COLLEGE OF ENGINEERING

2024 Graduate Symposium

CHECK-IN				
Check-in	Willa Cather (WCDC)	8:00a - 9:00a	GeSAB COE Graduate Programs	PICK UP: Badge, Lunch Ticket, etc.

SESSIONS				
Sessions *concurrent*	WCDC Red Cloud B	9:00a - 11:00a	Haiwei Zhai *MME*	Construction of 3D Multicellular in Vitro Skin Models for Studying Pemphigus Vulgaris
			Carson Emeigh *MME*	The Development of a Microfluidic Cell Stimulation Device for Mechanobiological Studies
			Khemraj Gautam Kshetri *MME*	Microfluidic Manipulation of Particles under High Frequency Acoustic Wave Field
			Mani Shankar Yadav *MME*	A Nonlinear Rotation-Free Shell Formulation for Vascular Biomechanics
			Greg Acosta *MME*	Investigation of Photophoretic Forces of Rarefied Gases on Functionalized Surfaces
			Caleb Osmond *MME*	Centimeter-Accurate Electric Vehicle Trajectories and Dynamics via INS/GNSS and Post-Processed Kinematics (PPK)
			Spencer Pak *MME*	Direct Ink Write 3D Printing of Liquid Emulsions
Sessions *concurrent*	WCDC Pioneers A	9:00a - 11:00a	Sarang Ismail *CHBE*	Influence of Polymer Molecular Weight on CO2 Absorption Capacity within Supported Ionic Liquid Membranes
			Abraham Osinuga *CHBE*	Advancing Metabolic Understanding with a Refined Dynamic Metabolic Flux Analysis (r-DMFA) Framework: A Case Study on Sphingolipid Biosynthesis and Homeostasis in Arabidopsis Thaliana
			Tahereh Razmpour *CHBE*	Exploring Pancreatic Ductal Adenocarcinoma (PDAC) through the Lens of Genome-Scale Metabolic Modeling and Machine Learning
			Masoud Tabibian *CHBE*	Deciphering the Metabolic Signature of Lung Mast Cells in Health and Cancer: A Genome-Scale Metabolic Modeling and Machine Learning Study
			Mark Kathol *CHBE*	Lignin Degradation Mechanisms of Rhodopseudomonas Palustris
			Boanerges Elias Bamaca *BSE*	Dual-Feedstock Approach for Efficient PHB Production: Strategic Nutrient Management and Its TEA/LCA Implications in Scale-Up
			Lydia Saltz *BSE*	Electric Field Sensors Enable Noninvasive Three-State-Sleep Scoring in Rats
Sessions *concurrent*	WCDC Pioneers B	9:00a - 11:00a	Mahsa Mohammadi *BSE*	The Impact of Red and White Sorghum Arabinoxylans on Human Gut Microbiota Interactions
			Steve Zhang *BSE*	Prediction of Interspecies Interactions in Metabolically Dependent Autotroph-Heterotroph Communities Using Genome-scale Metabolic Network Models
			Ali Behdad *CEE*	A Constitutive Model for Characterizing the Physical Properties of Frozen Soil
			Mitra Nasimi *CEE*	Automated Tornado-Induced Fallen Tree Pattern Prediction Through Image Processing Techniques
			Samuel Underwood *DSAEC*	A Hybrid Simulation Approach to Predicting Noise in Restaurant
			Saeid Ghasemi Gavabar *DSAEC*	Multi-Disciplinary Seismic Resilience Modeling for Developing Mitigation Policies and Recovery Planning: Application to Salt Lake County, Utah
			Aleem Ullah *DSAEC*	Post-earthquake Functional Recovery Assessment of Instrumented Buildings

BREAK (11:00a - 11:15a)

KEYNOTE SPEAKERS & LUNCH				
Welcome	WCDC Red Cloud A	11:15a - 11:30a	Khalid Alkady *GeSAB President* Mark Riley *Associate Dean*	Opening Remarks
Keynote	WCDC Red Cloud A	11:30a - 12:30p	Deanne Sparks *Office of Graduate Studies*	Networking & Effective Communication
Networking Lunch	WCDC Dining Hall	12:30p - 1:30p	-	-
Panel Discussion	WCDC Red Cloud A	1:30p - 2:30p	David Jones Jiang Wang Dan Linzell Emmanuel Akintunde	Career Pathways Panel Discussion

