Arizona NASA Space Grant Consortium

Thirty-Fifth Annual Statewide Student Research Symposium

ARIZONA SPACE GRANT CONSORTIUM

Presentations by Space Grant Students from:

Arizona State University
Embry-Riddle Aeronautical University
Northern Arizona University
University of Arizona
Arizona Western College
Casa Grande Union High School
Central Arizona College
Glendale Community College
Phoenix College
Pima Community College

April 18th, 2026
Scottsdale, AZ

Saturday, April 18, 2026

9:00-9:20 a.m. WELCOME & PLENARY

SKYSONG BUILDING 3, SYNERGY ROOM, LEVEL 1

Dr. Chandra Holifield Collins, Associate Director of the University of Arizona NASA Space Grant Program

Room	Exploration Room SkySong Bldg 1, Level 3	Ingenuity Room SkySong Bldg 1, Level 3	Global Room SkySong Bldg 1, Level 2	Discovery Room SkySong Bldg 1, Level 3
TIME **(MST)**	**Session A** **AERONAUTICS** **Moderators:** Anne Boettcher, ERAU Christoph Hader, UA (9:40 AM – 10:10 AM) **---** **Session F** **EXPLORATION SYSTEMS ENGINEERING** **Moderators:** Anne Boettcher, ERAU Elliott Bryner, ERAU Christoph Hader, UA Ron Madler, ERAU (10:10 AM – 2:00 PM) **---** **Session E** **EDUCATION AND PUBLIC OUTREACH** **Moderators:** Elliott Bryner, ERAU Ron Madler, ERAU (2:00 PM – 2:30 PM)	**Session B** **AEROSPACE TECHNOLOGY** **Moderators:** Elliott Bryner, ERAU Ron Madler, ERAU (9:40 AM – 10:40 AM) **---** **Session G** **PLANETARY SCIENCE** **Moderators:** Christopher Edwards, NAU Thomas Sharp, ASU (11:10 AM – 2:40 PM)	**Session C** **ASTRONOMY & SPACE PHYSICS** **Moderators:** Maitrayee Bose, ASU Tim Swindle, UA Michele Zanolin, ERAU (9:40 AM – 3:00 PM)	**Session D** **EARTH AND ENVIRONMENTAL SCIENCE AND ENGINEERING** **Moderators:** Chandra Holifield Collins, UA Nicholas Alfonso Diaz, NAU (9:40 AM-2:00 PM) **---** **Session H** **Topics in Math, Physics, and Chemistry** **Moderators:** Chandra Holifield Collins, UA Nicholas Alfonso Diaz, NAU (2:00 PM – 2:50 PM)

