

Journey through the Universe

Feb. 27 – Mar. 6, 2015

Hilo, Hawai'i





February 28-March 6, 2015
Hilo, Hawai'i



TO OUR JOURNEY FAMILY,

As we entered the second decade of Journey through the Universe, it is obvious the impact that this program has had on our community. For the past eleven years over 50 astronomy educators and engineers have visited an annual average of 6,000 students in 300 classrooms in the Hilo/Waiakea District. This year, as in the past, our astronomers/astronomy educators were able to convey their passion and excitement for science, engineering, and education.

The Gemini led Journey through the Universe program nurtures our student's innate curiosity, provides workshops for our teachers in STEM (Science, Technology, Engineering and Mathematics) education and provides an opportunity for our community members (ambassadors) to visit the classrooms alongside our astronomers. As part of our eleventh year activities, we included a teacher's workshop that highlighted recent discoveries on Mauna Kea, a career panel that shared employment opportunities available at the telescopes, as well as a session on engineering and science fair opportunities for students. Journey's annual Family Science Event held at the 'Imiloa Astronomy Center and the UHH Family Science Night were enjoyed by 2,300 members of our community.

District Superintendent Valerie Takata elaborates, "Our Hilo/Waiakea complex area schools' stellar partnership with the business organizations and community is Journey through the Universe: STEM initiative. As a part of the educational system our complex area is overwhelmed with appreciation for the enthusiasm and energy this initiative has generated for our schools.... students, teachers and administrators and families. This concerted effort has made this grassroots program a sustaining reality.... for the past ten years. We humbly thank the community for their continued support as we all work together toward common goals -building a better future." Our community partners include the Department of Education Hilo/Waiakea Complex, observatories on Mauna Kea, the National Center for Earth and Space Science, the University of Hawaii at Hilo, Imiloa Astronomy Center, NASA Solar System Exploration Research Institute, the Institute for Astronomy, Bank of Hawaii, Big Island Toyota, New West Broadcasting, KTA Superstores, and the Hawaii Tribune Herald, just to name a few.

The Hawaii Island and Japanese Chambers of Commerce have also supported this effort monetarily as well as hosting a celebratory event at the Yacht Club for the past several years. The two Chambers' thank-you celebration provides a unique opportunity for astronomers, educators, and the business community to discuss and share what is our common





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goal – to enrich science education in our schools and inspire our children to aim high.

The Journey Team would like to thank everyone involved in the Journey program for their continued support and acknowledgement of this national flagship initiative. A program of this magnitude could not happen without the dedication of our community partners and their ongoing support.

As our second decade of the Journey through the Universe program moves forward, we know we will continue to change our student's lives as we advance science literacy through astronomy and encourage all students to reach for the stars!

Much Aloha and our sincerest Mahalo,
Janice Harvey
Journey Team Leader
Gemini Observatory
www.gemini.edu/journey





Proclamation

In Recognition of

Journey through the Universe 2015

WHEREAS, Journey through the Universe 2015 is an education initiative brought to fruition by the National Center for Earth and Space Science Education (NCESSE), collaborating with students, teachers, families and the public as they explore Space and Earth science; and

WHEREAS, Journey through the Universe 2015 celebrates the fact that they have engaged over 50,000 students and visited over 3,000 classrooms in Hawai'i during Journey week in the past decade; and

WHEREAS, Journey through the Universe 2015 advances the pleasures of learning in conjunction with this year's "International Year of Light 2015" Science, Technology, Engineering and Mathematics (STEM) conference at 'Imiloa Astronomy Center of Hawai'i, displaying the wonder of learning beyond the classroom; and

WHEREAS, Journey through the Universe 2015 equips teachers with the knowledge and skills to implement stimulating lessons in the classroom relevant to Hawai'i Content and Performance Standards in addition to inspiring positive settings developing cooperative parent and child learning; and

WHEREAS, Journey through the Universe 2015 Ambassador's team is a significant contributor to the Journey through the Universe program, representing community members who motivate and support youth by facilitating transportation, distributing educational materials, and coordinating classroom engagements; and

WHEREAS, Journey through the Universe 2015 strengthens the community by partnering with The Gemini Observatory, Hawai'i Department of Education Hilo/Waiākea Complex, 'Imiloa Astronomy Center of Hawai'i, and observatories on Mauna Kea, as well as all the other contributing organizations in empowering participants with the passion of science; and

WHEREAS, the 11th Annual Journey through the Universe program will take place from February 27 to March 6, 2015, on Hawai'i Island;

NOW, THEREFORE, I, DAVID Y. IGE, Governor, and I, SHAN S. TSUTSUI, Lieutenant Governor for the State of Hawai'i, do hereby proclaim February 27 through March 6, 2015, as

"JOURNEY THROUGH THE UNIVERSE WEEK 2015"

in Hawai'i and ask the people of the Aloha State to join us in extending our passion of scientific endeavors and our astounding universe.

