Subaru Users Meeting

Doug Simons
UH Institute for Astronomy
June 2026

Maunakea Forest Reserve Moonset (~8000 ft elevation)

Recent Flood Events

- Winter storms called “Kona lows” impacted communities across Hawai‘i
  - ~20 inches of rain on Maunakea and ~50 inches on Haleakalā
- Caused >$1B in damage statewide with significant erosion across Maunakea Access Road and around several MKOs
- Mānoa stream flooded, quickly creating flood conditions in Mānoa valley, including the IfA-Mānoa office where a half dozen staff lost their cars due to severe flood conditions

Incoming Faculty

Ruizhu Chen

Starts at IfA-Maui September 2026

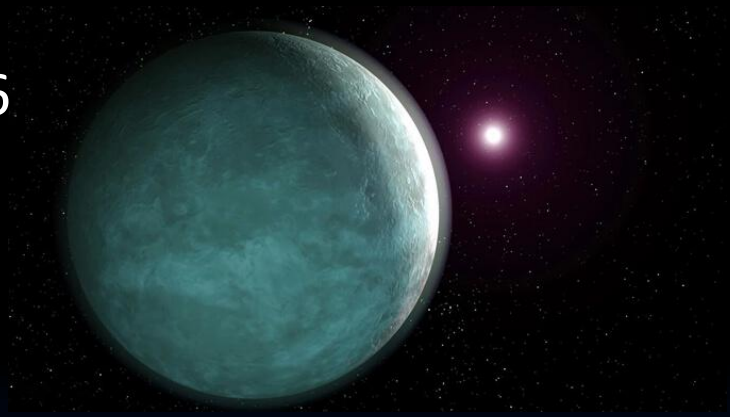
PhD : Stanford University

Currently: Stanford University

Research Interests: Solar Physics and Space Weather

Congratulations Fei!

2026 Sloan Research Fellow



Fei Dai, assistant astronomer at IfA, has been named a 2026 Sloan Research Fellow, one of the most notable and competitive honors for early-career scientists in North America.

His research is focused on helping answer one of humanity biggest questions: How do planetary systems form, and could worlds like Earth be common in the universe?

Fei joins Mike Liu (2005), Christoph Baranec (2014) and Dan Huber (2019) as IfA Sloan Fellows

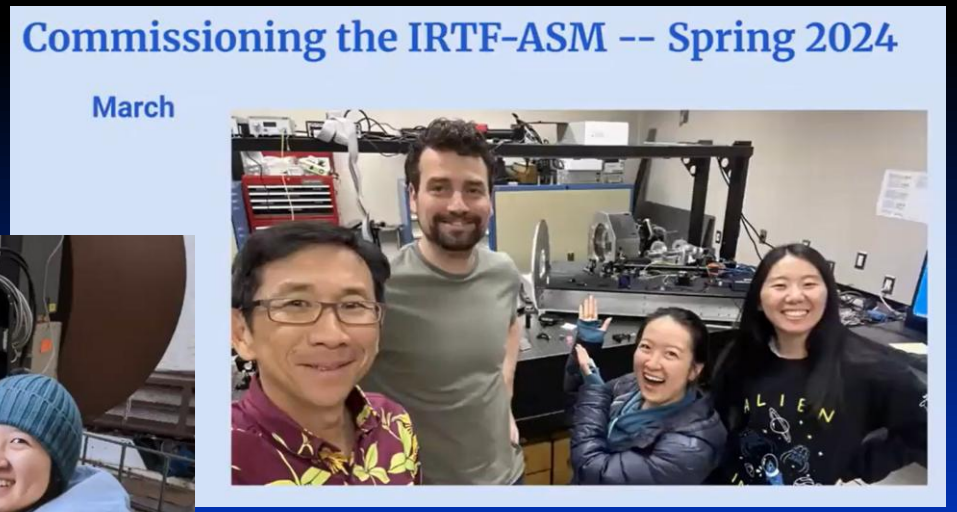
UH News, 2026-02-17: https://www.hawaii.edu/news/2026/02/17/distant-worlds-expert-national-honor/

Congratulations, Dr. Suzanne Zhang!

November 25, 2025

"The Rising Tide Floats All Boats: Improving Overall Telescope Performance With Roboticized Adaptive Optics Systems and Adaptive Secondary Mirrors"

Committee Co-Chairs: Christoph Baranec and Mark Chun



Congratulations Dr. Mitchell Dennis!