BREAK (2:30p - 2:45p)

3-IN-5 PITCH				
3-in-5 Pitch *5 min per speaker*	WCDC Red Cloud B	2:45p - 4:00p	MD Rashedul Hasan *SoC*	Revolutionizing Database Design through a Scalable, Formal, Learning-Powered Systematic Tradeoff Analysis
			Sydney Caparaso *BSE*	Understanding The Role of Inflammatory and Mechanically Sensitive Ion Channels in a Disc-Associated Chronic Low Back Pain Model
			Brandon McDonald *BSE*	Automated Boundary Integration System (ABIS)
			Ivon Acosta Ramirez *BSE*	Carbon Nanotube Sensor Platforms for the Detection of Cellular Nitric Oxide Efflux Gradients
			Lohani Esterhuizen *CHBE*	Using Dynamic Metabolic Modeling to Predict the Transcriptional Regulation of Cuticle Biosynthesis in a Root Chassis
			Oghenetega Obewhere *CHBE*	Addressing Ion and Gas Transport Limitations in Proton Exchange Membrane Fuel Cells through Systematic Design of Biomimetic Ionomer
			Islam Orynbassarov *CEE*	Engineering Performance and Carbon-Footprint Analysis of Biochar-Incorporated Concrete
			Nitish Bastola *CEE*	Preventing Low-Temperature Cracking of Pavement Made Up of Recycled Material in Nebraska with Soybean Oil and Waste Plastics
			Ethan Krings *MME*	Wearable Ultrasound Patch for Vasospasm Monitoring
			Cesar Leos *MME*	Flight Beyond Limits: The AeroLifter Frontier

POSTER SESSION

| **Green:** BSE | **Purple:** CHBE | **Blue:** CEE | **Red:** DSAEC | **Gold:** ECE | **Grey:** EER | **Orange:** MME |

