

10th Texas A&M Conference on Energy



**Global Energy Solutions: Translating Breakthrough
Technologies into Real-World Impact**

September 24-25
at Memorial Student Center (MSC)

2026



Howdy!

**Warm greetings from
the 2026 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!



Conference Schedule

DAY 1: September 24th, 2026

Start Time	End Time	Title	Presenter	Association
5:30 PM	6:00 PM	Registration & Entry <i>Outside MSC Ballroom 2400</i>		
6:00 PM	6:15 PM	Opening Remarks <i>MSC Ballroom 2400</i>	Prof. Efstratios N. Pistikopoulos	Texas A&M Energy Institute
6:15 PM	6:30 PM	ERS Introduction <i>MSC Ballroom 2400</i>	Lavanya Upadhyaya, ERS President	Department of Nuclear Engineering
6:30 PM	7:30 PM	Keynote Address: Towards Trustworthy Autonomous Process Control: Explainable AI in the Context of Reinforcement Learning Deployment at Industrial Scale <i>MSC Ballroom 2400</i>	Elbert van der Bijl	YOKOGAWA
7:30 PM	9:00 PM	Networking & Dinner Session <i>MSC Ballroom 2400</i>		

Conference Schedule

DAY 2: September 25th, 2026

Start Time	End Time	Title		Presenter	Association
8:00 AM	9:00 AM	Registration & Breakfast <i>MSC Ballroom 2400</i>			
9:00 AM	9:15 AM	Opening Remarks <i>MSC Ballroom 2400</i>		TBA	Texas A&M Energy Institute
9:15 AM	9:45 AM	Plenary Lecture: National Energy Innovation and Scale-up Infrastructure <i>MSC Ballroom 2400</i>		Dr. Christopher T. Wright	Idaho National Laboratory
9:45 AM	10:00 AM	Break			
10:00 AM	11:30 AM	Morning Oral Sessions			
		Sustainable and Multifunctional Materials & Catalysis <i>MSC 2500</i>	Simulation Models and Risk Analysis <i>MSC 2501</i>	Data Science and Statistical Learning <i>MSC 2502</i>	Energy-driven Policies and Environmental Impacts <i>MSC 2503</i>
11:30	11:35	ChEGSA Advertisement <i>MSC Ballroom 2400</i>			
11:35	11:45	NTAEE Vice President: Mark Witt <i>MSC Ballroom 2400</i>			
11:45 PM	12:45 PM	Panel Discussion: AI and Emerging Technologies Across the Energy Safety and Value Chain <i>MSC Ballroom 2400</i>		Moderator: Dr. Miriam Sarkis Panels: Elbert van der Bijl Nicholas Bennet Dr. Christopher T. Wright Dr. Karen Kirkland	Texas A&M Energy Institute YOKOGAWA CPS Energy Idaho National Laboratory Department of Nuclear Engineering



Conference Schedule

DAY 2: September 25th, 2026

Start Time	End Time	Title		Presenter	Association
12:45 PM	1:45 PM	Lunch <i>MSC Ballroom 2400</i>			
1:45 PM	2:15 PM	Special Talk <i>MSC Ballroom 2400</i>		Nicholas Bennet	CPS Energy
2:15 PM	2:30 PM	Invited Speaker Lecture <i>MSC Ballroom 2400</i>		Dr. Roman Shor	Department of Petroleum Engineering
2:30 PM	2:45 PM	Break			
2:45 PM	4:15 PM	Afternoon Oral Sessions			
		Sustainable and Multifunctional Materials & Catalysis <i>MSC 2500</i>	Data Science and Statistical Learning <i>MSC 2501</i>	Process Modeling, Design & Control <i>MSC 2502</i>	Numerical Modeling and Simulations for Energy Technology <i>MSC 2503</i>
4:15 PM	4:30 PM	Break			
4:30 PM	5:30 PM	Poster Session: Recruiting & Networking Session <i>MSC 2401</i>			
5:30 PM	6:00 PM	Awards & Closing Remarks			



