



EDWARD E. WHITACRE JR.
COLLEGE OF
ENGINEERING
—
TEXAS TECH

WHITACRE COLLEGE OF ENGINEERING RESEARCH DAY

PROGRAM & SPEAKER DETAILS

FEBRUARY 9TH, 2026

TTU STUDENT UNION BUILDING

WCOE RESEARCH DAY

PROGRAM & SPEAKER DETAILS

FACULTY PRESENTATIONS: SUB ESCONDIDO THEATRE,

LUNCH & POSTER PRESENTATIONS: SUB BALLROOM

9:00AM-9:05AM	Welcome and Introductions - Roland Faller, WCOE Dean, ChE
9:05AM-9:25AM	Unraveling fundamental activity -stability relationships in rutile oxides - Joe Gauthier, ChE (Session Chair: Jennifer Cross)
9:25AM-9:45AM	The Intersection of Control and Design Engineering for Energy Systems - Donald Docimo, ME (Session Chair: Jennifer Cross)
9:45AM-10:05AM	Security Beyond Sensors: Attacking Visual SLAM via the Environment - Wei Wang, CS (Session Chair: Jennifer Cross)
10:05AM-10:25AM	TTU's Subsurface Hydrogen Production Research - Qingwang (Kevin) Yuan, PE (Session Chair: Jennifer Cross)
10:25AM-10:40AM	Coffee Break
10:40AM-11:00AM	Radiative Cooling: A Passive, Energy-Free Approach to Keeping Buildings Cool - Lyu Zhou, ECE (Session Chair: Paul Egan)
11:00AM-11:20AM	Wind hazard mitigation with Nature-inspired fractal parapets for low-rise buildings - Wei Zhang, CECE/WI (Session Chair: Paul Egan)
11:20AM-11:40AM	Joint Client Selection and UAV Placement in UAV-Aided Federated Learning - Jingjing Yao, CS (Session Chair: Paul Egan)
11:40AM-12:40PM	Lunch/Poster Session A (Session Chair: Joshua Howe, James Sheng)
12:40PM-1:40PM	Lunch/Poster Session B (Session Chair: Yuexiao Shen)
1:40PM-2:00PM	Cybersecurity and Semiconductor Device Research Overview at TTU - Argenis Bilbao, ECE (Session Chair: Miao He, Lu Wei)

WCOE RESEARCH DAY

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FACULTY PRESENTATIONS: SUB ESCONDIDO THEATRE,

LUNCH & POSTER PRESENTATIONS: SUB BALLROOM

2:00PM-2:20PM	Catalysis at the Crossroads: Membranes and Plasmas for a Low-Carbon Future - Casey O'Brien, ChE (<i>Session Chair: Miao He, Lu Wei</i>)
2:20PM-2:40PM	Granular Mechanics in the Face of Evolving Research Priorities - Yimin Lu, CECE (<i>Session Chair: Miao He, Lu Wei</i>)
2:40PM-3:00PM	Decision Making Under Uncertainty: From Data Scarcity to Large-Scale Systems - Ningji Wei, IMSE (<i>Session Chair: Miao He, Lu Wei</i>)
3:00PM-3:15PM	Coffee Break
3:15PM-3:35PM	Leveraging Big Data to Understand and Model Turbulent Flows - Dhawal Buaria, ME (<i>Session Chair: Changzhi Li</i>)
3:35PM-3:55PM	Micro(nano)plastic in Environment – Challenges in Quantifying its Occurrence and Risks - Balaji Rao, CECE (<i>Session Chair: Changzhi Li</i>)
3:55PM-4:15PM	Scalable Bayesian Nonparametric Method for Clinical Risk Prediction Using Large-Scale Data from Heterogeneous Populations - Dongping Du, IMSE (<i>Session Chair: Changzhi Li</i>)
4:15PM-4:30PM	Poster Awards/End