DONE at the State Capitol, in the Executive Chambers, Honolulu, State of Hawai'i, this twenty-sixth day of February, 2015.

DAVID Y. IGE
Governor, State of Hawai'i

SHAN S. TSUTSUI
Lt. Governor, State of Hawai'i

C O U N T Y O F H A W A I ' I

Proclamation

WHEREAS, Journey Through the Universe promotes sustained education in the critical areas of science, technology, engineering and mathematics (STEM), and is a celebration of exploration and the joys of learning science. In 2014, the program celebrated its tenth anniversary on Hawai'i Island where it has engaged over 50,000 students in the past decade in STEM education in local schools; and

WHEREAS, developed by the National Center for Earth and Space Science Education (NCESSE), Journey through the Universe is a national science education initiative that engages entire communities - students, teachers, families, and the public - using educational programs in the earth and space sciences, and space exploration to inspire and educate; and

WHEREAS, the Department of Education Hilo/Waiākea Complex and Gemini Observatory began the partnership in 2004, agreeing to work together and share Mauna Kea astronomy with students. Over the past decade students, teachers and the community-at-large have benefited from Journey Through the Universe which has grown to include dozens of local and national research and education institutions, as well as local businesses, government agencies, and individuals; and

WHEREAS, the County of Hawai'i fully encourages and supports the educators who perpetuate learning and exploration of our universe in order to excite our youth about the future, and the astronomers and engineers who instill excitement and understanding about the diverse careers available at the telescopes,

NOW, THEREFORE, I, BILLY KENOI, Mayor of the County of Hawai'i, do hereby proclaim February 27 - March 6, 2015, as

JOURNEY THROUGH THE UNIVERSE WEEK

in the County of Hawai'i and urge all citizens to be mindful of the great contributions that astronomy makes to the educational and economic betterment of our island's people.

IN WITNESS WHEREOF, I have hereunto set my hand and caused The Seal of the County of Hawai'i to be affixed. Done this 2nd day of January, 2015, in Hilo, Hawai'i.

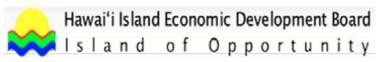


A handwritten signature in black ink, appearing to read "Billy Kenoi".

Billy Kenoi
MAYOR



UNIVERSITY of HAWAII HILO



UNIVERSITY OF OREGON



Journey through the Universe
Hilo, Hawai'i

Astronomy Educators

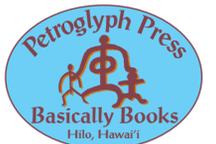
in the classroom 2015!

DEPARTMENT OF EDUCATION
Hilo-Waiakea Complex Area
www.gemini.edu/journey
For more information contact
Janice Harvey at:
jharvey@gemini.edu

Andy Adamson, Gemini Observatory
Nobuo Arimoto, Subaru Telescope
Brad Bailey, NASA SSERVI
Daniel Berke, Joint Astronomy Centre
Jennie Berghuis, Subaru Telescope
Dan Birchall, Subaru Telescope
Kelly Blumenthal, UH Institute for Astronomy
Andre-Nicolas Chene, Gemini Observatory
Kathy Cooksey, University of Hawai'i-Hilo
Sandra Dawson, Thirty Meter Telescope
Brian Day, NASA SSERVI
Daniel Devost, Canada-France-Hawaii Telescope
Angelic Ebbers, Gemini Observatory
Anna Ferre-Mateu, Subaru Telescope
Scott Fisher, University of Oregon
Roy Gal, UH Institute for Astronomy
Jeff Goldstein, NCSSE
Olivier Guyon, Subaru Telescope
John Hamilton, PISCES
Janice Harvey, Gemini Observatory
Guenther Hasinger, UH Institute for Astronomy
Saeko Hayashi, Subaru Telescope
Stephanie Henry, NASA Marshall Space Flight Center
Michael Hoenig, Gemini Observatory
Matthew Hosek, UH Institute for Astronomy
Stewart Hunter, Mauna Kea Support Services
Russell Kackley, Subaru Telescope
Yuko Kakazu, Subaru Telescope
Rob Kelso, PISCES
Markus Kissler-Patig, Gemini Observatory
Bernhard Laurich, Hawai'i Community College
Mary Beth Laychak, Canada-France-Hawaii Telescope
Nadine Manset, Canada-France-Hawaii Telescope
Pierre Martin, University of Hawaii-Hilo
Tony Matulonis, NASA IRTF
Callie Matulonis, James Clerk Maxwell Telescope
Peter Michaud, Gemini Observatory
Joseph Minafra, NASA SSERVI
Brian Mitchell, NASA Marshall Space Flight Center
Harriet Parsons, Joint Astronomy Centre
Emily Peavy, University of Hawaii-Hilo
Andreea Petric, Gemini Observatory
Christopher Phillips, Freelance Astronomy Educator
Bo Reipurth, UH Institute for Astronomy
Kathy Roth, Gemini Observatory
Rodrigo Romo, PISCES
Dennis Schatz, Pacific Science Center
Sharon Schleigh, East Carolina University
Doug Simons, Canada-France-Hawaii Telescope
Evan Sinukoff, UH Institute for Astronomy-Manoa
Breann Sitarski, University of California Los Angeles
Gordon Squires, Thirty Meter Telescope
Joshua Williams, Subaru Telescope
Sherry Yeh, Subaru Telescope



