2019
FIRST Quarter
PTC Newsletter

PTC Polymer Technology Center

UPCOMING EVENTS

Mark Your Calendars for the PTC Spring meetings!

Scratch Behavior of Polymers Consortium-SCRATCH

Wednesday, March 20th, 2019
Noon—5pm
After the ANTEC Conference-Detroit, MI

Polymer Technology Industrial Consortium-PTIC

April 11th - 12th, 2019
College Station, TX
Texas A&M University

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HONORING 41

Michael K. Young, President
Texas A&M University

On President Bush's values aligning with those of Texas A&M: "The underlying themes that ran through the administration are so consistent with Texas A&M's values – love of country, love of one another and public service as a noble calling. This shared ethos began and solidified the wonderful relationship between the university and President Bush, one which will continue in perpetuity through the Bush School, Bush Foundation and Bush Presidential Library & Museum."

On President Bush as a personal role model: "I thought there was real integrity in the Bush administration. There was this genuine passion to make the world safer, to make the world better, to stimulate economic growth that would benefit each other. The two constant questions were 'Does this make people better off and how does it make people better off?' And that to me was always kind of a guiding star."

On President Bush's focus on people: "I think more than most public servants he [Bush] really had a powerful focus on improving the lives of people. I hope as we reflect on his legacy, that focus becomes an even more powerful part of our university. We strive to continue his mission to make the world a better place for people."

John Sharp, Chancellor
Texas A&M University System

Not only was George H.W. Bush one of the greatest presidents in our nation's history, he also was one of the finest men to serve our country in so many ways. We are proud to call him a son of Texas A&M University and will do everything in our power, through his presidential library, to keep his memory and accomplishments alive for all time.

Amy Sharp, Student Body President
Texas A&M University

As Student Body President, and on behalf of the more than 69,000 students of Texas A&M University, I offer our love and sincerest condolences to the entire Bush family. As the namesake of the Bush School of Government and Public Service, we will continue to honor his legacy through our work, studies, and service to our community. To our state, our nation, and to those abroad, we at Texas A&M will continue to breathe life into the phrase "Public service is a noble calling," which the former president taught us so well. I was honored to be asked by the Bush family, along with a student from the Bush School, to be an honorary pallbearer on behalf of our students."

Nanotechnology and smart decision analytics for irrigation water quality management related to pathogens: Smart Path

Associate Professor
Carmen Gomes
Department of Agricultural & Agricultural Engineering

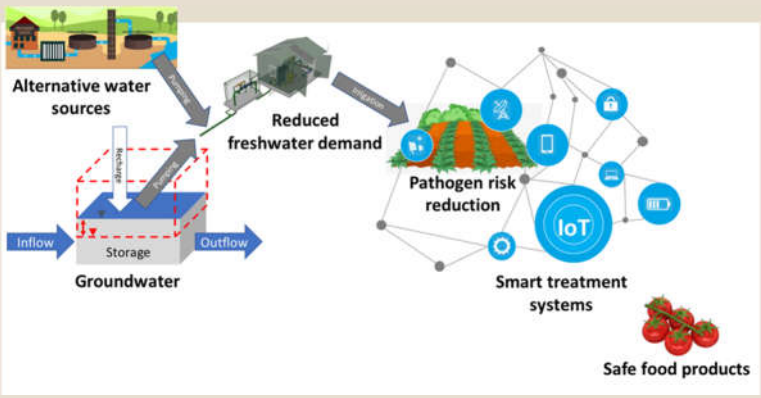
Texas A&M engineers and scientists are a part of a $5 million five-year U.S. Department of Agriculture project to develop new data-driven irrigation systems that encourages the use of alternatives to fresh water while protecting crop health.

Agricultural water shortage problems arise from deteriorating quality, groundwater depletion, uncertainties in precipitation associated with climate change, and unsustainable freshwater usage. The project focuses on reducing overall freshwater use by developing new smart irrigation systems emphasizing the quality of alternative water sources with potential pathogen contamination (Smart Path). The team will develop innovative software and hardware solutions for on-farm water management, enabling small farmers that do not have access to a nearby analytical lab service to meet the Food Safety Modernization Act (FSMA) requirements for testing water quality within eight hours of sampling. Sensors will be integrated into an IoT wireless decision support system for providing growers with rapid feedback on system status, including economic feasibility.

