GRADUATE STUDENT GOVERNMENT
COLORADO SCHOOL OF MINES

Welcome to the **10th anniversary** of GRADS!

MinesGRADS

Graduate Research And Discovery Symposium
@ Mines

Science Communicat10n

April 1-3, 2026

Student Center Ballrooms
Colorado School of Mines
Golden, CO

COLORADO SCHOOL OF MINES

GRADS 2026 Committee

Welcome to 10 years of the free GRADS conference, hosted by the Colorado School of Mines! We are excited to bring together experts and enthusiasts from a wide range of disciplines to exchange ideas, showcase cutting-edge research, foster collaborations, and deliver cash prizes! We have a fantastic lineup of a keynote speaker, presentations, and workshops that will highlight the importance of science communication and connection. We believe that by reaching across disciplinary boundaries, we can tackle complex problems and find innovative solutions. So, whether you are a student, researcher, or industry professional, come and join us for this exciting event and be a part of the conversation!

Sincerely, your 2026 GRADS committee:

Molly O'Halloran	Committee Chair
Ellie Miller	Judges & Keynote
Paris Porter Bradley	Abstracts
Quin Guy	Social
Mia Moore	Marketing
Ramin Soltanmohammadi	Technology & Website
Nyomi Morris	Program
Julia Burton-Heibges	Logistics
Jessie Hiatt	Marketing
Grayce Gibbs	Workshops
Andrew Aikman	Judges
Elise Collins	Marketing & Program
Tanmay Desai	Technology & Website
Brandon Werling	Judges
Surabhi Upadhyay	Marketing

Schedule: Wednesday, April 1st

8:00 – 9:00 am	2nd Floor Lobby	Check-in
9:00 – 10:00 am	Ballrooms C & E	Oral Session: Energy and Mechanical Systems
	Ballroom D	Oral Session: Fundamental, Discovery, and Molecular Sciences
10:00 – 10:30 am	Ballrooms A & B	Break
10:00 – 1:00 pm	2nd Floor Lobby	Headshots
10:30 – 11:30 am	Ballrooms C & E	Oral Session: Energy and Mechanical Systems
	Ballroom D	Oral Session: Fundamental, Discovery, and Molecular Sciences
11:30 – 1:00 pm	Ballroom A	Workshop
	Ballroom B	Lunch
1:00 – 2:00 pm	Ballrooms C & D	Oral Session: Fundamental, Discovery, and Molecular Sciences
	Ballroom E	Oral Session: Energy and Mechanical Systems
2:00 – 2:30 pm	Ballrooms A & B	Break
2:30 – 3:30 pm	Ballrooms C & D	Oral Session: Fundamental, Discovery, and Molecular Sciences
	Ballroom E	Oral Session: Energy and Mechanical Systems
5:00 – 6:00 pm	Ballrooms A & B	Keynote
6:00 – 7:00 pm	Avery Room	Keynote Reception

Schedule: Thursday, April 2nd

8:00 – 9:00 am	Ballroom A	Check-in
9:00 – 10:00 am	Ballrooms C & D	Oral Session: Earth and Environmental Systems, Resources, and Subsurface Engineering
	Ballroom E	Oral Session: Materials, Processing, and Manufacturing Sciences
10:00 – 10:30 am	Ballrooms A & B	Break
10:00 – 1:00 pm	2nd Floor Lobby	Headshots
10:30 – 11:30 am	Ballrooms C & D	Oral Session: Earth and Environmental Systems, Resources, and Subsurface Engineering
	Ballroom E	Oral Session: Materials, Processing, and Manufacturing Sciences
11:00 – 1:00 pm	Ballroom A	Lunch
11:30 – 1:00 pm	Ballroom B	Workshop
1:00 – 2:00 pm	Ballroom D	Oral Session: Earth and Environmental Systems, Resources, and Subsurface Engineering
	Ballroom E	Oral Session: Materials, Processing, and Manufacturing Sciences
2:00 – 2:30 pm	Ballrooms A & B	Break

Schedule: Thursday, April 2nd

2:30 – 3:30 pm	Ballrooms C & E	Oral Session: Materials, Processing, and Manufacturing Sciences
	Ballroom D	Oral Session: Earth and Environmental Systems, Resources, and Subsurface Engineering
3:30 – 5:30 pm	Coorstek Atrium	Poster Session
5:30 – 6:30 pm		Happy Hour

Schedule: Friday, April 3rd

8:00 – 9:00 am	Ballroom A	Check-in
9:00 – 10:00 am	Ballrooms C & D	Oral Session: Computing, Data, Modeling, and Robotics
	Ballroom E	Oral Session: Technology, Policy, Health, and Human Systems
10:00 – 10:30 am	Ballrooms A & B	Break
10:30 – 11:30 am	Ballrooms C & D	Oral Session: Computing, Data, Modeling, and Robotics
	Ballroom E	Oral Session: Technology, Policy, Health, and Human Systems
11:30 – 12:00 pm	Ballrooms A & B	Break
12:00 – 1:00 pm	Ballrooms C & D	Oral Session: Computing, Data, Modeling, and Robotics
	Ballroom E	Oral Session: Technology, Policy, Health, and Human Systems
1:00 – 2:00 pm	Avery Room	Lunch
1:30 – 3:00 pm	Ballroom B	Workshop
3:00 – 4:00 pm	Ballroom A	3 Minute Thesis Competition
4:00 – 4:30 pm		Awards

