

Poster Presentations

Michigan Space Grant Consortium 2026 Fall Conference
Saturday, October 31, 2026
Biomedical Science Research Building (BSRB)
University of Michigan 109 Zina Pitcher Pl. | Ann Arbor, MI 48109

Session A

1. Module-Centric Design and Modeling of an Omnidirectional Blimp

Zaid Ababneh, *Undergraduate Degree, Electrical and Computer Engineering Department, Oakland University;* ***Dr. Diego D'Antonio,*** *PhD, Electrical and Computer Engineering Department, Oakland University*

3. Evaluating the Multi-Year Impact of the EMU High School Summer Science Program on Student Skill Development and STEM Readiness

Brittany Albaugh, *Associate Professor, Chemistry, Eastern Michigan University*

5. Space and Time: The 2026 "Roger That!" Symposium

Bradley Ambrose, *GVSU Professor of Physics;* ***Amy Coon****, GRPM Public Programs Coordinator;* ***Jack Daleske,*** *GRPM Planetarium Manager;* ***Karen Gipson,*** *GVSU Professor of Physics;* ***Samhita Rhodes,*** *GVSU Professor of Engineering;* ***Rob Schuitema,*** *GRPM Director of Public Programs;* ***Glen Swanson,*** *Chaffee Scholarship Fund;* ***Deana Weibel,*** *GVSU Professor of Anthropology*

7. Wooded Dunes as Tick Habitats

Syann Benckhuysen*,* ***Benjamin Cooper, Jared Genther, Levi King, Cole Schmidt, Polly Zenk*** *- Undergraduate Students, Department of Geology, Geography, and Environment, Calvin University*

9. Quantitative mapping of solid carbon formation under closed-loop life support and ISRU conditions

Aliah Wasti, *Undergraduate Researcher, Department of Mechanical Engineering, Oakland University;;* ***Izabella Roma,*** *Undergraduate Researcher, Department of Mechanical Engineering, Oakland University;;* ***Francisco Cepeda****, PhD, Assistant Professor, Department of Mechanical Engineering, Oakland University*

11. Investigation of the Contribution of Sea Spray Aerosol to Arctic Cloud Formation during the NASA ARCSIX airborne mission

XingZhi Chen, Logan Forshee, Andrew L. Holen, Vanessa Selimovic, Kerri A. Pratt *- Department of Chemistry, University of Michigan*

13. Autonomous Cable-Based Manipulation and Transportation for Space Debris Collection

Diego S. Dantonio, *Assistant Professor, Electrical and Computer Engineering, Oakland University*

15. Out of Sync, Out of Orbit: Groundwork for Multi-System Female Physiology From Earth to Space

Yosamin Esanullah*, Graduate Student, Mechanical and Aerospace Engineering, Michigan Technological University*

17. Preliminary Evaluation of Non-Traditional Coal Ash in Cementitious Materials

Ephraim Joy Garcia, Cayden Sudworth, Dr. Shinhyu Kang - *Engineering, Hope College*

19. Mapping Urban Heat Islands and Environmental Inequity in West Michigan

Kamrul Hasan, Tommy Gill *- Information Sciences and Technologies, Grand Valley State University*

21. OSMED and MSGC: Building a Midwest Community for Human Spaceflight

Antony Hsu, *MD, Climate and Space Sciences and Engineering, University of Michigan;* ***Taania Girgla,*** *MD, MPH, Clinical Assistant Professor of Anesthesiology, University of Michigan*

23. SatNOGs and the Calvin CubeSat Project

Ryan Deaton, Neal Jacobsen, Juan Moon, Isaiah VanHorn *– Engineering, Calvin University*

25. The impact of industry-engaged experiential learning on pre-college students' STEM interests

Sooin Kim; Mansoureh Sheikhi *– Engineering Technology, Wayne State University*

27. Radioactive Molecules: A New Messenger of Stellar Nucleosynthesis

Conrad Lupa, Shane Wilkins *– Physics and Astronomy, Michigan State University*

29. Effects of Proton Irradiation on the Properties of TBCCO Thin-film superconductors

Faith Mitchell, *Undergraduate Student at Hope college;* ***Lincoln Bosh****, Undergraduate Student at Hope College;* ***Jeonghyun Rhee****, Undergraduate Student at Hope College;* ***Kyuil Cho****, PhD, Assistant Professor at Hope College*