Introductory Remarks



Professor Efstratios Pistikopoulos

Professor Pistikopoulos is the Director of the Texas A&M Energy Institute and the Dow Chemical Chair Professor in the Artie McFerrin Department of Chemical Engineering at Texas A&M University. He was a Professor of Chemical Engineering at Imperial College London, UK (1991-2015) and the Director of its Centre for Process Systems Engineering (2002-2009). At Texas A&M Energy Institute, he is the Course Director of the Master of Science in Energy, the Co-Director of the Southern Regional Manufacturing Centre, the director of the Data Sciences Core of the Texas A&M SUPERFUND research center, and the Texas A&M Principal Investigator of the RAPID Institute on process intensification, co-leading the Modeling & Simulation Focus Area.

He holds a Ph.D. degree from Carnegie Mellon University and he worked with Shell Chemicals in Amsterdam before joining Imperial. He has authored or co-authored over 400 major research publications in the areas of modelling, control and optimization of process, energy and systems engineering applications, 12 books and 2 patents. He is a Fellow of IChemE and AIChE, and the Editor-in-Chief of Computers & Chemical Engineering. He was a former Chair of the Computing and Systems Technology (CAST) Division of AIChE and he serves as a trustee of the Computer Aids for Chemical Engineering (CACHE) Organization. In 2007, Prof. Pistikopoulos was a co-recipient of the prestigious MacRobert Award from the Royal Academy of Engineering. In 2012, he was the recipient of the Computing in Chemical Engineering Award of CAST/AIChE, while in 2020 he received the Sargent Medal from the Institution of Chemical Engineers. He received the title of Doctor Honoris Causa in 2014 from the University Politehnica of Bucharest, and from the University of Pannonia in 2015. In 2013, he was elected Fellow of the Royal Academy of Engineering in the UK.

Distinguished Keynote Address



Elbert van der Bijl

Elbert van der Bijl is the Director of Organization Transformation, IT and Consulting for Yokogawa Corporation of America. He joined Yokogawa in 2008 and has held various roles in Marketing and Sales throughout his tenure. He holds a master's degree in Chemical Engineering from Delft University of Technology and has been working in the industrial automation industry for 28 years. In addition to his passion for Co-innovating with end-users in the process industry, Elbert has had the pleasure of working closely with the headquarter organization in Japan as well as several R&D centers within Yokogawa globally on new technology developments.

Towards Trustworthy Autonomous Process Control: Explainable AI in the Context of Reinforcement Learning Deployment at Industrial Scale

The transition from industrial automation to industrial autonomy demands not only capable AI algorithms, but AI systems that operators, engineers, and regulators can interrogate and trust. This talk addresses that challenge by examining Explainable AI (XAI) methods in the context of reinforcement learning (RL) based autonomous control, using as a case study the recent deployment of Factorial Kernel Dynamic Policy Programming (FKDPP) at Aramco's Fadhil Gas Plant in Saudi Arabia.

FKDPP enables AI agents to derive optimal control strategies without predefined process models, allowing them to handle multivariable interactions, nonlinear behavior, and fluctuating process conditions. At Aramco's Fadhil Gas Plant, these agents draw on more than 30 critical process parameters to autonomously adjust variables such as amine temperature, and circulation rate during acid gas removal (AGR) operations.

As RL agents assume direct real-time control of safety-critical processes, the "black-box" nature of such systems presents a fundamental barrier to adoption. This talk explores how XAI techniques such as feature attribution, policy visualization, and counterfactual explanations, can be applied to RL-based controls to surface reasoning behind the autonomous decisions. We discuss practical frameworks for building operator-facing explanations that align with process engineering institutions, and examine the implications for safety validation, regulatory acceptance, and human-machine collaboration in the shift toward fully autonomous plant operations.

The FKDPP deployments such as the one at Aramco serve as a concrete, industrial-scale testbed for these ideas, and points towards a broader research agenda at the intersection of process control, machine learning, and human factors.