POSTER SESSION

AUTHORS & PRESENTATIONS

POSTER PRESENTATIONS: SUB BALLROOM

ODD NUMBERED POSTERS-SESSION A, EVEN NUMBERED POSTERS-SESSION B

ADDITIVE MANUFACTURING/ POLYMERS

- 1.** 3D hybrid bioprinting for acoustic cell patterning and perfusable tumor microenvironment for cell response to drug - Marielena Molinares, Md Shahriar, Jingfei Liu, Changxue Xu, IMSE
- 2.** Design, fabrication, characterization and modeling of additive manufactured devices for label-free magnetic cell fractionation using novel magnetic nanoinks - Minh Duy Phan, Raquel Vera, Bahareh Rezaei, Sela Boswell, Nishat Paul, Ahasun Habib Hridoy, Hanlei Wang, Shahriar Mostufa, Jenifer Gomez-Pastora, Kai Wu, Minxiang Zeng, James Yang, ChE
- 3.** Numerical Investigation of Molten Droplet Impact on Engineered Substrates Using SPH - Bhanu Prakash Maddineni, Song-Chang Kong, ME
- 4.** Predicting 3D Food Ink Performance: Rheology-Based Printability Windows and Prediction of Textural Properties Using ML - Md Ibrahim Khalil, Yashwanth Kumar Kondabathula, Ranadip Pal, Gordon F. Christopher, Farnaz Maleky, Paul F. Egan, ME
- 5.** Reactive printing of functional materials and devices - Nishat Paul, Minxiang Zeng, ChE
- 6.** Vertical Trajectories of Molten Material and the Effects of Ultrasonic Vibration on Thermal and Mechanical Behavior in Laser Directed Energy Deposition - Sarower Kabir, Weilong Cong, IMSE
- 7.** Workflow for Field-Deployable Prosthetic Hand Manufacturing - William Renter, Paul Egan, ME

AEROSPACE

- 8.** Comparison of Wind Tunnel Tests of Peak Pressures over the TTU WERFL Building with Full-scale Measurements. - Gobinda Kirtonia, Wei Zhang, Erick Shelley, Elliott Walker, CECE
- 9.** Thermomechanical analysis of glow plug during fuel droplet injection using multilevel resolution SPH - Kamyab Karimi, Song-Chang Kong, ME

AI/DATA SCIENCE

- 10.** Bayesian Hyperparameter Optimization Yields Measurable Gains in MACE Force Accuracy for Ir-Ox systems - Destin Maleka, Mikael Maraschin, Joseph A. Gauthier, ChE
- 11.** A Unified Framework for Empowerment and Predictive Control - Tristan Shah, Volodymyr Makarenko, Wooyoung Chung, CS
- 12.** DRIVER VISUAL ATTENTION MODELING VIA VISION-LANGUAGE IN-CONTEXT LEARNING - Kaiser Hamid, Ashrafi Akbar, Nade Liang, IMSE
- 13.** Genomic Data Generation via Correlation-Guided and Privacy-Preserving Diffusion - You Li, Shuainan Liu, Shaojie Zhan, Zhongshuo Fang, Tianxi Ji, CS
- 14.** Geo-difference in Mobile Apps and their compliance with Regionally Privacy Regulations - Huan Zhao, Song Liao, CS
- 15.** Mitigating Gradient Inversion Attacks in Smart Grids Using HFL with Local Adaptive Clipping - Syeda Sanjana Shahid, Tara Salman, Mohamed Baza, CS
- 16.** Multi-fidelity data-driven modeling of milled biomass compression behavior with sparse experimental data - Rui Li, Mengqi Li, Xuyang Li, Pin Zhang, Zhiheng Wang, Yimin Lu CECE
- 17.** Perturbation-Free Label Differential Privacy for Long-Tailed Classification - Shuainan Liu, Zhongshuo Fang, Shaojie Zhan, You Li, Tianxi Ji, CS
- 18.** Privacy Loss of Noise Perturbation via Concentration Analysis of A Product Measure - Shuainan Liu, Tianxi Ji, Zhongshuo Fang, Lu Wei, Pan Li, CS
- 19.** Private Dataset Distillation via Langevin Dynamics - Shaojie Zhan, Shuainan Liu, Zhongshuo Fang, You Li, Tianxi Ji, CS
- 20.** RATED: Reliability-Aware AI Agent Tool Retrieval via Execution Dynamics - Weiliang Chen, Song Liao, CS
- 21.** Token--Context Attention for NLI: An Alternative to Self-Attention - Xin Zhang, Victor S. Sheng, CS
- 22.** Uncertainty Quantification and Sensitivity Analysis of DSSAT Cotton Growth and Yield Using Polynomial Chaos Expansion - Mengqi Li, Will Dodge, Zhiheng Wang, CECE