Applications of Machine Learning in Astronomy and Astrophysics

June 10, 2026

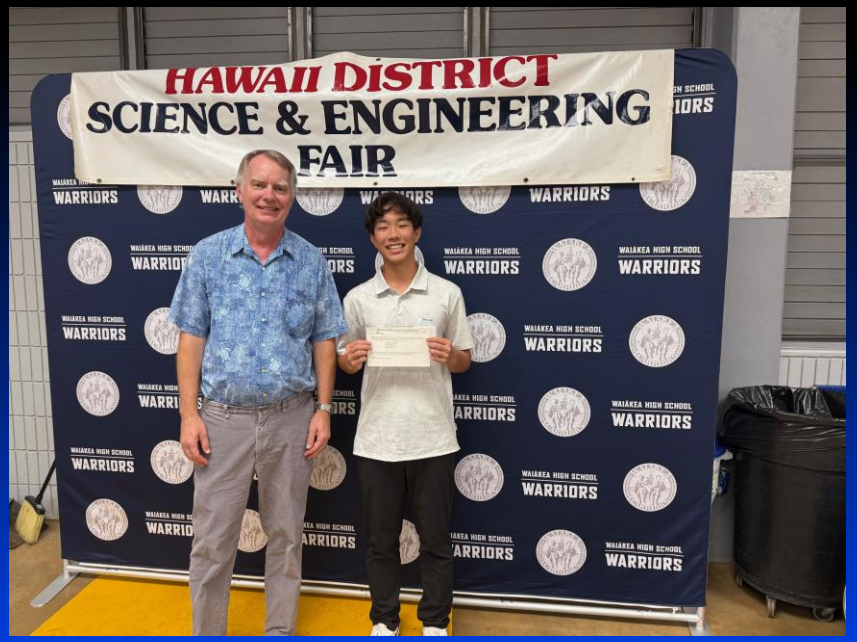
Advisor: Dr. Jeremy Sakstein

Community Connections

Kilauea Eruption

East/West Hawaii Island Science Fairs

Students received the "IfA Astronomy Award" in each science fair – will expand this award to include Maui and State fairs next year



AstroDay at the Hilo Mall

UNIVERSITY of HAWAI'I® NEWS

Search

Academic Research People Community Administrative Athletics Videos By Campus

24th AstroDay sparks keiki science dreams

UH News » Academic News » 24th AstroDay sparks keiki...

May 5, 2026 UH News

UNIVERSITY of HAWAI'I® MĀNOA

Reading time: < 1 minute

The event featured robotics and live science activities.

Faculty, staff and students from the University of Hawai'i Institute for Astronomy helped power AstroDay 2026, the Maunakea Observatories's 24th annual free community science festival held May 2 at Prince Kūhiō Plaza in Hilo. More than 30 organizations came together to offer hands-on astronomy, robotics and live science activities for Hawai'i Island families.

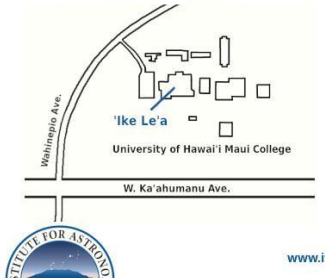
HI STAR on Maui

Maikalani Community Lectures

HI STAR 2026 Presentations

Come join the Hawaii Student Teacher Astronomical Research (HI STAR) program as the students present the research which they have been working on for the week. There will be talks on:

- **Galactic Mergers**
- **Exoplanets**
- **Supernova**



Friday, June 5th 2026
at 2:30 pm
University of Hawai'i Maui College
Ike Le'a Room 144
310 W Kaahumanu Ave
Kahului, HI 96732

Free Admission
Open to the Public

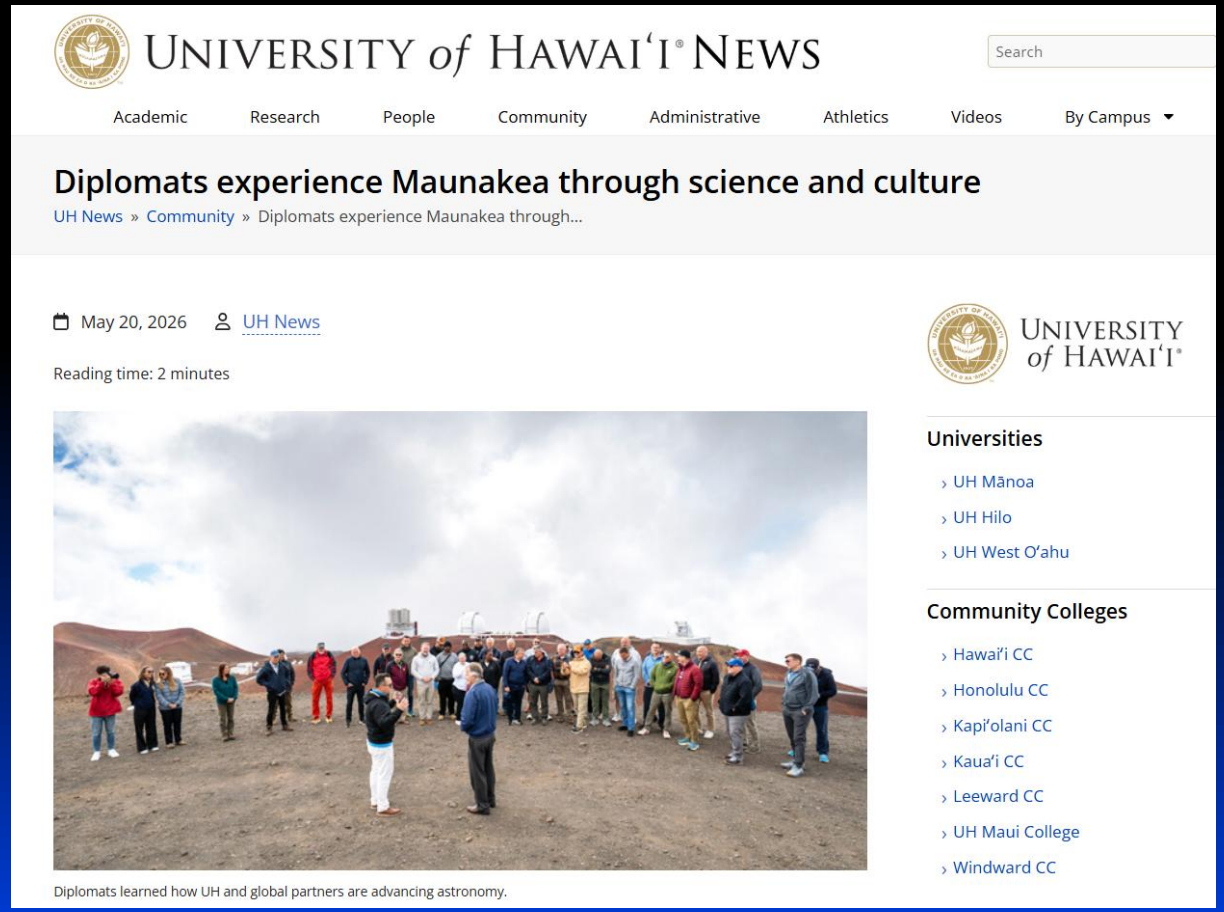
This talk will be streamed live at http://tinyurl.com/ifamaui

