



Texas A&M Energy
Research Society

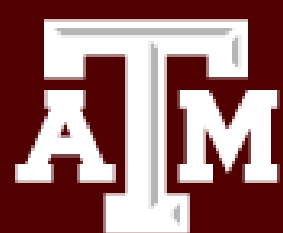
2022 TEXAS A&M CONFERENCE ON ENERGY



September 28-29



MSC



TEXAS A&M
UNIVERSITY

Howdy!

Welcome to the 2022 Texas A&M Conference on Energy, here at Texas A&M University. Since 2016, the Texas A&M Conference on Energy has been an annual conference organized by the Texas A&M Energy Research Society (ERS) with the support of the Texas A&M Energy Institute. Texas A&M ERS is a community of students and researchers who have an interest in energy-related fields. Our mission is to work for students and researchers conducting multi-disciplinary energy research to ensure their needs are understood, advocated, and promoted through education, research, and learning. We aim to create a dynamic and synergistic environment within the university through technical and social events. Texas A&M Conference on Energy is our signature event. We hope you enjoy the conference and attend the wide variety of events offered.

Thanks and Gig'em

Texas A&M Energy Research Society



MEET THE TEAM



Ratul Mitra Thakur
President



Kailash Arole
Vice President



Silabrata Pahari
External Outreach Chair



Parth Shah
Internal Outreach chair



Ajinkya Raut
External Outreach Officer



**Blake
Smith-Cortez**
Program Chair



Navya Pabba
Program Officer



**Laxmi Sai
Vishwanadha**
Social Media Officer



Rahul Kakodkar
Events Coordinator



Mrudul Velhal
Social Media Officer



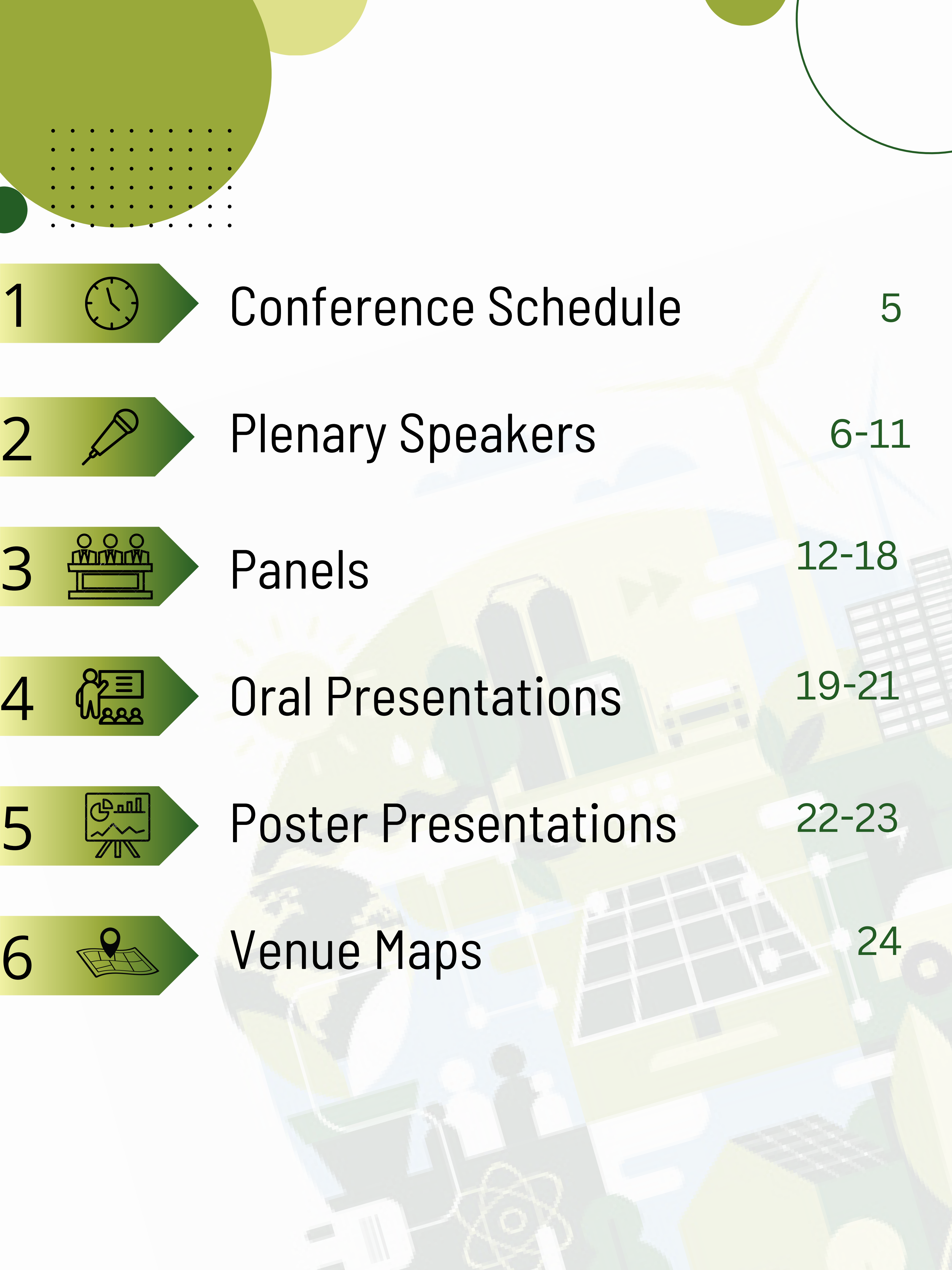
Sagar Lakhwani
Events Coordinator



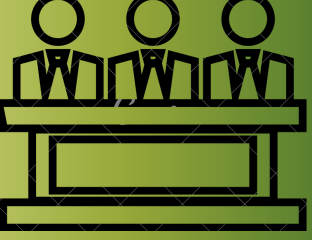





Shanez Momin
Internal Outreach Officer



Sahithi Akundi
External Outreach Officer



1		Conference Schedule	5
2		Plenary Speakers	6-11
3		Panels	12-18
4		Oral Presentations	19-21
5		Poster Presentations	22-23
6		Venue Maps	24

