



**Arizona Astrobiology Center**  
**Annual Report**  
**Reporting Period: July 2024 – June 2025**



Research &  
Partnerships

## EXECUTIVE SUMMARY

The Arizona Astrobiology Center (AABC) received \$1.8 million in philanthropic gifts this year, supporting six new initiatives across quantum consciousness research, the origin of life, graduate fellowships, prebiotic geochemistry, carbonate-rich environments, and education and outreach. These investments significantly strengthen our mission to explore life's deepest questions.

The 2024-2025 academic year was a period of major progress for AABC, with significant advances in research, partnerships, and public engagement. We submitted a \$30 million NSF Science and Technology Center (STC) proposal and a \$5.5 million NASA ICAR proposal, backed by strategic partnerships with institutions including the Jet Propulsion Laboratory, Howard University, Brown University, and international collaborators such as the Secwépemc First Nation and Thompson Rivers University in British Columbia.

Educationally, our outreach efforts impacted over 1,000 K-12 students and trained 29 undergraduate ambassadors. We expanded curriculum development and strengthened community engagement through events and social media. These milestones, fueled by visionary support and interdisciplinary collaboration, position AABC as a global leader in astrobiology and the search for life and consciousness across the cosmos.

In the coming year, under the leadership of Interim Director Dr. Tyler Robinson, AABC will continue its forward trajectory by deepening research collaborations, producing new media on astrobiology, and advancing our educational mission. We will also host the Science of Consciousness Conference, co-sponsor the statewide Arizona Astrobiology Symposium, and expand our outreach and curriculum dissemination efforts across Arizona and beyond.

## MISSION AND VISION

### **Purpose of AABC**

Launched in 2023, The Arizona Astrobiology Center (AABC) is dedicated to advancing the interdisciplinary study of life in the universe through innovative research, inclusive education, and community-centered engagement. Rooted in planetary science, molecular biology, physics, ethics, and beyond, AABC works to foster collaborations that bridge academic, cultural, and geographic boundaries. The center serves as a hub for discovery, dialogue, and education, preparing the next generation of scientists, educators, and informed citizens to explore the profound questions of existence, habitability, and our place in the cosmos.



## LONG-TERM GOALS AND GUIDING PRINCIPLES

### Long-term Goals and Guiding Principles



#### Interdisciplinary Excellence

Promote research that integrates the physical, biological, social sciences, and the humanities to explore the origins, evolution, and future of life.



#### Leadership

Position AABC as a national and International leader in astrobiology through strategic collaborations, cutting-edge proposals, and thought leadership



#### Educational Innovation

Develop and disseminate curricula that inspire learners of all ages, emphasizing accessibility, creativity, and critical thinking



#### Ethics and Equity

Embed ethical reflection and inclusivity at the core of all programs, from quantum biology to field research and educational programs.



#### Community Partnership

Engage indigenous and underserved communities in reciprocal relationships that enrich scientific inquiry and place-based understanding



#### Infrastructure and Growth

Expand facilities, funding, and institutional support to sustain long-term research, education, and outreach impact

## PERSONNEL & LEADERSHIP

Beginning in August of 2025, Dr. Tyler Robinson, Associate Professor of Planetary Science, will be stepping in as the acting director, while Dr. Lauretta is on sabbatical. Tyler brings deep expertise in planetary atmospheres, using advanced radiative transfer and climate models to explore a range of objects, from worlds in our own Solar System to distant exoplanets and brown dwarfs. Tyler's been a major contributor to NASA mission concept teams, including HabEx, LUVOIR, WFIRST/Rendezvous, and the Origins Space Telescope.



#### Leadership:

- Director: Dr. Dante Lauretta
- Interim Director (2025-2026): Dr. Tyler Robinson
- Deputy Director: Dr. Corey Knox
- Communications Director: Ari Espinoza (yisrael.arizona.edu)

## New Personnel Hires:

**In alignment with AABC's commitment to inclusive excellence and interdisciplinary innovation, the center expanded its team with the following key hires:**

**Lauren James, Education and Engagement Manager.** Lauren James has joined the AABC team as our new Education and Outreach Manager in September. Her extensive background in curriculum design, community engagement, and public science communication makes her a valuable addition to our team as we continue to expand our efforts to make astrobiology accessible to a broader audience. Lauren will be instrumental in leading new education programs, coordinating outreach events, and helping to shape AABC's public engagement strategy. Please join us in welcoming her to the team!