POSTER SESSION

AUTHORS & PRESENTATIONS

POSTER PRESENTATIONS: SUB BALLROOM

ODD NUMBERED POSTERS-SESSION A, EVEN NUMBERED POSTERS-SESSION B

BIOMECHANICS

- 23.** Biomechanical Effects of Virtual Reality Office Work on the Neck: Influence of Task Demands and Ergonomic Supports - Felipe Z. Santos, Changwon Son, Hanjun Park, Changxue Xu, James Yang, Nade Liang, IMSE
- 24.** A Sensitivity-Guided Hybrid Parameterization of the 4CCr Muscle Fatigue Model - Baivab Bhandari, James Yang, ME

BIOMEDICAL/ HEALTHCARE

- 25.** 3D Tumor-Mimicking Phantom Models for Assessing NIR I/II Nanoparticles in Fluorescence-Guided Surgical Interventions - Asma Harun, Nathaniel Bendele, Mohammad Ibrahim Khalil, Isabella Vasquez, Jonathan Djuanda, Robert Posey, Md Hasnat Rashid, Gordon Christopher, Ulrich Bickel, Viktor Gruev, Joshua Tropp, Paul F. Egan, Indrajit Srivastava, ME
- 26.** A Framework for Time-Frequency Analysis of Acoustic Signals to Noninvasively Diagnose Cardiovascular Diseases - Jingfei Liu, Voshita Parvathaneni, ME
- 27.** Analyzing Usability Challenges and Guidance for Telemonitoring and Remote Patient Monitoring Systems: Initial Insights from a Systematic Literature Review. - Armina Rahman Mim, Changwon Son, IMSE
- 28.** Biomineralized Surface-Enhanced Raman Scattering (SERS) Nanotags for Multi-Faceted Disease Diagnosis - Md Hasnat Rashid, Aarti Khatri, Posy Peyton, Troy Nations, Danielle E. Levitt, Balakrishna Koneru, Indrajit Srivastava, ME
- 29.** Breast Cancer Stem Cells Magnetic Characterization and Isolation - Paz Gonzalez, Karla Mercedes, Farrell, Reagan, Nguyuen T. Tran, Linh, Wu, Xian Wu, Rodriguez, Eliana, Venere, Monica, Chalmers, Jeffrey, Chen, Kuan Hui, Gomez-Pastora, Jenifer, ChE
- 30.** Cognitive Load Assessment from Wearable EEG Using Algebraic Artifact Detection and Localized Wavelet Denoising - Farzana Fariha, CS
- 31.** Control of Kinesin-5 Motor Regularity by Tail Phosphorylation - Aliyeh Mehranfar, Meredith D. Betterton, Roland Faller, ChE
- 32.** Drone Network Design Optimization for Rural Blood Delivery in West Texas - Yi D. Lin, Gabriel Teodoro, Phil Sizer, Emily Vanderpool, Hamidreza Validi, Bryan A. Norman, IMSE
- 33.** ECG-derived Real-time Respiration Tracking with Dual-Sided Inkjet-Printed Wearable Electrodes Using Edge-AI Computing - Ucchwas Talukder Utsha, Mahfuzur Rahman, Bashir I. Morshed, CS
- 34.** Effect of Anisotropic Cage Material Properties on Intradiscal Pressure in a THUMS-Based Lumbar Spine Model - Bishal Karki, Ryan Reilly, Andres Mena, AKM Ahasun Habib, James Yang, Paul Egan, ME
- 35.** Effect of Ligament Stiffness on Wrist Biomechanics Using Finite Element Models - Brady Filla, Andres Mena, Ronit Wollstein, James Yang, ME
- 36.** Golf Swing Classification Using FMCW Radar from Varying Angles of Observation - Anjali Sharma-Tiwari, Christopher Williams, Changzhi Li, ECE
- 37.** Hand Gesture Analysis from EMG Signals Using Dry Flexible Inkjet-Printed (IJP) Electrodes with AI Algorithms - Nabonita Mitra, Bashir I. Morshed, CS
- 38.** Hyperuniform Patterned Microfluidic Device with Hydrodynamically Engineered Zones For Isolation and In-Situ Phenotyping of Breast Cancer Cells - Rutwik Joshi, Hesaneh Ahmadi, Brayden Woods, Joel Garcia, Wei Li, ChE
- 39.** Layer-by-Layer Microfluidic Immunoabsorption Platform for Depleting Peanut-Specific Antibodies from Whole Blood - Hesaneh Ahmadi, Nur Hendri Wahyu Firdaus, Rutwik Joshi, Akhilesh Kumar Shakya, Wei Li, ChE
- 40.** Machine Learning-Guided Design of t-FUS Transducers for Deep Brain Neuromodulation in Obesity Treatment in a Mouse Model - Sadman Labib, Jingfei Liu, ME