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9:40-9:50	[A-1] *Kaden Steiner* Numerical Investigation of Wave Packet Spreading Angles in Hypersonic Boundary Layers	[B-1] *Tyler Nielsen* Coconut: Student-Led Development and On-Orbit Operation of a 1U LoRa Amateur Radio CubeSat	[C-1] *Alison Bolanos Pina* Is Surface Roughness Indicative of Sediment Flow Morphology on Mars?	[D-1] *Aseem Rajopadhye* Developing Leaching Methodology to Identify Origins of Mo in BARB5 Shale Samples
9:50-10:00	[A-2] *Mae Carrington* Design of a dynamic surface prototype using continuous servos for boundary layer control	[B-2] *Christopher LeClair, Bruce Noble, Connor Shackelford* Electrical Capacitance to High-resolution Observation	[C-2] *Anna Brandigi* Direct Imaging of the Stellar Companion to the Hot Dust Star κ Tuc Aa	[D-2] *Taylor Alger* Cultivation of Alfalfa in MGS-1 Martian Simulant
10:00-10:10	[A-3] *Sydney Bayliff* Tomographic Reconstruction of Density Gradients Created by a Plasma Actuator	[B-3] *GCC ASCEND Team 2* SpaceJunkies I2C Modules, Bluetooth Data Link, and New Sensors!	[C-3] *Brittany Hollowell* Drivers of Nighttime CO2 Non-Local Thermodynamic Equilibrium	[D-3] *Kayla Courtright* Surface-Modified Cellulose Sponges for PFAS Removal: A Rapid Small Scale Column Test and Isotherm Study
10:10-10:20	[F-1] *Isabella O'Brien* Real Time Image Based Detection and Characterization of Optical Downlink from NASA's Laser Communications and Relay Demonstration	[B-4] *John Bruchhagen* Visualization of Shock Boundary Layer Interactions	[C-4] *Zephyr Kennan* Calculating potential cumulative carbon fixed and evolutionary stage for Earthlike planets in our solar neighborhood	[D-4] *Anneli Sorensen* Arctic Sea Ice Preservation
10:20-10:30	[F-2] *Tegan Barber* Data-driven analysis of geometric factors that impact LPBF part quality	[B-5] *Cambri Miller, Bruce Noble, Ella Ozatay, Cheyenne Valentine* EagleSat	[C-5] *Els Shepard* Identifying Locations for Grain Formation in Core Collapse Supernova Outflows	[D-5] *Ethan Herrington* Quantifying the optical properties of volcanic ash to improve satellite retrievals
10:30-10:40	[F-3] *Phillip Stahoviak* Using Machine Learning to Design Composite Materials with Tunable Bandgaps	[B-6] *Marcelo Brooks* Satellite Ground-Station Development	[C-6] *Camille Cioffi* Mass Loss and Pre-supernova Properties of Massive Stars	[D-6] *ASU ASCEND* High-altitude analysis of the Regener-Pfotzer maximum while providing a testbed for cubesat hardware
10:40-11:10	Mid-Morning Break & Refreshments, SkySong Building 1, Level 3 Hallway			
11:10-11:20	[F-4] *Carson Holmes, Michelle Madrigal* Investigation of Stress Concentrations in Stereolithographic Modeled Parts	[G-1] *Maezy Biemond* Investigating Potential Martian Biocrust	[C-7] *Harshita Prasad* Analyzing Aurora Observed by Instruments at Poker Flat, Alaska to Better Understand Geomagnetic Activity	[D-7] *Jacob Taylor* Simulations and Inversions for Drone-Based Time-Domain Electromagnetic Surveying for Groundwater Detection for Arizona and Mars Water Exploration

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11:20-11:30	[F-5] *Yaris Eidenbenz* Nanostructured BEA Zeolite Membranes for Enhanced Lithium-Ion Transport in Lithium-Ion Batteries	[G-2] *Angela Tatsch* Investigating the transport of volatile-bearing vapors in the crust of the Moon	[C-8] *Nayera Abdessalam* Probing Early Supermassive Black Hole Growth: C IV-Based Mass Estimates in z ~ 4.8 Quasars	[D-8] *Estrella Solis Mata* Alkali Salt-Modified Carbon Supports for Scalable Moisture Swing CO_2 Capture
11:30-11:40	[F-6] *Rose Hall* In Vivo Bone Strain Measurement in Simulated Reduced Gravity	[G-3] *Trisha Lucas* Solid State Diffusion of Volatiles on Pluto	[C-9] *Ari Chai, Jewel MacPherson* Stellar Polarimeter for Undergraduate Studies (SPUdS)	[D-9] *Samantha McLean* Building a Python Pipeline for Processing Remote Sensing Data of Yellowstone Thermal Areas and Quantifying Systematic Error
11:40-11:50	[F-7] *Madison Rix* Mechanical and Optical Architecture of a Laser Communication Relay Demonstration Beacon Test System	[G-4] *Audrey Smith* Sublimation of H2O and D2O Mixtures	[C-10] *Ambroise Juston* Birefringence Mirror Curvature	[D-10] *Ava Campbell* Hydrogen Production and Storage in $CaTiO_3$ Perovskite at Mantle-Related High Pressures
11:50-12:00	[F-8] *Rayna Hylden* Thin Film Solar Cell Performance on Metal Alloy Substrates	[G-5] *Cody Fischer* High-Resolution Regional Mapping of Crustal Magnetic Fields on Mars	[C-11] *Rohin Sant* How Accretion Influences Ionization Cones in Seyfert 2 Galaxies	[D-11] *Nandini Manepalli* Proteins that emerged after the oxygenation of Earth's atmosphere used less now-scarce manganese and iron-sulfur clusters, but not less heme
12:00-12:10	Return to SkySong Building 3, Synergy Rooms Lunch Break	[G-6] *Charly Bisson* Examining Coexistence in a Simulated Microbial Environment for Agnostic Life Detection	[C-12] *William O'Brien* Finding an Optimal Layout for the Long Wavelength Array Swarm Station at Meteor Crater	Return to SkySong Building 3, Synergy Rooms Lunch Break
12:10-12:20		[G-7] *Landri Howard, Mylene Luna, Peyton Posey, Hailianna Rodgers* Casa Grande Union High School ASCEND	[C-13] *Rebekah Boisvert* Mid-Infrared (4.5 μm) Observations of a Brown Dwarf Binary around a Sun-Like Star	
12:20-12:30	Return to SkySong Building 3, Synergy Rooms			
12:30-1:30	Lunch Break			
1:30-1:40	Return to sessions, SkySong Building 1			