GRADUATE STUDENT GOVERNMENT
COLORADO SCHOOL OF MINES

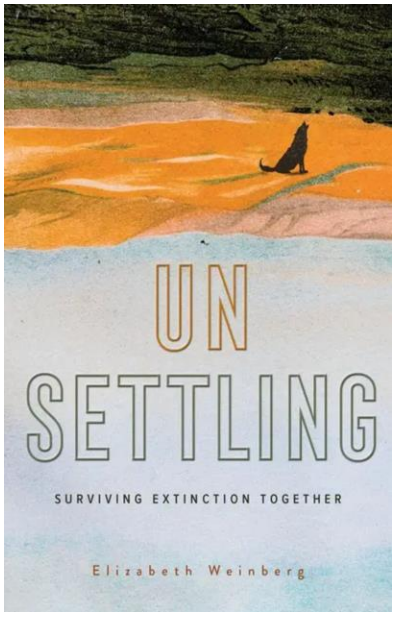
Keynote Speaker:
Elizabeth Weinberg

Tuesday, April 1st | 5:00 – 6:00 pm

Warp and Weft:
Weaving Together Science and Community

Elizabeth Weinberg is a queer science communicator and writer based in Portland, Oregon. They are the author of *Unsettling: Surviving Extinction Together*, a collection of essays examining climate change and wilderness from a queer, anticolonial perspective.

Her writing has also appeared in or is forthcoming in *High Country News, Identity Theory*, *Buckman Journal*, *The Rumpus*, and elsewhere. Additionally, they have spent the past decade working as a professional science communicator, helping federal agencies, nonprofits, and other organizations share the importance of science, conservation, and curiosity. Weinberg holds a Bachelor of Arts in anthropology from Williams College and a Master of Fine Arts in creative writing from the University of Washington.



Keynote reception & happy hour to follow: 6:00 - 7:00 pm

COLORADO SCHOOL OF MINES

Workshops

Financial & Economic Literacy for Scientists and Engineers

Wednesday, April 1st | 11:30 – 1:00 pm | Ballroom A

An interactive introduction to key concepts in economic thinking, financial decision-making, and business fundamentals has been tailored by **Dr. Dan Jerrett** for scientists and engineers interested in industry, policy, or leadership roles.

How to Be More Employable in Industry

Thursday, April 2nd | 11:30 – 1:00 pm | Ballroom B

The founder of Turning Science, **Dr. David Giltner**, will be giving practical guidance on transitioning from academia to industry. This workshop will focus on communication skills, business literacy, financial awareness, and building an industry-ready professional profile.

Sharing STEM with General Audiences

Friday, April 3rd | 1:30 – 3:00 pm | Ballroom B

Science Riot is a non-profit organization that aims to improve science communication and relatability using comedy. Members of their team will lead an interactive workshop that helps scientists craft engaging 5-10 minute talks that teach a scientific concept, use humor effectively, and rely solely on clear storytelling and a microphone.

GRADUATE STUDENT GOVERNMENT
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Three Minute Thesis Competition

Friday, April 3rd
3:00 – 4:00 pm
Ballroom A

This is the final contest at Mines before Regionals!

3MT® THREE MINUTE THESIS
FOUNDED BY THE UNIVERSITY OF QUEENSLAND

Presenters

Oral Sessions (Morning)

April 1st

Energy and Mechanical Systems

Ballroom C

09:00 - **Dishita Sharma**, Computer Science
LiDAR Camera-Based Detection and Quantification of Operational Emissions on an Oil and Gas Compressor Station

09:15 - **Elon Yates**, Mechanical Engineering
PONDERHouse: A Ponder-Based Mass Timber Home That Helps our National Forests and Provides Sustainable, Resilient Housing

09:30 - **Louis Bartels**, Mechanical Engineering
3D Multimode Rayleigh-Taylor Instability: Influences of Density Contrast, Stratification, and Reynolds Number

09:45 - **Shane Conley**, Advanced Energy Systems
Utilizing Solid Oxide Electrolysis Cells for high efficiency Power to Methanol Production

10:30 - **Irene Walker**, Advanced Energy Systems
Novel electrochemical quartz microbalance techniques for in situ measurement of enhanced calcium carbonate precipitation in mildly acidic conditions

10:45 - **Karli Gaffrey**, Chemistry
Electro-osmotic Drag for Proton Exchange Membrane Water Electrolysis