www.ifa.hawaii.edu

MAIKALANI ADVANCED TECHNOLOGY RESEARCH CENTER ON MAUI

Diplomat Tour

- IfA organized a dual site tour for a large (~80) group of diplomats from around the world visiting Hawai‘i
  - Half visited ‘Imiloa Astronomy Center, the rest visited HP and then Keck, CFHT, Subaru, IRTF
  - Diplomats were all either #2 or 3# in their respective US embassies
- “Maunakea has become a model for how nations can work together in the pursuit of knowledge” – my principal motivation for leading this effort
- Mahalo nui loa to the big team that supported this visit for our guests including -
  - IfA, MKSS, CMS, MKOs, ‘Imiloa, UH Comms, Rangers, Pa‘akai Comms, and many more…



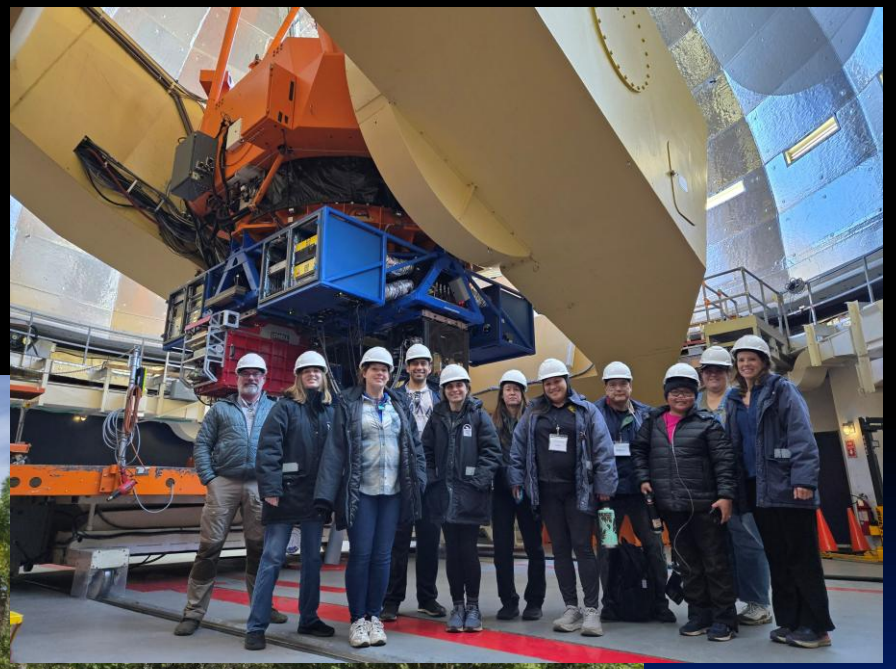
Diplomat Tour

Participating Countries

Angola	Greece
Argentina	Hungary
Armenia	Iceland
Australia	Italy
Austria	Kenya
Barbados	Latvia
Bosnia and Herzegovina	Lithuania
Brazil	Mongolia
Bulgaria	Netherlands
Canada	North Macedonia
Canada	Norway
Côte d'Ivoire	Philippines
Croatia	Poland
Cyprus	Romania
Czech Republic	Senegal
Denmark	Slovak Republic
Ecuador	Slovenia
Estonia	South Africa
European Union	Spain
Finland	Sweden
France	Switzerland
Gabon	United Kingdom
Germany	United States

Teach Astro - 2026

- Third year of the program sponsored by Heising-Simons Foundation
- Designed to provide local teachers with curricula and training to enhance their classroom astronomy education skills
- This year the program was held at IfA-Hilo (normally based at IfA-Manoa)



Maunakea Scholars 10 Year Anniversary

Waiakea High School Awards Event

Maunakea Scholars celebrates 10-year anniversary

'I'm able to do real-world research'

By STEFAN VERBANO
Hawaii Tribune-Herald

On first impression, Waiakea High School senior Aaron Lewis doesn't exactly seem like a scientist.