**Dr. Adrienne Vancura, Science Programs Manager.** A leading RNA biologist with experience at Harvard and MIT, Dr. Vancura oversees interdisciplinary research and lab development. Her work focuses on RNA-microtubule interactions and the application of quantum biology to cognition and the origins of life.

**Brittany Solórzano Blanco, Administrative Associate.** Brittany joins us from Imperial Valley, CA, with degrees in psychology and social science, as well as extensive administrative experience. She plays a key role in daily operations, hospitality, and coordinating center events and communications.

**Dr. Stuart Hameroff, Research Professor:** A renowned Scholar of Consciousness studies and anesthesiologist, Dr. Hameroff brings decades of experience in research on consciousness and quantum coherence in biological systems.

**Deborah Huie serves as the Project Coordinator** and Accounting Lead for the Arizona Astrobiology Center, overseeing budgeting, purchasing, and financial reporting for center initiatives. In addition to her work with AABC, she also supports administrative and accounting operations for several projects at Steward Observatory.

**Undergraduate Student Workers:** During the 2024-2025 academic year, AABC supported five undergraduate student workers who performed tasks ranging from front desk reception to curriculum design support, outreach events, and research assistant duties. In addition, AABC also supported the funding for one Space Grant Recipient.



## AABC Ongoing Research

**Astrobiology in Carbonate-rich Aqueous Environments:** Submitted proposal to NASA (submitted Dec. 2024), pending. Currently, it is privately funded through donors.

This project investigates Earth's soda lakes as analogs for early Earth and potentially habitable extraterrestrial environments. The project focuses on high-phosphate alkaline lakes, such as Last Chance Lake in British Columbia, which possess the highest natural phosphate concentrations known. These environments mimic the chemical conditions thought necessary for life's origin, including high alkalinity, sodium carbonate, and unique evaporite formations. The science program is structured around four key tasks: studying terrestrial analogs, conducting comparative spectroscopy with planetary data, exploring organic-mineral interactions under prebiotic conditions, and integrating Indigenous cultural knowledge. This work supports planetary missions by helping to identify biosignatures and interpret mineralogical data from asteroids like Bennu and planets like Mars and Europa.

In May 2025, a research team from the Arizona Astrobiology Center traveled to British Columbia to build relationships with Secwépemc communities, whose ancestral territories include Last Chance Lake. They visited Tk'emlúps te Secwépemc (Kamloops) and then journeyed to Stswéceṛm̓c-Xgéṛtem (SXFN), a Northern Secwépemc Nation composed of Canoe Creek and Dog Creek communities. The visit emphasized ethical engagement, marked by ceremonies and meetings that honored the land and initiated a shared stewardship. A visit to the Rosie Seymour School and a ceremonial stop at Last Chance Lake symbolized the integration of scientific inquiry with cultural respect and Indigenous knowledge, key principles for conducting inclusive and responsible astrobiological research.

**Investigating Electromagnetic Signal Transmission in Tardigrades:** AABC Funded Research, multiple student participation.

This year's interdisciplinary research efforts at the University of Arizona continue to expand through innovative projects and strategic international collaborations. A flagship initiative led by AABC, Dr. Hameroff and Knox, Assistant Professor Zafer Mutlu, and PhD student Howard Yawit from the Department of Materials Sciences and Engineering, in partnership with Dr. Anirban Bandyopadhyay of Japan's National Institute for Materials Science, explores the potential for electromagnetic communication in tardigrades. This novel project blends biophysics, nanotechnology, and condensed matter physics to investigate whether these extremophilic organisms transmit signals during cryptobiosis. Dr. Bandyopadhyay's theoretical work—on the Frequency Fractal Model of the human brain, Fractal Information Theory (FIT), and Geometric Musical Language (GML)—provides a groundbreaking framework for interpreting potential findings. This study is poised to generate new insights into biological signaling and has potential applications in bio-inspired robotics, space life support, and regenerative medicine.