POSTER SESSION

AUTHORS & PRESENTATIONS

POSTER PRESENTATIONS: SUB BALLROOM

ODD NUMBERED POSTERS-SESSION A, EVEN NUMBERED POSTERS-SESSION B

BIOMEDICAL/ HEALTHCARE

- 41.** Magnetic Characterization of Healthy and Sick Cell Disease Monocytes - Santiago Rodriguez Caballero, Rova Kaniz Fahima, Linh Tran, Karla Paz Gonzalez, Jeffrey Chalmers, Jenifer Gomez Pastora, ChE
- 42.** Modulating Vascular Smooth Muscle Cell Behavior via Lignin-Incorporated PCL Nanofibers: Impact on Proliferation, Antioxidant Response, and Phenotype Maintenance - Glen See, Iyad Abu Hammam, Zhongkui Hong, ME
- 43.** Novel Magnetic Technology for Sick Cell Disease Management - Linh Tran, Karla Paz Gonzalez, Reagan Phariss, Poornima Iyer, Jeffrey Chalmers, Lukman Tijani, Jenifer Gomez Pastora, ChE
- 44.** PATIENT-SPECIFIC SIMULATION OF STENT GRAFT DEPLOYMENT FOR RISK ASSESSMENT IN THORACIC ENDOVASCULAR AORTIC REPAIR - Zhongxi Zhou, Yuhang Du, Zhaoming He, Minliang Liu, ME
- 45.** Physiological monitoring using harmonic radar and battery-less nonlinear tag - Leya Zeng, Changzhi Li, ECE
- 46.** Poly(p-Coumaric Acid) Nanoparticles as Self-Therapeutic MAPK-Modulating NIR-I Theranostics - Mahenour Megahed, Asma Harun, Kaylee Herrera, Md. Hasnat Rashid, Robert Posey, Joshua Tropp, Indrajit Srivastava, ME
- 47.** Predicting Upper-Limb Kinematics for Rehabilitation: A Machine Learning Approach Using sEMG and Motion Capture - Diogo Aida Trindade, Baivab Bhandari, James Yang, ME
- 48.** Scalable Wet Ball Milling of Iron Oxide Nanoparticles for Efficient and Controllable Magnetic Hyperthermia - Shahriar Mostufa, Bahareh Rezaei, Md Shahriar, Karla Mercedes Paz González, Anil Kumar, Changxue Xu, Yun Suk Eo, Ioannis H. Karamelas, Jenifer Gómez-Pastora, Rui He, Kai Wu, ECE
- 49.** Self-Similar Biomarker for Identifying Epileptogenic Zone in Patients with Medically Refractory Epilepsy - Md Abu Noman Kausar, Emily Pereira, ECE
- 50.** Shape and Cation Engineered Ferrite Nanoparticles for Theranostic Performance in Ovarian Cancer Tumor-Mimicking Phantom - Bahareh Rezaei, Shahriar Mostufa, Md Shahriar, Karla Mercedes Paz González, Nguyen Thuy Linh Tran, Yun Suk Eo, Changxue Xu, Jenifer Gómez-Pastora, Kai Wu, ECE
- 51.** Time-Constant Induced Memory Effect for Biomedical Radar Vital Signs Detection - Syed Doha Uddin, Christopher Williams, Changzhi Li, ECE
- 52.** Ultrabright NIR-II Nanoprobes for Ex Vivo Bioimaging: Protein Nanoengineering Meets Molecular Engineering - Isabella Vasquez, Asma Harun, Robert Posey, Ruhan Reddy, Nikita Gill, Ulrich Bickel, Joshua Tropp, Indrajit Srivastava, ME
- 53.** Ultrasonic Guided Wave Elastography in Blood Vessels: Numerical Investigation of Wave Propagation in a Three-Layer Model - Azin Nadi, Jingfei Liu, ME