He is tall and quiet, presumably more at home on a basketball court than in a laboratory — or, in this case, an observatory.

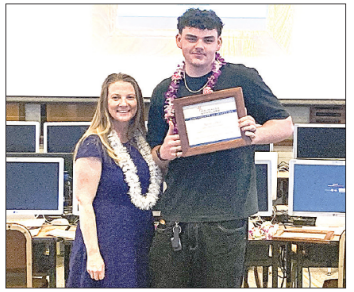
But Lewis was one of 14 newly minted Maunakea Scholars for the 2025-2026 school year during the program's award ceremony on Tuesday, and will soon be heading up to the telescope array atop Hawaii Island's tallest mountain to conduct research about the nature of Jupiter's atmosphere using NASA's 3.2-meter Infrared Telescope Facility.


SIMONS

Started during the 2015-2016 school year, Maunakea Scholars celebrates its 10-year anniversary this year. It's an innovative, one-of-a-kind program giving public high school students across the state a competitive chance to conduct research at Maunakea's telescope array — something the program's administrators have affectionately dubbed "telescope time."

During Tuesday's ceremony held in Waiakea High's library, Lewis presented his research proposal in front of an audience comprised of fellow students and special guests like University of Hawaii Institute for Astronomy Director Doug Simons and Maunakea Observatories Internship

See SCHOLARS Page A8


STEFAN VERBANO/Tribune-Herald

Aaron Lewis, one of 14 Maunakea Scholars for the 2025-2026 school year at Waiakea High School, poses with his award beside Maunakea Observatories Internship Coordinator Mary Beth Laychak.

Hawaii Tribune-Herald


STEFAN VERBANO/Tribune-Herald

Waiakea High School's Maunakea Scholars for the 2025-2026 school year proudly display their awards for "telescope time," flanked by University of Hawaii Institute for Astronomy Director Doug Simons and Maunakea Observatories Internship Coordinator Mary Beth Laychak.

SCHOLARS From the front page

Coordinator Mary Beth Laychak, both of whom helped create the program. Hearing Lewis introduce his project — in a short speech heavy with scientific wonder and inquiry — instantly dispelled any doubt whether he has the makings of an astronomer.

"My topic was Jupiter, specifically Jupiter's atmosphere," he said. "I knew I always wanted to do Jupiter because I thought it was cool that we have this big gas giant, but the more research I did the more I realized we don't really know anything in Jupiter, so then I put my research towards its atmosphere. The purpose of my research is to find out how ammonia clouds differ between Jupiter's dark and light bands, and to understand how storms and the atmospheric movement affect how these clouds form."

When he got to the part where he read his actual proposal, his inner-scientist really shone through.

"My proposal is: in order to determine how ammonia clouds differ between Jupiter's dark zones and light zones," Lewis said, "infrared observations will be collected using … (a) telescope up on Maunakea, and by comparing the thickness of ammonia in the clouds in different regions, I can study how storms and vertical air movements affect Jupiter's atmosphere and it will help explain how the weather system moves gasses upwards and downwards, giving it its weird cloud patterns."

His peers cheered him on when he wrapped up the head-spinning speech with a humble "that's all."

"I'm pretty excited that I'm able to do real-world research," he said after the ceremony, "like visually able to use the telescopes and see what I've been talking about for the past year, so I'm pretty excited to be able to get a chance to do this."

Proposals from the other newly announced scholars are just as interesting: Junior Saydee Ah Sing will study neutron stars using the W.M. Keck Observatory. Junior Divine Juda, junior Emily Miyasato and senior Kendrick Paulo-Galsote will study Ganymede, one of Jupiter's satellites and the largest moon in our solar system featuring an underground saltwater ocean with the potential to support life.

Senior Jaelyn Ahulau-Ha will study the Kuiper Belt, a massive donut-shaped region of comets and dwarf planets including Pluto found beyond Neptune believed to be a remnant of the early solar system and offering clues about planetary formation.

Senior Chloe Kinoshita will study the Chandra X-Ray Observatory's images of supernova remains of Cassiopeia A. Like Lewis, Senior Ruben Majamay Garcia Delos Santos will study Jupiter while senior Kathaejer Jibas will study its moons.

Senior Keriah Kaili will study nebulae, senior Riesbey Sambrano-Faisao will study pulsars, senior Sofiemarie Alconcel-Sebastian will study Jupiter and Uranus, senior CianaAnn Olivar-Santiago will study cryovolcanoes, and senior Ayileah Estak will study the Seven-Star System known as Jaba.

"It's such a wonderful thing to be able to run and oversee," Mary Beth Laychak, the program's leader, said. "To see the growth and development in these students over the course of the year, this is why it's one of my favorite classes to work with … from the very beginning of the year where some students have no idea about anything that exists in the universe, to where we are seeing presentations today where students are talking about black holes."

