

**RESEARCH AND INNOVATION WEEK 2023**  
**GRADUATE POSTER SESSION PROGRAM**

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## **ANTHROPOLOGY**

- #1: Ian Jorgeson, “Navigating a Complex Landscape: Using Geochemical Sourcing to Investigate Patterns of Obsidian Procurement in the Northern Rio Grande”, Co-author(s): Matthew Boulanger
- #2: Rose Hurwitz, “Dealing with Disaster: How Jewish Residents Experienced Compounding Disaster Events in Dallas, Texas”
- #3: Jocelyn Bell, “Rights, Repatriation and Return: The Sámi”

## **APPLIED PHYSIOLOGY**

- #4: Claire Trotter, “Pressor and Sympathetic Responses to Graded Skeletal Muscle Metaboreflex Activation in Females with Relapsing-Remitting Multiple Sclerosis”, Co-author(s): Benjamin E. Young; Caitlin P. Jarrard; Scott A. Smith; Paul J. Fadel; Mu Huang; Scott L. Davis
- #5: Sunil Prajapati, “Mechanical Adaptations to Running with Single Leg Elongation: Is Being Uneven Bad or Benign?”, Co-author(s): S. K. Hatcher; Quinn Callier
- #6: Emily McClelland, “How athletes get high: The mechanical basis of vertical jump performance”, Co-author(s): Peter G. Weyand
- #7: Lance Brooks, “Ground Force Application During the Sprint Start: Optimal or Maximal?”

## **BIOLOGICAL SCIENCES**

- #8: Yinglu Tang, “Unveiling the Redox Pathway in PKAN Disease: Insights from Metabolomic Analysis”
- #9: Foozhan Tahmasebinia, “40S Ribosomal Subunit Recycling in Conjunction with mTOR Pathways Orchestrates Mitochondrial Dynamics and Quality Control at Mitochondria-Endoplasmic Reticulum Contact Sites”, Co-author(s): Yinglu Tang; Rushi Tang; Yi Zhang; Maisa de Oliveira; Bretton Laboret; Songjie Chen; Ruiqi Jian; Lihua Jiang; Michael Snyder; Boxiang Liu; Zhihao Wu
- #10: Kelsey Paulhus, “Cardiorespiratory Effects of Brainstem-Specific Kv1.1 Deficiency: Implications for SUDEP”
- #11: Rebekah Napier-Jameson, “Investigating Circular RNAs in *Caenorhabditis elegans*”, Co-author(s): Adam D. Norris
- #12: Jesiska Lowe, “Reversing Breast Cancer Resistance Protein, BCRP-mediated Multidrug Resistance In-vitro”, Co-author(s): Ria Parpelli; Gabrielle Gard; Pia Vogel

- #13: Anusha Iyengar, “The Tissue Specific Role of SMN-1 in *C. elegans*”, Co-author(s): Lindsey Philips
- #14: Canyon Calovich-Benne, “Sensory Neuron Transcriptomes Reveal Complex Neuron-specific Function and Regulation of Mec-2/Stomatin Splicing”, Co-author(s): Xiaoyu Liang