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UNIVERSITY of HAWAII MA'NOA



Hawaii

Tribune Herald

Friday, March 6, 2015

Proudly serving Hilo and the Big Island since 1923

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Photos by HOLLYN JOHNSON/Tribune-Herald

Andre-Nicolas Chene of the Gemini Observatory shows third-grader Dazlyn Urbanozo-Alves, 8, different distances of stars to the earth from a constellation during the Journey Through the Universe program Thursday afternoon at Hilo Union Elementary School.

BOLDY GOING

Hilo Union Elementary third-graders take a Journey Through the Universe



Hilo Union third-grader Tehani Alcantar, 9, works on a project measuring the distances of stars to the earth from the Cassiopeia constellation Thursday afternoon.

BEING THERE

Capturing the community in photos

A5

Monday, March 9, 2015

Hawaii Tribune-Herald

JOURNEY THROUGH THE UNIVERSE

'IMILOA ASTRONOMY CENTER • MARCH 1



Malukai McCane, 5, looks through a small telescope at the Subaru Telescope table.

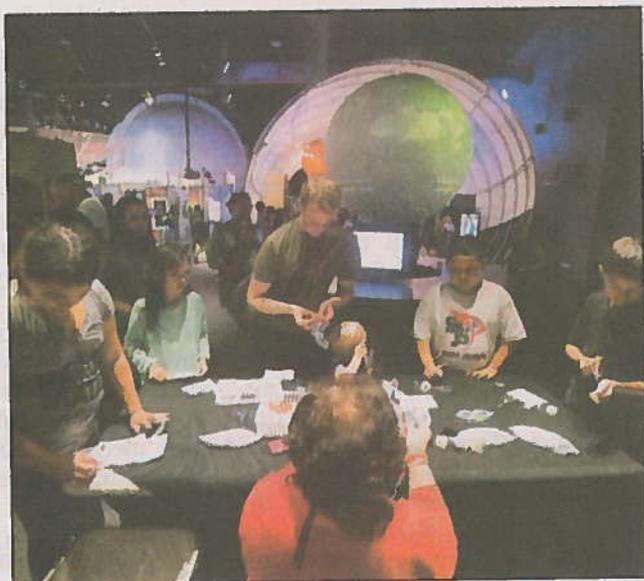


Saeko Hayashi of the Subaru Telescope looks through a small telescope.



