STS-AIChE Southwest Process Technology Conference, September 22-23, 2025

Time	Monday September 22	
8:00-9:00 am	Keynote 1: Dean Foreman, Chief Economist of the Texas Oil & Gas Association (TXOGA). Global Economics and Energy Outlook – Q3 2025 **(Houston Room)**	
	Track 1: Multipurpose Room	**Track 2: Houston Room**
9:15-10:45 am	Energy Efficiency 1 Chairs: Gary Gildert, University of Houston; Carlos Gamarra, HARC Session Description: Energy accounts for around 30% of operating expenses in oil refineries and chemical manufacturing facilities. Improving energy efficiency is a strategic move to reduce costs, enhance profitability, and maintain competitive advantage while reducing the associated environmental emissions and facilitating resilience in operations. This session explores practical strategies and case studies demonstrating how energy optimization can be integrated into existing systems to deliver measurable value. Paper 1: U.S. DOE's Energy Intensive Industries Initiative. Paul Sheihing, Principal, 50001 Strategies LLC; Jimmy Kumana, Kumana and Associates; Aye Meyer and Senthil Kumar Sundaramoorthy, Oak Ridge National Laboratory. Paper 2: Various Approaches for Identifying Energy Efficiency Opportunities in Pumping Systems. Bryan White, Senior Field Engineer - Energy Advantage, Tyler Thomas, George Vucak, Flowserve Corporation Paper 3: Pinch Analysis of a Complex Reboiler System. Matt Lumnitzer, Process Engineer, Cliff Maat, Process Engineer, TPC Group	Process Safety & Risk Management Chairs: Samantha Scruggs, Archaea Energy; Shailesh Saraykar, Ingenero Inc. Session Description: This sesssion will disucss artificial intelligence considerations in process safety, how to uncover and mitigate relief system design deficiencies, and hazards inherent to chemical transfer operations. Paper 1: Chemical Loading and Unloading: Risks at the Intersection of the Truck Driver and the Facility Nicholas Reding, Managing Engineer, Exponent Inc. Paper 2: Process Safety Digitization David Drerup, CEO, Operational Sustainability, LLC Paper 3: Uncovering Relief System Design Deficiencies to Enhance Process Safety Akash Majumdar, Marketing Manager, Ingenero Inc.; Michael Marshall, PE, Owner AI-PSM, Advisory Director Ingenero Inc.
10:45-11:05 am	Refreshments & Networking Break **(Houston Room)**	
11:05 am - 12:05	Energy Efficiency 2 Chairs: Carlos Gamarra, HARC; Gary Gildert, University of Houston Session Description: This session explores practical strategies and technologies to optimize energy use in industrial facilities. Topics include low-cost intelligent diagnostics to enhance equipment performance, recent advances in data-driven maintenance and control, and the expansion of enterprise-wide monitoring systems to steam networks and crude preheat trains. Attendees will gain insights into how innovation and system-level thinking can drive substantial improvements in energy efficiency, operational reliability, and overall performance. Paper 1: Low Cost Intelligent Diagnostics for Improving the Energy Efficiency of Industrial Equipment. Bryan Rasmussen, Professor, Texas A&M University, Mechanical Engineering Department Paper 2: Expanding Enterprise-Wide Monitoring to Steam Systems and Crude Preheat Trains for Enhanced Energy Optimization. Bill Hicks, Principal Sustainability Process Engineer, ExxonMobil and Angel Lanza Soto, ExxonMobil.	Advances in Digitalization, Part 1: IIoT Chairs: Mark Darby, Principal Consultant, CMiD Solutions; & Jim Brigman, Principal and Managing Director, Ingenero Session Description: The Industrial Internet of Things (IIOT) is transforming how process plants operate, enabling visibility, efficiency, and control across the value chain. As we navigate the accelerating pace of digital transformation, IIoT technologies are enabling smarter, more responsive operations by connecting sensors, equipment, and control systems to powerful analytics platforms in real time. This session looks at how IIoT is not only transforming individual processes but redefining the way we monitor and optimize the entire production systems to improve process insights, operator effectiveness and safer plant operation. Paper 1: Workforce Connectivity: The benefits of operator round tools. Fortunatus (Fortune) Udegbue, Indorama; Sri Karthik, Innovapptive; Sundeep Ravande, CEO, Innovapptive. Paper 2: Regarding process automation modernization topics with AI and real-time edge optimization. Iiro Esko, Senior Consultant, Siemens Industry, Inc.