## CHEMISTRY

- #15: Tingting Zhao, “Rank-reduced Representations of the Connected Triples in Coupled Cluster Theory”
- #16: Chao Yin, “Recurrence Relation Schemes for Electron Repulsion Integral Computation on GPUs”, Co-author(s): David Jiang; Alexis A.A. Delgado; Devin A. Matthews
- #17: Yi Yang, “Developing a Novel Knowledge-based Potential for RNA 3D Structure Evaluation”
- #19: Bárbara Maria Teixeira Costa Peluzo, “Relativistic Approaches for the Investigation of Geometry and Bond Strength of LnX<sub>3</sub> (Ln: La-Lu; X: F, Cl, Br, I, OH) Molecules”, Co-author(s): Renaldo T. Moura Jr.
- #20: Megan Simons, “Transition Moments for STEOM-CCSD with Core Triples”
- #21: Mateus Quintano, “On a Thermodynamic Viewpoint of Vibrational Coupling Concerning Local and Normal Vibrational Modes”, Co-author(s): Renaldo T. Moura Jr.
- #22: Ayesh Madushanka Mahamada Kalapuwage, “Quantum Chemical Assessment of Protein-ligand Hydrogen Bond Strength Patterns”, Co-author(s): Renaldo T Moura Jr; Niraj Verma; Elfi Kraka
- #23: Duc Anh Lai, “The Electric Field-induced Second Energy Minima of Carbon Monoxide”
- #24: Hunter La Force, “Characterizing Guanine Binding Modes of Potential Ruthenium-based PDT Agents: A Local Vibrational Mode Study”, Co-author(s): Elfi Kraka
- #25: Filippo Bodo, “Interfacing LModeA with the Periodic Electronic Structure CRYSTAL Package”, Co-author(s): Renaldo T. Moura Jr.; Alessandro Erba; Elfi Kraka
- #26: Juliana Antonio, “Predicting Vibrational Energy Transfers in Myoglobin with QM/MM and Local Mode Analysis”, Co-author(s): Elfi Kraka
- #27: Mohammad Ausaf Ali Haqqani, “De Novo Drug Design Using Deep Learning”
- #28: Lida Aeindartehran, “Sweet and Sour Anthelmintic Formulations: Thiabendazole”, Co-author(s): Jonathan B. Lefton; Daniel K. Unruh; Tomče Runčevski

## **CIVIL AND ENVIRONMENTAL ENGINEERING**

- #29: Mohammad Maleki, “System Dynamics Modeling of Social Return on Investment (SROI) for Transportation Interventions in Low-Income Communities: A Pathway to Reducing Socioeconomic Inequalities”, Co-author(s): Janille Smith-Colin
- #30: Hussam Khresat, “Performance of an Artificial Neural Network System for Detecting Rail Bridge Strikes From Overweight Vehicles”, Co-author(s): Jase Sitton; Brett Story
- #31: Ahmed Khamiss, “Discrete-Element Method Simulations of the Seismic Response of Tunnels in Deep Granular Deposit”
- #32: Mehrdad Karimipetanlar, “Numerical Simulations of Particle Behavior and Breakage within a Pressurized Sand Damper Subjected to Cyclic Loading”
- #33: Navodi Jayarathne, “Belowground Migration Rates and Extent of Leaked Natural Gas as Influenced by Varying Surface Conditions: Experimental and Numerical Study”, Co-author(s): Richard S kolodziej IV; Younki Cho; Stuart N. Riddick; Daniel Zimmerle; Kathleen M Smits
- #34: Linda Jaramillo Urrego, “Addressing Environmental and Occupational Health Good Practices for Women Miners in Colombia’s Artisanal and Small-scale Mining Sector - Proposal”
- #35: Idowu Itiola, “Comparative Study on Rocking Dynamics and Energy Dissipation of a Rigid Block: A Microscale Framework”
- #36: Cindy Hua, “Integrating Environmental Justice in a Career and Technical Education (CTE) Classroom”, Co-author(s): Jennifer Sayed; Lorena Toffer
- #37: Loic Dalmeida, “Evaluating Real-time Kinematic Methods as a Solution To Land Rights Issues in Rural Environments”, Co-author(s): Jessie Marshall Zarazaga

## **COMBINED GROUP**

- #38: Harrison Tassopoulos, “MADI x University Crossing Public Improvement District - Reimagining the Matilda Lot”, Co-author(s): Emma Goff; Steve Kinder; Kenedy Kundysek; Tanner Williams; Dubzeey Wu; Aline Zuniga
- #39: Blake Dooley, “Using Video Games to Enhance Machine Learning”, Co-author(s): Albert Mancias
- #40: Kalkidan Desta, “Patterns and Trends in a Place-based Community Engagement Program’s Community Partners”, Co-author(s): Dustin Grabsch; Sondra Barringer; Caitlin Anderson; Sakshi Hinduja
- #41: Leroy Ahwinahwi, “Energy Equity”