BIOSEPARATION

- 54.** Modeling and Simulation of Electrochemical Separation of Carboxylates with Capacitive Deionization - Sadia Saber, Lauren Valentino, Meltem Urgun-Demirtas, Chau-Chyun Chen, ChE

COLLOIDAL SUSPENSIONS

- 55.** Viscoelasticity of Nanocolloidal Suspensions from Probe Rheology: Probe Size and Statistics - Masoumeh Pourasgharoshtebin, Eric M. Furst, Rajesh Khare, ChE

COMPUTER SCIENCE

- 56.** Identifying and Characterizing Cache Side Channel Vulnerabilities on AMD GPUs - Daniel Benedict, Zihao Zhan, CS
- 57.** Optimizing In-Situ Trajectory Data: MD simulations - Error-Bounded, High-Performance, and Logically Deterministic Data Reduction - Huyen Vu, CS

POSTER SESSION

AUTHORS & PRESENTATIONS

POSTER PRESENTATIONS: SUB BALLROOM

ODD NUMBERED POSTERS-SESSION A, EVEN NUMBERED POSTERS-SESSION B

CONTROLS/ ROBOTICS

- 58.** A Systematic Framework for Harmonic Set Selection in Multiplexed Magnetic Particle Spectroscopy - Hanlei Wang, Kai Wu, ECE
- 59.** Comparative Evaluation of Fractional-Order and ARMA Models for Neural Time-Series Analysis - Matias Varrone, Emily Pereira, ECE
- 60.** Controllable Information Production - Tristan Shah, Stas Tiomkin, CS
- 61.** Dynamics Aware Past-Future Information Bottleneck - Wooyoung Chung, Stas Tiomkin, cs
- 62.** Electrochemical Fault Diagnosis in Lithium-Ion Batteries - Sara Sepasiahoooyi, Shu-Xia Tang, ME
- 63.** Emergence of Diverse Social Interactions Through “Egoistic Empowerment” - Tristan Shah, Ilya Nemenman, Daniel Polani, Stas Tiomkin, CS
- 64.** Information-Theoretic Control of Hybrid Systems - Noam Smilovich, Stas Tiomkin, CS
- 65.** Koopman Mode-Based Detection of Internal Short Circuits in Lithium-ion Battery Pack - Sanchita Ghosh, Soumyoraj Mallick, Tanushree Roy, ME
- 66.** Natural Driving Autonomous Vehicle - Bryan Bejoy, ME
- 67.** Novel Dynamic Path Planner for Autonomous Vehicles: Towards Human-Like Lane-Changing Reference Trajectory - Yanwen Yang, ME
- 68.** Robust Robot Learning for Real Industrial Robots - Joshua Huang, Stas Tiomkin, CS