Director Simons, who gave a motivational, heavily biographical speech before the winners were announced, admitted that the program's novelty was a source of intimidation in the beginning.

"There is no program like this in the world," Simons said. "When we started it was a little scary, we had no idea how high schoolers would be able to engage with the billion-dollar sandbox that is Maunakea Observatories."

Those who win telescope time partner with University of Hawaii astronomy graduate students, who help steer their projects based on what is feasible. Sometimes these advising roles end up inspiring burgeoning UH astronomers to change course.

"They've been really essential," Simons said about the graduate student partners. "An early lesson was that high school students want to work with other students rather than old guys like me, and I don't blame them. It's been really rewarding for our grad students, we've had at least a couple who've taken a different career path after being mentors."

At its core, the director said, Maunakea Scholars is about showing high school students what is possible with a little encouragement.

"One of the early lessons was how rural students who can't see themselves in these positions, when they're immersed in it and they realize 'oh wow I just got observing time at a $200 million observatory with my idea, nobody else did it, it was my idea,'" he said. "They take ownership of it — that is a transformational opportunity for the student. That puts them in a different place, and helps them believe that, you know, 'if I did that, maybe I can go to college and can succeed and follow my passion.'"

Email Stefan Verbano at stefan.verbano@hawaiitribune-herald.com.

Kamehameha Schools Kapālama Maunakea Scholars

Maunakea Scholars and family members at KS Kapālama campus awards event…

Kapolei Maunakea Scholars Visit Keck and CFHT

IfA In the News

Maunakea Forest Reserve (~8000 ft elevation)

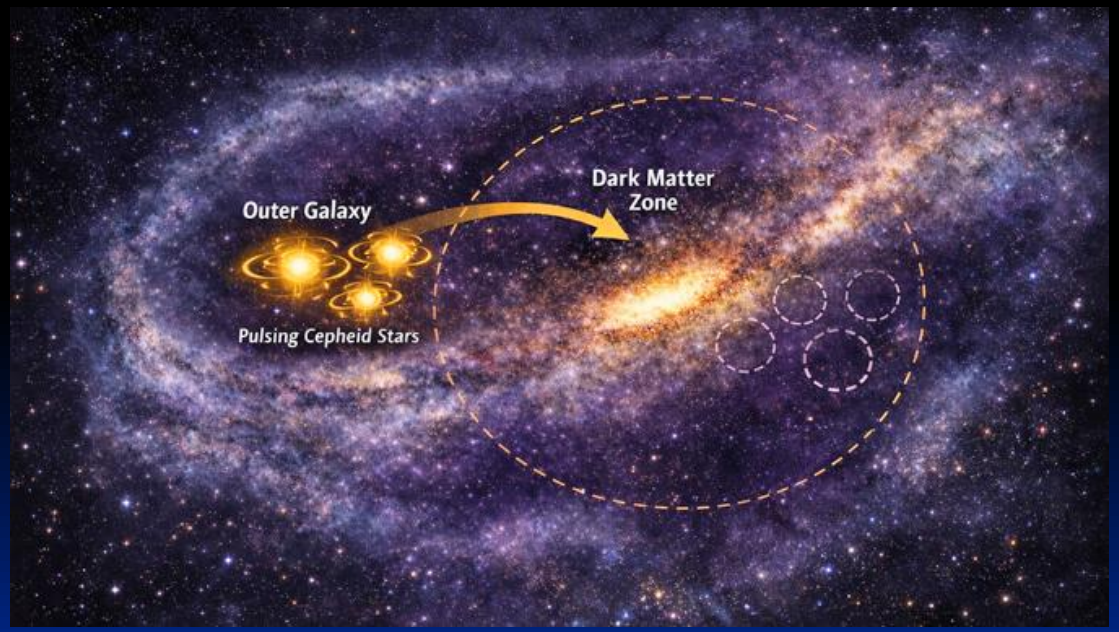
Solar Rain Mystery Cracked by UH Researchers

Luke Benavitz first author on a new paper in *Astrophysical Journal* (Jeff Reep second author) about coronal loops and their relation to the formation of coronal condensation

"At present, models assume that the distribution of various elements in the corona is constant throughout space and time, which clearly isn't the case. It's exciting to see that when we allow elements like iron to change with time, the models finally match what we actually observe on the Sun. It makes the physics come alive in a way that feels real."