Photos by HOLLYN JOHNSON/Tribune-Herald

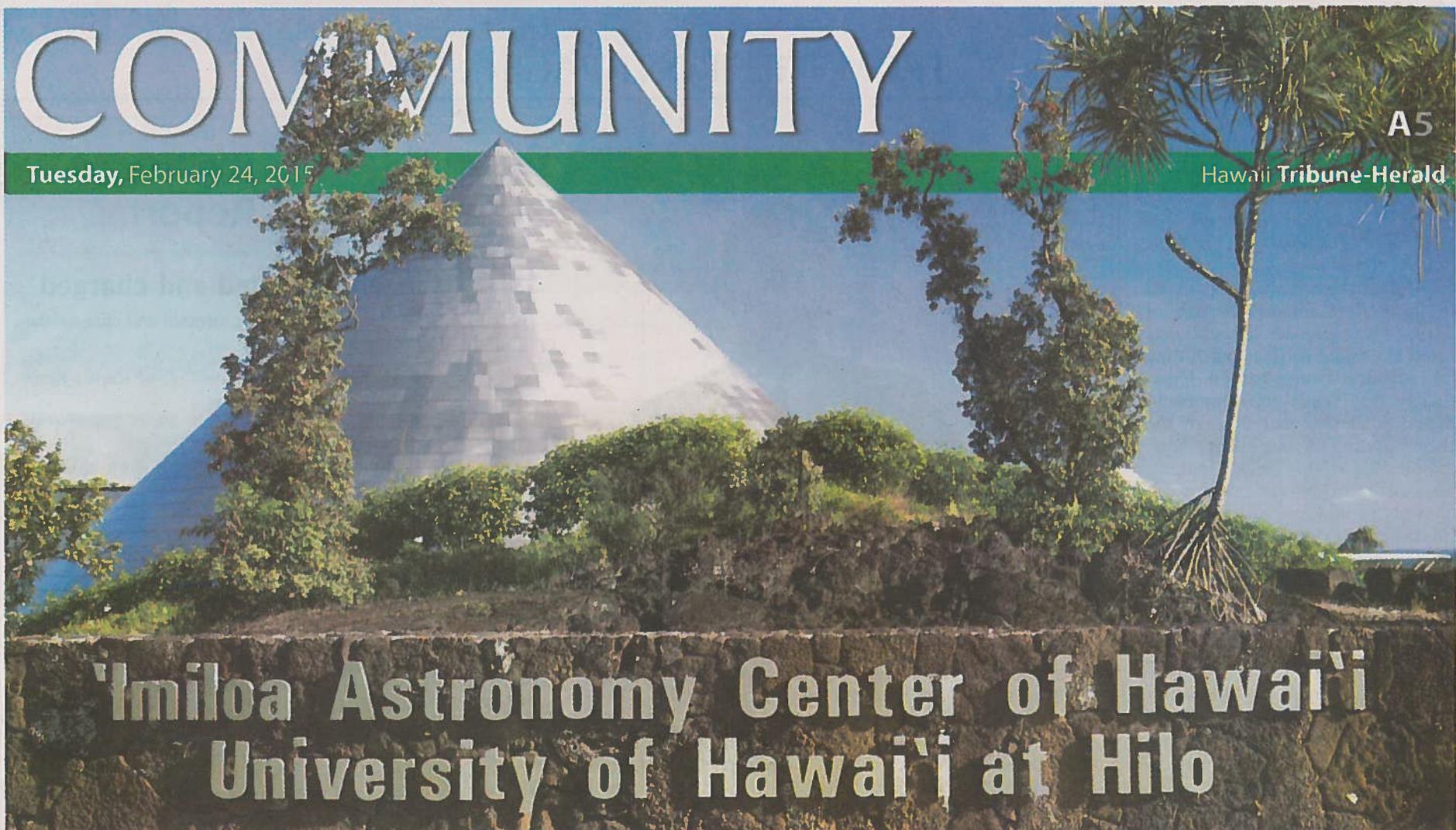
From left, cousins Haysen Yoshida, 4, Keyra Leeloy, 2, Jesse Pacheco, 11, play with bubbles March 1 during the Journey Through the Universe 'Imiloa family free day at 'Imiloa Astronomy Center in Hilo.



Families make 3-D glasses during the Journey Through the Universe 'Imiloa family free day.



Joseph Minafra of the Solar System Exploration Research Virtual Institute talks to families about meteorites at 'Imiloa Astronomy Center in Hilo.



'Imiloa Astronomy Center of Hawai'i University of Hawai'i at Hilo

Journey through the UNIVERSE

'Imiloa's
annual Free
Family Day set
for March 1

Imiloa Astronomy Center invites the community to its ninth Anniversary Celebration with a Free Family Day sponsored by KTA Super Stores, featuring "Journey Through the Universe" on Sunday, March 1.

Thanks to the generous sponsorship of KTA Super Stores, this event is offered free to the community. 'Imiloa's Annual Free Family Day starts at 9 a.m. and runs until 4 p.m.

The day's offerings include complimentary access to 'Imiloa's exhibit hall, free 20-minute planetarium programs, garden tours, as well as the "Journey through the Universe" presentations featuring inspiring astronomy talks every hour. For the hungry visitors, KTA Super Stores will have food options such as hot-dogs, chili and rice. Free

birthday cake will be served to the first 1,000 visitors.

The special engaging and inspiring presentations by "Journey Through the Universe" astronomy professionals will start at 10 a.m., and will include titles such as: Black Holes — Monsters in the Universe, A Day in the life of an Astronomer, and Living in a Crowded Universe.

Hands-on activities showcasing 'Imiloa's education programs will enhance the exhibit hall experience for the visitors. There will be a scavenger hunt, a chalk walk, make your own bubble wand station, a green screen photo booth and much more.

"We have appreciated the support of the local community these nine years and want to say 'mahalo' and invite the public to the center. Our local community has embraced 'Imiloa's presence in a way that we could have

never imagined and we are incredibly grateful for your loyalty and belief in our mission. Opening our doors free to the community is our way of showing gratitude for that support, made possible by the generosity of the KTA Super Stores ohana," says Ka'iu Kimura, executive director of 'Imiloa Astronomy Center of Hawai'i. "We want to thank Barry Taniguchi and the entire KTA ohana for making this day possible."