11:00 - **Thayne Ekness**, Chemical and Biological Engineering
Solar-Simulated Bioreactor Productivities of the Marine Alga Picochlorum celeri using Carbon Dioxide Delivery Cycles and High Dissolved Oxygen

11:15 - **Vitor Camacho**, Chemical and Biological Engineering
On the Reactivity of Inert Gases for Hydrogen Superpermeation

Presenters

Oral Sessions (Morning)

April 1st

Fundamental, Discovery, and Molecular Sciences

Ballroom D

09:00 - **Christine El-Dirani**, Quantitative Biosciences and Engineering
Laminin interactions in a 3D reverse thermal gel scaffold promote islet survival under cytokine-mediated stress

09:15 - **Connor Nelson**, Chemistry
Characterization of the cysteine desulfurase-sulfurtransferase interaction requisite for iron-sulfur cluster biogenesis in the pathogen, Staphylococcus aureus

09:30 - **Michael Le**, Electrical Engineering
Structured Illumination in the Mid-Infrared for Rapid Image Acquisition and Chiral Sensing

09:45 - **Nele Hebbeler**, Chemistry
Metallochaperone–Mediated Maturation of Fe-type Nitrile Hydratase Active Sites: Structural and Functional Insights

10:30 - **Haden Cavalli**, Chemistry
Unraveling the PFAS Helic: A statistical approach

10:45 - **Nathan Hopkins**, Chemistry
Photocatalysts for the Controlled Degradation of Explosive Molecules

11:00 - **Richard Faulkner**, Chemistry
Closing the Loop: Evaluating Gaps in Reaction Mechanisms and Transformation Products of Thermal PFAS Destruction

11:15 - **Steven Nixon**, Chemistry
Analysis of SELEX-obtained aptamers for short-chain PFAS capture: a computational study

Presenters

Oral Sessions (Morning)

April 1st

Energy and Mechanical Systems

Ballroom E

09:00 - **Andrew Aikman**, Operations Research with Engineering
Opportunities of Hybrid Solar Generation for Data Center Needs

09:15 - **Chase Robinson**, Advanced Energy Systems
Scalable Thermal Energy Storage Composite for Battery Thermal Management

09:30 - **Justin Kilb**, Operations Research with Engineering
Estimating Value of Information for Heliostat-washing Operations at Concentrating Solar Power Plants

09:45 - **Remi Akinwonmi**, Operations Research with Engineering
Risk Aware Grid Operations

10:30 - **Andrew Gloor**, Advanced Energy Systems
Development and Commissioning of Low-Cost Indoor Air Quality and Building Envelope Monitoring Systems for Building Performance Evaluation

10:45 - **Erin Blackley**, Advanced Energy Systems
Getting 50 gallons out of 40 gallons: Phase change material heat exchangers to eliminate up-sizing of 120V heat pump water heaters

11:00 - **Quin Guy**, Mechanical Engineering
Cost - Aware Retrofits for Heatwave Resilience

11:15 - **Reza Saeidi**, Mechanical Engineering
Comparative Life Cycle Assessment of Residential LFP, NMC, and NCA Battery Storage: Quantifying the Decarbonization Potential of Aqueous Manufacturing and Material Efficiency

Presenters

Oral Sessions (Afternoon)

April 1st

Fundamental, Discovery, and Molecular Sciences

Ballroom C

13:00 - **Alexa Schwartz**, Advanced Energy Systems
Elucidating the metabolic pathways of lignin degradation in white-rot fungi

13:15 - **Ben Lattes**, Quantum Engineering
Quantum Many-Body Dynamics of Triplet Excitons from Singlet Fission in a Molecular Crystal

13:30 - **Maya Mowery-Evans**, Quantitative Biosciences and Engineering
Degradation of Atrazine by Encapsulated Enzyme Cascade

13:45 - **Will Buziak**, Computer Science
Quantum Circuit Generation for Modeling Complex Interactions

14:30 - **Ahmet Kula**, Mechanical Engineering
Energy Transport Mechanisms in Heated Bluff-Body Compressible Flows: Cylinder and Sphere

14:45 - **Jackson Hinkel**, Physics
Atmospheric Refraction-Induced Angular Bias in Earth-Skimming Tau Neutrino Detection

15:00 - **Nicolas San Martin**, Physics
The Mass Composition of UHECR above 10^17.7 eV Inferred from Pierre Auger Observatory Fluorescence Detector Observations

15:15 - **Ryan Nguyen**, Mechanical Engineering
Flow Control in Compressible Laminar Flow Over a Cylinder by Local Heating/Cooling Strategies

Presenters

Oral Sessions (Afternoon)

April 1st

Fundamental, Discovery, and Molecular Sciences

Ballroom D

13:00 - **Adam Humpal**, Materials Science
Brush-covered nanoparticles to improve pulmonary gene therapies

13:15 - **Alyson Camacho**, Chemical and Biological Engineering
Polymer microstructure modulates CRISPR/Cas9 delivery performance