## COMPUTER SCIENCE

- #42: Xihao Xie, “Context-Aware Next Service Recommendation for Workflow Composition”,  
Co-author(s): Beichen Hu
- #43: Beichen Hu, “Context-aware Next Service Recommendation for Workflow Composition”,  
Co-author(s): Xihao Xie
- #44: Joshua Sylvester, “Using Granger Causality-Based Timeseries Clustering to Inform  
Multimodal Neural Network Architectures”, Co-author(s): Matthew Lee
- #45: Junhao Shen, “Graph Convolutional Networks on SWEET Semantic Web”
- #46: Hunjae Lee, “Privacy Preserving Machine Learning with Fully Homomorphic Encryption  
with Branching and Sorting Optimizations”
- #47: Eli Laird, “Measuring and Removing Bias from Face Recognition Algorithms”
- #48: Lawrence Klinkert, “Affective Non-player Characters Learning from Their Emotions”
- #49: Zech Wolf, “Data Leakage in Isolated Virtualized Enterprise Computing Systems”, Co-  
author(s): Eric C. Larson; Mitchell A. Thornton
- #50: Clayton Harper, “DCT-DiffStride: Differentiable Strides with Real-valued Data”, Co-  
author(s): Mitchell Thornton; Eric Larson
- #51: Steph Buongiorno, “The Gamification of AI Training: Leveraging Unknown, Natural  
Language Data and Procedural Generation to Drive Videogame Play”

## EARTH SCIENCES

- #53: Weiyu Zheng, “Quantifying and Analyzing Oil and Gas Industry Related Geohazard Using  
Radar Interferometry and Hydro-geomechanical Modeling”
- #54: Wanji Zheng, “Three-dimensional Kinematic Inversion of Landslide Movements,  
Geometry, and Hydraulic Properties: A Case Study in the Three Gorges Reservoir,  
China”, Co-author(s): Zhong Lu
- #55: Qingyu Sui, “The Glacier Isostasy Adjustment and Surface Water Loading Deformation on  
the Great Lake Basin”
- #56: Ketan Singha Roy, “Improving the Detection of Microearthquakes Without Prior Events:  
Application to Large-N Arrays”, Co-author(s): Stephen Arrowsmith
- #57: Kivanc Sabunis, “Urban Acoustics: Determining Acoustic Source Characteristics in Dallas  
Metropolitan Area”, Co-author(s): Dr. Stephen Arrowsmith; Dr. Brian Stump; Dr. Chris  
Hayward; Dr. Junghyun Park

#58: Kang Liang, “Characterizing Distribution and Long-term Evolution of Landslides in Mountainous Southeast Alaska with Optimized InSAR Processing Strategies in Big Data Era”

#59: Vamshi Karanam, “Inelastic Surface Deformation in Delaware Basin Revealed by InSAR and Modeling Results”, Co-author(s): Jin-Woo Kim

### **ECONOMICS**

#60: Travis Whitacre, “Stigma in Mental Healthcare”, Co-author(s): Shuo Qi

#61: Rouzhi Liang, “Entrepreneurship, Bequest, and Fertility Choices”

#62: Weihong Li, “Cultural Norms, Fertility, and Missing Girls”

#63: Hsin-Wei Chang, “Why Do Immigrants Have a Lower Vaccination Rate?”

### **EDUCATION PHD PROGRAM**

#64: Mai Zaru, “Bringing Graffiti to Life: A Case Study of Translanguaged Stories in the Diaspora”

#65: Murphy (Keller) Young, “An Examination of Pre-service Teachers’ Instructional Choices During Simulated Writing Conferences”, Co-author(s): Amy Gillespie Rouse; Diane Gifford

#66: Julianna Washington, “Perspective-taking, Scale, and Dynamicity in Augmented Reality for Learning Geometry”, Co-author(s): Candace Walkington; Jonathan Hunnicutt; Talyor Darwin; Saki Milton; Mitchell Nathan

