



Conference Agenda

#MSGC20

11:00 **Welcome**

Prof. Mark Moldwin, Executive Director, MSGC

11:15 **Diving Deep - Probing Earth's Ocean to Explore Other Worlds**

Keynote Address: Dr. Andrew Klesh, Engineer at NASA JPL

12:15 **Lunch**

1:00 **Session 1 Presentations** (1-minute lightning talk & 1 minute Q&A each)

Making Waves about Roger: Incorporating a Water theme into the "Roger That!" Symposium Gipson, Rhodes, Swanson, Weibel - GVSU

Using statistical learning for model selection and estimation of the effects of modified social behavior for mitigating COVID-19 infection

Landon - Hope

Investigation of Novel Mg-Zn-Ca Alloys for Bioresorbable Orthopedic Implants Tom - MTU

Daily Dose Science for the General Public Stark - Longway Planetarium

Engineering the Future: A Hybrid Virtual and Hands-on STEM summer experience for high-needs students Dummer, Slenk - Hope

Virtual Air and Space Summer Camp Percival, Winger - MiSTEM

Michigan Science Center's Online STEM Programs During the COVID-19 Public Health Crisis Epstein, Sterner - Michigan Science Center

Virtual Reality STEM, Real Life Careers Ipri Brown, Gersonde - Hope

On the selection of inter-chip interconnects materials for electronic chips
Khan - SVSU



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Two Approaches to ECE Pre-College Outreach Fujita - MTU

Oakland University's Energy Exploration Rogers - Oakland

EV Penetration for Minimizing Power System Upgrades Pfeiffer - Oakland

Development of a PPG Sensor Array as a Wearable Device to Monitor Cardiovascular Metric Rodriguez-Labra - WMU

Statistical and event analysis of phase and amplitude scintillations associated with polar cap patches Cardenas-O'Toole - UM

Magnetic Nanoparticle Based Motion Sensing Brennecke, Tuttle - GVSU

Position Sensor Offset Error Quantification in Synchronous Machines
Kuruppu - SVSU

Student Impact in ExploreHope STEM Education Outreach Bartley - Hope

Neural Network based Model Predictive Control of Residual Stress in Powder Bed Fusion Nieman - WSU

Petro-stratigraphic analysis of plagioclase-rich lavas in northern Kenya reveal prolonged high-temperature storage of magma in a flood basalt province. Steiner - MSU

Investigating pyroxenites as the source of Eocene-recent Patagonian back-arc magmatism Svoboda - MSU

2:00 Break

2:15 **Session 2 Presentations** (1-minute lightning talk & 1 minute Q&A each)
The Michigan Resources on Climate and Land Change Education (MiRCLE) Lioubimtseva - GVSU



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First Tango? Extant "Mat World" Analog Microbes Synchronize Migration to a Diurnal Tempo Biddanda - GVSU

Spatial Ecology and Survival Analysis of a spotted turtle population in Southwest Michigan Coury - GVSU

The Effect of Serotonin on Male Responses to Female Ultrasonic Vocalizations and Urine in the House Mouse (*Mus musculus*)
Kovacs - Hope

Using Ground Penetrating Radar to Investigate a Sedimentary Archive at PJ Hoffmaster State Park Duimstra - Calvin

Constructing Digital Terrain Models from Lake Michigan Dune Imagery
Harlow - Hope

Dunes & Drones: A Machine Learning Approach for Mapping Vegetation with Aerial and Ground-Based Photography Krebsbach - Hope

Using Machine Learning to Model West Michigan Dune Complexes
Stephenson - Hope

Building a Dune on Campus: Innovation and Perseverance in Science
van Dijk - Calvin

Hydrothermal synthesis and reactivity of amides in habitable environments Aspin - Oakland

Single-Source Precursors for Mixed-Metal Fluorides: Synthesis of Rubidium-Alkaline Earth Trifluoroacetates Szlag - WSU