Poster Session	WCDC Red Cloud A	3:30p - 5:00p	Benjamin Gane	**#1** Hydrogel Characterization in a Physiologically and Anatomically Relevant in Vitro Model of Peripheral Pain
			Trisam Sapkota	**#2** Immobilization of SWNT-Based Near Infrared Sensors on PVA Nanofibers for Hydrogen Peroxide Detection
			Andrew Stiven	**#3** Automation of On-Farm Method for Visual Quantification of Carbon Degradation in Agricultural Soils
			Portia Plange	**#4** Organelle Colocalization of Single Walled Carbon Nanotube Sensor in Cancer Cells for Nitric Oxide Quantification
			Rajesh Keloth	**#5** Designing of Ion-Conducting Materials for High-Temperature Energy Applications Using Low-Cost, Biorenewable Lignin
			Karen Anabel	**#6** Waste-to-Wealth: Lignin as Antimicrobial Materials
			Habibollah Safari	**#7** Reactivity Ratio Prediction in Copolymers through Artificial Intelligence
			Nabia Shahreen	**#8** Rethinking Metabolic Strategies: Staphylococcus aureus's Unique Approach to Energy Generation
			Sahand Serajian	**#9** Development and Analysis of Organic-Inorganic Composite Electrolytes for Solid-State Battery Applications
			Sunayana Malla	**#10** Dissecting Metabolic Landscape of Alveolar Macrophage
			Niaz Bahar Chowdhury	**#11** A Multi-Organ Maize Metabolic Model Connects Temperature Stress with Energy Production and Reducing Power Generation
			Ahmed El-Harairy	**#12** Macrocyclic Compounds Film as two electron Oxygen Reduction Electrocatalysts for the Production of H2O2
			Alyssa Grube	**#13** Teamwork Makes the Dream Work: Electrochemical Behavior of Wool Coated with Composite Conductive Materials
			Kazi Albab Hussain	**#14** Assessing the Release of Microplastics and Nanoplastics from Plastic Containers and Reusable Food Pouches: Implications for Human Health
			Donya Negahbani	**#15** Framework for Quantifying Benefits to Disadvantaged Communities: Application to Nebraska's National Electric Vehicle Infrastructure (NEVI) Plan
			Laith Ibdah	**#16** Innovative Recycled Waste Microfiber Reinforcement for Sustainable Road Stabilization under Rolling Traffic Loads
			Kenaz Owusu	**#17** Evaluation of the Performance of Geosynthetic Reinforced Pavements under Rolling Wheel Load
			Omid Armantalab	**#18** Potential for Electric Vehicle Adoption in Midwest US States: A Stated Preference and Multi-Level Regression with Poststratification Study
			Isabella Madeira Bueno	**#19** Enhancing Asphalt Concrete Cracking, Rutting, and Moisture Damage Resistance through Dry Method Addition of Polypropylene Waste Plastic
			Farzad Yazdipanah	**#20** Evaluation of the Effect of Aging Mechanisms on the Cracking Resistance of RAP-recycled Asphalt Mixtures
			Abdallah Al Zubi	**#21** Continuous Time Recurrent Network for Human Activity Detection
			Mohammad Megdadi	**#22** MEMS-CTRNN Machine Learning Hardware
			Kewei Ren	**#23** Assessment of Instrumented Bicycle Systems for Sensory Data Acquisition and Deep Learning Algorithm Integration in Risk Detection Studies
			Yasaman Ahmadi	**#24** Comparing Differences of Community Resilience and Rurality in the USA for Counties Prone to Riverine Flooding
			Pramodit Adhikari	**#25** Enhancing Community Resilience Models Against Tornado Hazards through Post-Tornado Reconnaissance Data
			Paul Scalise	**#26** Strengthening 5G Security for Military Operations by Identification of Internal Network Attacks and Vendor Specific Vulnerabilities
			Ahatsham Hayat	**#27** Can Language Models Foretell the Future? A Domain-Adaptation Approach for the Early Forecasting of Student Performance
			Yousra Traouli	**#28** Insights into Atomic Layer Deposition of ZnO Ultrathin Films: An In-Situ Spectroscopic Ellipsometry Based Growth Monitoring and Band Gap Analysis
			Ian Green	**#29** THz Ellipsometry and the Expansion of the EPR Spectral Range
			Raymond Smith	**#30** Ion Energy Distributions in Broad Beam Kaufman Ion Sources
			Shawn Wimer	**#31** Sum Rules of Monoclinic Materials
			Sema GuvencKilic	**#32** Engineering the Chirality Response through Topologically Protected Resonance Mode
			Ekaterina Muravleva	**#33** A Novel Scalable High-Frequency Power Semiconductor Package for Future Sustainable Infrastructure
			Nosakhare Idiaghe	**#34** Exploring Professor and Peer Relationship on Mental Health of Undergraduate Engineering Students
			Rupak Timalsina	**#35** Imaging of Coherent Spin Waves in Ferrimagnetic TmIG Thin Films
			Chace Franey	**#36** Enhancement of Thermionic Power Generation via Engineered Microstructures
			Preston S. Noll	**#37** Impacts of Interlayer Nanofiber Reinforcement and Thermal Exposure on the Failure Behavior of Advanced Fiber-Reinforced Polymers
			Merjen Palvanova	**#38** Rapid Fabrication of Stretchable Liquid-Metal Electronic Circuits for Wearable Biomonitoring
			Sina Khayam	**#39** Modulation of Near-Field Radiative Heat Transfer in Multi-Body Systems
			Faezeh Afshar Hatam	**#40** Adhesive Properties of Plant Cell Interfaces
			Adam Erickson	**#41** Room Temperature Skyrmions in Broken Inversion Symmetry CoPt Gradient Single-Crystal Thin Films
			Jazmin Ley	**#42** Resonant Ultrasound Spectroscopy of Hybrid Metal Additive Manufacturing of 316L Stainless Steel
			Sergio Martinez Jr. Trevor Adelung	**#43** Ultrasonic Nondestructive Quantification of Case Depth in Railroad Bearings: Statistical Analysis and Machine Learning Predictions
			Anthony Guevarra	**#44** Scattering from a Bi-Layer Sphere.
			Zahra Kamali Khanghah	**#45** Functionalized Emitters for Thermophotovoltaic Power Generation
			Emmanuel Mensah	**#46** Precision Controlled Deposition of NFs for the Manufacturing of Delamination Suppressed CFRP Composites
			Sahar Beigzadeh	**#47** Microstructure and Mechanical Properties of Triple Weld Bead Wire Arc Additively Manufactured ER70s-6
			Jesse Kuebler	**#48** Role of Processing and Molecular Characteristics on Crystallization of Poly(3-hexylthiophene)

SYMPOSIUM ENDS (5:00p)