UH News, 2025-10-01: https://www.hawaii.edu/news/2025/10/01/solar-rain-mystery/
Read the *ApJ* paper: https://iopscience.iop.org/article/10.3847/1538-4357/ae019d

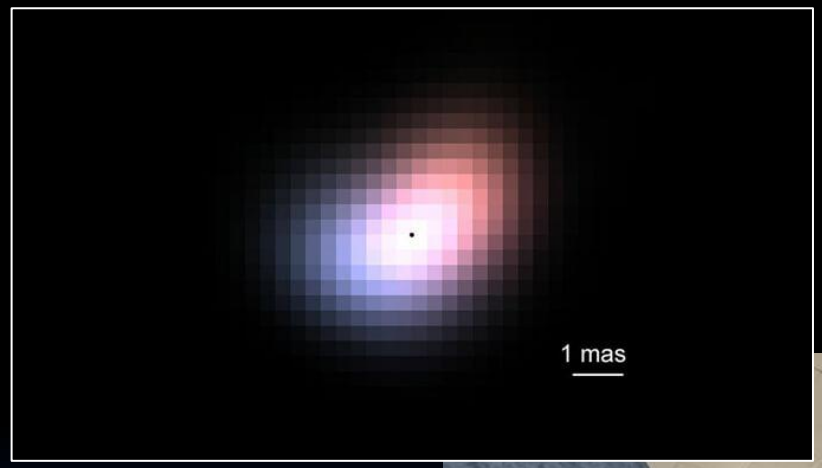
Potential Impact of Dark Matter on Cephied Variables



- Jeremy Sakstein collaborated on research about the potential impact of dark matter in the cores of stars, noting the possibility of higher dark matter densities in the inner Milky Way, leading to possibly fewer Cepheid variables in that region
- Future JWST searches for Cepheids at NIR wavelengths in the galactic center region could validate this work
- “This work highlights how research at UH Mānoa is helping to address some of the biggest unanswered questions in science,” Sakstein said. “By combining theory and computation, we’re helping to open up entirely new ways to test ideas about the universe. The next generation of telescopes will tell us whether we’re on the right track.”

Dark matter may be answer to why stars near the Milky Way’s core are muted | University of Hawai‘i System News

UH Engineers Help Sharpen Our View of Space



Sébastien Vievard (SSEI faculty based at IfA Hilo) Miles Lucas (IfA PhD 2025) and Aidan Walk (IfA graduate student) part of a team developing photonic lantern technology leading to a first-of-its-kind instrument at the Subaru Telescope; the device has achieved the sharpest-ever image from a single telescope, setting a new standard for how scientists observe distant stars and planets.

UH News, 2025-10-22: https://www.hawaii.edu/news/2025/10/22/uh-engineers-sharpen-view-of-space/

Read the *ApJL* article: https://iopscience.iop.org/article/10.3847/2041-8213/ae0739

UH Robo-AO on Maunakea

COMMUNITY A7

Thursday, November 20, 2025 Hawaii Tribune-Herald

UH debuts advanced robotic optics

The University of Hawaii Institute for Astronomy has launched initial science operations for Robo-AO-2, a robotic laser adaptive optics system now operating at the UH 2.2-meter telescope.

The milestone marks a major leap in how astronomers observe the night sky, according to a UH news release. Robo-AO-2 is designed to correct the blur caused by Earth's atmosphere, sharpening images of hundreds of objects each night with minimal human oversight.

The system is led by astronomer Christoph Baranec, who has spent years advancing adaptive optics technology at IfA.

"Making Robo-AO-2 operational represents years of dedicated engineering and innovation," said Baranec, a member of IfA's robotic adaptive optics program.

"This system demonstrates how University of Hawai'i facilities continue to pioneer technologies that eventually make their way to the world's largest telescopes and space missions."

One of the first researchers to use the system is graduate student Guillaume Huber. He is conducting observations for NASA's future Habitable Worlds Observatory, which will search for signs of life on planets around nearby stars.

Huber is vetting a catalog of nearby stars that could host Earth-like planets.

"The Habitable Worlds Observatory will search for signs of life on planets orbiting other stars, but first we need to ensure those target stars don't have close stellar companions," Huber said. "Robo-AO-2's ability to rapidly survey hundreds of targets makes it uniquely suited for this preparatory work."

New funding is driving the system even further. This year, the National Science Foundation and the Mt. Cuba Astronomical Foundation awarded $679,075 to fully automate Robo-AO-2.

The NSF award will also support testing a new adaptive secondary mirror for the UH 2.2-meter telescope, led by IfA astronomer Mark Chun. This technology could significantly improve image quality for future ground-based observatories.

For IfA, the project is also about training. Students gain rare hands-on experience with real instruments at the university's own facilities. The UH 2.2-meter telescope serves as a crucial testbed where new instruments and techniques can be developed before deployment on larger facilities.

The University of Hawaii 2.2-meter telescope on Maunakea.

Christoph Baranec lead a team that launched initial science operations for Robo-AO-2, a robotic laser adaptive optics systems now operating at the UH 2.2-meter telescope. The milestone marks a major leap in how astronomers observe the night sky.