31. Mapping U.S. Parking Lots at 10 m Resolution Using Geospatial Foundation Model Embeddings

Divya Nema, *Novi High School;* ***Tirthankar Chakraborty,*** *Research Scientist, Pacific Northwest National Laboratory;* ***Rohit Mukherjee,*** *Postdoctoral Researcher, Pacific Northwest National Laboratory*

33. Assembly and Characterization of a Modular Liver-on-a-Chip System using small-diameter and hepatocyte-laden electrosprayed microcapsules.

Rafael Ramos, *MS; MD-PhD Candidate in Biomedical Engineering, Wayne State University;* ***Howard W.T Matthew,*** *PhD; Professor Chemical Engineering & Materials Science; Wayne State University*

35. Engaging STEM Educators with Great Lakes Issues

Dr. Carrie Ann Sharitt, *Assistant Professor, Department of Biology at Grand Valley State University*

37. Exploring Advanced Manufacturing: A Hands-On STEM Camp Experience for Middle School Students

Jess Sudy, *M.A.T. Secondary Education, CCEE K-12 STEM Program Manager, Regional Math and Science Center – GVSU;* ***Anna Stover,*** *M.A.Ed Curriculum Development, STEM Camps Co-Director, Regional Math and Science Center - GVSU*

39. Integrating Active Perception, Pushing, and Grasping for Autonomous Object Retrieval in Clutter

***Zhengqi Sun**, Industrial Engineering, Master's Student, Electrical and Computer Engineering, Oakland University; **Diego S. D'Antonio,** Ph.D on Computer Science, Assistant Professor, Electrical and Computer Engineering, Oakland University; **Jared Strader,** Ph.D on Aerospace Engineering , Assistant Professor, Electrical and Computer Engineering, Oakland University*

41. Radiography as an In-Flight Medical Diagnostic Capability for Human Spaceflight

***Suhani Thakur**, Undergraduate Presenter, Department of Biomedical Engineering, University of Michigan, Ann Arbor, MI; **George Hitti,** School of Medicine, University of California Irvine, Irvine, CA; **Khushi Bhatt,** School of Medicine, University of California Irvine, Irvine, CA; **Albert Yeam,** School of Medicine, University of California Irvine, Irvine, CA; **Kimiya Ghassemzadeh,** School of Medicine, University of California Irvine, Irvine, CA; **Evan Lin,** School of Medicine, University of California Irvine, Irvine, CA; **Isabella DeLorenzo,** Vast Space, Long Beach, CA; **Isaiah Hernandez,** Department of Biomedical Engineering, California State University Northridge, Los Angeles, CA; **Corey Young,** MD, Department of Emergency Medicine, University of California Los Angeles, Los Angeles, CA; **Natalie Halpern,** Department of Neuroscience, University of California Riverside, Riverside, CA; **Allison Adamovic,** MS, LMFT, Private Practice Marriage and Family Therapy, Long Beach, CA; **Michael Boyle,** MD, Department of Emergency Medicine, University of California Los Angeles, Los Angeles, CA; **Ariana Nelson,** MD, Department of Anesthesiology and Pain Management, University of California Irvine, Orange, CA; **Jon Steller,** MD, Department of Obstetrics and Gynecology, University of California Irvine, Orange, CA; **Michael Pohlen,** MD, Department of Radiology, University of California San Diego, San Diego, CA.*

43. The Person Inside the Project: Who Owns the Next Question? Agency and Stewardship in Space-STEM Education in the Era of AI