Wednesday (09/28/2022), MSC

Start	End	September 28, 2022		
08:00 a.m.	09:30 a.m.	Conference Registration (Bethancourt lobby) and Breakfast (Bethancourt Ballroom A&B)		
09:00 a.m.	09:30 a.m.	Opening Remarks: Dr. Pistikopoulos & ERS members (Bethancourt Ballroom A&B)		
09:30 a.m.	10:00 a.m.	Prof. Bruce McCarl (Gates Ballroom)		
10:00 a.m.	11:30 a.m.	Oral Session 1 (2404,2405,2500)		
		Renewable technologies and energy security	Data science and statistical learning for energy applications	Safety and resilient energy systems/policy
11:30 a.m.	11:40 a.m.	Transition & Break		
11:40 a.m.	12:10 p.m.	Plenary 1: SIEMENS, Dr. Ravi Aglave (Gates Ballroom)		
12:15 p.m.	12:45 p.m.	Plenary 2: Ansys, Dr. Anchal Jatale (Gates Ballroom)		
12:45 p.m.	01:30 p.m.	Lunch (Bethancourt Ballroom A&B)		
01:30 p.m.	02:45 p.m.	Panel I: Companies & Faculty (Gates Ballroom)		
02:45 p.m.	03:00 p.m.	Break		
03:00 p.m.	03:30 p.m.	Plenary 3: Idaho National Labs (INL), Dr. Colin Judge (Gates Ballroom)		
03:30 p.m.	05:00 p.m.	Poster Sessions I/Networking (2406)		

Thursday (09/29/2022), MSC

Start	End	September 29, 2022		
08:00 a.m.	09:00 a.m.	Conference Registration (Bethancourt lobby) and Breakfast (Bethancourt Ballroom A&B)		
09:00 a.m.	11:00 a.m.	Oral Session 2 (2404,2405,2500)		
		Multi-scale energy systems engineering	Fossil, Oil/Gas, and hydrocarbon exploration and production	Multifunctional & Sustainable Materials Synthesis
11:00 a.m.	11:15 a.m.	Transition & Break		
11:15 a.m.	11:45 a.m.	Plenary 4: Halliburton, Dr. Zainub Noor (Gates Ballroom)		
11:45 a.m.	11:55 a.m.	Break		
11:55 a.m.	12:25 p.m.	Plenary 5: Dow Chemicals, Dr. Narayan Ramesh (Gates Ballroom)		
12:25 p.m.	01:30 p.m.	Lunch (Bethancourt Ballroom A&B)		
01:30 p.m.	02:45 p.m.	Panel 2: Companies & Faculty (Gates Ballroom)		
02:45 p.m.	02:55 p.m.	Break		
03:00 p.m.	04:30 p.m.	Poster Sessions II/Networking (2406)		
04:30 p.m.	05:00 p.m.	Awards: Closing Remarks (Dr. Stratos Pistikopoulos) (2406)		

Keynote Speaker

9:30 am to 10:00 am, Wednesday, 9/28,
Gates Ballroom (MSC)

Prof. Bruce McCarl

Distinguished Professor and Leader of Research

Texas A&M University, Agricultural Economics



Dr. Bruce McCarl is a University Distinguished Professor of Agricultural Economics at Texas A&M University. His recent research efforts have largely involved policy analysis (mainly on climate change, climate change mitigation, climate change adaptation, water economics, ENSO analysis, and Edwards Aquifer water) as well as the proper application of quantitative methods to such analyses. He is known internationally as the leading expert in using mathematical programming for economic and policy analysis.

Bruce began his career in agricultural economics at Purdue University after earning a Ph.D. in Management Science at Penn State University. After a four year stay at Oregon State University, Bruce joined Texas A&M University in 1985. Presently he serves as the Coordinating Editor for Choices. He has long been a part of the United Nations sponsored International Panel on Climate Change, contributing to three assessments, and he was awarded a share of the Nobel Peace Prize. Dr. McCarl has been involved in more than \$90 million in research projects, and his models have been adopted by USDA and USEPA. He has authored more than 300 journal articles, nine books, and 69 book chapters.

Role of digitalization in energy transition & sustainability

11:40 am to 12:10 pm, Wednesday, 9/28, Gates Ballroom

Plenary Speaker I

Dr. Ravindra Aglave

Director, Energy and Process

Siemens Digital Industry Software



Ravindra Aglave is the Director for Chemical & Process Industries in the STS (Simulation & Test) sub-segment of Siemens Digital Industry Software. In this role, he is responsible for bringing new modeling and physics knowledge in to CFD simulation code that can be deployed in the industry. Prior to joining Siemens, Ravi worked as a Senior Research Engineering at BASF in Germany, performing design and analysis of various processes in the chemical plants backed by CFD. He also worked as an R & D engineer at UOP Honeywell and as Senior Engineer at Bechtel Inc.'s oil, gas and chemical division.

He is a member of AIChE, ACS and Society of Chemical Engineering Japan. He served as the member of Chemical Engineering Technology Operating Council of AIChE (Amer. Inst. of Chem. Engrs.) and is the program area chair of TEP (Transport in Energy Processes) Division.

Accelerating towards net-zero through Simulation

12:15 pm to 12:45 pm, Wednesday, 9/28, Gates Ballroom

Plenary Speaker II

Dr. Anchal Jatale

North America Industry Lead - Oil & Gas

ANSYS



Dr. Anchal Jatale serves as the North America Oil & Gas and Energy Industry lead for ANSYS since past 3 years. He is championing the efforts in developing cutting-edge solutions for new clean energy including hydrogen and carbon capture. His background is in CFO and has experience of 10+ years in modeling and simulations.