13:30 - **Michael Ivanitskiy**, Applied Mathematics and Statistics
Improving the safety of AI systems by creating 'Cyborg' language models

13:45 - **Sinclair Combs**, Chemistry
Assessing the role of electron transport on stability in metal chloride solid-state ion conductors

14:30 - **Andrea Corr**, Chemistry
Tethered Molecular Pd Complexes on Mesoporous Silica Nanoparticles for Bioorthogonal Catalysis

14:45 - **Ashton Fremin**, Chemical and Biological Engineering
Optimization of Polycaprolactone Nanocapsules for In Vivo Targeted Delivery to Mouse and Human β-cells Utilizing Transplanted Murine Models

15:00 - **Emiel Kram**, Chemical and Biological Engineering
Identifying molecular factors of polymorphic bacterial microcompartment assembly through coarse-grained simulations

15:15 - **Sam Smart**, Quantum Engineering
Beyond Semiclassical Approximations: Quantum Correlations, Environmental Structure, and Mesoscopic Control in Radical Pair Magnetoreception

Presenters

Oral Sessions (Afternoon)

April 1st

Energy and Mechanical Systems

Ballroom E

13:00 - **Akbar Laksana**, Advanced Energy Systems
Fluidized catalyst bed methane reformer under simulated solar heating for synthetic fuel production

13:15 - **Evan Stults**, Mechanical Engineering
Computational modeling of solar heating for a multi-tubular receiver-reactor

13:30 - **Janelle Domantay**, Operations Research with Engineering
Maximizing Hot Water Output for Small-Volume Heat Pump Water Heaters

13:45 - **Melissa Popeil**, Advanced Energy Systems
Microstructural Design of Hybrid Cathodes with Directly Recycled Material

14:30 - **Garrett Strain**, Chemical and Biological Engineering
Understanding the Performance of Ru/Al2O3 Catalysts for Hydrogen Production via Methanol Steam Reforming

14:45 - **Kaylyn Buchanan**, Mechanical Engineering
Physics-Based Optimization of Hydrogen–Methane Combustion Chemistry for CFD Applications

15:00 - **Reilly Seban**, Materials Science
Accelerated Screening and Development of Biomatched Organic Photovoltaic Active Layers for Next Generation Agrivoltaics

15:15 - **Sungho Yoon**, Mechanical Engineering
Constraining Data-Driven Optimization of an F-24 Chemical Kinetic Mechanism Using Kinetic Parameter Regularization and First-Stage Ignition Delay

Presenters

Oral Sessions (Morning)

April 2nd

Earth and Environmental Systems, Resources, and Subsurface Engineering

Ballroom C

10:30 - **Alexa Yeo**, Hydrologic Science and Engineering
Water level oscillations in Green Bay across multiple time scales: From inter-annual trends to tides and meteotsunamis

10:45 - **Badr Badghaish**, Geophysics
Characterizing Fracture Interactions in Hydraulic Fracturing Operations

11:00 - **Kiersten Wilson**, Civil and Environmental Engineering
PFAS @ Mines: Fate of Foam-Fractionation Surfactants During Hydrothermal Alkaline Treatment

11:15 - **Stefany Huanca**, Mining Engineering
Advancing Lithium Recovery: Evaluation of Electrodialysis, Capacitive Deionization, and a Novel Hybrid Electrochemical System

Presenters

Oral Sessions (Morning)

April 2nd

Earth and Environmental Systems, Resources, and Subsurface Engineering

Ballroom D

09:00 - **Charles Crosby**, Geology and Geological Engineering
Rockfall Block Reconstruction from Point Clouds of Constituent Fragments

09:15 - **Lauren Guido**, Geology and Geological Engineering
From Lidar to Landscape: Linking Reach-Scale Sediment Sources to Regional Postfire Debris-Flow Hazards

09:30 - **Colin Beyers**, Geophysics
What Drives the Spatial Variability of the Stokes Drift?

09:45 - **Mohamed Mohamed**, Materials Science
Potential of Libya's Hydrocarbon Producing Basins: A Geologic Perspective

10:30 - **Abigail Broscius**, Electrical Engineering
Predicting and Quantifying the Impact of Power Grid Ignited Wildfires

10:45 - **Francis Boateng**, Humanities, Arts, and Social Sciences
From Rivers to Groundwater: Mining Waste, Water Contamination, and Environmental Justice in Ghana

11:00 - **Kun Zhang**, Mining Engineering
Novel Rock Brittleness Indicators Derived from Punch Penetration Tests

11:15 - **Pariya Amigh**, Civil and Environmental Engineering
Foam Fractionation for Removal of Per- and Polyfluoroalkyl Substances (PFAS) from Contaminated Waters

Presenters

Oral Sessions (Morning)

April 2nd

Materials, Processing, and Manufacturing Sciences

Ballroom E

09:00 - **Abby Cardoza**, Chemistry
From Cation Order to Disorder: Unlocking Ion Transport Pathways in Li-Zn-Zr-Cl Halospinels