Effects of differences in cell wall biochemistry on the microbial decomposition of Sphagnum (peat moss) Hile, Koehl, Lundy, Philben - Hope

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Measuring soil physical, geochemical, and electrical properties to help reveal the hidden world of roots. Liddle - MSU

Wetlands in time and space: mapping inundation dynamics and connectivity with remote sensing Walt, Woznicki - GVSU

Assessing The Short-term Effects Of Translocation On Freshwater Mussels: Is Habitat Or Water-quality More Important? Arnold - GVSU

Increasing the survivability of hatchery raised Red Drum (*Sciaenops Ocellatus*) Sanchez - EMU

Sinkhole Microbial Communities: Documenting Diversity of These Unique Environments Hamsher - GVSU

Geophysical investigation and subsurface characterization of Lake Michigan coastal landforms Higley - Calvin

Chlorophyll-a and land cover in eastern Lake Michigan: Preliminary results Mader - GVSU

Bloom or bust: Search for phytoplankton community drivers using long-term time-series observations and field measurements in a model Great Lakes estuar Mancusu - GVSU

Preliminary Results – Star Wars: Phenology of the aquatic invasive species starry stonewort (*Nitellopsis obtusa*; Characeae) in two Michigan drowned river mouth lakes Neuman - GVSU

Breathless: Muskegon Lake Hypoxia and Drivers in the 2010s
Stone - GVSU

The problem of Multiple Scale Applied to the Coupled of Water Flux and

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Heat Exchanges near the Subsurface Sviercoski - Oakland

3:15 Break

3:30 Session 3 Presentations (1-minute lightning talk & 1 minute Q&A each)

Using Markov Decision Processes for Autonomous Spacecraft

Donovan - Oakland

Marsnet: A neural network for predicting conditions in the upper atmosphere of Mars Mikolajczyk - EMU

Advanced Structures and Materials Technology Integration for a Lunar Habitat Bowling - MTU

Understanding the Impact of Chronic Low-Dose Radiation on Mental Health and Behavior in Mice Gleeson, LaFrenier - Hope

Determining the Type of DNA Damage Caused by Microgravity

Lowran - Oakland

Evaluating the impact of microbial experience on immunity

Renkema - GVSU

Microgravity enhances self-renewal and proliferation of human pluripotent stem cells by regulating CDK2/4

Villa-Diaz, Timilsina - Oakland

Arm Cranking with Blood Flow Restriction: A Potential Exercise for use in Space? Wedig - MTU

Algorithms for Complete Physiological Monitoring During Spaceflight

Zitzelberger - MSU

Rocketry Professional Development Training DeVillers - Plainwell Aviation and STEM Academy (PASA)



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Cooperative air and ground based robotic teams for planetary exploration Boss - MSU

MTU's Lunabotics Team the Astro Huskies Presents: The Design, Manufacturing, and Testing of our Inaugural Lunabotics Rover Johnson - MTU

Solar Weather Modeling with Neural Networks Kinkade - EMU

The Evolution of Contact Binary Stars Le, Avery, Henderson - Calvin

Understanding the emerging role of human-computer interaction in human space exploration Garvin - UM

Laser Alignment Accuracy and Feedback Control in High-Altitude Quantum Communications System Goderis - MSU

Synthesis of 2-Aminoethyl Cinnamate for studying Responsive Liquid Crystal Elastomer Materials LaDuke - Hope

Fake Multimedia Detection and Generation Masiak - Oakland

Accelerating the Gabor Transform with a GPU for SAR Image Compression McInnes - Oakland

A Divide-and-Conquer Algorithm for Computing Voronoi Diagrams
Smith - GVSU

Vapor Initiated Crystal Phase Transition of Cesium Halide Perovskites
Wylie - Hope

Examining Radial Distributions of Multiple Populations in Globular Clusters Hoogendam - Calvin

4:30 Adjourn