CYBERSECURITY/ RESILIENCE

- 69.** Guarding Your Conversations: Privacy Gatekeepers for Secure Interactions with Cloud-Based AI Models - GodsGift Uzor, CS
- 70.** Intermittent File Encryption in Ransomware: Measurement, Modeling, and Detection - Ynes Ineza, CS
- 71.** Near-Ultrasonic Environmental Presence as a Third Factor for Usable Authentication - Hasan Al-Qudah, Abdul Serwadda, CS
- 72.** NetMoniAI: An Agentic AI Framework for Network Security & Monitoring - Pallavi Zambare, Maneesh Malepati, Ying Liu, CS
- 73.** Rethinking PUF Design for Scalable Edge AI: Balancing ML-Attack Resistance and Real-World Deployment - Gaoxiang Li, Yu Zhuang, CS
- 74.** SANDBOX-BLEED: Breaking the Browser Sandbox with the Data Memory-dependent Prefetcher - Wei Qiu, Zihao Zhan, CS
- 75.** Single-Drone Assisted and Collaborative Dummy Generation Strategies for Location Privacy in Sky-of-Privacy-Things - Sthephany Rojas Sabogal, Surya Harshitha Kadali, Sunho Lim, Anisa Bente Newaz, Adam Tirado, Jinseok Chae, Jangho Lee, Cong Pu, CS

DATA VISUALIZATION

- 76.** CHRONOS: Cluster Historical and Real-time Observation Network for Operational System and Visualization - Amauri Ribeiro, CS
- 77.** PowerMap and Time-Indexed PCA Trajectories: Interactive Visual Forensics for HPC Incidents - Phornsawan Roemsri, Tommy Dang, CS
- 78.** Space-Time Visualization of Highway Pavement Condition: From 2D Charts to 3D Geographic Narratives - Moon Won, Tommy Dang, Hoang T. Pham, Samuel Alalade, Konner Wood, CS

POSTER SESSION

AUTHORS & PRESENTATIONS

POSTER PRESENTATIONS: SUB BALLROOM

ODD NUMBERED POSTERS-SESSION A, EVEN NUMBERED POSTERS-SESSION B

ENERGY

- 79.** A Multi-layer Power Observability Framework for HPC: Design and Evaluation on REPACSS - Yongjian Zhao, Jie Li, Chenxu Niu, Yong Chen, CS
- 80.** A Thermodynamic and Surface Chemistry Perspective on Halide Segregation in Metal Halide Perovskites - Abrar Fahim Navid, Zeeshan Ahmad, ME
- 81.** Design and Modeling of a Heat-exchange Sleeve for Enhanced Thermal Safety of Lithium-Ion Batteries - Patryck Ferreira, Shu-Xia Tang, ME
- 82.** Design, Build, and Validation of a Battery Test System Enabled by Bounded Integral Control (BIC) - Shafquat Yasar Aurko, Kevin Norman, Beibei (Helen) Ren, Qing-Chang Zhong, ME
- 83.** Directive-Accelerated Multiphase SPH Solver for Heterogeneous Architectures - Yongsuk Cho, Song-Chang Kong, ME
- 84.** KAN-Therm: A Lightweight Battery Thermal Model Using Kolmogorov-Arnold Network - Faysal Ahamed, Soumyoraj Mallick, Sanchita Ghosh, Tanushree Roy, ME
- 85.** Methane activation over MoxFeyC2 using a gas-phase model for Methane Dehydroaromatization (MDA) - Raúl De León, Joshua D. Howe, ChE
- 86.** PULSE: A Phase-Aware Ultra-Lightweight Scaling Engine for HPC Energy Efficiency - Tongyang Wang, Jie Li, CS
- 87.** Resilient Sensing in Battery Packs: A Self-Learning Koopman Approach - Sanchita Ghosh, Tanushree Roy, ME
- 88.** Scaling discrepancy on the screening of emerging biomass particles - Weihe Sun, Yidong Xia, Jordan Klinger, Yimin Lu, CECE
- 89.** Ultrasonic State-of-Charge/State-of-Health Characterization of Lithium-Ion Batteries - Jingfei Liu, Ezekiel Anguiano Jr., ME