#67: Kuo Wang, “Improving Automated Scoring of Prosody Using Deep Learning Algorithm”, Co-author(s): Kuo Wang; Xin Qiao; George Sammit; Eric C. Larson; Joseph Nese; Akihito Kamata

#68: Marc Sager, “Analyzing Epistemic Frames During STEM Instructional Coaching Meetings: A Quantitative Ethnography Approach”, Co-author(s): Jeanna Wieselmann

#69: Robyn Pinilla, “Integrating Spatial Reasoning Into Early Childhood Classrooms: An Intrapreneurial Approach to Spatializing the Curriculum”

#70: Saki Milton, “Student’s Affective and Physiological Attitudes toward Mathematics while Participating in Math Walks”, Co-author(s): Marc Sager; Candace Walkington; Anothny Petrosino; Koshi Dhingra

#71: Sydney Loutit, “A Deep Dive into Faculty Engagement with Student-athletes”, Co-author(s): Kiersten Ferguson

- #72: Charity Lewallen, “Regional Accreditation and Transfer Student Outcomes: An Exploratory Study”
- #73: Charlotte Gregor, “How Is Student Engagement Related to the Reading Curriculum Used in Tutoring?”
- #74: Bethany Edwards, “Defining the 'Community' in Community College: A National Overview and Implications for Racial Imbalance in Texas”, Co-author(s): Dominique J. Baker; Spencer F. X. Lambert; Grace Randall

### **ELECTRICAL AND COMPUTER ENGINEERING**

- #75: Tao Wu, “Reliability Evaluation for Integrated Electricity-Gas Systems Considering Hydrogen”
- #76: Muhammad Hashir Syed, “Empirical Characterization of UAV to Underground Wireless Channels”
- #77: Aviraj Sinha, “Automated Quantum Memory Compilation with Improved Dynamic Range”, Co-author(s): Elena R. Henderson; Jessie M. Henderson; Mitchell A. Thornton
- #78: Bin Huang, “Two-Stage Adaptive Storage Expansion Strategy for Microgrids Using Deep Reinforcement Learning”
- #79: Zahra Hoobakht, “Spectrum Allocation in Citizens Broadband Radio Service”, Co-author(s): Harsha Gangammanavar
- #80: Seyed Fazlhashemi, “Decentralized Robust Operation of the Unbalanced Microgrids in Distribution Networks: A Convex Relaxation Approach”
- #81: Gabs DiLiegro, “Detecting Nuclear Materials With Drone-Mounted Scintillators”, Co-author(s): C. J. Sayre; William Bjorndahl
- #82: Md Muhidul Islam Chaman, “Flexible Electronics Based on Atomically Thin Materials”, Co-author(s): Jyothi Chintalapalli
- #83: Jesus Avendano Bolivar, “Tapping into the Quantum Nature of Phonons”, Co-author(s): Kevin Brenner

### **MATHEMATICS**

- #84: Xin Yang, “Computing Solvation Energy of COVID-19 Proteins with Parallelized Poisson-Boltzmann Solver”, Co-author(s): Elyssa Sliheet; Reece Rriye; Danial Reynolds
- #85: Abdullah Md Saifee, “Fluid Dynamics as a Driver of Retronasal Olfaction”, Co-author(s): Cheng Ly; Woodrow L. Shew

- #86: Molly Robinson, “Adapting Weighted Gene Co-Expression Network Analysis for Next Generation Sequencing”
- #87: Sabrina Hetzel, “Interaction and Generation of Soliton-like Pulses under the Presence of Quartic Dispersion”
- #88: Jessie M. Henderson, “Automated Quantum Oracle Synthesis”, Co-author(s): Elena R. Henderson; Aviraj Sinha; Mitchell A. Thornton; D. Michael Miller
- #89: Alex Fish, “Adaptive Time Step Control for Multirate Infinitesimal Methods”
- #90: Tyler Evans, “Viscous Thin Film Models for Self-Organization of Irradiated Semiconductors”
- #91: Jaryd Domine, “Waves in Black Hole Geometries: An Energy-Based Discontinuous Galerkin Method”, Co-author(s): Thomas Hagstrom; Stephen Lau
- #92: Jacob Davis, “Heat Transfer, Vapor Diffusion, and Stefan Flow around Levitating Droplets near a Heated Liquid Surface”, Co-author(s): Vladimir S. Ajaev; Oleg A. Kabov; Dimitry V. Zaitsev