For the past couple of years, he is spearheading ANSYS Digital twin engagements in O&G and energy industry. His expertise is in Reduced order modeling, system modeling, reacting flow, combustion, multi-phase flow. Prior to joining ANSYS, he received his doctorate in Chemical Engineering from the University of Utah.

Innovative Nuclear Technology and a Vision for the Future

3:00 pm to 3:30 pm, Wednesday, 9/28, Gates Ballroom

Plenary Speaker III

Dr. Colin D. Judge

Characterization & Post-Irradiation

Examination Director

Idaho National Labs



Dr. Judge has extensive nuclear industry experience using advanced characterization and post-irradiation examination techniques to assess fuel performance, environmental degradation, and fitness-for-service of operating reactor technologies and advanced reactor concepts. He has authored more than 35 peer-reviewed manuscripts and more than 100 commercial reports in the fields of material science, characterization, and mechanical property degradation.

Dr. Judge received his bachelor's and master's degrees in engineering from Queen's University in Kingston, Ontario, and his doctorate degree from McMaster University in Hamilton, Ontario. He joined the Atomic Energy of Canada Limited (now known as the Canadian Nuclear Laboratories), where he worked in the fields of fuel development and materials science. Upon joining INL in 2019, Dr. Judge has been in the role of industry programs lead for the Nuclear Science User Facilities and the department manager for the Irradiation Fuels and Materials Department in NS&T.

Role of oil and gas in bridging to a new energy world

11:15 am to 11:45 am, Thursday, 9/29, Gates Ballroom

Plenary Speaker IV

Dr. Zainub Noor

Director of Scouting & Innovation

Halliburton



In this role, Zainub supports the mission to advance cleaner, affordable energy through identification of innovative, early-stage energy tech companies to accelerate their journey to commercially scale, through the corporate platforms and networking since they will play a key role in the energy system of the future. Zainub has held multiple roles in consulting, technology development, strategy, business management in various regions and most recently as Global R&D Head for Reservoir recovery and production operations - helping energy operators worldwide in digital transformation to optimize asset development and production operations. She has a history of leading asset development projects for operators worldwide in Middle East, North America, Europe, Asia, and South America related to digital oil fields, field development and asset digital twins. She has been directly managing development of reservoir management and production software solutions along with technology teams from other Halliburton product service lines to deliver integrated solutions. Zainub also serves on the advisory panel for Bauer Business School and is recognized as 25 Influential Women in Energy by Hart Energy and 100 Global Leaders by Petroleum Economist

Sustainability, Circularity & Recycling: A need for a framework to assess these approaches systematically

11:55 am to 12:25 pm, Thursday, 9/29, Gates Ballroom

Plenary Speaker V

Dr. Narayan Ramesh

Lead R&D Director, Engineering &
Process Sciences (E&PS), Core R&D

The Dow Chemical Company



Narayan Ramesh is Lead R&D Director, Engineering and Process Sciences, Core R&D. Prior to taking this role, Narayan was the Characterization and Testing group globally in the Packaging and Specialty Plastics business, the largest businesses within Dow. In this role, Narayan is responsible for supporting the Manufacturing Process Characterization efforts for P&SP and Hydrocarbons and developing a Knowledge and Testing Strategy globally to create novel Knowledge and Lab Automation tools. Narayan has had several leadership roles within Dow, and has led teams that have developed several award winning products including AGILITY™ LDPE and the Dow Powerhouse Shingle.

Narayan is a certified Six Sigma Green Belt and has been the recipient of numerous awards, including the American Institute of Chemical Engineers Industrial Progress Award, Penn State Alumni Early Career Recognition Award, Diamond Award for the Dow Powerhouse Shingle Development at Dow, the Gold team Award for the launch of the EXTEM portfolio of polymers and the Materials Research Institute Student Research Award for Research Accomplishment at Penn State.

Panel - I

01:30 pm to 02:45 pm

Wednesday, 9/28, Gates Ballroom, MSC

Novel technology pathways-challenges towards implementation and opportunities in the energy transition

Since the beginning of the Industrial Revolution, energy has been treated as a commodity. Prior to a few years ago, the globe relied mainly on conventional energy sources, primarily petroleum and its derivatives. These conventional sources have played a significant part in defining the world in which we live; they have contributed to globalization, increased energy independence, and bolstered our economy. Even with the enormous impact, fossil fuels have had on our lives, it is vital that we study other energy sources moving forward. There are numerous explanations for this: Initially, traditional sources have a limited quantity, and they will gradually deplete. Second, their excessive use contributes to environmental contamination. As engineers, it is our responsibility to develop cleaner and greener energy sources that can meet the global energy demand without negatively impacting the world economy. These include nuclear energy, electrochemical batteries, and renewable energy sources such as solar, wind, etc. It is necessary to enable a seamless transition from conventional to renewable energy sources, while still meeting the global energy demand. This transition of energy is bound to produce newer challenges as well as opportunities for the world.

Panel - I

.....
.....
.....
Moderator :

Dr. Debalina Sengupta

Program Director, Coastal Resilience, Texas Sea Grant at Texas A&M University

Dr. Debalina Sengupta's research has focused on sustainability in the context of process systems engineering. She has worked on process design, integration, intensification, optimization, life cycle assessment, and other related concepts for Sustainable Supply Chain Design of Biofuels, Natural Gas, Consumer Products, and decision-making in Sustainability using metrics and indicators. She has also been actively involved in the development of educational modules for sustainable manufacturing. Dr. Sengupta is currently appointed as the Coastal Resilience Program Director for Texas Sea Grant at Texas A&M University.