## **Tetrahymena pilot research:** AABC Funded Research, student participation.

A pilot research project underway at Bio Sciences West focuses on *Tetrahymena*, a single-celled eukaryote known for its complex behaviors and well-characterized biology. We are cultivating *Tetrahymena* cultures and are in the early stages of planning for conducting behavioral assays, including chemotaxis and decision-making studies. These experiments aim to understand how single-celled organisms process environmental information and make adaptive choices, an important line of inquiry for understanding the minimal requirements for behavior that resembles sentience. *Tetrahymena* serves as a model for exploring how life might evolve and function in extreme environments, particularly if those environments support only microbial or unicellular life forms. Studying its behavioral responses and survival strategies under varying conditions may inform the search for biosignatures and life-detection strategies on other worlds.

## **Submitted Proposals**

In FY2025, the University of Arizona led the submission of a \$30M proposal to the National Science Foundation's Science and Technology Centers (STC) program for the creation of the ***Center for Exploring Quantum Aspects of Life (CEQUAL)***. This interdisciplinary center aims to establish quantum biology as a predictive and transformative scientific paradigm. The proposal brought together a consortium of institutional and industry partners, including Howard University (co-lead), the University of California, Santa Barbara, Nanobiosym, Duquesne University, Google QuantumAI, the Allen Institute for Brain Science, the University of Waterloo, and Elettra Sincrotrone Trieste. CEQUAL integrates researchers and educators across multiple University of Arizona units, spanning the College of Science, College of Engineering, College of Medicine, College of Fine Arts, and the Arizona Astrobiology Center. Together, we will explore how quantum phenomena influence biological systems and translate discoveries into quantum-inspired technologies. CEQUAL will position UA and its partners at the forefront of an emerging discipline with broad societal impact across healthcare, sensing, computation, and workforce development. This proposal is pending.

In January 2025, the University of Arizona led the submission of a \$5M research proposal titled ***Astrobiology in Carbonate-rich Aqueous Environments*** to advance our understanding of how life may have originated on Earth and other planetary bodies. This effort integrates geochemistry, spectroscopy, prebiotic chemistry, and Indigenous knowledge systems through a multi-institutional collaboration. Partners include the SETI Institute, Jet Propulsion Laboratory, University of Washington, Brown University, Rensselaer Polytechnic Institute, and others. At the University of Arizona, faculty from the Lunar and Planetary Laboratory, the Department of Geosciences, and the College of Agriculture and Life Sciences play key roles, with Principal Investigator Dr. Dante Lauretta coordinating scientific leadership across multiple domains. The project builds on recent findings from phosphate-rich alkaline lakes such as Last Chance Lake in British Columbia and is structured around four integrated tasks: analog fieldwork, comparative spectroscopy, laboratory-based prebiotic experiments, and community-engaged research. The submission represents a significant milestone in

advancing planetary science, life-detection strategies, and ethical, collaborative research practices. Unfortunately, this proposal was not selected for funding.

In February 2025, a \$300,000 NSF proposal titled ***Linking Integrative Narratives for STEM Excellence*** was submitted to address persistent barriers to student success in introductory STEM courses. The project leverages the LINCSS (Linking Integrative Narratives to Create STEM Synergy) framework, developed by Principal Investigator Dr. Corey Knox and Co- Principal Investigator Dr. Sara Chavarria, to redesign foundational “gatekeeper” STEM courses through student-centered pedagogy. This effort brings together faculty from the Colleges of Science, Engineering, and Education, including support from the STEM Learning Center and the Office of Hispanic-Serving Institutions. The initiative involves participatory research and curriculum redesign across four high-enrollment courses in chemistry, biology, software engineering, and materials science. Through faculty training, student engagement, and course innovation, the project advances equity and inclusion in STEM, with the potential to impact over 1,000 students annually and inform national models for improving STEM retention and success. Unfortunately, this proposal was not selected for funding.