Plenary Lecture

Dr. Christopher T. Wright

Dr. Christopher T. Wright is a recognized leader in integrated energy systems with more than 25 years of experience guiding transformative technologies from early-stage concepts through pre-commercialization. As Director of INL's Energy Technology Proving Ground Division, he bridges the critical gap between scientific discovery and real-world deployment. Dr. Wright spearheads initiatives that integrate heat, electricity, hydrogen, and carbon technologies to strengthen the competitiveness of U.S. industries, municipalities, and research institutions. As a division director and research strategist for INL's Energy and Environment Science and Technology Directorate (EES&T), his leadership has been instrumental in shaping long-term direction — most notably through the Accelerating Integrated Energy Systems Initiative — positioning INL as a national leader for integrated energy innovation. He collaboratively created and launched the Energy Technology Proving Ground, a landmark research complex demonstrating real-world multi-source energy integration. Under his leadership, INL has secured funding for integrating and demonstrating pre-commercial systems including high-temperature electrolysis, biogenic carbon utilization, synthetic fuels and chemical production, and thermal and electrical energy integration and storage.



National Energy Innovation and Scale-up Infrastructure

A Network of Energy Proving Grounds to Secure U.S. Energy Dominance

The United States has the research base to lead the next era of energy technology. It does not have the infrastructure to prove that technology at scale, fast enough to compete. Nuclear energy, hydrogen production, thermal systems, biomass processing, advanced chemical production — the pieces exist across the country's laboratories, universities, and companies, but no single domestic facility connects them into a working, demonstration-scale energy system. That gap is the largest obstacle between American innovation and American energy dominance, and closing it requires a national network of Energy Technology Proving Grounds: integrated, industry-facing infrastructure built to compress the timeline from early-stage research to commercial deployment.

Idaho National Laboratory's Energy Technology Proving Ground demonstrates why this model works. It integrates nuclear energy, hydrogen production, thermal energy systems, biomass processing, and advanced chemical production into a single, interconnected living laboratory. Facilities exchange the four energy currencies of heat, electricity, hydrogen, and carbon, so each system supplies inputs to and draws outputs from the systems around it, across nine synergistic research areas. A modular, plug-and-play design lets industry partners connect proprietary systems directly to shared infrastructure, without absorbing the cost, schedule, and land burdens that ordinarily make demonstration-scale testing prohibitive. This is the model the nation needs — not once, but many times over, in the regions and institutions best positioned to advance it. A single Proving Ground proves that integration works; only a national network proves it at the speed the moment requires. Universities bring foundational research and workforce; national laboratories bring systems integration and federal mission alignment; industry brings capital and deployment discipline. No one type of institution can carry this alone, and the countries competing hardest for energy leadership are not waiting for the U.S. to decide otherwise.

The window to act is now. INL's Proving Ground is already scaling existing hydrogen and carbon production capacity from kilowatt-range systems toward megawatt commercial demonstrations, with later phases integrating thermal energy systems and synthetic fuels and chemicals production. Every year without a broader network is ceded to competitors building their own integrated demonstration capacity. Building that capacity broadly — across a network of proving grounds rooted in America's national laboratories, universities, and industrial base — is the clearest path to U.S. dominance in integrated energy systems.

Special Talk

Nicholas Bennet

Manager of Economic Development at CPS Energy

09/25/2025, 1:45-2:15 PM



Invited Speaker Session

Dr. Roman Shor

Associate Professor and Douglas Von Gonten Faculty Fellow,
Harold Vance Department of Petroleum Engineering at Texas
A&M University