Panelist I

Monica Karamagi

Biofuels/Petrochemicals Commercial Leader, Shell

Monica Karamagi is a Regional Business Development Manager for the Shell Low Carbon Fuels business unit, based in Houston. She has worked for the last 25+ years in various technical and commercial roles in the Chemicals and Low Carbon Fuels business units. With the launch of Shell's new Powering Progress strategy in 2021, she now leads the Advanced Biofuels business development team. This team is accountable for commercialization of tomorrow's fuels technologies, producing Biofuels and synfuels from waste feedstocks and atmospheric carbon in order to help decarbonize the Transportation fuels sector.



Panelist II

Dawn Scates

Department Manager Integrated Energy and Market Analysis, INL

Dawn Scates joined INL in 1999 upon completion of her master's degree in physics from Idaho State University, distinguishing herself with her work ethic and developing one-of-a-kind gamma spectroscopy systems to evaluate nuclear fission products and support the development of sustainable domestic energy sources. Refusing to be limited to one area of research, however, she has expanded her responsibilities by taking on a leadership role and is currently the manager of four Nuclear Science and Technology labs at INL.



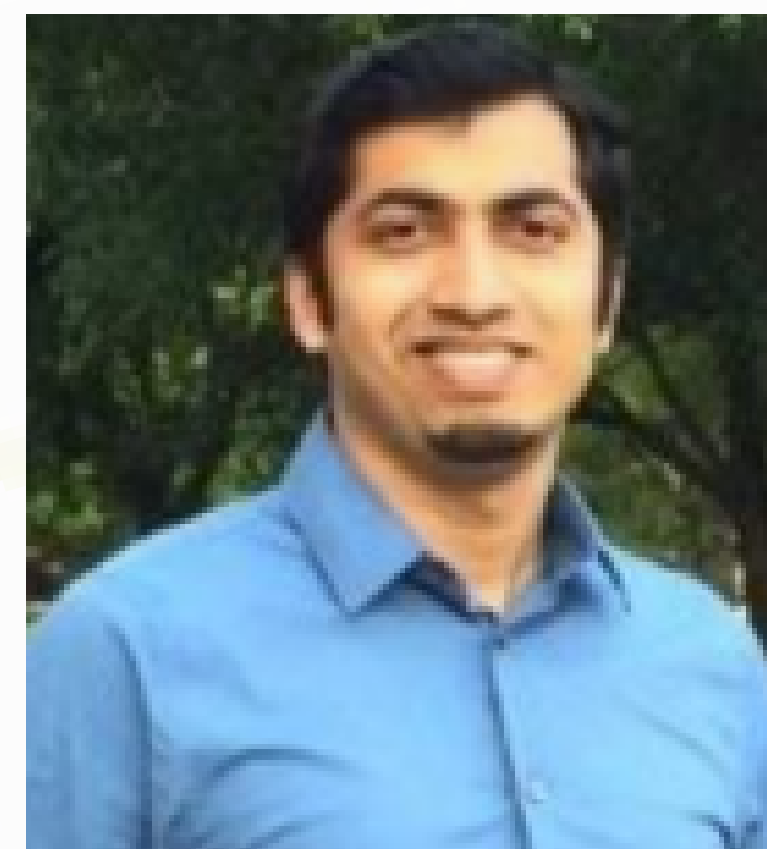
Panel - I

Panelist III

Dr. Anchal Jatale

North America Industry Lead- Oil & Gas, Ansys

Dr. Anchal Jatale serves as the North America Oil & Gas and Energy Industry lead for ANSYS for the past 3 years. He is championing the efforts in developing cutting-edge solutions for new clean energy including hydrogen and carbon capture. His background is in CFO and has experience of 10+ years in modeling and simulations. For the past couple of years, he is spearheading ANSYS Digital twin engagements in O&G and the energy industry.



Panelist IV

Dr. Mark Barteau

Professor, Chemical Engineering and Department of Chemistry

Prof. Mark A Barteau's research focuses on chemical reactions on solid surfaces and their applications in heterogeneous catalysis and energy processes. He has received numerous grants throughout his career from prestigious institutions such as the National Science Foundation (NSF), the US Department of Energy, the US Air Force Office of Scientific Research, and NASA. Barteau has been widely recognized for his scientific and professional leadership in the fields of chemistry and chemical engineering.