ENGINEERING EDUCATION

- 90.** Developing a Hybrid RAG-FRAM Framework for Assessing Organizational Resilience in University Departments - Diego Polanco-Lahoz, Jennifer Cross, IMSE

ENVIRONMENTAL ENGINEERING

- 91.** Elemental Speciation in Electrochemically Treated Biosolids for Potential Land Application - Andrés Sánchez García, Jedidian Adjei, Kayleigh Millerick, Christian Alvarez-Pugliese, Gerardine G. Botte, Emilio Rios Serna, Danny Reible, Balaji Rao, ChE
- 92.** PFAS sorption and diffusion through landfill Liner material and implications for long-term groundwater contamination - Kiana Rouhi, Mohammad Khosravikia, Jennifer Guelfo, Danny Reible, CECE
- 93.** Per- and polyfluoroalkyl substances (PFAS) transport from biosolids-amended soils: an experimental and numerical approach - Alonso Doria-Manzur, Evan P. Gray, Summer S. Streets, Jennifer L. Guelfo, CECE

HIGH PERFORMANCE COMPUTING

- 94.** MonSTER on REPACSS: Architecture, Deployment, and Future Work - Rupak Kadel, Jie Li, Yong Chen, CS

HUMAN FACTORS

- 95.** Asymmetric Shifts in Risk Perception: Evaluating Driver Responses to Traffic Density Transitions - Peihang Li, Nade Liang, IMSE

MICROELECTRONICS/ RF SEMICONDUCTOR

- 96.** Subthreshold Nonlinear Mixer with Active Bypass and Robust PVT Performance for Passive Sensing - Max Anacleto Vasconcelos, Changzhi Li, ECE

POSTER SESSION

AUTHORS & PRESENTATIONS

POSTER PRESENTATIONS: SUB BALLROOM

ODD NUMBERED POSTERS-SESSION A, EVEN NUMBERED POSTERS-SESSION B

QUANTUM COMPUTING/ INFORMATION

- 97.** Higher-order cumulants of entanglement entropy - Linfeng Wei, Youyi Huang, Lu Wei, CS
- 98.** PyMatchingSHMEM: Parallelizing PyMatching with OpenSHMEM for Scalable QEC - Jaden Hicks, Michael Beebe, Yash Kumar, Yong Chen, CS
- 99.** Quantum Patches for Efficient Learning - Ban Tran, Susan Mengel, CS

RADAR/ RF HARDWARE

- 100.** MIMO Radar Systems for Short-Range Localization - Derek Thompson, Changzhi Li, ECE
- 101.** Preliminary Design and Applications of Software Defined Radar - Nicholas Rethans, Changzhi Li, ECE

RHEOLOGY OF PARTICLE SUSPENSIONS

- 102.** Particle-resolved rheological modeling of dilute suspension with non-spherical particles - Fan Yang, Nishat Paul, Minxiang Zeng, Yimin Lu, CECE

SEMICONDUCTORS

- 103.** Multilayer Sputtering Strategy for Enhanced Al Incorporation in β -Phase $(\text{Al}_x\text{Ga}_{1-x})_2\text{O}_3$ - Yu-Che Ho, Caroline Ormond, Shahriar Mostufa, Matthew Gaddy, Vladimir Kuryatkov, Kai Wu, Stephen Bayne, Hieu P. T. Nguyen, Ayrton A. Bernussi, ECE
- 104.** Tuning the magnetic properties of CrI₃ using Ni - Cynthia Nnokwe, Connor J. Cunningham, Wenhao Liu, Gaihua Ye, Tri Nguyen, Kai Wu, Caden Sadler, Pavel V. Lukashev, Bing Lv, Jia-An Yan, Paul M. Shand, Andrew J. Stollenwerk, Rui He, ECE