A special membership discount of \$10 off all levels of 'Imiloa membership, whether you are new to 'Imiloa or renewing your membership, will be offered this day. This party favor will be given to those who come help us celebrate 'Imiloa's ninth anniversary. Memberships must be purchased on-site on Sunday, March 1.

'Imiloa's Sky Garden Restaurant will be open for breakfast at 7 a.m. and will

remain open until 4 p.m. with a day-long breakfast menu, selection of sandwiches, salads, and soups, and weekend lunch buffet. The center will have outdoor benches and tables available for outdoor enjoyment and picnics.

Sky Garden Restaurant is open for Sunday dinner starting at 5 p.m. Hilo's "Journey Through the Universe," a full week of cosmic exploration, star-studded space and science education, will run from Feb. 27 to March 6, engaging local students, teachers and parents in a whirlwind of activities and learning. Gemini and the other observatories on Mauna Kea, the University of Hawai'i at Hilo, NASA, along with the Department of Education Hilo/Waiakea Complex Area and the many community partners, have sponsored "Journey through the Universe" in Hilo since 2004.

The Hilo site has been nationally recognized as the flagship "Journey" program in the nation. Visit www.gemini.edu/journey for more information.

'Imiloa Astronomy Center of Hawai'i is a cultural science center located on the University of Hawai'i at Hilo campus. 'Imiloa is a place of life-long learning where the power of Hawai'i's cultural traditions, its legacy of exploration, and the wonders of astronomy come together to provide inspiration for generations. The center's interactive exhibits, 3D full dome planetarium, native landscape, programs and events engage families and visitors in the wonders of science and technology found in Hawaii. It is open to the public from 9 a.m. to 5 p.m. Tuesday through Sunday. For more information, visit the website at www.imiloahawaii.org.

Master Educators



Journey Ambassadors



Journey through the Universe
(Hilo, Hawai'i)

SAVE THE DATE!

Monday March 2, 2015
5:00 pm, The Hilo Yacht Club
77 Laehala Street

Astronomy Educators Reception

www.gemini.edu/journey for additional information

We invite you to celebrate Journey Week!
Meet and greet National Science Team members plus the many
astronomers and educators who are delivering this fantastic
educational program to our K-12 schools.

Join the business community in thanking them for their commitment
to the Journey Through the Universe program.



'Imiloa's 9th Anniversary Celebration

Featuring
Journey through the Universe

FREE DAY

Family DAY

- Planetarium Experience
- KTA Super Stores Cookout

SUNDAY
MARCH 1, 2015
9AM-4PM

- Hands-on Activities

600 'Imiloa Place
Hilo, Hawaii
96720

Make Everyday
a Free Day!
\$10 off
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- Birthday Cake

Sponsored by
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- And much more...



Visit www.imiloahawaii.org or call 808.969.9703



‘IMILOA

Astronomy Center of Hawai‘i



Journey Through the Universe 2015

Family Science Day Speakers at ‘Imiloa

March 1, 2015

“A Day in the life of an Astronomer”

Scott Fisher, Ph.D., University of Oregon

10:00 am

In this informal talk, which is filled with great pictures and videos, Dr. Fisher will portray “A Day in the Life of an Astronomer” and share some of the most recent discoveries in the realm of astronomy, including discoveries made right here on Hawaii island! He will also talk about how he plans to connect Hilo-town and the Big Island to schools and universities in Oregon through a robotic telescope that can be controlled from anywhere. By building an “astro-bridge” between Hawaii and Oregon, Dr. Fisher hopes to give students in both states a way to study astronomy using both small and large telescopes. Finally, there will be a rousing game of “Stump the Astronomer!” where Dr. Fisher will field questions from the audience.

“Living in a Crowded Universe”

Brian Day, Solar System Exploration Research Virtual Institute (SSERVI)

11:00 am

Not long ago, we thought of space as being empty. We seriously wondered if ours was the only solar system. The thought that life might exist elsewhere in the universe was largely relegated to science fiction. Now, NASA’s Kepler mission and the observatories on Mauna Kea have shown us that the galaxy is full of solar systems. Within our own solar system, worlds that were once thought to be completely unsuitable for life are now looking far more hospitable. We now have direct evidence that the building blocks of life are being made all around us in space and are raining down on us all of the time. Even the Moon is showing a new face; it is no longer the completely arid, utterly airless, geologically dead world we once thought it to be. Another aspect of living in a crowded universe is the swarm of Near Earth Objects, asteroids and comets, that threaten the Earth. We will look at tools that allow students and the general public to explore the crowded universe and perhaps even save the Earth.