***Lisa S. Tsay,** Mentor of Dow High Space Farmers (H. H. Dow High School); NASA Growing Beyond Earth, NASA HUNCH, Saginaw Valley State University; **Jasmine M. Allen,** Data and Operations Manager of Dow High Space Farmers (H. H. Dow High School); NASA Growing Beyond Earth, NASA HUNCH; **Katie Cai,** Space Engineering Mission Lead of Dow High Space Farmers (H. H. Dow High School); NASA Growing Beyond Earth, NASA HUNCH; **Eric Niu,** Outreach & ASAP Lead of Dow High Space Farmers (H. H. Dow High School); NASA Growing Beyond Earth, NASA HUNCH; **Sanvi Patel,** Executive Director of Dow High Space Farmers (H. H. Dow High School); NASA Growing Beyond Earth, NASA HUNCH; **Gabriel Nix,** Space Botany Mission Lead of Dow High Space Farmers (H. H. Dow High School); NASA Growing Beyond Earth, NASA HUNCH; **Viktor Pangburn,** Alumni Advisory Board Lead of Dow High Space Farmers (H. H. Dow High School); University of Toronto, Canada; **Margaret E. Hitt**, Founder of Dow High Space Farmers; Columbia Space Initiative Astrobiology Mission Lead, Columbia University*

45. Analysis of Contact Binary Stars in the ATLAS Catalog

***Zach Van Wyngarden,** Undergraduate Student, Dept. of Physics and Astronomy, Calvin University; **Jonathan Barrantes Segovia,** Undergraduate Student, Dept. of Physics and Astronomy, Calvin University; **Dr. Larry Molnar,** PhD, Professor, Dept. of Physics and Astronomy, Calvin University; **Dr. Jess Vriesema,** PhD, Assistant Professor, Dept. of Physics and Astronomy, Calvin University*

47. Effects of Composition and Electronic Spin on Raman Spectroscopy of Bridgmanite

Lily Velez Lewis, *Undergraduate, Department of Environmental Earth and Sciences at Michigan State University,* ***Biao Wang,*** *PhD, Research Associate, Department of Environmental Earth and Sciences at Michigan State University,* ***Rong Huang****, PhD, Research Associate, Department of Environmental Earth and Sciences at University of Michigan,* ***Devika Padmakumar,*** *PhD Student, Department of Environmental Earth and Sciences at Michigan State University,* ***Jie Li****, PhD, Professor, Department of Environmental Earth and Sciences at University of Michigan,* ***Susannah Dorfman,*** *PhD, Associate Professor, Department of Environmental Earth and Sciences at Michigan State University*

51. Advanced Modeling of X-Ray Spectroscpy for Massive Stars

Nolan Wurtsmith, *Undergraduate Student, Physics, Central Michigan University;* ***Alexandre David-Uraz****, PhD Astrophyics and Astronomy, Program administrator, Trottier Space Institute, McGill*

53. How Small Environmental Differences Impact Tick Populations in 3 Michigan Dunes

Nick Zwiers, Peter W. H. Baima, Jacob Kissinger, Micah J. Mackenzie, Betsy M. Perez, Kaley Sheahan, Jonathan Solis *– Geology, Calvin University*

Session B

2. A Neuro-Symbolic AI Framework for Trustworthy Vulnerability Detection in Autonomous Spacecraft Software

Mst Shapna Akter, *Ph.D., Assistant Professor, Department of Computer Science and Engineering, Oakland University;* ***Md. Fahim Sultan,*** *[B.Sc.], Graduate Research Assistant, Department of Computer Science and Engineering, Oakland University;* ***Tasmin Karim,*** *[B.Sc.], Graduate Research Assistant, Department of Computer Science and Engineering, Oakland University;* ***Md. Shazzad Hossain Shaon,*** *[B.Sc.], Graduate Research Assistant, Department of Computer Science and Engineering, Oakland University*

4. Hydrogel-Amended Perlite-Vermiculite Root Zones for Resource-Efficient Space Crop Production

Lisa S. Tsay, *Mentor, Dow High Space Farmers, H.H. Dow High School; NASA Growing Beyond Earth, NASA HUNCH, Saginaw Valley State University;* ***Sanvi Patel,*** *Executive Director, Dow High Space Farmers, H.H. Dow High School; NASA Growing Beyond Earth, NASA HUNCH;* ***Jasmine M. Allen****, Data and Operations Manager, Dow High Space Farmers, H.H. Dow High School; NASA Growing Beyond Earth, NASA HUNCH;* ***Katie Cai,*** *Space Engineering Mission Lead, Dow High Space Farmers, H.H. Dow High School; NASA Growing Beyond Earth, NASA HUNCH;* ***Gabriel Nix,*** *Space Botany Mission Lead, Dow High Space Farmers, H.H. Dow High School; NASA Growing Beyond Earth, NASA HUNCH;* ***Viktor Pangburn,*** *Alumni Advisory Board Lead, Dow High Space Farmers; University of Toronto, Canada;* ***Margaret E. Hitt,*** *Founder, Dow High Space Farmers; Astrobiology Mission Lead, Columbia Space Initiative; Columbia University*

