA)." Other co-editors include Huamin Wang and Mariefel Olarte. For more information, click [here](#).

### Fun February Facts

#### February is National Black History Month

Black History Month is an annual celebration of achievements by African Americans and a time for recognizing the central role of blacks in U.S. history. The event grew out of "Negro History Week," the brainchild of noted historian Carter G. Woodson and other prominent African Americans. Since 1976, every U.S. president has officially designated the month of February as Black History Month. Other countries around the world, including Canada and the United Kingdom, also devote a month to celebrating black history. For more information about the history of this celebration and to view some amazing speeches, click [here](#).

#### Today is Groundhog Day

What does that mean? Well, it's an odd, possibly antiquated, tradition of looking for a small animal called a groundhog to pop its head out from its underground burrow. If the groundhog sees its shadow and returns underground, then we will have six more weeks of winter. If it doesn't, then we will have an early spring. According to *USA Today*, Punxsutawney Phil did indeed see his shadow this morning, so six more weeks of winter are ahead. If you need a good laugh to get you through this long winter, check out the 1993 Bill Murray/Andie MacDowell movie ([link](#)).

#### UPCOMING EVENTS

**FEB 6:** Aishik Chakraborty's Comprehensive Exam Defense | 9:30AM | 4161 Learned

**FEB 7:** Engineering Student Council Trivia Night | 6 p.m. to 7 p.m. | G411 LEEP2 | "network with employers and get some free pizza"

**FEB 8:** Spring 2018 Engineering & Computing Career Fair | noon to 4 p.m. | Kansas Union

**DUE FEB 15:** Undergraduate Engineering Ambassador 2018-2019 Applications | [LINK](#)

**WEEKLY:** Mental Health Peer Educators from KU CAPS Office Hours | 10 a.m. to noon on Mondays and 3 p.m. to 5 p.m. Thursdays | 1410 LEEP2

#### NEW PUBLICATIONS

Rawesh Kumar, Nagasuresh Enjamuri, Sneha Shah, Ahmed Sadeq Al-Fatesh, **Juan J. Bravo-Suarez**, Biswajit Chowdhury, "Ketonization of oxygenated hydrocarbons on metal oxide based catalysts." *Catalysis Today*, Volume 302, 15 March 2018, pp16-49. ([link](#))

**Oraki Kohshour, I., Barati, R., Yorro, M.C.** et al. "Economic assessment and review of waterless separation technologies in shale resource development: A case study." *Journal of Earth Science*, October 2017, Volume 28, Issue 5, pp 933-948.

Renaee Waters, Perwez Alam, Settimio Pacelli, Aparna Chakravarti, Rafeeq PH Ahmed, and **Arghya Paul**. "Stem cell-inspired secretome-rich injectable hydrogel to repair injured cardiac tissue." *Acta Biomaterialia*, Dec 24, 2017 issue. ([link](#))

#### QUOTE OF THE MONTH

"Anything that is theoretically possible will be achieved in practice, no matter what the technical difficulties are, if it is desired greatly enough."

- Sir Arthur C. Clark



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