“Moon RIDERS - a joint project between PISCES and Hawaii High School for a mission to the surface of the Moon”

Rob Kelso, PISCES

12:00 pm

PISCES is leading a technology experiment in the “removal of dust” to be flown to the surface of the moon within the next 18 months. The experiment involves the NASA Kennedy Space Center and two Hawaii high schools. This briefing will cover the experiment, the science of lunar dust, and what the Hawaii high schools are doing in becoming the world’s first high schools to have an experiment on the surface of the moon.

“Colliding Galaxies: A Recipe for Growing Supermassive Black Holes”

Vivian U, TMT

1:00 pm

Supermassive black holes are ubiquitous in all massive galaxies, but how did they grow to the size they are today? In this talk, I will discuss merging galaxies as a way of growing these supermassive black holes, and how astronomers use the large 10-meter Keck Telescopes to probe the fuel that feeds these powerful, hungry monsters.

“Black Holes - Monsters in the Universe”

Guenther Hasinger, UH Institute for Astronomy

2:00 pm

Black holes first made their appearance to astronomers as the remnants of dead stars. But it is now becoming clear that they play crucial roles in the formation, evolution and interactions of many galaxies, including our own Milky Way and the very earliest galaxies in the Universe. After abandoning a promising career as a rock musician, Guenther obtained his PhD in X-ray astronomy at the Ludwig-Maximilian University in Munich. He subsequently held professorships at Potsdam and Munich as well as the directorship of the High-Energy Group at the Max-Planck Institute for Extraterrestrial Physics. He has been director of the Institute for Astronomy at the University of Hawaii since 2011.



NEAR EARTH ASTEROIDS: THREATS & STRATEGIES



"Almost 100 tons of meteorites hit Earth daily. Every day there are over 25 million objects in the sky. While most are small as sand grains, larger objects >1.5 km diameter can result in global disaster (!) What can we do?"

Joseph Minafra

Solar System Exploration Research
Virtual Institute
NASA Ames Research Center



FREE PUBLIC TALK
**University of Hawaii – Hilo Campus
Science & Technology Bldg. Rm108
Monday, MARCH 2, 2015
2:00 pm**

Part of the weeklong



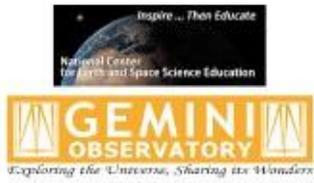
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SERVI
SOLAR SYSTEM EXPLORATION RESEARCH
VIRTUAL INSTITUTE
Formerly the NASA UH/USP Science Institute

PISCES
Pacific International
Space Center for
Exploration Systems



February 27-March 6, 2015
Hilo, Hawai'i



Brian Day



Joseph Minafra

"Rock Out with Moon Rocks and Meteorites"

This workshop will be conducted by Brian Day and Joseph Minafra of NASA's Solar System Exploration Research Virtual Institute.

February 28, 2015 – 'Imiloa Astronomy Education Center
8:00am – 12:00pm

NASA Lunar and Meteorite Sample Certification Workshop

Rocks from space help us understand how the solar system formed, how individual planets and moons formed and evolved, and even how life may have gotten started on Earth. The excitement of these concepts is brought to life when a teacher is able to bring actual samples of space rocks into the classroom. In this workshop, K-12 teachers will get the opportunity to examine firsthand samples of material from the Moon, Mars, and asteroids. They will get an introduction to the science of the study of astromaterials, learn how to bring this exciting topic into their classes, and become certified to borrow lunar and meteorite samples from NASA to bring into their classrooms. NASA makes actual lunar samples from the historic Apollo missions available to lend to teachers. NASA also lends samples of meteorites for students to examine. Teachers must attend a certification workshop such as this to bring the excitement of real NASA Moon rocks and meteorite samples to their students.

To register for this workshop contact Christine, ccopes@gemini.edu





Journey Through the Universe Astronomy Educator's Reception

The ongoing success of any initiative in our Hawaii community is largely due to the partnerships that are formed. Journey through the Universe (Journey) is no exception and without our local businesses supporting this nationally recognized program, the number of students reached, teacher's workshops held, family science events attended, would simply not have been achieved over the last ten years.

As we enter our second decade of Journey we are so proud of the relationships built with both the Hawaii Island Chamber of Commerce and the Japanese Chamber of Commerce. Our Journey team thanks the Hawaii Island Chamber profusely for supporting our students in science, technology, engineering, and mathematics education. The annual celebration sponsored by the Chambers at the Hilo Yacht Club during Journey week provides a unique opportunity for the business community, the Department of Education and the astronomy community to support each other in our ongoing efforts to inspire, educate and encourage our students to "reach for the stars".