6. Introducing Remote Observing at Eastern Michigan University

***Ernest R. Behringer**, Ph.D., Professor, Department of Physics and Astronomy, Eastern Michigan University; **Thomas A. Kasper,** M.A., Part-time Lecturer, Department of Physics and Astronomy, Eastern Michigan University*

8. Michigan Tech Aerospace Enterprise

***Nolan Besaw,** Undergraduate Student, Michigan Technological University*

General overview of MTU Aerospace Enterprise

10. Connexus, Keeping Enterprises Connected

***Jonathan Charles,** Undergrad in Data Science, Mission Director, MTU Aerospace Enterprise*

12. VEGF Signaling Promotes Cell Viability in Non-Small Cell Lung Cancer Cells

***Chanidapa Chutipassakul,** Undergraduate Student, Department of Chemistry, Eastern Michigan University; **Nicholas Falkiewicz**, High School Student, Department of Chemistry, Eastern Michigan University; **Hedeel Guy-Evans,** PhD, Faculty, Department of Chemistry, Eastern Michigan University*

14. A DFT Study of N-Heterocyclic Carbenes as σ-Hole Acceptors in Hydrogen- and Halogen-Bonded Complexes

***Danielle Dragoi,** Undergraduate Researcher, Oakland University Department of Chemistry; **Matthew Romaya,** Undergraduate researcher, Oakland University Department of Chemistry; **Alexander A. Rusakov**, PhD. Assistant Professor, Oakland University Department of Chemistry**; Zacharias J. Kinney**, PhD. Associate Professor, Oakland University Department of Chemistry*

16. Space Environments and the Changing Rules of Bacterial Movement

***Yosamin Esanullah, Petra Gablowski, Connor MacRobbie PhD**, **Madelyn MacRobbie PhD** – Mechanical and Aerospace Engineering, Michigan Technological University; **Qianying Mao, Oscar Carreno-Molina, John Z. Wen PhD, Carolyn L. Ren PhD –** Mechanical and Mechatronics Engineering, University of Waterloo*

18. From detection to reproductive phenology: environmental DNA reveals lake sturgeon spawning dynamics in the Lower Kalamazoo River

***Jimena Golcher-Benavides[1]** (PhD, Principal Investigator, Assistant Professor) **Cecilia Shaffer[1]** (undergraduate student), **Emily Drape[1]** (undergraduate student), **Claire VanTol[1]** (undergraduate*

student), ***Annalise Waldron[1], Anna Forney[1] , Maria Maria Scarborough[2], Alisha Denue[2], Michael Moore[3]****. 1. Biology Department, Hope College; 2. Environmental Gun Lake Tribe Environmental Department; 3. Department of Biological Sciences, Eastern Kentucky University*

20. Flight Crew: Building a K–12 Drone and Robotics Pipeline for Workforce-Ready Students

Cynthia Heraud, Educator, Ann Arbor Public Schools

22. Carbene–Copper–Carbazole Complexes 'Two-fer': Synthesis and Analysis of Monotopic and Ditopic Ligands

Sarah M. Ibrahim, Evan W. Sadler, Noah Schepke, Jonathan Meyer, Zacharias J. Kinney *– Chemistry, Oakland University*

24. The QuIRK Project: High-Performance Software for Numerical Solutions to PDEs

Kohl James, *Ph.D., Assistant Professor of Mathematics, Department of Mathematical Sciences at Saginaw Valley State University;* ***Katharine Long,*** *Ph.D., Professor of Mathematics, Department of Mathematics & Statistics at Texas Tech University*

26. PyCG-DTN: A Framework for Delay Tolerant Network Testing

Ishaan Lagwankar*, Master of Science, PhD Student, CSE, Michigan State University;* ***Griffin Klevering,*** *Master of Science, PhD Student, CSE, Michigan State University;* ***Alan Hylton,*** *PhD, Network Architect, NASA Goddard;* ***Sandeep Kulkarni,*** *PhD, Graduate Director, CSE, Michigan State University*