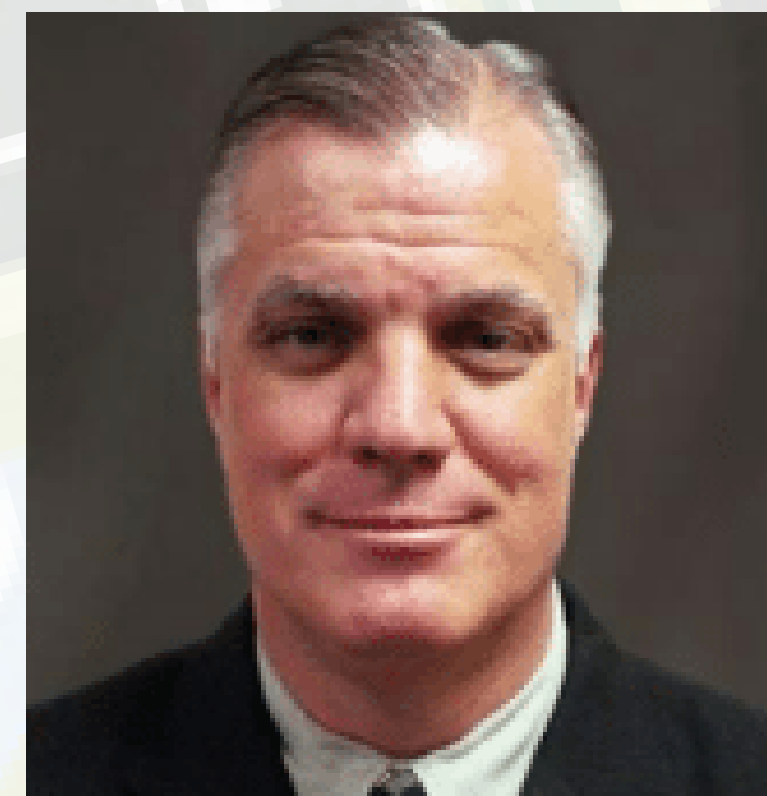


Panelist V

Dr. Thomas Blasingame

Professor, Petroleum Engineering, Robert L. Whiting Professor

Thomas Blasingame is a professor of Petroleum Engineering at Texas A&M University, where he began teaching as an undergraduate teaching assistant in 1982 after becoming a student in 1980. He also served as a Distinguished Lecturer, was named a Distinguished Member, and received SPE's highest honor, SPE Honorary Member. Other SPE honors include the Distinguished Service Award, Lester C. Uren Award, Distinguished Achievement Award for Petroleum Engineering Faculty, Anthony F. Lucas Gold Medal, DeGolyer Distinguished Service Medal, and the SPE Gulf Coast Distinguished Achievement Award for Petroleum Engineering Faculty.



Panel - II

01:30 pm to 02:45 pm

Thursday, 9/29, Gates Ballroom, MSC

The design and integration of smart materials towards a low carbon circular economy

In recent years the globe relied on conventional petroleum-based sources for producing the materials we need to survive. These traditional sources have played a significant part in defining our world; they have contributed to globalization and bolstered our economy. Even with the enormous impact, Carbon-based products have had on our lives, we must study other innovative materials and technologies moving forward and eventually minimize the use of Carbon-based products. The primary reason to avoid using Carbon-based materials is the environmental pollution resulting from producing such materials, which is evident in the recent crisis of global warming that the world is going through. Therefore, as researchers, we are responsible for developing cleaner and greener alternatives that can meet global demands without negatively impacting the world economy. A circular carbon economy is a framework for managing and reducing emissions. It is a closed loop system involving the 4Rs: reduce, reuse, recycle, and remove. It's a powerful idea and an essential part of sustainability today. For example, using recyclable polymers for developing energy storage devices such as batteries has been an idea dominating this century. The use of plant-based cellulose to synthesize polymers that can be used in our daily lives is an excellent example of how a circular economy can positively affect the environment and the economy. Developing electrolyzers from recycled materials to produce hydrogen is another crucial idea. These are the examples that have shown how innovation in materials science, chemistry, and engineering has the potential to pave the way for a sustainable future with the framework for a low-carbon circular economy.

Panel - II

Moderator Dr. Emily Pentzer

Associate Professor, Department of Chemistry, Department of Materials Science and Engineering

Emily Pentzer is an Associate Professor in the department of chemistry and the department of materials science and engineering at Texas A&M University. She received a BS in chemistry from Butler University (2005) and Ph.D. in chemistry from Northwestern University (2010), where her thesis focused on preparing and polymerizing unsaturated lactones and lactams. The Pentzer Lab's research centers on developing new polymeric materials and assemblies as a route to understanding structure-property-application relationships and access function not possible with current state-of-the-art systems.



Panelist I Dr. Colin D. Judge

Characterization & Post-Irradiation Examination Director, INL

Dr. Judge has extensive nuclear industry experience using advanced characterization and post-irradiation examination techniques to assess fuel performance, environmental degradation, and fitness-for-service of operating reactor technologies and advanced reactor concepts. He has authored more than 35 peer-reviewed manuscripts and more than 100 commercial reports in the fields of material science, characterization, and mechanical property degradation. Dr. Judge received his bachelor's and master's degrees in engineering from Queen's University in Kingston, Ontario, and his doctorate degree from McMaster University in Hamilton, Ontario. He joined the Atomic Energy of Canada Limited (now known as the Canadian Nuclear Laboratories), where he worked in the fields of fuel development and materials science.



Panel - II

Panelist II

Dr. Ravindra Aglave

Director for Chemical & Process Industries in the STS (Simulation & Test) sub-segment of Siemens Digital Industry Software, SIEMENS

Ravi is responsible for bringing new modeling and physics knowledge into CFD simulation code that can be deployed in the industry. Prior to joining Siemens, Ravi worked as a Senior Research Engineering at BASF in Germany, performing design and analysis of various processes in the chemical plants backed by CFD. He is a member of AIChE, ACS, and the Society of Chemical Engineering Japan. He served as a member of the Chemical Engineering Technology Operating Council of AIChE (Amer. Inst. of Chem. Engrs.) and is the program area chair of the TEP (Transport in Energy Processes) Division.



Panelist III

Dr. Narayan Ramesh

Lead R&D Director, Engineering & Process Sciences (E&PS), Core R&D, Dow Chemicals

Narayan Ramesh is Lead R&D Director, Engineering and Process Sciences, Core R&D. Prior to taking this role, Narayan was the Characterization and Testing group globally in the Packaging and Specialty Plastics business, the largest business within Dow. Narayan has had several leadership roles within Dow and has led teams that have developed several award-winning products including AGILITY™ LDPE and the Dow Powerhouse Shingle. AGILITY™ LDPE won the R&D 100 award in the market disruptor category and the Powerhouse Shingle has received wide acclaim from thought leaders in the Solar industry and has been recognized for its innovation through numerous awards including the 2009 Time Magazine Best 50 Inventions, The 2010 Globe Award, The 2010 Environmental Excellence In Emerging Technology, The 2012 Edison Award for Global Best New Product, and The 2012 Popular Mechanics Breakthrough Award



Panel - II

Panelist IV

Dr. Svetlana Sukhishvili

Professor, Materials Science & Engineering, Texas A&M University, Director, Soft Matter Facility

Svetlana Sukhishvili is a professor in the Department of Materials Science and Engineering at Texas A&M University. Her research interests include responsive polymer-polymer and hybrid polymer-inorganic assemblies, controlled delivery materials, and nanotechnology-enabled chemical sensing. She is a recipient of an Institutional Research Excellence Award, an Award for Distinguished Scientific Achievement from the American Coating Association, and holds an honorary degree from Stevens Institute Technology. She is a Fellow of the American Physical Society, and a recent recipient of a Special Creativity Award from the National Science Foundation (NSF). She has been a strong advocate of inclusion of women in science, technology, engineering, and math (STEM) education and building inclusive workspace culture. She has served on an Institutional NSF ADVANCE committee and has been extensively involved in outreach activities with undergraduate and K-12 students. She has been a faculty advisor to the American Chemical Society Student Chapter at Stevens Institute of Technology, and is currently an advisor to Women in Materials Science (WIMS) organization at Texas A&M University.