09:15 - **Alex Hughes**, Materials Science
From solid-state electrolytes to cathodes: tuning mixed ionic-electronic conductivity in sodium metal halides

09:30 - **Jordan Sweeney**, Materials Science
Enabling Two-Sided Characterization of Conversion Electrodes through a Free-Standing Design

09:45 - **Rosemary Thompson**, Chemistry
HOOPS: High-throughput Optimization of OPVs for Performance and Stability

10:30 - **AJ Gray**, Materials Science
Ultra-fast Laser Ablation Thresholds of III-V Materials

10:45 - **Anne Bouley**, Metallurgical and Materials Engineering
Characterization and Comparison of Stress States and Damage in Zn-Coated QP1180 Steel During Liquid Metal Embrittlement Tests

11:00 - **Brian Bailey**, Additive Manufacturing
Accelerated Testing for Metal 3D Printing (L-PBF)

11:15 - **Connor Harvey**, Chemical and Biological Engineering
Vapor-Deposited 2D Chiral Perovskites for Artifact-Free Circular Dichroism and Spintronic Applications

Presenters

Oral Sessions (Afternoon)

April 2nd

Materials, Processing, and Manufacturing Sciences

Ballroom C

14:30 - **Niranjan Subramanian**, Economics and Business
Pyrolysis of biomass: Optimization of process parameters, characterization and comparison of properties of pyrolysis oil from raw biomass.

14:45 - **Maximalian Kephart**, Mechanical Engineering
Decoding Additively Manufactured Functionally Graded Metals through the Virtual Fields Method

Presenters

Oral Sessions (Afternoon)

April 2nd

Earth and Environmental Systems, Resources, and Subsurface Engineering

Ballroom D

13:00 - **Colin Fenster**, Data Science
Spatiotemporal Deep Learning for Snow-Water Equivalent Prediction

13:15 - **Isabella Peter**, Civil and Environmental Engineering
the Development of a Novel Ice Thickness Dataset for Earth's Largest Lakes Using ICESat-2 Altimetry

13:30 - **Rand Gardner**, Geology and Geological Engineering
Under the Ice: Geologic Energy Resource Potential of the Arctic

14:30 - **Amin Dargi**, Civil and Environmental Engineering
Production of Lightweight Aggregates from Mine Tailings Using Fly Ash via Cold-Bonded Pelletization

14:45 - **Quinn Matuschek**, Advanced Energy Systems
From Fuel Tanks to Wing Tips: How Fuels, Aircraft Design, and Policy Shape the Future of Aviation

15:00 - **Rocio Maryori Quispe Chata**, Geology and Geological Engineering
Ferrocarbonatite Complex at Cerro Manomó: Possible Geological Evolution and Potential for Rare Earth Elements

15:15 - **Rohaiz Haris**, Geophysics
Uncovering Subannual Subglacial Groundwater Dynamics in Antarctica using Geologically Constrained Modeling and Satellite Altimetry

Presenters

Oral Sessions (Afternoon)

April 2nd

Materials, Processing, and Manufacturing Sciences

Ballroom E

13:00 - **Austin Shotwell**, Chemistry
Polyhedral Disorder and Ion Transport in Argyrodite Solid Electrolytes

13:15 - **Shelby Galinat**, Materials Science
Complex Dynamics in a Dipolar Ion Conductor

13:30 - **Silvia Alvarado Callisaya**, Mining Engineering
Copper Extraction from Chalcopyrite with New Hydrometallurgical Systems

13:45 - **Theresa Nosel**, Materials Science
Post–Consumer Plastics to CO2 Capture Sorbents: Aminating Polypropylene, Polyethylene, and Polyvinyl Chloride

14:30 - **Ariel Gluck**, Materials Science
Using Statistical Analysis for DED-Arc Process Window Development

14:45 - **Blaire Zymbaluk**, Nuclear Engineering
Quantification of Hydrogen in Zirconium using Neutron Radiography

15:00 - **Jessica Lawson**, Materials Science
Purification of polymer-pDNA complexes via asymmetrical flow field-flow fractionation (AF4)

Presenters

Oral Sessions (Morning)

April 3rd

Computing, Data, Modeling, and Robotics

Ballroom C

09:00 - **Joseph Kenrick**, Operations Research with Engineering
Autonomous Teamwork at Scale: Distributed Algorithms for Real Mission Constraints

09:15 - **Jenifer McClary**, Operations Research with Engineering
Optimizing Steel Coil Production Schedules Under Continuous Casting and Hot Rolling: Methodology and Application

09:30 - **Mick Iacofano**, Operations Research with Engineering
RIOT SPORTS: Home of the Magic Numbers

09:45 - **Yongchen Wu**, Operations Research with Engineering
Multi-Commodity Flow Network Model

10:30 - **Alex Derenchuk**, Advanced Energy Systems
Spatial Decomposition of a Large-Scale Linear Optimization Model for Power Sector Capacity Planning