SUSTAINABILITY

- 105.** Biomaterial-Based Sustainable Recovery of Rare Earth Elements - Eunhye Park, Md Dipu Malitha, Inseok Chae, ChE
- 106.** Design of Rare-Earth Free FeNi based Permanent Magnetic Materials for Sustainable Energy - Md Abdul Wahed, Chang-Dong Yeo, Yang-Ki Hong, ME
- 107.** Magnetically enhanced electrochemical systems for waste-to-resource conversion processes - Rodrigo A. Hernandez, Jenifer Gomez-Pastora, Jose Antonio Abarca, Cristina González-Fernández, Guillermo Díaz-Sainz, ChE
- 108.** Organic Fluorine Quantitation of Landfill Leachate Using Combustion Ion-Chromatography and Inductively Coupled Plasma Mass Spectrometry - Grisel Cogollo Carcamo, Evan Gray, Jennifer Guelfo, CECE
- 109.** Recycling waste wind turbine blade materials in asphalt binders: Investigation of compatibility, dispersion, aging resistance, and rheological performance - Sandesh Pandey, Samantha Kristufek, Tewodros Ghebrab, Rajesh Khare, Paul Egan, Priya Gill, Pawel Polaczyk, CECE

TEXT-TO-SQL LLM SECURITY

- 110.** Vibe Coding on Trial: Operating Characteristics of Unanimous LLM J - Muhammad Aziz Ullah, Abdul Serwadda, CS

TURBULENCE (FLUID)

- 111.** Unraveling the physics of mixing in turbulent flows through extreme-scale computing - Ruqaiya Islam Mishi, Dhawal Buaria, ME

UNCERTAINTY MODELING

- 112.** A Lightweight Bayesian Neural Network via Activation-Space Uncertainty Modeling for Efficient Uncertainty Quantification - Weihao Zou, Zhiheng Wang, CECE

POSTER SESSION

AUTHORS & PRESENTATIONS

POSTER PRESENTATIONS: SUB BALLROOM

ODD NUMBERED POSTERS-SESSION A, EVEN NUMBERED POSTERS-SESSION B

WATER

- 113.** Comprehensive Water Quality Assessment of Produced Water During Treatment Process and Control Water for Beneficial Reuse - Satyajit Dey Sagar, Andres Sanchez Garcia, Balaji Rao, Danny Reible, CECE
- 114.** Coupled Cavity Dynamics and Granular Suspension in Drop Impacts on Water-Covered Granular Beds - Hossein Haghighi, Rishikesh, Hamed Sari-Sarraf, Hadis Matinpour, CECE
- 115.** Developing a New Fouling Index for Assessing Fouling Potential in Membrane-based Technologies for Water and Wastewater Treatment - Hossein Ebadi, CECE
- 116.** Do Fireworks Contribute to Perchlorate Occurrence in Drinking Water? - Jessica La Grenade, CECE
- 117.** Evaluating Temperature and Vacuum Effects on Distillate Quality from Produced Water in the Permian Basin - Raquel Torres, Shane Walker, CECE
- 118.** Investigation of flow pattern and mineral particle transport in membrane distillation: implications for fouling and scaling - Mehedi Hasan Sohan, Hadis Matinpour, CECE
- 119.** Modeling Homogeneous Isotropic Turbulence in a Multi-jet Chamber for Aerosol Applications - Sajib Das, Hadis Matinpour, CECE
- 120.** Scaling and Yielding of Dense Suspensions: Linking Monodisperse Systems to Natural Soils - Andre Lima, Hadis Matinpour, CECE
- 121.** Strategic Municipal Water Conservation with Data Analysis - Mahmuda Alim Ami, CECE
- 122.** Sub-sampling strategies for microplastics characterization in environmental matrices - Ujjwal Ghimire, CECE

WIND

- 123.** Probabilistic Uncertainty Propagation of Wind-Induced Extreme Responses in High-Rise Buildings - Weixiao Li, Xinzong Chen, Zhiheng Wang, CECE

SUPPORTED BY

STEERING COMMITTEE 2026

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**SCAN TO CHECK OUT
THE FACULTY PRESENTER
ABSTRACTS**



**SCAN TO CHECK OUT
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