## **HSI Implementation and Evaluation Project: A Multi-Institutional Partnership to Enhance Latinx Participation in Space-Related Academic Paths and Careers--**

Overview: Through a collaboration between the University of Arizona, the University of Central Florida, and the University of Puerto Rico, three Hispanic-serving universities (HSIs), AABC led a proposal to establish a collaborative partnership among HSIs to enhance space-related educational and career opportunities for Latinx, Hispanic, and other underrepresented students by conducting culturally responsive needs research, developing and disseminating a forward-facing strategic plan, and launching a national HSI Space sciences education partnership. Unfortunately, this proposal was not selected for funding.

## **Graduate Astrobiology Training Program: NSF Proposal in progress.**

The Graduate Astrobiology Training Program (GATP) at the University of Arizona will establish a pioneering research traineeship that integrates the scientific exploration of life in the universe with a deep engagement in the humanistic dimensions that shape our understanding. Led by a team representing faculty and staff from 5 departments/centers including Ewan Douglas, (Astronomy Department), Solange Duhamel (Molecular and Cellular Biology), Matthew Mars (Public and Applied Humanities), Pierre Haenecour (Lunar and Planetary Laboratory), Tyler Robinson (Arizona Astrobiology Center and Lunar and Planetary Laboratory), and Corey Knox (Arizona Astrobiology Center) this program is positioned to deliver interdisciplinary, cross- sectoral training to the next generation of astrobiologists.



## RESEARCH AND PROPOSAL DEVELOPMENT



### Developing Research Partnerships

Through collaborative research, large-scale proposals, and ongoing studies, we have expanded and strengthened our partnership network this year. New University and Industry partners this year include Howard University-Quantum Bio Lab, UC Santa Barbara, Thompson River University, B.C., Nano Syms, Google AI, University of Central Florida, Duquesne University, University of Washington, Rensselaer Polytechnic Institute, Brown University, and others.

*JPL Collaboration Launch:* JPL and AABC Partnership workshop meeting. Held at AABC, nine staff scientists from JPL and five UA faculty and scientists met for a two-day session on June 9- 10, 2025, to discuss opportunities for long-term joint missions. Dr. Robinson, the Interim Director, is leading the partnership.

*New Research Lab Opens:* The Science Manager at Vancura entered into a partnership with the EEB department to utilize wet lab space and equipment in Biosciences West, launching a lab to study *Tetrahymena* and aromatic residues, and exploring the links between quantum biology and cognition. This lab will support studies on molecular evolution and prebiotic complexity.

### Featured Science Partnership Building/Presentations

- Quantum Consciousness Panel at Amazon MARS Conference, Dr. Lauretta and Dr. Hameroff gave an invited keynote at the annual conference.
- AI for Animals Conference, 2025, Dr. Lauretta gave a presentation on intelligence, SETI, and bioethics.
- CRNS (The French National Centre for Scientific Research) visited AABC to discuss future and ongoing collaborative projects with UA, France-Arizona Institute for Global Grand Challenges, and AABC Members.

## EDUCATION AND OUTREACH

### Undergraduate and Graduate Outreach

This year, the Arizona Astrobiology Center launched a new partnership with the College of Humanities to introduce a first-of-its-kind specialization in Astrobiology within the Applied Public Humanities Bachelor's degree. Open for enrollment in Fall 2026, the program formally integrates astrobiology and the humanities at the undergraduate level, advancing

our commitment to interdisciplinary learning and public engagement. In parallel, AABC's undergraduate and graduate engagement efforts emphasized science communication training, imaginative outreach, and creative collaboration. From training 30 Astrobiology Ambassadors to designing and leading hands-on activities, video projects, and lesson plans, students took the lead in translating science for diverse audiences. The Astrobiology Lounge became a hub for creative dialogue and informal education, offering events that blended art, games, storytelling, and science. These efforts not only deepened student involvement but also expanded AABC's impact across Arizona.