The project team, led by the University of Florida, brings together researchers from four different growing regions of the United States (Florida, Texas, Iowa and Maryland) and three types of alternative water sources (treated domestic wastewater, brackish groundwater, and surface water that does not meet Product Safety Rule requirements) to answer key questions about how agricultural producers can make tailored, informed decisions about irrigation water sources.

Sreram Vaddiraju, associate professor of chemical engineering, **Terry Gentry**, professor of soil and crop sciences, and **Carmen Gomes, Iowa State Univ. and** adjunct associate professor of biological & agricultural engineering, will combine their expertise in nanomaterials development for water treatment, soil and water microbiology, and pathogen monitoring. Along with extension faculty at biological & agricultural engineering **Dana Porter** (professor and extension leader), **Lucas Gregory** (research specialist) and **David Smith** (extension specialist) to contribute to this interdisciplinary project.

SmartPath development plans are to integrate real-time water sensors into a decision-support system, moving from studying test beds to field case studies – and eventually putting the SmartPath system into the hands of growers through integrated extension and outreach activities to decrease basic water gaps and improve sustainability at the Food-Energy-Water nexus.

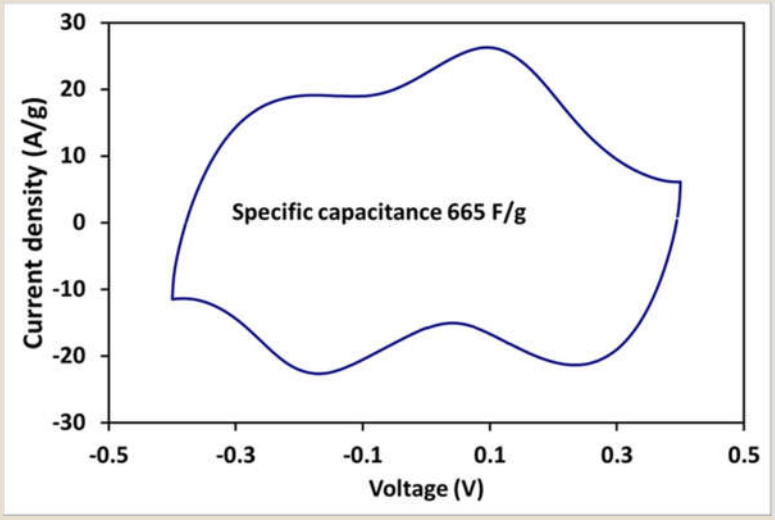


High performance supercapacitors for energy storage using nanotechnology

Professor Hung-Jue Sue
Materials Science & Engineering

Supercapacitors have several desirable characteristics as energy storage devices, such as fast charging and retention of capacity after 1000's of charge/discharge cycles. However, the specific capacitance (energy storage vs mass) must be improved before supercapacitors can compete directly with lithium ion batteries.

The Sue group is investigating the use of nanomaterials as electrodes. We have coated a layer of copper oxide on carbon nanotubes and have shown that it has exceptionally high specific capacitance compared to other materials in this class. A provisional application for a patent has been submitted. This work was done in collaboration with the University of Cambridge with funding from Lloyd Register Foundation.



TEES | PTC
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TEXAS A&M ENGINEERING EXPERIMENT STATION
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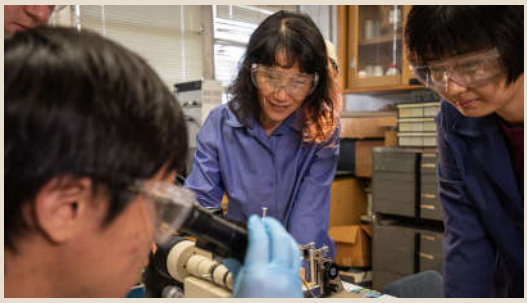
Illuminating the future: 2018-19 ASME fellow explores new method of cancer detection

De. Hong 'Helen' Liang, MEEN

From robotic roaches to detecting cancer, Dr. Hong Liang is using the tiniest of particles to tackle the biggest of issues.