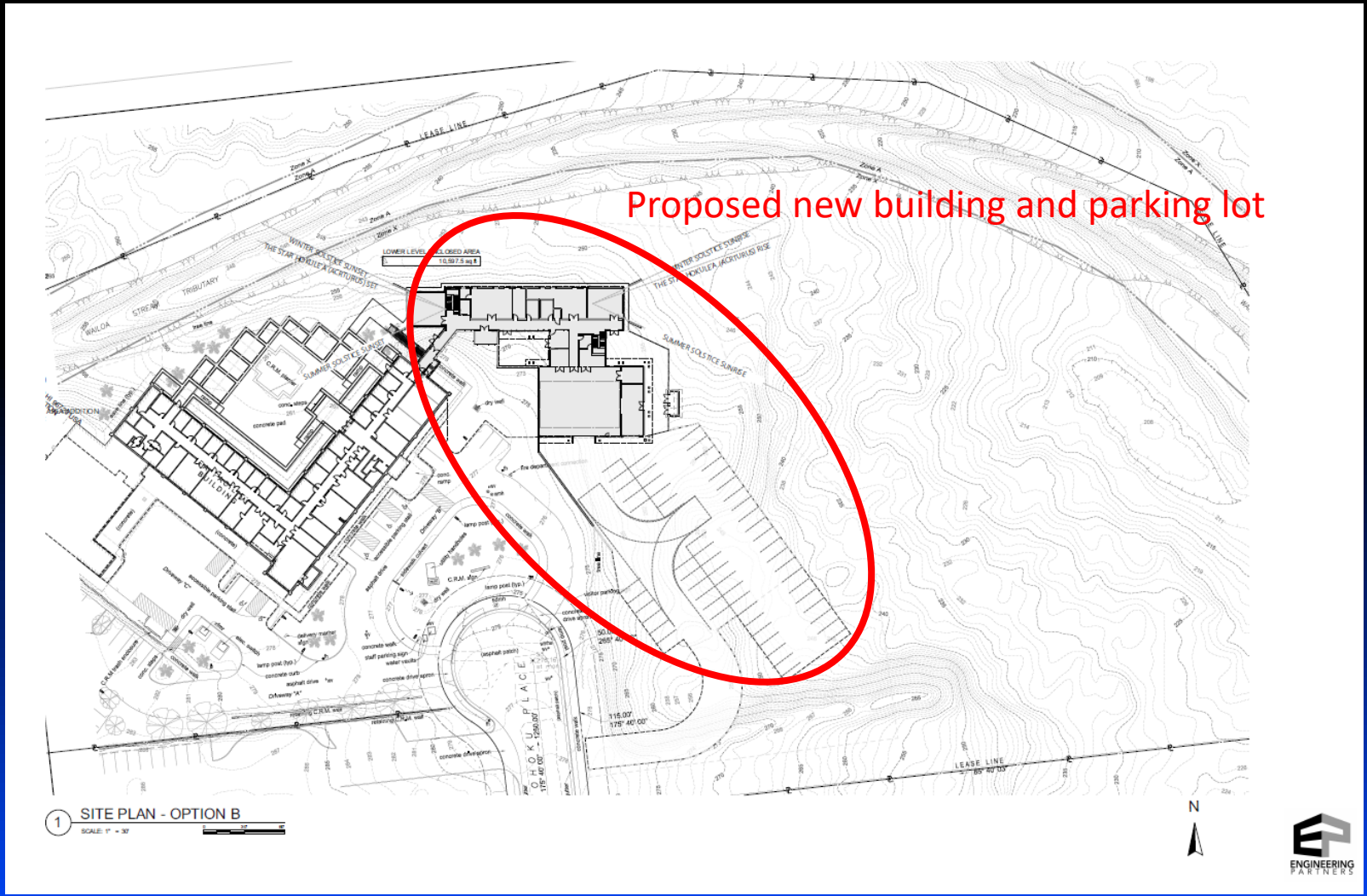
UH News, 2025-11-18: https://www.hawaii.edu/news/2025/11/18/advanced-robotic-optics-on-maunakea/

Strategic Planning

Lake Waiau on Maunakea
Photo Credit – Nour Skaf

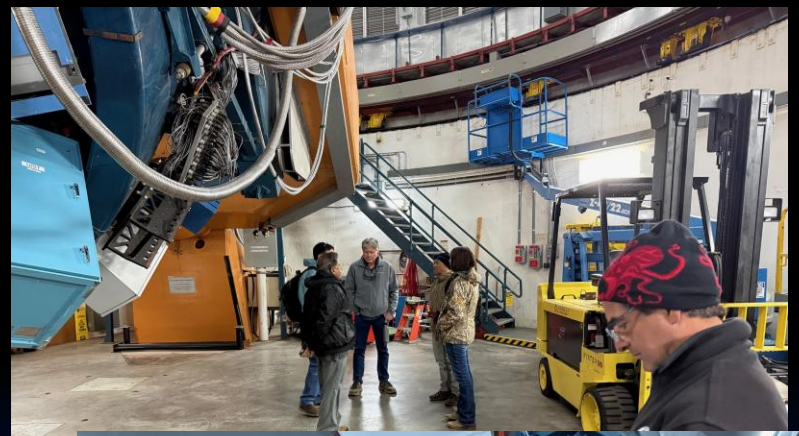
SSEI Building Design Update

- Anticipate completing design study end of 2026, seeking funding (~$30M) thereafter
- Part of a long-term commitment to expanding IfA instrumentation program capacity and UH College of Engineering to Hawai‘i Island students



UKIRT Decom Activity

- A team from UH Mānoa tasked with leading (in collaboration with CMS and IfA) the decommissioning of UKIRT recently visited the facility on the summit
- This is part of the initial planning process, the next step of which includes hiring a consultant to develop detailed decom plans that will be used to hire a general contractor to conduct the actual deconstruction work
- We will have much better estimates of cost, schedule, resource needs, etc. when the planning process is completed



2026 Hawai‘i Legislative Session

Bill gives Maunakea authority more time

By GRACE INEZ ADAMS
Hawaii Tribune-Herald

A bill passed by the state Legislature earlier this month has implications for the future of Maunakea.