**Bachelor of Arts in Applied Humanities, Astrobiology Specialization.** We continue to work with Dr. Matthew Mars and the College of Humanities to submit a proposal to create this innovative Bachelor's in Humanities specialization. If approved, the program will begin in Fall 2026. The proposed Applied Humanities degree emphasis in Astrobiology will offer a distinctive pathway for UA undergraduate students who are passionate about the search for life in the universe and the broader implications of astrobiology. Rather than focusing solely on scientific or technical aspects, this emphasis will explore the human-centered dimensions of astrobiology, including its cultural, ethical, philosophical, and societal impacts. By leveraging UA's unique strengths in both astrobiology and humanities education, two fields rarely combined in academic programs, this degree will prepare students to engage with the profound questions and real-world challenges that arise from studying life beyond Earth.

**The Astrobiology Ambassadors.** The Ambassador program trained and mobilized 30 students in 2025, who contributed to classroom teaching, exhibit tours, video production, and curriculum development, reaching thousands across Arizona. This semester, weekly meetings combined professional development opportunities, journal club events facilitated by graduate students, and curriculum and activity design workshops. Students are now involved in a range of activities, including writing an astrobio-themed children's book, creating informational videos, and providing support for research projects and center logistics.

**The Astrobio Lounge** was launched this year as a series of informal networking events with fun, creative activities and a salon-style atmosphere. The Astrobio Lounge is a gathering space open to all, designed to foster networking, creativity, and interdisciplinary dialogue. Held nine times between July 2024 and May 2025, these salon-style events welcomed 172 attendees and featured a diverse range of activities, including board game nights, art evenings, scholarly sci-fi film discussions, and presentations by guest speakers such as Dr. Erika Hamden, Director of the Arizona Space Institute, Dr. Chris Impey, Distinguished Professor of Astronomy, and Dr. David Grinspoon, Senior Scientist for Astrobiology Strategy at NASA. With themes ranging from extraterrestrial life in fiction to student-led explorations of astrobiology, the Lounge created a welcoming environment for students, faculty, and community members to connect over shared curiosity about life in the universe.

**Guest Presenters** to the AABC this year included: Melissa Morris, NASA/OSIRIS-REx Program Executive; David Grinspoon, Senior Scientist for Astrobiology Strategy at NASA HQ; Michael Wong, Sagan Postdoctoral Fellow at Carnegie Science's Earth & Planets Laboratory; and Dr. Phillip Kurian, Founder and Director of the Quantum Biology Lab at Howard University.



*Dr. Phillip Kurian, Quantum Bio Lab, Howard University*



*Guest Speaker Dr. Melissa Morris*

**Signature Undergraduate Astrobiology Course Curriculum: "Life in the Cosmos."** A cross-disciplinary general education assignment is now published, integrating astrobiology, planetary science, and culture. Lauretta & Knox. You can view and download the assignment from the University of AZ library repository. [Life in the Cosmos - HIP Repository](#)



## K-12 Curriculum Development and School Outreach Efforts

Our school outreach initiatives involved direct engagement with ten schools across the Tucson area, where our trained student ambassadors and Education Manager delivered interactive lessons and hands-on activities centered on astrobiology. These visits introduced students to fundamental concepts in planetary science, the search for life beyond Earth, and the interdisciplinary nature of astrobiology. In addition to classroom sessions, our team participated in tabling events at local school science fairs, where we provided educational materials, facilitated conversations with students and parents, and showcased current NASA mission science. Altogether, these efforts reached and inspired more than 600 K-12 students, fostering curiosity and excitement about space science and potentially igniting future interest in STEM careers.



## Curriculum Development

The **Imagining Life** curriculum, a four-lesson module designed for grades 5–8, is now actively being implemented in classrooms. Following a successful pilot with three schools and approximately 100 students, the curriculum introduces learners to astrobiology through inquiry-based exploration of life’s possibilities beyond Earth. For younger students, a four-day workshop for K-2 educators — funded by the Marshall Foundation — provided professional development in astrobiology education. As a result, participating teachers co-developed 13 new lesson plans, which are currently being piloted in five classrooms, reaching another 100 early elementary students and their educators. To support continued outreach, the Arizona Astrobiology Center assembled 15 portable curriculum kits now available to teachers throughout Southern Arizona. Additionally, the launch of the *Astrobiology Ambassadors* video series has extended our educational reach even further, providing engaging, age-appropriate content for learners from elementary through high school. These lesson and more are available on our website:

<https://astrobiology.arizona.edu/aabc-teacher-resource-kits>

## Space Explorers: An Introduction to Astrobiology (K-2 Module 1)



In this module, students will learn about the fascinating world of astrobiology and explore the exciting question: "Could life exist beyond Earth?"