Oral Session I

10:00 – 11:30 am, Wednesday 9/28,
MSC 2404, 2405, 2500

Start	End	Renewable technologies and energy security	Data science and statistical learning for energy applications	Safety and resilient energy systems/policy
10:00	10:15	Numerical investigation of the energy harvesting capabilities of NACA series flapping-foil turbines in swing-arm mode <i>Ahmed A.Hamada, Mirjam Furth</i>	Incentives and Information in Methane Leak Detection and Repair <i>Eric Lewis</i>	What is going on when nothing is going wrong? <i>Atif Ashraf</i>
10:15	10:30	An Evaluation Framework for a Rooftop Grid-Connected Photovoltaic System Performance Using Technical, Economic and Environmental Metrics <i>Abdullah F. Al-Aboosi, Fadhil Y. Al-Aboosi, Wei Zhan</i>	Prediction of flow regime boundaries and pressure drop for hexagonal wire-wrapped rod bundles using artificial neural networks <i>Hansol Kim</i>	Systematic Incorporation of Safety Assessment in Process Design and Control <i>Moustafa Ali, Xiaoqing Cai, Faisal Khanb, Yuhe Tian, Efstratios N. Pistikopoulos</i>
10:30	10:45	Cation and Anion Selection for Ti2N-Catalyzed Ammonia Production from Nitrogen <i>Denis Johnson and Abdoulaye Djire</i>	Developing a Modelica Model for the Texas A&M Smart and Connected Homes Testbed (TAM-SCHT) <i>Thomas Firsich, Zhiyao Yang, Zheng O'Neill</i>	Development of A Hardware-In-the-Loop (HIL) Testbed for Cyber-Physical Security in Building Energy Systems <i>Guowen Li, Yangyang Fu, Zhiyao Yang, Zheng O'Neill</i>
10:45	11:00	Emerging Thermocells for Efficient Low-grade Heat Harvesting <i>Wei Li, Chongjie Gao, Jun Ma, Jingjing Qiu, Shiren Wang</i>	Carbon Dioxide Emissions, Economic Activity and Income Inequality over Time <i>Yeon Jik Lee, Tatevik Sekhosyan</i>	Multiscale Integration for Sustainable and Resilient Distributed Energy Systems <i>Natasha J. Chrisanding, Shivam Vedant, Eleftherios Iakovou, Efstratios N. Pistikopoulos, Mahmoud M. El-Halwagi</i>
11:00	11:15	Alternative strategy for methane utilization <i>Rushant Sabnis</i>	Developing an LSTM-ANN model for prediction and optimal control of Kappa number and Degree of polymerization in a batch pulp digester <i>Parth Shah, Joseph Kwon</i>	Simulating Urban Energy Use Under Climate Change Scenarios and Retrofit Plans in a Coastal Texas Community <i>Chunwu Zhu</i>
11:15	11:30	Use of membranes for the treatment and reuse of water from the poultry slaughterhouse <i>Faryal Fatima, Hongbo Du, Raghava R. Kommalapati</i>		Environmental Governance and Energy Policy: A Comparative Look at the Gulf of Mexico and the Santos Basin <i>Elizabeth Nyman, Celio Bermann, Ilker Basaran, Leandra Goncalves, Jenna Lamphere</i>

Oral Session II

9:00 – 11:00 am, Thursday 9/29,
MSC 2404, 2405, 2500

Start	End	Multi-scale energy systems engineering	Fossil, Oil/Gas, and hydrocarbon exploration and production	Multifunctional & Sustainable Materials Synthesis
9:00	9:15	<p>New mesh strategy with moving mesh and refinement based on cell deformation</p> <p><u>Abhishek Mahesh Pachankar</u></p>	<p>Developing a Closed-Loop Optimum Pumping Sequence with Shear Thinning Fluid for Enhanced Hydraulic Fracturing</p> <p><u>Silabrata Pahari</u></p>	<p>Estimated Future Utility of All-Electric Aircraft in Reducing Aviation Sector Emissions</p> <p><u>Jacob Eaton</u></p>
9:15	9:30	<p>Benchmarking Energy Storage Technologies for Energy and Industrial Decarbonization</p> <p><u>Akhilesh Gandhi and M.M. Faruque Hasan</u></p>	<p>Legal Gap in the Transboundary Oil Pollution</p> <p><u>Ilker K. Basaran</u></p>	<p>Patch repair of composites using Dielectric Barrier Discharge induced heating and curing</p> <p><u>Anubhav Sarmah, Smita Shivraj Dasari, Nirup Nagabandi, Daniel G. Carey, Stefano A. Micci-Barreca, Aniruddh Vashisth, Micah J. Green</u></p>
9:30	9:45	<p>Inverse Design of Organic Radical Batteries with Redox-Active Polymers for Energy Storage through Multi-scale Modelling</p> <p><u>Cheng-Han Li, Daniel P. Tabor</u></p>	<p>Hydrogen Energy Storage via Plasma-based technology</p> <p><u>Shayan Sean Niknezhad</u></p>	<p>Application of plastic-derived carbon-nanomaterials in supercapacitors and composites</p> <p><u>Sayyam Deshpande, Anubhav Sarmah, Kailash Arole, Huaixuan Cao, Micah J. Green</u></p>
9:45	10:00	<p>Optimal Control of an Air Separation plant through Smart Manufacturing and Surrogate Modeling</p> <p><u>Dustin Kenefake, Iosif Pappas, Styliani Avraamidou, Burcu Beykal, Hari S. Ganesh, Yanan Cao, Yajun Wang, Joannah Otashu, Simon Leyland, Jesus Flores-Cerrillo, Efstratios N. Pistikopoulos</u></p>	<p>The Economic Impact of Gulf Coast Hurricanes on the Oil Industry Disruptions across Regions in the U.S.</p> <p><u>Yayun Chen</u></p>	<p>Structural Lithium-ion Battery Cathodes based on Organic Redox Active Polymers and Kevlar Aramid Nanofibers</p> <p><u>Oka, S.; Lutkenhaus, J. L.</u></p>