We hope that the Chamber members will join us in support of the second decade of Journey through the Universe in Hawaii. In the first decade over 50,000 students were enlightened by a cadre of over 50 astronomers and engineers annually in hundreds of classrooms in the Department of Education's Hilo/Waiakea Complex area. We are looking to expand to other parts of the island and hopefully that vision will become a reality in this next decade.

Please come and join us and meet our astronomers and engineers and the Department of Education's leadership team. We want to thank you personally for your continued support of Journey through the Universe and for your dedication to our Hawaii Island students.

For more information on Journey through the Universe, please visit:

<http://www.gemini.edu/journey>

Janice Harvey, Gemini Observatory

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OSHIRASE

The Newsletter of the Japanese Chamber of Commerce & Industry of Hawai'i

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February 2015

Journey Through the Universe

By Janice Harvey, Gemini Observatory



WE WANT TO PERSONALLY THANK YOU...PLEASE JOIN US AT THE JOURNEY THROUGH THE UNIVERSE JAPANESE CHAMBER OF COMMERCE AND HAWAII ISLAND CHAMBER OF COMMERCE CELEBRATION AT THE HILO YACHT CLUB ON MARCH 2, 2015, 5:00 pm - 8:00 pm

The ongoing success of any initiative in our Hawaii community is largely due to the partnerships that are formed. Journey through the Universe (Journey) is no exception, and without our local businesses supporting this nationally recognized program, the number of students reached, teacher's workshops held, and family science events attended would simply not have been achieved over the last ten years.

As we enter our second decade of Journey, we are so proud of the relationships built with both the

Japanese Chamber of Commerce & Industry and the Hawaii Island Chamber of Commerce. Our Journey team thanks the Japanese Chamber of Commerce & Industry for supporting our students in science, technology, engineering, and mathematics education. The annual celebration sponsored by the Chambers during Journey week provides a unique opportunity for the business community, the Department of Education and the astronomy community to support each other in our ongoing efforts to inspire, educate and encourage our students to "reach for the stars".

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For more information on Journey through the Universe, please visit: <http://www.gemini.edu/journey>



MAUNAKEA ASTRONOMY NEWS

February 26, 2015
Issue No. 022015

Journey Through The Universe Celebrating Exploration and The Joys of Science and Astronomy

Slated February 27-March 6, 2015 on Hawaii Island

The 11th annual Journey through the Universe from February 27 through March 6 continues to promote sustained education in the critical areas of STEM (science, technology, engineering and mathematics) in the Hawaii Island community.

Journey through the Universe celebrated its tenth anniversary in 2014 where over the past decade it has engaged over 50,000 students while visiting over 3,000 classrooms during the annual "Journey" week.



Scientists, astronomers and engineers have brought excitement and inspiration into classrooms about the life-long career possibilities available in STEM fields. Developed by the National Center for Earth and Space Science Education, Journey to the Universe is a national science education initiative that engages entire communities - students, teachers, families, and the public.

Highlights of the 2015 Journey to the Universe include Family Science Day, Science Communication Workshops, NASA Teacher Workshop, and the week-long Astronomy Educators in the Classroom.



Maunakea Astronomy

Numerous national and international astronomy organizations have come together to study on the summit of Maunakea, creating one of the world's largest ground-based astronomical research and observing sites. The remote location, clean air, dark skies, stable atmosphere, minimal cloud cover, and transparency of the atmosphere to infrared radiation make the summit of Maunakea ideal for astronomy. The combination of optical, infrared, and sub-millimeter wavelength telescopes provide synergy and opportunities to study the sky from multiple perspectives.

The 525-acre Astronomy Precinct encompasses thirteen telescope facilities representing nine countries on Maunakea. Nine of them are for optical and infrared astronomy, three of them are for sub-millimeter wavelength astronomy and one is for radio astronomy. They include four of the largest optical/infrared telescopes in the world (the two Keck telescopes, Subaru, and Gemini), the second-largest dedicated infrared telescope (UKIRT) and the world's largest submillimeter telescope (JCMT).



The image of Maunakea was generously supplied by Andrew Richard Hara, Photographer. Hara spends his time recording his life's

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Podcasts

Ha'ilono

TMT Scientists Discuss Serious Science and Classroom Fun During Journey Through the Universe 2015

02.28.2015

TMT will participate again at this year's Journey Through The Universe's Family Science Day and Astronomy Educators in the Classroom.

For ten years, the [Journey Through the Universe](#) program has excited classrooms and students throughout Hilo and beyond with exciting science! Journey Through the Universe brings local students and teachers together with astronomers and engineers who share their passion and knowledge and inspire local students to aim high in their education and future careers.

On Sunday, March 1, TMT's Vivian U will host a family-centered discussion at the Journey Through The Universe Science Day starting at 1 pm at 'Imiloa Astronomy Center.