09/25/2025, 2:15-2:30 PM



Panel Discussion

AI and Emerging Technologies Across the Energy Safety and Value Chain

Elbert van der Bijl

Director of Organization Transformation & IT
at YOKOGAWA

Speaker



Dr. Christopher T. Wright

Director, Energy Technology Proving Ground Division
at Idaho National Laboratory

Speaker



Nicholas Bennet

Manager of Economic Development at CPS Energy

Speaker



Dr. Karen Kirkland

Professor at Department of Nuclear Engineering,
Texas A&M University

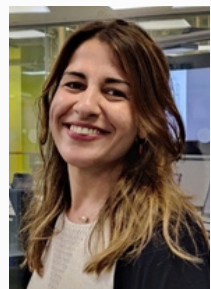
Speaker



Dr. Miriam Sarkis

Postdoctoral Researcher at Texas A&M Energy Institute

Moderator



Morning Oral Presentations 10:00 - 11:30 AM

Time	SUSTAINABLE AND MULTIFUNCTIONAL MATERIALS & CATALYSIS	SIMULATION MODELS AND RISK ANALYSIS	DATA SCIENCE AND STATISTICAL LEARNING	ENERGY-DRIVEN POLICIES AND ENVIRONMENTAL IMPACTS	MULTI-SCALE ENERGY SYSTEMS AND OPTIMIZATION
10:00 – 10:15	Effect of Silane Coating Temperature on Nanostructured Surfaces for Jumping Droplet Condensation and the Role of Non-Condensable Gases in Heat Transfer Performance Yanxiu Ge	Severe Accident Analysis of Small Modular Reactors for Establishing Multi-Unit Siting Boundaries Dillon Scott	Sequential Projection for Learning Nonlinear Parametric Optimization in Engineering and Energy Systems Bimol Nath Roy	The Rise (And Fall?) of US Offshore Wind Elizabeth Nyman	Risk-Aware Design of Resilient and Sustainable Chemical Supply Chains: Insights from an LLDPE Manufacturing Case Study Catherine Nkoutche
10:15 – 10:30	Block Copolymer-Enabled Low-Temperature Structural Battery Electrolytes Produced Using Polymerization-Induced Phase Separation Sayyam Deshpande	Toward Safer Battery Systems: A Nondestructive Diagnostic Approach for Thermal History in Lithium-Ion Cells Kazi Araf Sayeed	GATES: A Geothermal Acceptance Tracking and Evaluation System Using Multi-Source Social Sensing Yifan Yang	Urban Fracking, Residential Sorting, and Economic Welfare of Nearby Residents Kyung Tae Cho	Graph-Based Optimization of Injector Well Placement and Production Controls for Improved Reservoir Development Parth Shah
10:30 – 10:45	CO ₂ Nanobubble Systems for Enhanced Oil Recovery: Fundamentals, Transport Mechanism & Field Application Alok Kumar	Time-Resolved Risk Assessment of CO ₂ Injection and Storage in Offshore Saline Aquifers Bright Odiike	Toward a Multiscale Framework for Inverse Catalyst Design for Sustainable Energy Conversion M G Toufik Ahmed	From Silos to Systems: Governance and Market Design for Multi-Utility Cluster Coordination at Port Houston Fedor Mikheev	A Data-Driven, Multiscale Modelling Approach for Droplet-Shock Wave Interaction Prithvi Ramesh
10:45 – 11:00	Enzyme-Assisted Viscosity Reduction of Prickly Pear Cactus Cladodes for Renewable Biofuel Applications Toyese Oyediran	Analytical Stability Analysis of Common Water-Cooled Reactors Michael Parnell	AI-Driven Adaptive Thermal Management for Enhanced Geothermal Systems Using Huff-n-Puff Cyclic Injection Lokesh Kumar Sekar	The FSRU Imperative: Financing Sovereign Energy Security Joe Impagliazzo	From Design to Deployment: Multiscale Optimization and Black-Box Feasibility Mapping for Intensified Processes Puneeth Ganesh Babu Agoram
11:00 – 11:15	Tuning Glassy Dynamics and Dielectric Response in Complex Coacervates for Soft Electronics and Energy-Efficient Materials Karan Kr. Paswan	A Realizable RANS Framework for Accurate Hydrodynamic Load Predictions on Offshore Structures Lubna Margha	From Technology to Adoption: Modeling Stakeholder Engagement in Community Solar Projects Brendan Vohs	Geological Storage for a Comprehensive Approach to Energy Production and Greenhouse Gas Mitigation Sherilyn Williams-Stroud	Sequential Fracture Activation and Stress Evolution During EGS Stimulation at Utah FORGE Richard Asirifi
11:15 – 11:30	Interfacial pH Dynamics in Lattice-Nitrogen Protonation to Ammonia David Kumar Yesudoss		PARSEC-EDMDc: Sparse, Stability-Constrained Reservoir Modeling Through Parametric Hyperparameter Optimization Dimitrios Voulanas	Life Cycle Assessment of Integrated Hydrogen Refueling and Electric Vehicle Charging Stations Franck Nangomoko	