12:05-1:30 pm	Lunch Break **(Houston Room)** Engineering Ethics **(Bayou City Room)** Presenter: Alan Rossiter, Rossiter & Associates Session Description: This interactive session examines the structure of a code of professional ethics, and discusses case studies that illustrate how it can be used to navigate ethical dilemmas.	
1:30-3:10 pm	Distillation and Separation Chairs: Tony Cai, FRI; Babak Rafi, AMACS Session Description: This session focuses on distillation and separation processes, as well as new technology development. Topics of interest include mass transfer fundamentals, energy-saving strategies, and the future of distillation. Paper 1: What could distillation look like in the next couple of decades? Izak Niewouldt, Fractionation Research, Inc. Paper 2: Distillation Diagnostics: The Forgotten Child of the Energy Transition. Henry Kister, Fluor, and Norman P. Lieberman Paper 3: A Novel Rate-based Model for Liquid-Liquid Extraction: Validation with Plant Data. Ashish Patel, Optimized Gas Treating Inc., Prashanth Chandran, and Ralph Weiland.	Advances in Digitalization, Part 2: AI Chairs: Jim Brigman, Principal and Managing Director, Ingenero; Mark Darby, Principal Consultant, CMiD Solutions Session Description: Applications of AI in the process industries continue to increase, providing a greater role in improving process insights, reliability and operator effectiveness. This session explores how AI-driven models are being deployed to optimize complex systems, reduce downtime, and support smarter decision-making across operations. From predictive maintenance and process anomaly detection to control strategies and yield optimization, machine learning is enabling plants to move from reactive to proactive operations. By training models on historical and real-time data, AI can uncover patterns too complex for traditional methods—delivering faster insights and actionable recommendations. Paper 1: From Principles to Practice: Governing AI Responsibly in Manufacturing. Kaytlin Henderson, Analytics & AI Leader, Dow Paper 2: From Data to Decisions: AI-Powered Operational Excellence in Chemical Manufacturing. Girish Thenkurissi, Parag Shah and Pravin Jathar, Ingenero Meet the Sponsor: Ingenero Paper 3: Optimizing Industrial Energy Use with AI-Driven Battery Storage: A Case Study of Imperial Oil's Sarnia Facility. Angel Lanza Soto, ExxonMobil
3:10-3:30 pm	Refreshments & Networking Break **(Houston Room)**	
3:30-5:00 pm	Refinery Technology & Operations Chair: Kirtan Trivedi, ExxonMobil Session Description: This sesssion will disucss how to optimize and improve performace of refinery processing units. Paper 1: Achieve Test Run Objectives with Advance Preparation and Real Time Reports - Charles Herzog (Retired - Kellog, Shell, Mustang, Technip) Paper 2: Improving Performance of CO Boilers - Ashutosh Garg, Furnace Improvements Paper 3: Use of dewaxing catalyst to expand feedstocks option in naphthenic lubes - Scott Sayles, Becht	Chemical Plant Technology & Operations Chairs: Sanjeev Kapur, Apex PetroConsultants; Le Wang, Dow Chemical Company Session Description: This session explores the evolution, challenges, and opportunities in chemical plant operations, with a focus on ethylene production and olefins. Through real-world case studies and forward-looking insights, we'll dive into how technology, safety systems, and data analytics are shaping the future of plant performance and resilience in a volatile global market. Paper 1: Cracking Technology - Past, Present & Future. John Murphey, Senior Principal Technologist, Technip Energies Paper 2: Ethylene Plant Case Studies – Process Technologies and associated Critical Hazards, SIS Functions, Data Analytics, and Optimum Testing. Curtis Miller, GM/Principal Consultant, SIS SILverstone LLC, and Michael Poston, Functional Safety Associate Paper 3: Olefins to Opportunity: Navigating the Global Storm in Petrochemicals. Sanjeev Kapur, Principal Consultant and President, Apex PetroConsultants
5:00-6:15 pm	Reception / Student Poster Session **(Houston Room)** Jaci Conrad	
6:15-9:00 pm	STS-AIChE Dinner Meeting **(Houston Room)** (Ticketed Event)	

	Tuesday September 23	