### **MECHANICAL ENGINEERING**

- #93: Hongwei Zhou, “Machine Learning Based Property Prediction and Inversed Design of Star-Shaped Metamaterials”
- #94: Gokhan Kararsiz, “Rolling Motion of a Soft Microsnowman under Rotating Magnetic Field”, Co-author(s): Yasin Cagatay Duygu; Louis William Rogowski; Anuruddha Bhattacharjee
- #96: Mohammad Karim Dehghan Manshadi, “An Electrochemical Immunoassay Biosensor for SARS-Cov-2 Neutralizing Antibody Detection”, Co-author(s): Ali Beskok

### **OPERATIONS RESEARCH AND ENGINEERING MANAGEMENT**

- #97: Doran Wood, “A Comparison of Alternative Stock-out Policies in a Newsvendor Setting”
- #98: Leyla Tavassoli, “Powering a Sustainable Future: An Integrated Network Design Model for Biofuel Supply with Uncertain Supply and Demand Using a Multi-Period Stochastic Optimization Approach”
- #99: Vala Rahmati, “Relief Network Design under Cost and Time Consideration for Foreseen Disasters”
- #100: Mohammad Khalafi, “Accelerated Primal-dual Methods for Convex-strongly-concave Saddle Point Problems”



#101: Adreana Julander, “Reducing the Cost of Recidivism”

#102: Niloofer Fadavi, “An Active-set Method for Two-stage Stochastic Quadratic Programming”

### PHYSICS

#103: Rajeev Vaisakh, “Probing the Expansion of the Universe using the Dark Energy Spectroscopic Instrument”, Co-author(s): James Lasker

#104: Macon Magno, “Census of Radio Quiet AGN and Their Effect on Galaxy Evolution”, Co-author(s): Krista Lynne Smith; Andrea Reyes

#105: Ryne Dingler, “Variability Properties of Southern TESS Blazars”, Co-author(s): Krista Lynne Smith

### POSTDOCTORAL SCHOLARS

#106: Shanru Tian, “Improving the Efficacy of Leak Survey Methods Based on the Plume Modeling and Measurements”, Co-author(s): Shanru Tian; Stuart Riddick; Mercy Mbua; Fancy Cheptonui; Younki Cho; Daniel Zimmerle; Kathleen Smits

#107: James Thorpe, “In Pursuit of Sub-20 Wavenumber Computational Thermochemistry”

#108: Mohamed Shaat, “Towards Freestanding All-solid-state Batteries”, Co-author(s): Xin-Lin Gao

#109: Yanjun Pan, “Fostering Middle School Students’ Computational Thinking in Game-based Learning”, Co-author(s): E. L. Adams; P. D. Foster; L. Klinkert; E. Goff; C. Tseng; L. R. Ketterlin-Geller; E. C. Larson; C. Clark

#110: Mesganaw Mihiret, “Culture Schema Conflicts, Ideological Resistance, and Contextualized Selves”

#111: Pake Melland, “Adding Spikes in the Fitzhugh-Nagumo Model With Low-frequency Periodic Forcing”, Co-author(s): Zahra Aminzare; Rodica Curtu

#112: Alexis Delgado, “Local Mode Theory Applications in Micro- and Macro-Molecular Research Executed Under Diverse Circumstances: Dissertation Work”

#113: Avdhoot Datar, “Robust Least Square Tensor Hypercontraction for the Particle-particle Ladder Term: Implementation, Efficiency, Accuracy”

#114: Yuvraj Dangat, “Mechanistic Insights into S-depalmitolyse Activity of Cln5 Protein Linked to Neurodegeneration and Batten disease: A ONIOM QM/MM Study”, Co-author(s): Marek Freindorf; Elfi Kraka

