Research Colloquium 2025

Opening

7:30 - 8:30	Registration & posters & booths
8:30 - 8:45	Welcome – Lique Coolen
8:45 – 9:45	Keynote Speaker – Richard Scott Erwin – AFRL
9:45 – 10:00	NMT Distinguished Researcher – Susan Bilek

Break – 10:00-10:30
Visit our posters and booths in Ballroom A

Session #1 – Ballroom C

10:30 – 10:45	Michelle J. Creech-Eakman The MROI: High-resolution Imaging in Astrophysics with Applications for SSA
10:45 – 11:00	Saulo Orizaga Some Computational Aspects for Phase Field Models
11:00 – 11:15	Mostafa Hassanalian Unlocking Nature's Secrets: Drones, Biomimicry, and Beyond
11:15 – 11:30	Alejandro Bernal Montiel Implementation of a Pretrained Convolutional Neural Network, MobileNetV2, to predict the Degree of fracturing of rocks masses
11:30 – 11:45	Lorie Liebrock Cybersecurity Research
11:45 – 12:00	Suraj Ghimire The Health and Economic Impacts of Dairy Air Pollution: Evidence from New Mexico

12:00 – 1:00 **Lunch – Ballroom B**

Session #2 – Ballroom C

1:00 – 1:15	Urbi Basu Evaluating the impact of seismic background noise on earthquake detection capabilities in southeast New Mexico
1:15 – 1:30	Daniel Lavery Initial results of Machine Learning techniques for 3D Geologic Modeling
1:30 – 1:45	Stacy Timmons Overview of Bureau of Geology hydrogeology programs and research for New Mexico
1:45- 2:00	John Kolen Car Wash Algorithms
2:00 – 2:15	Alexander Gysi The Ore Deposits and Critical Minerals (ODCM) Lab : Frontiers in hydrothermal research
2:15 – 2:30	Adewale Amosu 3D Seismic Characterization and Geomechanical Modeling of the San Juan Basin CarbonSAFE Site

2:30 – 2:45 Deep Choudhuri
Ab Initio Molecular Dynamics Investigation of Water and Butanone Adsorption on UiO-66 with Defects

2:45 – 3:00 Stipo Sentic
Tropical Cyclones Rapid Intensification Research at NMT

Break – 3:00 – 3:30
Visit our posters and booths in Ballroom A

Session #3 – Ballroom C

3:30 – 3:45 Clint Richardson
Base Condition Assessment of Culverts Using Fuzzy Analytical Hierarchy Process Coupled with Hot Spot A

3:45 – 4:00 Youngmin Lee
Network Formation of Thermoreversible Epoxies and Their Application for Reversible Adhesives

4:00 – 4:15 Jianjia Yu
Engineering Janus Hollow Fiber Membranes for High-Salinity Brines Desalination via Membrane Distillation

4:15 – 4:30 Md Shahriar Hasan
Enhancing Aqueous Organic Redox Flow Batteries: Degradation & Mechanism Study

4:30 – 4:45 Nikolai Kalugin
Steady Floquet states and relaxation of hot electrons in graphene under continuous-wave mid-infrared irradiation

4:45 – 5:00 Ashok Ghosh
AQUASHIELD: Revolutionizing Space Protection Through Fluid-Filled Cellular Composites

Posters – Ballroom A

- MgO and ZnO Doped Hydroxyapatite with Tannic Acid for Orthopedic and Dental Applications
- Quadruped Robot Locomotion in Limited Sensor Environments Using Reinforcement Learning
- Effects of partial replacement of cement with powdered waste glass for sustainable concrete
- Taxidermy and Biomimicry In Drone Development
- Sustainable, portable, solar-powered bio-inspired drone vertiport system
- CFD Analysis and the Effect of Bright Coloration on Flight Efficiency of Dandelion-Inspired Flying Sensors
- The Health and Economic Impacts of Dairy Air Pollution: Evidence from New Mexico
- Assessing the Feasibility of Electric Airships on Mars
- Unlocking Nature's Secrets: Drones, Biomimicry, and Beyond
- Nanostructures and Mechano-Optoelectronic Properties of Air-brushed Poly(3-hexylthiophene)-based Thin Films
- Highly Flexibly Mechano-Luminescence-Optoelectronic Strip for Sensing an In-Plane Strain on a Human Body: Validation through Bike Riding
- Analysis and Optimization of Low-Cost Herbicidal Diquat Dibromide for Grid-Scale Redox Flow Batteries
- Enhancing Aqueous Organic Redox Flow Batteries: Degradation & Mechanism Study
- Machine Learning-Enhanced Multiphysics Analysis of Mechanoluminescent Elastomeric Micro-Composites
- Strain Amplifying Mechano-Luminescent Mechanical Metamaterials
- Polymer Additives to Enhance Damping Properties and Investigate Strain Transfer in TBI Models
- Energetics and Fluid Dynamics Lab Overview
- Earth Sciences with EarthScope
- Optimal vaccination strategies for early COVID-19 pandemic using an age-structured mathematical model
- Raman spectroscopy laboratory: Exciting new research
- Design and demonstration of Intelligent mine evacuation and mine rescue system