10:45 - **Julia Heibges**, Physics
Machine Learning Methods for Reconstruction of Ultra-High Energy Cosmic Rays from Balloon-Borne Experiments

11:00 - **Luke Messer**, Operations Research with Engineering
Contested Logistics in Adversarial Environments: Incorporating Red Intelligence

11:15 - **Madison Lytle**, Applied Mathematics and Statistics
Semi-Implicit Simulation of Immersed Membranes

Presenters

Oral Sessions (Morning)

April 3rd

Computing, Data, Modeling, and Robotics

Ballroom D

09:00 - **Alireza Goldar**, Electrical Engineering
Fisher Information–Driven Adaptive Quantum State Tomography under Pauli Measurements using MPO Models

09:15 - **Carole Bouy**, Robotics
Autonomous Multi-Camera Pan-Tilt-Zoom Videography System for Filming Multiple Moving Athletes

09:30 - **Oluwatosin (Tosin) Oseni**, Robotics
SEEIR: Semantic driven End-to-end Exploration and Inspection for optimizing 3D Reconstruction Quality and Coverage

09:45 - **Om Biyan**i, Quantum Engineering
Characterization of Networks Using Topological Data Analysis Methods

10:45 - **Bailey Oteri**, Nuclear Engineering
A Systematic Re-evaluation of the BEAVRS Benchmark with OpenMC

11:00 - **Joshua Nichols**, Nuclear Engineering
Predicting Self-Shielded Multigroup Microscopic Cross Sections Using Artificial Neural Networks

11:15 - **Maksat Jazbay**, Geophysics
From coordinates to wavefields: a graph neural approach to seismic processing

Presenters

Oral Sessions (Morning)

April 3rd

Technology, Policy, Health, and Human Systems

Ballroom E

09:00 - **Katie Assaf**, Computer Science
Designing for Domestic Abuse Survivors: Preparing for Self-Disclosure and New Design Methods

09:15 - **Nicolas Perticari Pesci**, Civil and Environmental Engineering
Characterizing Integration Agents of Sociotechnical Integrations in Frontier Energy Research

09:30 - **Zoë Brouillet**, Humanitarian Engineering and Science
The Rural Rivers Project: Sociotechnical Innovation for Mitigating Flooding in Rural Riverine Communities

10:30 - **Alicia Kanai**, Mechanical Engineering
Estimating Dynamic Loads to Reduce Biomechanical Errors in Field Environments

10:45 - **William Feldman**, Mechanical Engineering
Unilateral Plantarflexor Fatigue Perturbs Single Leg Hopping Mechanics

11:00 - **Nyomi Morris**, Computer Science
Using Robot Faces to Facilitate Emotional Awareness in Human-Human-Robot Self-Disclosures

Presenters

Oral Sessions (Afternoon)

April 3rd

Computing, Data, Modeling, and Robotics

Ballroom C

12:00 - **Mia Moore**, Advanced Energy Systems
Wildfire-Induced Outage Prevention Considering Endogenous Uncertainty

12:15 - **Sharfi Rahman**, Computer Science Robotics
Model Predictive Control for Aerial Videography with Multiple Moving Actors

12:30 - **Tanmay Desai**, Robotics
Hardware-Software Co-Design for Sampling-Based Optimal Control

12:45 - **Sam Smart**, Quantum Engineering
Beyond Semiclassical Approximations: Quantum Correlations, Environmental Structure, and *Mesoscopic Control in Radical Pair Magnetoreception*

Presenters

Oral Sessions (Afternoon)

April 3rd

Computing, Data, Modeling, and Robotics

Ballroom D

12:00 - **David Basoco**, Quantum Engineering
Variational Quantum Optimization for CVaR-Constrained Portfolio Construction

12:15 - **Jack Kingham**, Computer Science
"A constant battle of headbutts with the compiler:" Evaluating Learning Challenges and Programming Resources for the Rust Programming Language

12:30 - **Seth Dale**, Computer Science
A Multimodal Physics-Informed Machine Learning Framework for Gas Hydrate Characterization and Plugging Risk Assessment

Presenters

Oral Sessions (Afternoon)

April 3rd

Technology, Policy, Health, and Human Systems

Ballroom E

12:00 - **Katherine Limes**, Computer Science
Teacher Perspectives on Teaching Security and Privacy at the K-12 Level

12:15 - **Morgan Shepherd**, Advanced Energy Systems
How Low Can You Go? Predicting Flexibility Potential of Residential Electricity Customers

12:30 - **Peter Rand**, Mechanical Engineering
Evaluating the Impact of Narrow-Scope Generative AI–Aided Assessments in Higher Education

12:45 - **Sandinei Santos**, Economics and Business
Portfolio Selection in the Oil Industry Under Carbon Policies