- #115: Brian Choi, “Continuum Limit of 2D Fractional Nonlinear Dispersive Equation”, Co-author(s): Alejandro Aceves
- #116: Asiye Aziz Zanjani, “Bridging Data Gap and Location Errors To Improve Spatiotemporal Evaluation of Induced Seismicity in the Delaware Basin, West Texas”, Co-author(s): Heather DeShon; Liliana Binetti
- #117: Sneha Aghor, “Synthesis and Characterization of Hydroxyl-Phenol and Creatinine Stable and Metastable Systems”

## **PSYCHOLOGY**

- #118: Iris Yang, “Losing Your Walking Partner: Changes in Walking Frequency After Spousal Loss”, Co-author(s): Stephanie Wilson
- #119: Sofia Uribe, “The Effect of Face Masks on Emotion Recognition and the Role of Social Anxiety Symptoms”, Co-author(s): Alicia E. Meuret
- #120: Mayson Trujillo, “A Systematic Review of the Dependability of the BFI, NEO, PID-5, and PiCD Families of Measures”, Co-author(s): Michael Chmielewski; Austin Baldwin
- #121: Margot Salsman, “COVID-19 Vaccine Attitudes in Adults with and without Asthma: A Health Beliefs Model Approach”, Co-author(s): Isabelle Mermilliod; Hannah Nordberg; Maria M. Berthet-Miron ; Austin Baldwin; Thomas Ritz
- #122: Sierra Rufino, “Volitional Change in Pathological Personality: Can People Change Their Maladaptive Traits?”, Co-author(s): Nathan Hudson
- #123: Julie Pham, “Processing the COVID-19 Pandemic: How Negative Affect Influenced the Centrality of the Event Across the Adult Lifespan”, Co-author(s): Holly J. Bowen
- #124: Jamie Nguyen, “Anger and Presence in Virtual Reality Simulations”, Co-author(s): Julia Griffin; Melissa J. Sitton; Jaza Bojorquez; Quinn Proctor; Ernest N. Jouriles
- #125: Diane Moon, “The Role of Prediction Error in Reconsolidation of Episodic Memories”, Co-author(s): Holly E. Gray; Margaret Boyd; Holly J. Bowen
- #126: Sam Molli, “The Role of Spousal Emotional Support and Perceived Responsiveness in the Link Between Daily Rumination and Sleep: Findings From the Midlife in the United States Study”, Co-author(s): Stephanie Wilson
- #127: Alexa Jimenez, “The "Dark Matter" of HiTOP: Where Does Dissociation Fit in the Hierarchy?”, Co-author(s): Mayson Trujillo; Elizabeth Bell; Caroline Lee

#128: Sarah Corner, “Deficits in Anticipatory Reward Sensitivity Predict Decreased Vividness in a Prospective Thinking Task in Depressed, Anxious, and Anhedonic Individuals”, Co-author(s): Michelle G. Craske; Aileen M. Echiverri-Cohen; Emily Wang; Thomas Ritz; Alicia E. Meuret

### STATISTICAL SCIENCE

#129: Ming Zhang, “Bayesian Goodness-of-fit Test for Meta-Analysis of Rare Binary Events”, Co-author(s): Johan Lim; Xing Chao

#130: Chenyu Yang, “Contextualized Word-level Sentiment Analysis of Wine Review”

#131: Biling Wang, “Towards Trustworthy Radiotherapy: A Contour Quality Auto-alarming Framework with Reliable Uncertainty Quantification for Quality Assurance”, Co-author(s): Biling Wang; Michael Dohopolski; Mu-Han Lin; Junjie Wu; Ti Bai; Dan Nguyen; Xinlei Wang; and Steve Jiang

#132: Duwani Katumullage, “Historical Information-based Specifications for the Weight Matrix of a CAR Model”

### UNDERGRADUATE POSTERS

#133 and above: Presenters’ names and project titles will be posted here:

<https://www.smu.edu/Moody/Events/research-and-innovation-week/undergraduate-poster-session>

**MAP**