Introduced and supported by several Big Island lawmakers, House Bill 2592 amended and clarified the terms of the 2022 act that established the Maunakea Stewardship and Oversight Authority, the recently formed state agency tasked with overseeing management of the summit area of the mountain beginning in June 2028.


TARNAS


KOMEIJI

Among several other changes, the bill pushes that date back to December 2029, providing an additional 18 months to prepare for the role, extra time which state Rep. David Tarnas of Kohala, who was one of the introducers of the bill, said he felt was necessary.

"We gave them a very tall order when we formed the organization in its original statute, and I think we were a bit overly ambitious in our time frame, and so I think these additional months are

See MAUNAKEA Page A5

JOSH GREEN, M.D.
GOVERNOR
KE KIA'ĀINA

GOV. MSG. NO. 1153

EXECUTIVE CHAMBERS
KE KE'ENA O KE KIA'ĀINA

May 27, 2026

The Honorable Ronald D. Kouchi
President of the Senate,
and Members of the Senate
Thirty-Third State Legislature
State Capitol, Room 409
Honolulu, Hawai'i 96813

The Honorable Nadine K. Nakamura
Speaker, and Members of the
House of Representatives
Thirty-Third State Legislature
State Capitol, Room 431
Honolulu, Hawai'i 96813

Aloha President Kouchi, Speaker Nakamura, and Members of the Legislature:

This is to inform you that on May 27, 2026, the following bill was signed into law:

H.B. NO. 2592, H.D. 2, S.D. 2, C.D. 1

RELATING TO THE MAUNA KEA STEWARDSHIP AND OVERSIGHT AUTHORITY.
ACT 053

Mahalo,

Josh Green M.D.

Josh Green, M.D.
Governor, State of Hawai'i

Approved by the Governor
on MAY 27 2026

HOUSE OF REPRESENTATIVES
THIRTY-THIRD LEGISLATURE, 2026
STATE OF HAWAII

ACT 053
H.B. NO. 2592 H.D. 2 S.D. 2 C.D. 1

A BILL FOR AN ACT

RELATING TO THE MAUNA KEA STEWARDSHIP AND OVERSIGHT AUTHORITY.

BE IT ENACTED BY THE LEGISLATURE OF THE STATE OF HAWAII:

PART I

SECTION 1. The legislature finds that refinements to the laws that confer the responsibilities and powers on the Mauna Kea stewardship and oversight authority are needed to ensure that management of Mauna Kea continues to embody a paradigm of balance and reciprocity that protects the mountain's ecological character, perpetuates Native Hawaiian traditional and customary rights and practices, and supports the State's global leadership in astronomy.

The legislature recognizes that Mauna Kea is a rare and extraordinary place that evokes cultural, spiritual, environmental, and scientific significance. The summit region encompasses fragile ecosystems, important historical and archaeological sites, and sacred landscapes interwoven into the fabric of Native Hawaiian identity. At the same time, Mauna Kea's unique topography and atmospheric conditions have made it the world's premier site for astronomical research, enabling

Key Provisions in Act 53

- UH to MKSOA Transition Date: Moves from 7/1/2028 to 12/1/2029
- MKSOA to UH Reversion Triggers: If MKSOA fails to complete their management plan by 6/30/2028 or administrative rules are not submitted to the Governor by 12/31/29, management authority over Maunakea lands revert to UH
- New MKSOA Planning Docs: Existing UH management plan and administrative rules stay in effect until the MKSOA ones supersede
- Land Ownership: DLNR retains ownership of Maunakea land while MKSOA given the "authority to manage, administer, and exercise control," which includes granting and managing leases.

Key Provisions in Act 53

- Lease Extensions: MKSOA is authorized to extend existing (sub)leases for up to a 10-years."All necessary powers and authorities to consider and grant lease extensions" are explicitly granted to MKSOA before the transition period expires
  - No need for approvals from Board of Land and Natural Resources or Land Use Commission
  - Process is exempt from environmental review (EIS)
  - *In practice this means we have ~3 years to complete (sub)lease extensions*
  - *Conundrum – MKSOA now has the authority to grant extensions on (sub)leases it does not hold, for land it does not own*

Where From Here?

- UH/MKSOA Joint Management Committee now meeting weekly (was biweekly) to discuss various issues including process and requirements needed for (sub)lease extensions - a complex and unprecedented situation
- Act 53 reframes matters in important ways but defining a viable path forward remains ahead – heavy lift
- Litigation and more legislation probably ahead
- *We have a long way to go to ensure a future for Maunakea astronomy, but I left the 2026 legislative session convinced that we have strong support in the legislature for Hawai‘i astronomy, which is absolutely essential*


2026-05-01 07:25:42
Mahalo