**Grades**  
K-2

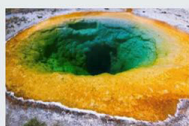
## Life in Space: Imagine, Explore, Discover! (K-2 Module 2)



This imagination-based astrobiology unit immerses students in three hands-on, interactive experiences to explore the conditions for life in space.

**Grades**  
K-2  
English, Spanish

## Exploring Extreme Life (K-2 Module 3)



This module explores the extreme life forms that survive on the planet Earth, and why astrobiologists study these creatures to learn how life might survive on other worlds.

**Grades**  
K-2  
English, Spanish

## Public Engagement and Outreach

In 2025, the Arizona Astrobiology Center reached over 7,800 community members through 17 events, workshops, and experiences that brought the wonders of astrobiology to diverse audiences across Arizona and beyond. From interactive booths at national conferences to school science nights and science festivals, AABC's outreach efforts continue to spark curiosity, build connections, and make cutting-edge research accessible to learners of all ages. This year also saw the launch of innovative media projects, a nationally distributed planetarium show, and a Science Journalism workshop—all reflecting AABC's mission to blend science, storytelling, and community engagement in meaningful and inclusive ways.

- Science Nights Events and Science Fairs (non-school-based) + 300
- Tucson Festival of Books/Science City (100,000 attendees)
- National SACNAS STEM Tucson Festival of Books (6,000 conference attendees)

## AABC Media Productions/Social Media

Our social media footprint continues to grow steadily, particularly on the Bluesky platform, which has gained over 700 followers in the past year. Additionally, our YouTube channel has also shown growth, with over 1,849 views, and we anticipate this trend to continue as we plan new content and focus on AABC's activities for the upcoming fall. The Center will expand its social media presence with an account on Vimeo to reach another potential audience on that platform as well. We have seen that video is a larger and consistent draw across Facebook, Instagram, and YouTube.

## AABC Meets Video Series

The Arizona Astrobiology Center launched a compelling video interview series on social media that showcased both faculty and student members. The series highlights the diverse research interests within the center and underscores the shared passion for exploring life's origins and possibilities beyond Earth. Through personal stories and scientific insights, each video connects viewers to the broad, interdisciplinary nature of astrobiology. These interviews also serve as a platform to celebrate the inclusive and collaborative spirit that drives AABC's mission.



## Big Questions in Astrobiology Planetarium Show for National and Global Distribution



A new 10-minute fulldome show, developed in collaboration with the INTUITIVE®Planetarium at the U.S. Space & Rocket Center, has been completed and is now ready for national and global distribution to planetariums and educational institutions. Produced for the Arizona Astrobiology Center (AABC), the show features the OSIRIS-REx mission, highlights the University of Arizona's leadership in space exploration, and introduces audiences to the "big questions" of astrobiology, such as the origin, evolution, and future of life in the universe. AABC is currently working to plan a local Tucson premiere in early 2026. This initiative exemplifies AABC's mission to make cutting-edge science accessible, inclusive, and engaging for learners of all ages.



# AWARDS

## 2025 AABC Seed Grant Awardees

In May of 2025, the Arizona Astrobiology Center awarded a total of \$84,000 in Astrobiology Seed Grants to ten diverse recipients, including undergraduates, staff scientists, graduate students, postdoctoral researchers, and faculty members. These grants support innovative, interdisciplinary research projects that explore bold questions in astrobiology, encompassing a range of topics from space missions and planetary modeling to biochemistry and education. We are proud to report that one of our 2024 awardees, Undergraduate Chase Cooper, and his mentor, Tyler Robinson, provided preliminary data to a successful proposal to NASA's Exoplanets Research Program. The project investigated how light scattering from Titan's atmospheric hazes and surface seas could serve as a model for hazy, ocean-covered exoplanets. The award from NASA is for \$360k, including This funding underscores the Center's commitment to fostering inclusive, high-impact research across all academic levels and disciplines.

