



CENTER FOR MIDSTREAM
MANAGEMENT & SCIENCE
LAMAR UNIVERSITY

The Texas State University System

A message from Thomas Kalb, Director of the Center for Midstream Management & Science

August 3, 2020

Lamar University's Midstream Center was recently funded by the Texas legislature for the purpose of promoting practical research, collaboration, and dialogue by and between LU and the midstream industry. The Midstream Center's ultimate purpose is to identify and solve current and emerging challenges facing the midstream industry in Texas. Lamar University's century long tradition of producing hundreds of high quality engineering graduates and technical research each year in service of the energy industry and the State of Texas naturally evolved from its location in Beaumont, Texas in the middle of one of the largest and most important petrochemical complexes in the world.

We are working steadily at the Midstream Center to organize ourselves to fulfill our purpose and promise. To that end, we have so far accomplished:

- **Development of the Five Pillars of the Midstream Center Research Focus with the objective of matching faculty expertise and midstream industry needs**
 - Advanced Leak Detection and Monitoring
 - Advanced Analytics/Big Data/AI and Predictive Maintenance
 - Corrosion Detection and Prevention
 - Reliability and Resilience Enhancement
 - Water Remediation

- **Midstream Center has issued LU faculty its 2nd internally funded RFP requesting midstream research project proposals**

- **Creation of the Midstream Center's Industry Advisory Council to inform and guide the Midstream Center on matters important to industry**

<https://www.lamar.edu/news-and-events/news/2020/07/lus-midstream-center-names-industry-advisory-board.html>

- **Partnership between EnerG-ID Solutions Corporation and the Midstream Center to pursue EnerG-ID's Data Advancement Program**

<https://www.lamar.edu/news-and-events/news/2020/07/energ-id-solutions-teams-up-with-lus-center-for-midstream-management-and-science-in-pursuing-its-data-advancement-program.html>

- **Development of the Midstream Faculty Team:**

- Dr. Brian Craig, PhD, PE, CPE, Professor and Dean of the College of Engineering
- Dr. Tracy Benson, PhD, Associate Professor, Chemical Engineering and Associate Director of Research for the Midstream Center
- Dr. Sujing Wang, PhD, Assistant Professor, Computer Science
- Dr. Liv Haselbach, PhD, Professor and Chair, Civil and Environmental Engineering
- Dr. Jing Zhang, PhD, Assistant Professor, Computer Science
- Dr. Xingya Liu, PhD, Assistant Professor, Computer Science
- Dr. James Curry, PhD, Associate Professor, Industrial Engineering
- Dr. Berna Tokgoz, PhD, Assistant Professor, Industrial Engineering
- Dr. Clayton Jeffreyes, PhD, Associate Professor, Chemical Engineering
- Dr. Mien Jao, PhD, Professor, Civil and Environmental Engineering
- Dr. Chun-Wei Yao, PhD, Assistant Professor, Mechanical Engineering
- Dr. Maryam Hamidi, PhD, Assistant Professor, Industrial Engineering
- Dr. Daniel Chen, PhD, Professor, Chemical Engineering
- Dr. Helen H. Lou, PhD, Professor, Chemical Engineering
- Dr. Thinesh Selvaratnam, PhD, Assistant Professor, Civil and Environmental Engineering
- Dr. Qiang Xu, PhD, Professor, Chemical Engineering
- Dr. Seokyon Hwang, PhD, Associate Professor, Construction Management
- Dr. Ruhai Wang, PhD, Professor, Electrical Engineering

- **Selection of the Midstream Center's first Honoree for Profiles in Midstream**



Dr. Chun-Wei Yao is an Assistant Professor in the Department of Mechanical Engineering and Director of Advanced and Surface Engineering Lab at Lamar University and sits on the Midstream Center's Faculty Midstream Team. His primary area of expertise is surface science and engineering. His research team has designed and fabricated a variety of nano/microstructured surfaces. For example, the team created superhydrophobic nanogras-like structures with enhanced corrosion resistance for various engineering applications such as condensers, heat pipes, or copper cooling channels. The team has also developed a facile superhydrophobic coating that has high polarization resistance and a low corrosion rate. Furthermore, the team is investigating micro/nanoscale interactions between coatings and corrosive environments using in-situ atomic force technique. Dr. Yao also focused on the dynamics of microdroplets. Droplet-based microfluidics has attracted a lot of attention because of its relevance in various applications. Dr. Yao's studies have revealed the sliding mechanism of microdroplets on superhydrophobic surfaces.

Current Research Synopsis: Corrosion, a significant problem of pipeline infrastructures and generates enormous costs to the oil and gas industry. Recently, novel superhydrophobic top coatings have been favored due to their inherently water-repellent nature. However, durability and corrosion resistance of superhydrophobic top coatings are still questions in implementation. The main objectives of the project are to fabricate superhydrophobic top coatings for enhanced corrosion resistance and durability properties. The mechanical performance of developed coatings and localized corrosion rates will be evaluated. Ongoing efforts at the Midstream Center will soon deliver additional, foundational elements that will serve to build LU's Midstream institution:

- **Midstream Clearing House.** The Midstream Clearing House is, with assistance from the Mary and John Gray Library, developing an exclusive searchable database of (only) midstream-relevant research publications (peer reviewed papers, articles, and doctoral dissertations) in midstream relevant topics. This resource is expected to support the Midstream Center's mission of promoting dialogue and collaboration between the Midstream Center and midstream-focused academia and industry.
- **Midstream Certificate.** A Midstream Certificate, requiring midstream-centric courses, is being developed with the assistance of the College of Engineering and the College of Arts and Sciences that should enhance the value of LU engineering graduates by providing a midstream emphasis for graduates of the College of Engineering and assist the career development of professionals already working in the midstream sector, thereby building the relationship between LU and industry.
- **The Midstream Center has hosted several events, including *Oil and Gas Careers Outlook, TXOGA Lunch and Learn, and the Inaugural Kickoff Symposium of the Center***
<https://www.lamar.edu/engineering/midstreamcenter/events.html>
- **Webinar/Roundtables.** The Center for Midstream Management and Science will be hosting webinar roundtable discussions in September and October that will bring industry experts together to discuss matters important to our industry. The first webinar will address major issues facing the midstream industry and take place from 10 a.m. to 11 a.m. on Tuesday, September 15th. Webinar announcement coming soon. Participants will include:
 - Jeremy Goebel, Executive Vice President – Commercial, Plains All American Pipeline
 - Ajey Chandra, Managing Partner and Director, Muse, Stancil & Co.
 - Wes Johnson, Senior Vice President and Global General Manager, Corpro - Aegion Corporation

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