8:00-9:00 am	Keynote 2: Dan Coombes, Director of PureCycle Technologies Inc.; formerly EVP for LyondellBasell. The Future of Chemical Engineering **(Houston Room)**	
	Track 1: Multipurpose Room	**Track 2: Houston Room**
9:15-10:45 am	Catalysis & Reaction Engineering Chairs: Swapnil Sharma, ExxonMobil & Oxford Peng, Honeywell Session Description: Catalysts are essential for enhancing production efficiency in various process plants. This session will explore optimization of catalysts and processes within the industry, along with a deeper understanding of catalyst kinetics and the related research and development. We will gain insights from presentations by industry leaders and academic experts, discussing their experiences in improving the economics of chemical processes and developing advanced chemical solutions. Paper 1: Catalyst and Process Optimization for Intensification of Ethylene Oxide Plant Designs - Jimmy Wells, Shell Paper 2: Kinetics Related to CO2 Scrubbing Using Aqueous Amine Solutions - Le Wang, Dow Chemical Company Paper 3: Direct Propylene Epoxidation by Water Oxidation on PdPtOx Electrocatalysts - Jason Adams, Rice University	Renewable and Sustainable Technology 1 Chairs: Gus Georgeton & Dhaval Bhandari Session Description: Our industry is working to gradually tighten the circle of raw material to finished product and back around. The creative application of process technology is critical to minimize the large cost that will be involved. Many companies have already successfully implemented technologies to reduce energy expense as well as reduce the demand for raw materials. The focus of this session is to explore the application of Process Technology, both established and under development Paper 1: Challenges within a Sustainable Process Technology Transformation: Pathways to Roadmaps - Karl Rufener, Lyondellbasell Paper 2: The Nexus of Materials, Energy, and Carbon Dioxide—and How Science, Technology, and Market Development Can Impact It - Marie-Nathalie Contou-Carrere and Matteo Pasquali, Rice University Sustainability Institute & Carbon Hub Paper 3: Combined Heat and Power and Alternative Fuels - Carlos Gamarra, HARC
10:45-11:05 am	Refreshments & Networking Break **(Houston Room)**	
11:05 am - 12:05	Efficient Water Use Chairs: Gary Gildert, University of Houston; Somnath Basu, Headworks International. Session Description: Water not only sustains life on earth, but it is also essential for the industrial and economic wellbeing of society. It is critical for agriculture, energy production and most types of industrial activities. The water that we use inside our chemical plants and oil refineries is part of massive system that includes both natural and manmade elements. Unfortunately, freshwater resources that can be directly used for beneficial purposes are rapidly dwindling. The focus of this year's technical session, 'Efficient Water Use,' is reuse and circular economy as it applies to water use. We will explore methods to save water, save energy, and improve profitability with the help of case studies for addressing the ever-increasing demand on finite freshwater resources. Paper 1: Experiences with process modeling of municipal and industrial wastewater treatment facilities - Andrew R. Shaw, Global Practice & Technology Leader, Black & Veatch and Prachi Salekar, Process Engineer, Black & Veatch. Paper 2: Addressing PFAS in Water Supplies: Regulatory Landscape, Treatment Technologies, and Industry Response - Ramanathan Ganesan, Corey Smith, and Sunil Kommineni, Civitas Engineering Group, Inc.	Renewable and Sustainable Technology 2 Chairs: Emmanuel Dada & Gus Georgeton Session Description: Our industry is working to gradually tighten the circle of raw material to finished product and back around. The creative application of process technology is critical to minimize the large cost that will be involved. Many companies have already successfully implemented technologies to reduce energy expense as well as reduce the demand for raw materials. The focus of this session is to explore the application of Process Technology, both established and under development Paper 1: Electrocatalysis with MNenes - Abdoulaye Djire, Texas A&M University Paper 2: Synthesis of novel pyroelectric non centrosymmetric materials for waste energy harvesting applications. Partha Pratim Chowdhury and Sheena Reeves, Prairie View A&M University