Liang, the Oscar S. Wyatt Jr. Professor in the J. Mike Walker '66 Department of Mechanical Engineering at Texas A&M University, has been selected as the 2018-19 American Society of Mechanical Engineers Foundation Swanson Fellow, which will help her pursue this research.

"The fellowship provides a great opportunity for me to learn and serve our nation's advanced manufacturing initiatives as part of a nationwide manufacturing agenda," Liang said. "As a faculty member, this will be the first time in my career to serve our nation at such a broad level and scope. It is an exciting opportunity to learn, to serve and to develop new visions and skills."



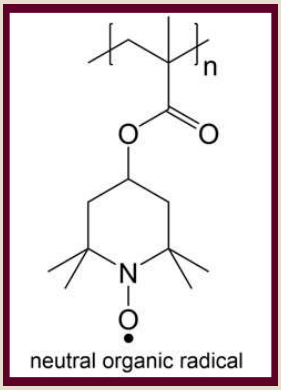
Full story:
goo.gl/FRkNL7

The Energy Implications of Organic Radical Polymers

Jodie Lutkenhaus, CHEN

Dr. Jodie L. Lutkenhaus, associate professor, holder of the William and Ruth Neely Faculty Fellowship and recently named Presidential Impact Fellow in the Artie McFerrin Department of Chemical Engineering at Texas A&M University, just published a paper in Nature Materials. The findings presented in this paper represent a significant step toward Lutkenhaus's ultimate goal: the creation of a battery made entirely of polymers.

According to Lutkenhaus, the main appeal of this class of polymer lies in the speed of the reaction. "These polymers are very promising for batteries because they can charge and discharge way faster than any common battery in a phone or similar device. This rapid charging could dramatically change the way electric vehicles are used today."



neutral organic radical

Full story: **goo.gl/XbUBiy**

The following scholarship recipients were recognized at the PTIC meeting on October 19th, 2018

SPE South Texas section

2018 Fall SPE Scholarship Recipients

Left to right: Yue Song, CHEM, recipient of the SPE Henry Kahn endowed scholarship; Dr. Thoi Ho, SPE Liaison; and Ping Dong, BMEN, recipient of the SPE Dale Walker endowed scholarship

CONGRATULATIONS to these students

THE KANEKA FOUNDATION
kaneka

2018 Fall KANEKA Scholarship Recipients

Left to right: Dr. Masahiko Miyauchi, representative for Kaneka Americas Holding, Inc.; Jian Qu, MEEN; Chenxu Wang, MSEN; and Qihui Chen, MSEN

CONGRATULATIONS to these students

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Polymer Technology Industrial Consortium (PTIC)
Student Poster Session recipients

OCTOBER 18TH-19TH, 2018

	Students Name	Poster Titles
1	Christopher Komatsu, CHEM	"An Environmentally-friendly Route for Polyurethane Synthesis Using Glucose as a Biorenewable Diol"
2	Chenxu Wang, CHEM	"Porous polymer network membrane for organic solvent nanofiltration"
3	Tan Nguyen, CHEM	"TEMPO-populated Polypeptides as Cathode Materials: A study of the effect of secondary structures on battery performance"

CONGRATULATIONS to these students

SPE South Texas section

For information on becoming a member of the SPE student chapter at TAMU, please contact the below officers.

President	Fabian Arp	arpfabian@gmail.com
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Treasurer	Andy Abbas	aabbas101@tamu.edu

Polymer Specialty Certificate Updates

Students that have applied for the Polymer Specialty Certificate	77
Students that have received the Polymer Specialty Certificate	57

For more information, please visit: http://ptc.tamu.edu/polymer-specialty-certificate/

Have Questions?

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