

Session AM1 Mechanical Engineering

Session Chair: Rajib Mahamud, Idaho State University

9:00 51 Mechanical Battery Energy Storage (MBES) -- Cavaletto, Hill, Oldham

9:30 82 Solar Powered Watercraft -- Kepler, Buchanan, Gerdes

10:00 99 Remote Controlled Lawnmower (RCLM) -- Cutts, Dedic, Borland

10:30 **BREAK**

10:45 45 Portable In-Stream Generator -- Heyder, Lemrick, Upreti

11:15 93 Optimizing Solar Distillation Geometry by Applying Thermodynamic Principles through Computational Methods to Enhance Water Purification and Desalination -- Peper, Beazer, Martinez

11:45 74 Homestead Conveyor System -- Barker, Haupt, Aispuro

Session AM2 Chemistry/Pharmacology

Session Chair: Rene Rodriguez, Idaho State University

9:00 78 Phosphine-based Ionic Liquids: Physiochemical Properties and Metal Recovery Potential -- Rodriguez, Van Leuven

9:30 30 Analysis and Preparation of Polymeric Adhesives Made Using Garlic Essential Oil -- Sayer, Miller, Jenkins

10:00 28 The Extreme Environment and Organisms of the Great Salt Lake -- Evilia

10:30 **BREAK**

10:45 25 Understanding the Behavior of Perfluorocarboxylic Acids at Aqueous Interfaces -- Cyran

11:15 12 Sesquiterpene Lactones and Flavonoid from the Leaves of Basin Big Sagebrush (*Artemisia tridentata* subsp. *tridentata*): Isolation, Characterization and Biological Activities -- Anibogwu, De Jesus, Van Leuven, Sharma

11:45 20 Differential Effects of Surfactants on Activity of Various Protein Enzymes -- Leung, Lai

Session AM3

Civil Engineering I

Session Chair: James Mahar, Idaho State University

9:00 98 Soil-Cement Earth Structures/Subgrades -- Murri, Lebrecht, Savage, Mahar

9:30 26 Review on Supplementary Cementitious Materials and Wastewater Usage in Concrete -- Bhattarai, Rajbhandari, Wakjira, Mashal

10:00 09 Seismic Performance of Titanium Alloy Reinforced Ultra-High Performance Concrete (TARUHPC) Bridge Piers -- Acharya, Acharya, Mashal

10:30 **BREAK**

10:45 08 Innovative Construction Method: Enhancing Efficiency and Resilience with Modular SCIPs – Acharya, Mashal

11:15 97 I-15B Replacement Bridge - Inkom, Idaho -- Brownfield, Brandeberry, Johnson, DesFosses, Johnson

11:45 95 Monitoring Southeast Idaho Landslides with Uncrewed Aircraft Systems (UAS) -- Delparte, Enright, Brown, Mahar

Session AM4 International Zoom I

Session Chair: Chikashi Sato, Idaho State University

9:00 39 Investigation on the effect of replacing cement and aggregates in the self-compacted concrete mix with various industrial waste materials -- Lakys, Jumaah, Buqrais, Jawad, Aljazzaf, Alhouli, Almaghrebi

9:30 04 Sustainable Cities: Integrating Climate Resilience and Low-Carbon Development -- Kolajo

10:00 14 Modelling of Agricultural Irrigation Water Demands Under Different Cropping System and Irrigation Scenarios -- Sasanya, Ikewuibe

10:30 **BREAK**

10:45 94 Artificial Intelligence for the Earth -- Maldonado

11:15 57 Solvothermal Synthesis of Cu-Sb-S Materials for Thermoelectric Applications -- Soní-Castro, Lopez-Oyama, Rodríguez-González

11:45

Session PM1

Surgical Management

Session Chair: Solomon Leung, Idaho State University

1:30 58 Surgical Management of Spinal Ependymoma: An Emphasis on Spinal Cord Anatomy in Achieving Tumor Resection -- Guidotti, Cline, Atluri

2:00 81 Caring for Idaho's Spines: A 5-Year Geographic Analysis of Spinal Procedures and Reimbursements in Idaho -- Atluri, Hawks, Guidotti, Cline

2:30 59 Surgical Resection of Radiation-Induced Brain Necrosis: Optimal Treatment Approaches in Rural Healthcare Settings -- Guidotti, Cline, Atluri

3:00 **BREAK**

3:15 60 Rare Presentation and Surgical Resolution of Tethered Cord Syndrome in an Adult Patient -- Guidotti, Cline, Atluri

3:45 68 Evicting Unwanted Guests: A Case of Neurocysticercosis and its Surgical Management -- Cline, Guidotti, Atluri, Choutka

4:15

Session PM2 Science Topics

Session Chair: Rene Rodriguez, Idaho State University

1:30 24 Rare Earth Elements extraction from Idaho-Sourced Minerals through Phytomining Process – Richardson, Mirkouei

2:00 37 Full Life Cycle Elemental Exposure Trends in Wistar Rats Impacting Vital Organs and Subcellular Regions -- Williams, Leung, Lai

2:30 41 Regional multi-hazards risk assessment based on social vulnerability -- Zhang, Lu

3:00 **BREAK**

3:15 100 A Sensible Approach to Solving Climate Change Hysteria -- Kunze

3:45 83 Verification of Small Reactor Enhanced Proliferation Resistant Fuel with Burnable Gadolinia Absorber to Provide Once-Through Fuel Cycle Performance -- Bess, Chang, Moo, Foster

4:15

Session PM3 Civil Engineering II

Session Chair: James Mahar, Idaho State University

1:30 92 SH-91 Replacement Bridge Across Gibson Canal -- Flowers, Beery, Manalo, Potter, Johnson

2:00 85 The use of metallic dissipaters for a pre-qualified ductile connection for precast concrete diaphragm -- Dahal, Mashal, Wakjira

2:30 15 A Review on Use of Dairy Wastewater in Concrete -- Rajbhandari, Bhattarai, Sharma, Wakjira, Mashal

3:00 **BREAK**

3:15 31 Advancing Infrastructure: Exploring the Feasibility and Performance of Titanium Alloy Bars in Structural Applications – Poudel, Acharya, Mashal

3:45 32 Comparative Analysis of Conventional and Additively Manufactured 316L Stainless Steel Alloys: Mechanical and Microstructural Perspectives -- Risal, Poudel, Wakjira, Mashal

4:15 11 Utilization of Precipitated Calcium Carbonate (PCC) and Upcycled Concrete Aggregate (UCA) in Civil Engineering – Phuyal, Mahar, Mashal

Session PM4

International Zoom II

Session Chair: Chikashi Sato, Idaho State University

1:30 86 Integrated Microbial Fuel Cell-Hydroponic Technology for Simultaneous Nutrient and Energy Recovery From Wastewater -- Paucar, Sato

2:00 27 Methods to Prevent Energy Loss in Conservation of Historical Buildings with the Case Study of the Ghazzagh Khane Complex in Tehran – Iran -- Alikaram, Fayaz

2:30

3:00 **BREAK**

3:15

3:45

4:15