Oral Session II (Contd.)

9:00 – 11:00 am, Thursday 9/29,
MSC 2404, 2405, 2500

Start	End	Multi-scale energy systems engineering	Fossil, Oil/Gas, and hydrocarbon exploration and production	Multifunctional & Sustainable Materials Synthesis
10:00	10:15	<p style="text-align: center;">Sensitivity Analysis of Enhanced Geothermal Systems</p> <p style="text-align: center;"><i><u>Jerome SFEIR, J.-L. Briaud and G. Moridis</u></i></p>	<p style="text-align: center;">Assessment of Turbulence Models for Hydraulic Fracturing Slurry Transport Simulation in Horizontal Perforated Pipe</p> <p style="text-align: center;"><i><u>Mohamed Khairy Mohamed Youssef</u></i></p>	<p style="text-align: center;">Recycle and Reuse of Continuous Carbon Fibers from Thermoset Composites using Joule Heating</p> <p style="text-align: center;"><i><u>Anubhav Sarmah, Sevketcan Sarikaya, Jonathan Thiem, Shegufta T. Upama, Aida N. Khalfaoui, Smita Shivraj Dasari, Kailash Arole, Spencer A. Hawkins, Mohammad Naraghi, Aniruddh Vashisth, Micah J. Green</u></i></p>
10:15	10:30	<p style="text-align: center;">Multiscale modeling and control of spray coating of quantum dots</p> <p style="text-align: center;"><i><u>Niranjan Sitapure and Joseph Kwon</u></i></p>	<p style="text-align: center;">Light-induced Heating Effect in MOFs and its Application on Methane Storage</p> <p style="text-align: center;"><i><u>Zhifeng Xiao, Hannah F. Drake, Hong-Cai Zhou</u></i></p>	<p style="text-align: center;">Relaxation Times of Solid-like Polyelectrolyte Complexes of Varying pH and Water Content</p> <p style="text-align: center;"><i><u>Suvesh Lalwani</u></i></p>
10:30	10:45	<p style="text-align: center;">Interplay of the material and energy transition -challenges and opportunities</p> <p style="text-align: center;"><i><u>Rahul Kakodkar, Yilun Lin, Efstratios N. Pistikopoulos</u></i></p>	<p style="text-align: center;">Interfacing Electrocatalysis and Bioconversion Enables Rapid Conversion of CO2 to Bioplastics and Much More</p> <p style="text-align: center;"><i><u>Peng Zhang</u></i></p>	<p style="text-align: center;">Multilayer dielectric capacitor</p> <p style="text-align: center;"><i><u>Ugur Aslan</u></i></p>
10:45	11:00	<p style="text-align: center;">Application of Machine Learning tool to evaluate and design green hydrogen production system</p> <p style="text-align: center;"><i><u>Vy Nhat Le</u></i></p>	<p style="text-align: center;">Methodology to Estimate Low Grade Enhanced Geothermal System (EGS) Reserves Using Heat Extracted from Depleted Wells in High Temperature Shale Gas Formations</p> <p style="text-align: center;"><i><u>Murtaza Ahmed Khan</u></i></p>	<p style="text-align: center;">Experimental Study of Di(2,2,2-trifluoroethyl) Carbonate: A Candidate Fire Suppressant for Lithium-ion Batteries</p> <p style="text-align: center;"><i><u>Claire Gregoire</u></i></p>

Poster Presentations

3:30 - 5:00 pm, Wednesday 9/28, and
3:00 - 4:30 pm, Thursday 9/29, MSC 2406

Poster #	Poster Name and Authors
1	Bioinspired and Biodegradable Redox-active Polypeptides From Ring-opening Polymerization of N-Carboxyanhydrides for Sustainable Energy Storage <i>Shih-Guo Li, Stone D. Naquin, Khirabdhi Mohanty, Tan P. Nguyen, Jodie L. Lutkenhaus</i>
2	Controlled batch pyrolysis of waste plastic resins and rubber tires to produce alternative liquid fuels for power generation <i>Clare McClay, Gus Waters, Anthony Rao, Mohammad Ruzlan Habib</i>
3	Design and Analysis of Satellite Network Architectures for Ecological Resilience <i>Alexander P. Duffy</i>
4	Design of novel photo-thermo-catalysts for enhanced and stable CO₂ Reforming of Methane <i>Zichen Du, Ying Li</i>
5	Design, Fabrication and Testing Of A Novel Thermally-Actuated Tesla Valve (TATV): A Hybrid Microvalve <i>Jonghyun Lee</i>
6	Nano-encapsulation of Paclitaxel with Natural Protein Carriers and Macromolecules <i>Laxmi Sai Viswanadha</i>
7	Economic and Environmental Assessment of Novel Air-Dehumidification Membranes for Air-Cooling Application <i>Ahmed Mohamed Nabeeh Mohamed</i>
8	Energy Management and Control System for a PV <i>Mingjun Wei</i>
9	Exfoliation, Delamination, and Oxidation Stability of Molten Salt Etched Nb₂CTz MXene Nanosheets <i>Kailash Arole, Swarnima Athavale, Miladin Radovic, Jodie L. Lutkenhaus, Micah J. Green</i>
10	Experimental Study of the nano-Fin Effect (nFE) During Thin Film Evaporation from Nanopores in Anodic Aluminum Oxide (AAO) Membrane Substrates Integrated with Nano-Thermocouple/Thin Film Thermocouple (TFT) Array <i>Juliet Shafer</i>

Poster Presentations (Contd.)