12:05-1:20 pm	Lunch Break **(Houston Room)**	

1:20-2:50 pm	Leadership & Management Forum Moderator: Kenneth Kusima, University of Houston Forum Description: Our Leadership and Management Forum brings together a select group of top professionals to share their experience in a wide-ranging panel discussion, starting from the question, "What is the difference between leadership and management?" If you are a student preparing to enter an engineering profession, a young professional at the beginning of your engineering career, or a rising star in industry, come and join the discussion with our panelists: Cindy Yeilding, Chair of The Center for Houston's Future; Former S Don Victory, Upstream Chief Process Engineer, ExxonMobil (retire Mona Setoodeh, President, CH-IV International	Innovations in Process Technology Chairs: Jayce Mathews, SABIC; Sribala Gorugantu, University of Houston Session Description: The multi-trillion-dollar oil, gas, and petrochemical industries are grounded in decades of process technology innovation. Yet, this foundation is undergoing a profound transformation as sustainability, circularity, and decarbonization take center stage. From plastics recycling and the electrification of reactors to carbon capture, utilization, and storage (CCUS), a new generation of technologies is poised to reshape how we design and operate processes. This session highlights cutting-edge innovations across both established and emerging sectors that have the potential to redefine industrial practice and drive the transition to a more sustainable and resilient future. Paper 1: Advancements in Large Scale Plastic Pyrolysis Technology - Sudipto Chakraborty, Technology Manager, Lummus Technology Paper 2: Boosting Plant Design Efficiency with Novel Auto Routing Techniques - Jinwoo Park, Technical Consultant Manager, PlantStream Paper 3: Bio Diesel & Renewable Diesel Market Review - Paul Wicker, Director, Rosnik Solutions LLC
2:50-3:10 pm	Refreshments & Networking Break **(Houston Room)**	
3:10-4:40 pm	Project Development Chairs: Kirtan Trivedi, ExxonMobil; Ram Kamisetty, Flowchem LLC Session Description: This session will be discussing the tools and recent developments in the area of process design, project selection, project development etc.. The topics to be covered in this session are in the area of decision analysis applications for project selection, and best practices for successfully executing projects during its development life cycle. Paper 1: Why Capital Projects Fail - Paul Barshop, Independent Project Analysis, Inc Paper 2: Overview of Decision Analysis - Paul Wicker, Rosnik Solutions LLC Paper 3: Respect of Gated Process via Fit-for-Purpose Process Design - Lee Henderson, Keystone Engineering Inc.	Process Control and Reliability Chairs: Doug White, Principal Consultant; Emerson Automation Solutions; Mark Darby, Principal Consultant, CMiD Solutions Session Description: Process control and automation technologies provide benefits by increasing plant efficiency through energy savings, increased throughput, and operator effectiveness. New developments in online sensors, computer architectures, data analytics including AI, final control elements, and user interfaces increase our abilities to implement and maintain optimal control of process units. Process safety and the associated control implications are included in this evolution and remain the priority for all control improvement projects. In this session we will feature papers discussing this evolution and current industry practice. Paper 1: Keep Distillation Products On Spec at Max Rates. Charles Herzog, retired - Kellogg, Shell, Mustang, Technip Paper 2: The evolution of APC technology over the past 40 years - The path forward. Michael Harmse, Harmse Consulting LLC Paper 3: Control Valve Performance Troubleshooting and Understanding Dynamic Performance. James Beall, Principal Process Optimization Consultant, Enero Solutions Inc.

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