28. System-Level Modeling and Optimization of a Closed-Loop Oxygen Recovery Cycle for Space Life Support

Aiden Martin, *B.S. Mechanical Engineering, Department of Mechanical Engineering, Oakland University;* ***Francisco Cepeda,*** *PhD, Assistant Professor, Department of Mechanical Engineering, Oakland University*

30. A Lota Trouble: How This Cold-Water Fish is Finding Refuge in a Warming World

Megan Moilanen*, Biology Graduate Student, Grand Valley State University*

32. Study of Abnormal Grain Growth in Cu, Cu-Cr and Cu-Cr-Zr Systems

Aiden Niemiec, *B.S. in Materials Science and Engineering, Graduate Student, Michigan State University, Chemical Engineering and Materials Science Department;* ***Carl Boehlert,*** *Ph.D. in Materials Science and*

Engineering, Professor, Graduate Program Advisor, Michigan State University, Chemical Engineering and Materials Science Department

34. Space-Tolerant Semiconductors: Exploring the Radiation Stability of Chalcogenide Perovskites

***Anika Rahman Riya**, Ph.D. Student, Presenting Author, Chemical Engineering and Materials Science, Michigan State University; **Jonathan Turnley,** Ph.D., Assistant Professor, Project Mentor, Chemical Engineering and Materials Science, Michigan State University.*

36. Modeling Contact Binary Star Interactions

***Nathan Steenwyk**, Undergraduate; **Ethan Webber,** Undergraduate; **Larry Molnar,** Professor; **Jess Vriesma,** Professor – Department of Physics and Astronomy, Calvin University*

38. Fate and transport of extracellular polysaccharides in icy moon plumes

***Megan Stull,** Graduate Student, Department of Chemistry, Oakland University; **Ziming Yang,** Professor, Department of Chemistry, Oakland University*

40. Report on MSGC Student Fellowship Award

Emma Telepo, B.S. Mechanical Engineering, Ms., Michigan State University

42. Cooperative Aerial Transportation of a Payload with a Sliding Cable Attachment

***Sebastian Tilaguy Lezama,** Electrical Engineer, Ph.D student, Electrical and Computer Engineering, Oakland University; **Diego S. D'Antonio,** Ph.D on Computer Science, Assistant Professor, Electrical and Computer Engineering, Oakland University*

44. Radiation-Tolerant Halide Perovskite Nanocrystals for Space Photonic Applications

***Caroline** Valdes, Student, Chemistry, Hope College; **Zachary VanOrman**, PhD, Professor, Chemistry, Hope College*

46. From Earth to Mars: Terrestrial analogs as a framework for interpreting Martian clay minerals and ancient Mars

Michael Velbel, Professor Emeritus, Department of Earth and Environmental Sciences, Michigan State University

48. Partial Energy Harvesting Study Utilizing Adjustable Solar Cage

Allie R. Welch: *Undergraduate Student from the Department of Electrical and Computer Engineering at Saginaw Valley State University;* ***Morgan S. Walle:*** *Undergraduate Student from the Department of Electrical and Computer Engineering at Saginaw Valley State University;* ***Mohammed W. Alif:*** *Undergraduate Student from the Department of Electrical and Computer Engineering at Saginaw Valley State University*

50. The Michigan Tech Auris Nanosatellite Project

Martin Wilkens, *Graduate Student, Auris Mission Director, Electrical and Computer Engineering Department, Michigan Technological University;* ***Conner Larson****, Undergraduate Student, Auris Mission Systems Engineer, Mechanical Engineering Department, Michigan Technological University*

52. Construction and Verification of Atg1-HA for Autophagy Research

Madison Buza, *High School Diploma (Expected 2027), Student, Department of Chemistry, Eastern Michigan University;* ***Evan Zhen,*** *High School Diploma (Expected 2028), Student, Department of Chemistry, Eastern Michigan University;* ***Iñigo Demerath****, Associate's Degree, Student, Department of Chemistry, Eastern Michigan University;* ***Dr. Steven K. Backues****, PhD, Professor, Department of Chemistry, Eastern Michigan University*