Presenters

Poster Session

April 2nd

Computing, Data, Modeling, and Robotics

CoorsTek Atrium, 3:30 PM

Ahmed Ahmed, Geophysics
Multi-resolution reservoir parameter estimation using Haar wavelet transforms and deep learning: A double-compression approach

Antony Sikorski, Data Science
LatticeVision: Image to Image Networks for Modeling Non-Stationary Spatial Data

Bingshen Lu, Operations Research with Engineering
Large-Scale Network Optimization with Applications in Open-Pit Mining

Gabriel Hake, Operations Research with Engineering
Resilient Logistics in Adversarial Environments

Michael Basanese, Applied Mathematics and Statistics
Sample size determination when the underlying distribution is highly right-skewed

Rachel Bertaud, Applied Mathematics and Statistics
Simulating the Feynmann Sprinkler using IBAMR

Thong Quoc (Bill) Huynh, Robotics
Environmental-Computational Epistemic Agents: Observations for Optimal Decisions

Presenters

Poster Session

April 2nd

Earth and Environmental Systems, Resources, and Subsurface Engineering

CoorsTek Atrium, 3:30 PM

Alexander Kirshen, Hydrologic Science and Engineering
Influence of Geochemical Reactions on Fracture Permeability Using a Decameter-scale Field Experiment and Reactive Transport Simulations

Amanda Rea, Geology and Geological Engineering
Temporal and paleoenvironmental reconstruction of the Claron Formation in Bryce Canyon National Park through calcite U-Pb geochronology and continental trace fossil characterization

Anna McGrath, Geophysics
Hot Meets Cold: Resolving the Mixed Seep System at Calypso Seep Field, New Zealand using Electromagnetic Methods

Becca Rasmussen, Civil and Environmental Engineering
Characterization and behavior analysis of thermal structure in Lake Michigan in winter

Carl Gorski, Mining Engineering
Scrub n' Sort: Producing A Dry Rare-Earth Mineral Concentrate Through Preferential Breakage, Ore Scrubbing, And Rock Sortation At The Bear Lodge Hardrock Project

Christina Hutchins, Hydrologic Science and Engineering
Evaluating National Water Model Performance in Regulated River Systems

Dipson Pradhan, Geology and Geological Engineering
Evaluating the Effects of Alternating Strata and Soft Rock Thickness on Vertical Shaft Performance Using Finite-Difference Modeling

Dorian Gursky, Geology and Geological Engineering
High Precision U-Pb Age Dating and Correlation of Maastrichtian Ash Horizons in the Williston Basin

Eiraf Wali , Geophysics
Rock Physics Analysis for Facies Classification of the Wolfcamp Interval In The Fasken Ranch

Presenters

Poster Session

April 2nd

Earth and Environmental Systems, Resources, and Subsurface Engineering

CoorsTek Atrium, 3:30 PM

Elise Chan, Geology and Geological Engineering
Using Geomorphometric Characteristics to Distinguish Fan Types in Colorado

Felix Ayaburi, Operations Research with Engineering
Production Scheduling Under Silica Constraint in Underground Mine

Francesca Skene, Geology and Geological Engineering
Using storm direction and runoff thresholds to distinguish between post-fire debris flows and flash floods

Ibrahim Suha Gurbuz, Geology and Geological Engineering
Radiogenic Helium Generation in Unconventional Reservoir Systems

Isabelle Harris, Geology and Geological Engineering
Alloys, Inclusions, and Isotopes of Gold Particles from Placer Deposits at Flat, Alaska, and Implications on Lode-Source Relationships

Izzan Nur Aslam, Mining Engineering
Systematic Review and Critical Assessment of Column and Bioleaching of Copper Ores: Mechanisms, Efficiencies, and Sustainable Pathways

Jessie Hiatt, Geology and Geological Engineering
Integrating Multi-Temporal UAS Photogrammetry and Terrestrial LiDAR for Monitoring Underground Coal Fire Induced Surface Deformation

Joseph Ruggiero, Geology and Geological Engineering
Understanding erroneous bulk sediment organic 14C ages from Antarctic continental shelf core tops

Kate Pereira, Civil and Environmental Engineering
Diagnosing Why Great Lakes Wave Forecasts Run Hot: Physics Calibrated for Oceans, Applied to Lakes

Presenters

Poster Session

April 2nd

Earth and Environmental Systems, Resources, and Subsurface Engineering

CoorsTek Atrium, 3:30 PM

Maria Petrova, Geology and Geological Engineering
Cluster-Based Rockfall Analysis Using High-Resolution LiDAR: A Case Study on a Rock Slope in Western Colorado

Masanori Tani, Geophysics
DAS-Constrained Interpolation of Sparse Geophone Data using Transformer Architectures

Moses Adebayo, Geology and Geological Engineering
Quantifying surface-subsurface water fluxes in an intermittent stream using self-potential measurements and a coupled hydrological-electrical model

Rachel Corrigan, Hydrologic Science and Engineering
Assessing the effects of uncertainty in windspeed and precipitation forcings on lateral snow redistribution in mountainous basins