Afternoon Oral Presentations 2:45 - 4:15 PM

Time	SUSTAINABLE AND MULTIFUNCTIONAL MATERIALS & CATALYSIS	DATA SCIENCE AND STATISTICAL LEARNING IN ENERGY APPLICATIONS	PROCESS MODELING, DESIGN & CONTROL	NUMERICAL MODELING AND SIMULATIONS OF ENERGY TECHNOLOGIES
2:45 – 3:00	Tailored TiO ₂ -Doped Nanocomposites: A Journey Through Synthesis, Characterization, and Photocatalytic Activity Miftahul Mobin Chowdhury	HVAC Runtime Normalized EUI Metric for School Energy Benchmarking Dhyan Patel	Enabling Refrigerant Reclamation through Integrated Property Modeling, Solvent Screening, and Process Design Ahaduzzaman Nahid	Novel Swirl Flow Separator using Flash Evaporation for Extremely High Salinity Desalination Applications Chinmay Rajesh Chavan
3:00 – 3:15	Poromechanical and Microstructural Evidence of Rock Weakening During Serpentinization Ummu-kulthum Lawal	Energy Systems Optimization with Quantum Computing Deepshika Dutta	Robust Reformulation of Model Predictive Control via Data-Driven Uncertainty Sets: A Koopman Operator Approach Daniel Ribeiro	Can Stimulated Geological Hydrogen Generation Systems be Circular? N. Mitha Angelina
3:15 – 3:30	Radio Frequency Heating for Electrified Hydrocarbon Conversion Somtochukwu Lambert	A Scientific Machine Learning Approach for Geothermal Borefield Thermal Modeling via Residual Learning Hang Guan	Enhancing Interpretability of Cyber-Physical Power System Risk Assessment Through Multilayer Network Visualization Shanta Stiles	Enhancing Post-Combustion CO ₂ Capture through Flue Gas Conditioning in an Integrated Solid Oxide Fuel Cell-Gas Turbine System Mehran Bahari
3:30 – 3:45	Joule-Heated Catalytic Methane Decomposition Over Ni/Al ₂ O ₃ With CO ₂ -Assisted Regeneration Mohamed Youssef	Embedding Thermodynamics in Graph Neural Networks for Gas Adsorption Prediction of Nanoporous Materials Rahul Golder	Risk-Based Explicit Model Predictive Control for Safer Lithium-Ion Battery Charging Tasya Nasoetion	Affect of Nose Bluntness and Cone Angle on Shock Structure of a Blunt Cone David Gonzalez
3:45 – 4:00	Synthesis and Comparative Evaluation of Magnesium Ferrite-Modified Biochars for Cadmium Adsorption Hailey Henry	Component-Level Inverse Building Energy Modeling from Operational Data Using Component-Structured Physics-Informed Neural Networks Yilin Cai	An Experimental Model for Anhydrous Ammonia Dispersion During Maritime Operations Damian Ambriz	Numerical Simulation of High-Speed Shock Interaction with Hydrometeors Ajith Sukumaran
4:00 – 4:15	MnO ₂ -TiO ₂ Particles Incorporated Pinewood-Derived Biochar as a Multifunctional Composite for Adsorptive and Catalytic Removal of Organic Contaminants and Lead from Water Brittany Bufford			