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1:40-1:50	[F-9] *Tristan Britt* Evaluating Lunar Regolith as a Structural Material for In-Situ Resource Utilization	[G-8] *Austin Gadd* Impact-Induced Shock Metamorphism and Its Role in Structuring Microbial Habitats in Coconino Sandstone at Barringer Crater	[C-14] *Jackson Headon* Narrowing the Science Gap List of Habitable Worlds Observatory Targets	[D-12] *Tye Ropati* Fan and Fill: Reconstructing the Past through Sedimentology, Stratigraphy, and Geomorphology
1:50-2:00	[F-10] *Jillian Harder* Optical telescope design investigation for orbital research	[G-9] *Eli Resnick* Analog Life in Impact-induced Endolithic Niches (ALIEN)	[C-15] *Adler Williams* Measuring Masses and Kinematics for Two Highly Eccentric Massive Binaries	[D-13] *Tiffany Le* Tracking Water in the Desert
2:00-2:10	[E-1] *Sierra Monreal* A Consolidated Analysis of U.S. Aerospace Activity	[G-10] *Christine Quan* Habitability Constraints of Oxalotrophic Bacteria from Dryland and Marine Ecosystems	[C-16] *Grace Kaiser* Deuterated Formaldehyde as a Tracer of Core and Filament Evolution	[H-1] *John Anderson* Physics-Informed Long Short-Term Memory Neural Networks for Response Prediction and Parametric Identification of Nonlinear Dynamical Systems
2:10-2:20	[E-2] *Dominic Trujillo* STEM Kit Design for Early Aerospace Education	[G-11] *Aubrey Schrameck* Adaptive Segmentation and Automated Morphometric Analysis of Monogenetic Volcanic Cones in Distributed Fields	[C-17] *Gibson Bowling* Discovery of NIR-Variable Objects in the JWIDF	[H-2] *Peter Goodman* Assessing the Effect of Protein Structure on Amino Acid Evolution
2:20-2:30	[E-3] *Eyan Weissbluth* Evaluating STEM Researches knowledge of Philosophy of Science	[G-12] *Brad Tsosie* The Geochemical Buffet: Evaluating the Influence of Impact-Induced Mixing in Ejecta on Lithotrophic Microbial Diversity at Barringer Crater, Arizona	[C-18] *Bradley DiLorenzo, Clayton Larson* Analyzing Light Curves of Core Collapse Supernovae	[H-3] *Sawyer Star* Lorentz-Symmetry Breaking in Quantum Field Theory
2:30-2:40	Return to SkySong Building 3, Synergy Rooms	[G-13] *Isabel Kahn* Reanalyzing Habitability Claims for K2-18 b Through Forward Models and Retrieval Analysis	[C-19] *Rachel Honor* Catching Light Waves with SKYSURFIR: Measuring Offsets between NIRCam Detectors	[H-4] *Dario Walter-Cardona* Systems of Partial Differential Equations in Bumblebee Gravity
2:40-2:50		Return to SkySong Building 3, Synergy Rooms	[C-20A-B] *Ishaan Dhanwantry, Yunia Orina* It's Moving, It's Alive! High resolution view of IGR J16320 and MS 1603.6+2600	[H-5] *Tyler Brown* Simulated analyses of Roman Space Telescope weak lensing and galaxy clustering cosmology

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2:50-3:00	Return to SkySong Building 3, Synergy Rooms	Return to SkySong Building 3, Synergy Rooms	[C-20A-B] *Ishaan Dhanwantry, Yunia Orina* It's Moving, It's Alive! High resolution view of IGR J16320 and MS 1603.6+2600	Return to SkySong Building 3, Synergy Rooms
3:00-3:10	Return to SkySong Building 3, Synergy Rooms			
3:10-4:10	**ASCEND Poster Session** **SkySong Building 3, Synergy Rooms** Closing Session			