Name	Role/position	Project Title
Dr. Pierre Haenecour	Assistant Professor, Planetary Science	Fluids Encapsulated in Carbon Nanoglobules from Asteroidal Samples
Dr. Alba Filella	Postdoc BIO5 Fellow, Molecular & Cellular Biology	Polyphosphate as an external energy source: hints on the emergence of life?
Clyde Berry	Graduate Student, Ecology and Evolutionary Biology	A model of early group living and stress responses in a colonial green alga
Eleanor Cornish	Undergraduate, Planetary Sciences	Inferring the Presence of Oceans on Earth-like Exoplanets
Shea Henley	Graduate Student, Aerospace Engineering	DARE to Explore
Howard Yawit	Graduate Student, Materials Science and Engineering	Electromagnetic Characterization of Tardigrades via SAW-Based Frequency Probing
Kayla Smith	Graduate Student, Planetary Sciences	Astrobiology Curriculum for Incarcerated Youth

# AWARDS



Dr. Jorge Montiel Molina	Postdoc, Environmental Science	Ecology and biogeography of Archaea in methane-rich wetlands. BORGS are here to stay
Dr. Chris Impey	Professor, Steward Observatory/Astronomy	EarthScape: An Immersive Journey into Astrobiology
Dr. Stefano Nerozzi	Assistant Research Professor, LPL	Assessing the Habitability of Martian Glacier Meltwater Environments via Terrestrial Analogs

**Mensch Prize in Astrobiology Awardee, \$1,000 scholarship:** *Sawsan Wehbi, PhD candidate in EEB/Genetics:* Sawsan Wehbi, a Ph.D. candidate in the Genetics Interdisciplinary Program with a minor in Astrobiology at the University of Arizona, is the recipient of the 2025 Mensch Prize in Astrobiology. Her research, published in PNAS, has significantly advanced our understanding of the genetic code's evolution by analyzing ancestral protein domains from the era of the Last Universal Common Ancestor (LUCA). Beyond her scientific contributions, Sawsan exemplifies interdisciplinary excellence and inclusivity, serving as a NASA FINESST Fellow, mentor, and science communicator.

## Donor Impact

This year, our work has been significantly strengthened by the generosity of visionary donors who share our commitment to advancing astrobiology, consciousness research, and transformative education. These gifts have enabled groundbreaking research, global collaborations, expanded outreach, and vital student support. The following highlights reflect both new and ongoing investments in our mission, underscoring the essential role of philanthropic partnerships in sustaining bold and interdisciplinary inquiry.

- Two gifts, totaling approximately \$1.3 million. These gifts are for the Orch OR theory of consciousness research.
- A gift of \$200K to Dr. Laurretta to explore the link between the Origin of Life and Consciousness.
- A gift of \$250K for Astrobiology graduate student fellowships.
- A gift of \$25K for an ongoing project, "Searching for the Source of Phosphorus at the Origin of Life" and advancing investigations into prebiotic geochemistry.

## AWARDS

### *Donor Impact Continued*

- A gift of \$20K to support the Astrobiology in Carbonate-rich Aqueous Environments Pilot Project
- A gift of \$10K for astrobiology education and outreach

## IMPACT METRICS AND OVERVIEW



## FUTURE DIRECTIONS

As we look to the future, the Arizona Astrobiology Center (AABC) is committed to deepening its impact through expanded outreach to rural and underserved communities, ensuring that curiosity about life in the universe is nurtured in every corner of our state and beyond. We plan to publish and disseminate a K-12 astrobiology curriculum, and to document and share the diverse research efforts of our UA colleagues and collaborators through video features, papers, and social media. AABC will continue to grow its portfolio of interdisciplinary research initiatives, pursue new federal and private funding opportunities, and invest in facilities and resources to support innovative research and education at the frontiers of astrobiology.