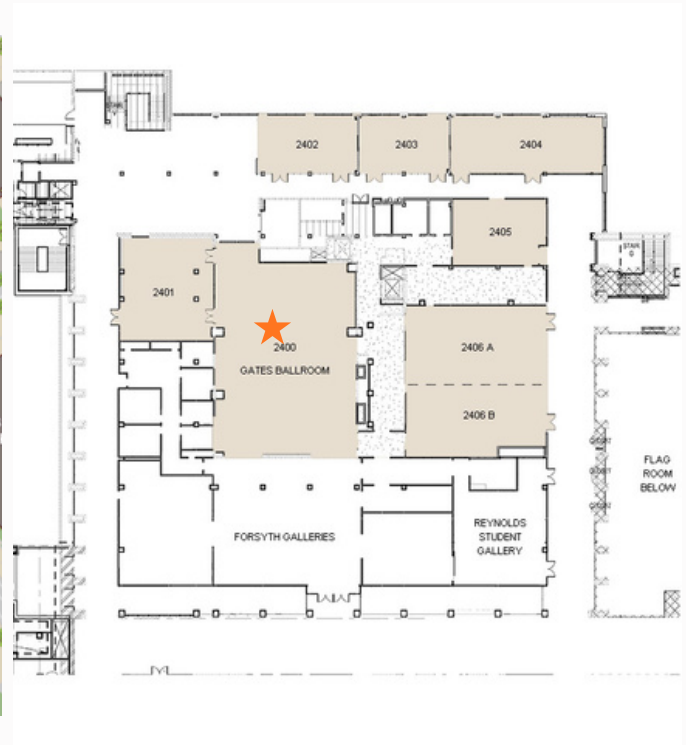
Poster Presentations 4:30-5:30 PM

#	Presentation Title	First Author
1	The Resource Nexus in the Age of AI Evaluating Socioeconomic and Environmental Trade-Offs of Data Center Development	<u>Emma Chao</u>
2	From Evidence to Engagement: Developing a Driver-Scoring Framework for Geothermal Social Acceptance	<u>Xiaowei Chen</u>
3	Filling Data Gaps in EIA-860: A Gaussian Mixture Model Approach to Estimating Proposed Generator Characteristics	<u>Sai Sreemayi Davuluri</u>
4	Plasma Jet Sintering of Galfenol Nanoparticles for Nuclear Reactor Structural Health Monitoring	<u>Evette Delgado</u>
5	Bridging Experiment and Modeling: Coupling CO ₂ Sequestration with Orange Hydrogen Production in Basaltic Rocks	<u>Raghda Emera</u>
6	Driving Toward a Sustainable Future: Optimization of the Energy–Materials–Mobility Nexus Under Uncertainty	<u>Betsie Montaña Flores</u>
7	Tracking In-situ Combustion Using Acoustic Signals in Conventional Reservoirs	<u>Robert Gass</u>
8	Design of a Compact, High-Efficiency Bidirectional Onboard EV Charger for Grid-Interactive Transportation	<u>Pavani Sri Sai Sphoorthi Gurram</u>
9	Salt Caverns: Strategic Energy Storage Assets	<u>Mahya Hatambeigi</u>
10	Optimizing MXene-Based Electrodes for Point-of-Need Ammonia Fuel	<u>Laura Hoagland</u>
11	High-Throughput Down-Selection of Deep Eutectic Solvent Electrolytes	<u>Bryn Jenkins</u>
12	Processing-Induced Structural and Surface-Chemical Evolution in Ti ₃ AlCN-Derived Ti ₃ CNT _x MXenes: Electrochemical and Photothermal Response	<u>Rupesh Lal Karn</u>
13	Controls on Normalized Undrained Shear Strength Across Active and Passive Continental Margins: A Linear Mixed-Effects Model	<u>Isaac Attah Korsah</u>