Reem Alrowaished , Geophysics
Reservoir Characterization of the San Andres Formation for Saltwater Disposal in the Midland Basin

Sushma Kadel, Geology and Geological Engineering
Multi-Site Characterization of Rockfall Seasonality and Slope Dynamics in Western Colorado Using 3D Point Cloud Monitoring

William Wolfe, Geology and Geological Engineering
Sedimentology and Geochronology of Upper Cretaceous-Paleogene Strata in the Western Gobi Desert, Mongolia: resolving conflicting biostratigraphy and identifying the K-Pg and PETM boundaries

Zoë Bowers, Geology and Geological Engineering
Geochronology and Sedimentary Provenance Analysis of Upper Cretaceous Strata in the Antarctic Peninsula, with A Focus on the Santa Marta Formation

Surabhi Upadhyay, Hydrologic Science and Engineering
Global Assessment of Reservoir Drought Patterns

Presenters

Poster Session

April 2nd

Energy and Mechanical Systems

CoorsTek Atrium, 3:30 PM

Allison Riley, Advanced Energy Systems
Port-based Modelling of the HERO WEC for Bi-Conjugate Impedance Matching Control

Grayce Gibbs, Geology and Geological Engineering
Assessment of U.S. Nickel and Cobalt Resources Using Material Flow Analysis

Silje Ostrem, Electrical Engineering
Development of a Conformal Antenna Array for Data Transmission from a Cutting Drum to the Mining Equipment in Harsh Working Conditions.

Thomas Forbord, Materials Science
Quantifying Oxygen Stabilization in Iron Oxyfluoride (FeOxF2-x) Cathodes via Mössbauer Spectroscopy

Yiyang Chen, Advanced Energy Systems
Wind Energy Generation Estimation for Grid Integration

Presenters

Poster Session

April 2nd

Fundamental, Discovery, and Molecular Sciences

CoorsTek Atrium, 3:30 PM

Adria Hippely, Chemistry
Expanding Molecular Design Space in Hydrogen-Bonded Organic Frameworks

Caroline Turner, Mechanical Engineering
Characterization of plantar flexor muscular capacity: the effect of joint angle and velocity on joint torque

Danielle Frenden, Space Resources
B.E.T.H. - Boundary-Excited Tension Harmonics for Impulsive Momentum Transfer

Manon Lutz, Chemistry
Understanding lithium-ion transport processes in argyrodite solid-state electrolytes

Maria Wroblewska, Physics Materials Science
Discovery of Compounds Containing Frustrated Vanadium Nets with Emergent Electronic Phenomena

Nathan Cretegny, Metallurgical and Materials Engineering Materials Science
Gasochromic reactivity in nickel-based hybrid metal halides

Sarah Grunsfeld, Interdisciplinary Program Advanced Energy Systems
Determination of Interphasial Electrochemical Mechanisms Governing Stability and Reactivity in Silicon Anodes Using Gas Characterization

Nicole Harris, Civil and Environmental Engineering
Manganese dioxide-mediated transformations of Perfluoroalkyl acid Precursors found at Aqueous Film-Forming Foam

Presenters

Poster Session

April 2nd

Materials, Processing, and Manufacturing Sciences

CoorsTek Atrium, 3:30 PM

Katie Palmer, Materials Science
Enabling scalable production of composite solid-state lithium electrolytes

Logan Ruthardt, Chemical and Biological Engineering
Ditching Dichloromethane – Solvent Screening for Replacing Dichloromethane in an Emulsion-Based Nanoparticle Fabrication Process, Demonstrated with Optical Nanosensors

Siah Vernon, Chemistry
Understanding Magnetoelectric Functional Properties in Hybrid Organic-Inorganic Metal-Halide Materials

Presenters

Poster Session

April 2nd

Technology, Policy, Health and Human Systems

CoorsTek Atrium, 3:30 PM

Andrew Werneth, Chemical and Biological Engineering
Early Screening of Polymeric Gene Therapeutics with Binding Affinity Measurements and Machine Learning

Daniel Ramirez, Applied Mathematics and Statistics
Comparing Insulin Secretion Response During an Oral Glucose Tolerance Test in Adolescents With and Without Metabolic Dysfunction-Associated Steotic Liver Disease

Jesan Ahammed Ovi, Computer Science
Understanding Spiritual Narratives and Peer Support in Online Communities

Lindsay Dietz, Mechanical Engineering
Relating Joint-level Mechanics to Muscle Fatigue During Concentric and Eccentric Plantarflexion

Samuel Hinkley, Mechanical Engineering
Mechanical Effects of Myofibrillar Architecture on Muscle Cell Force Production

Molly Morgan, Geology and Geological Engineering
From Liability to Asset: Implementing the Regenerative Commons Model Under Good Samaritan Hardrock Mine Legislation

Shadi Nourriz, Computer Science
Professional Spiritual Care Perspectives on the Design and Governance of Online Spiritual Care Communities

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