3:30 - 5:00 pm, Wednesday 9/28, and
3:00 - 4:30 pm, Thursday 9/29, MSC 2406

Poster #	Poster Name and Authors
11	Data-Driven Next Generation Resilient and Sustainable Energy Supply Chain <i>Shivam Vedant</i>
12	Going Against the Flow: Designing Building Blocks for Fluoride-Ion Batteries <i>Wasif Zaheer</i>
13	Maximizing Social Welfare and Agreement via Information Design in Linear-Quadratic-Gaussian Games <i>Furkan Sezer</i>
14	NMR Study of Ni_{50+x}Ti_{50-x} Strain-Glass and Shape Memory Alloys <i>Rui Li, Jacob Santiago, Daniel Salas, Woohyun Cho, Ibrahim Karaman, Joseph Ross</i>
15	Novel Big Data Framework for Building Cooling Load Prediction - An Approach to Maximize Energy Savings. <i>Akshay Jindal</i>
16	Optimization of Thin Film Nanocomposite Forward Osmosis Membranes for the Application of Produced Water Treatment <i>Layla Ogletree, Hongbo Du, Raghava R. Kommalapati</i>
17	Poly(ionic liquid) Multiblock Polymer Electrolytes for Solid-State Lithium Metal Batteries <i>Dohyun Kim, Tzu-Ling Chen, Roger Tocchetto, Bert Krutzer, Carl Willis, Yossef A. Elabd</i>
18	Towards Commercialization of CO₂RR Through Sustainable and Scalable Synthesis <i>John Pellessier, Yang Gang, Ying Li</i>
19	Zinc Nitrate Hexahydrate Eutectics for Low-Cost Thermal Energy Storage <i>Sophia Ahmed</i>

Venue Maps



Memorial Students Center (MSC) Building
Level 2

-  Registration desk
-  Bethancourt Ballroom (2300A & B)
-  Gates Ballroom (2400)
-  Oral presentations (2404, 2405, 2500)
-  Poster Sessions /Networking (2406)

ELECTIONS FOR 2022-2023

ERS OFFICERS

Election day is right around the corner! Be a part of the Texas A&M Energy Research Society leadership. Elections will take place in late October 2022! Become the next President, Vice President, Technical Directors or Event Coordinators of our society.

Want to be a volunteer in our society? Fill out our membership form on the registration desk/QR code today or contact any of the current ERS officers. For your questions, send us an email at tamuers@gmail.com.



Follow us:



@tamuers



@tamuers



@tamuers



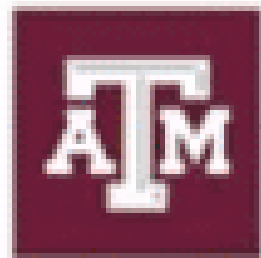
Texas A&M
Energy Research Society

Thank you to all our Sponsors!

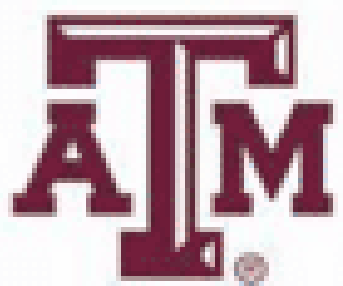


Shell

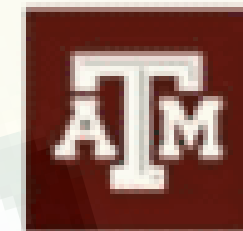
HALLIBURTON



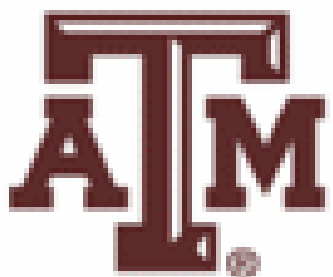
TEXAS A&M UNIVERSITY
Artie McFerrin Department of
Chemical Engineering



**TEXAS A&M ENERGY
INSTITUTE**
TEXAS A&M UNIVERSITY



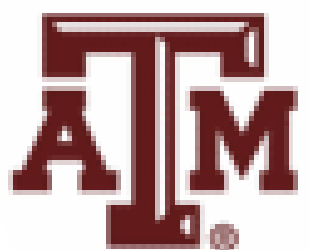
TEXAS A&M UNIVERSITY
Chemistry



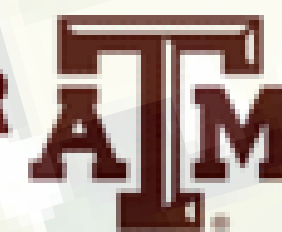
**MATERIALS SCIENCE
& ENGINEERING**
TEXAS A&M UNIVERSITY



Texas A&M Engineering
Experiment Station



**ELECTRICAL & COMPUTER
ENGINEERING**
TEXAS A&M UNIVERSITY



**INDUSTRIAL & SYSTEMS
ENGINEERING**
TEXAS A&M UNIVERSITY



SMART GRID CENTER
TEXAS A&M ENGINEERING EXPERIMENT STATION



NUCLEAR ENGINEERING
TEXAS A&M UNIVERSITY

ChEGSA
TEXAS A&M UNIVERSITY



**MARY KAY O'CONNOR
PROCESS SAFETY CENTER**
TEXAS A&M ENGINEERING EXPERIMENT STATION



Texas A&M Energy
Research Society