Poster Presentations 4:30-5:30 PM

#	Presentation Title	First Author
14	Effect of Hydrogen Bond Donor on the Solubility of Redox-Active Molecules in Deep Eutectic Solvents	<u>Yuju Lu</u>
15	Shaping Battery Insertion Electrodes for Resilience and Performance	<u>Arnab Maji</u>
16	Characterizing Anthropogenic Signals at RELLIS Campus Explosion Site Using Nodal Arrays	<u>Evelynne Metzler</u>
17	Formulation of Microemulsions with Hydrophobic Deep Eutectic Solvents for Electrochemical Energy Storage Applications	<u>Joseph Miranda</u>
18	Transient Wellbore Behavior and Thermodynamic State Changes During CO ₂ Injection	<u>Subhrojit Mondal</u>
19	Positron Annihilation Lifetime Spectroscopy (PALS) An Advanced Nondestructive Evaluation Method for Material Defect Characterization	<u>David Nguyen</u>
20	Computational Analysis of Hypersonic Flow Over a 3D Sphere	<u>Ahren Peters</u>
21	Optimizing Low-Carbon Transportation Pathways with Consideration of Land and Water Use	<u>Noah Roberts</u>
22	Thermodynamic and Economic Barriers to Onboard Methane Pyrolysis as a Maritime Decarbonization Pathway	<u>William Rossi</u>
23	Redox Active Diarylselenides Potentiated by Carbenium Functionalities: Synthesis, Reactivity and Catalytic Studies	<u>Arkamitra Roy</u>
24	Numerical Simulation of High-Speed Water Droplet Impingement for Energy-System Durability	<u>Anik Sarker</u>
25	Flexible Energy-Intensive Supply Chains under Carbon Taxes and Alternative Grid Futures	<u>Leila Talebi</u>
26	High Average and Linear Scaling of Ecological Footprint in Cities	<u>Kaili Zhang</u>

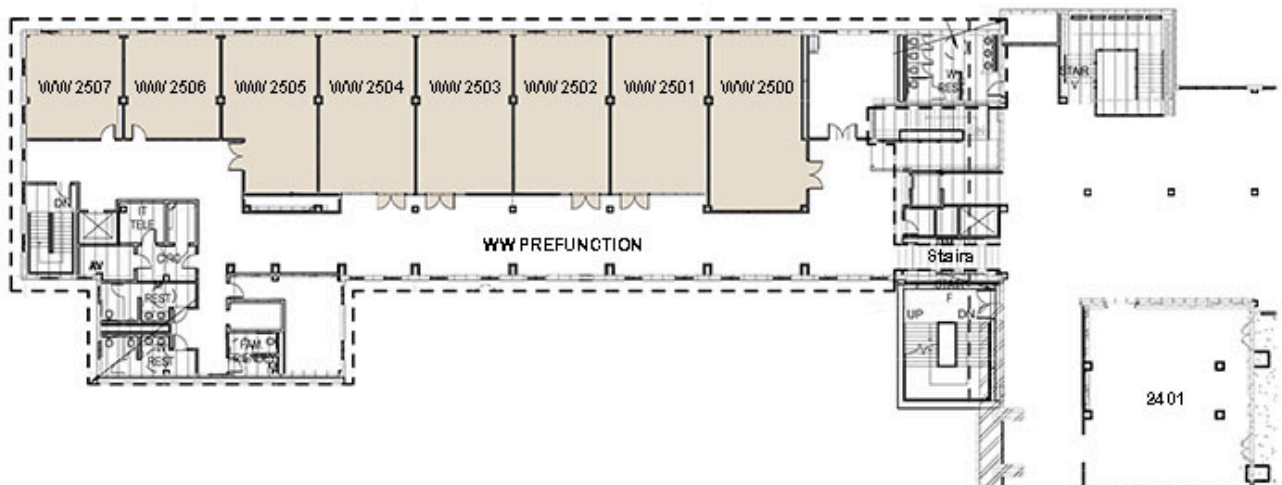
Venue Map



Memorial Student Center, Building 0454
275 Joe Routt Blvd, College Station, TX
77843

★ Registration Desk, Workshops, Plenary Sessions and Reception Dinner

Layout of hall to presentation rooms



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Texas A&M
Energy Institute

**We're excited to see all the
outstanding research you've been
working on!**

*Elections for
2026-27 officers!*

Election day is right around the corner! Be a part of the Texas A&M Energy Research Society (ERS) leadership, elections will take place in late October 2026! Become the next President, Vice President, Technical Directors or Events Coordinator 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.



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