In her talk titled, "Colliding Galaxies: A Recipe for Growing Supermassive Black Holes," U will discuss merging galaxies as a way of growing these supermassive black holes. Learn how astronomers use the large 10-meter Keck Telescopes to probe the fuel that feeds these powerful, hungry monsters. Everyone is invited!

Other talks on Family Science Day include "A Day in the life of an Astronomer," by Scott Fisher, Ph.D, University of Oregon; "Living in a Crowded Universe," by Solar System Exploration Research Virtual Institute's Brian Day; "Moonriders, a joint mission between PISCES and Hawaii High School for a mission to the surface of the Moon," by Rob Kelso, PISCES; and "Black Holes -Monsters of the Universe," by UH Institute for Astronomy's Guenther Hasinger.

Astronomy Educators in the Classroom: Starting Monday, March 2, Breann Sitarski, a postdoc at UCLA who works under noted astronomer Andrea Ghez joins Vivian U, a TMT postdoc at UC Riverside with Gordon K. Squires, Astronomer from Caltech and working with the Thirty Meter Telescope in Journey Through the Universe's Astronomy in the Classroom, a week-long program bringing science right into the classroom. TMT's Sandra Dawson participates as a Journey Ambassador in the classrooms.

Breann Sitarski is a graduate student researcher in the Galactic Center Group at UCLA. She earned her Bachelor's degree in Astrophysics from UCLA, and continued there for graduate school, where she is currently working on her Ph.D. in Astronomy. Sitarski studies dusty objects near the supermassive black hole at the center of our Galaxy to get a better understanding of where they come from, what they are, and how they survive in such a hostile environment. She also studies the adaptive optics system on the Keck II telescope to try to correct for aberrations that the NIRC2 instrument itself is making on astronomical data.

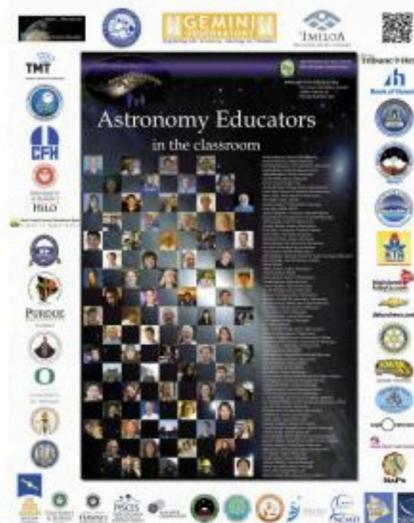
Gordon K. Squires is an astronomer at the California Institute of Technology, working with the Thirty Meter Telescope As well as NASA's Spitzer Space Telescope, the Herschel Space Observatory, the Galaxy Evolution Explorer and other space telescopes with Caltech involvement. His research explores the old, cold and distant universe, understanding how galaxies formed billions of years ago, and the nature of the dark matter and dark energy that fills space.

Vivian U is a TMT Postdoctoral Scholar at the University of California Riverside's Department of Physics and Astronomy. She has a Bachelor's degree in Astrophysics from Caltech, and then a Ph.D in Astronomy from the University of Hawaii's Institute for Astronomy. Her research focuses on how stars and gas behave in the nuclei of colliding galaxy pairs, and how galaxy interaction facilitates the growth of supermassive black holes and the formation of stars. She is also working on the optical design of and is developing a sensitivity calculator for IRMS, one of TMT's first-light instruments.

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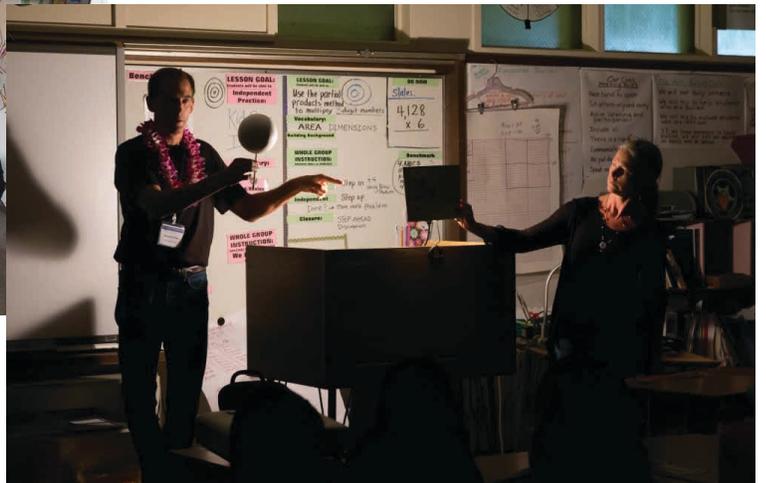


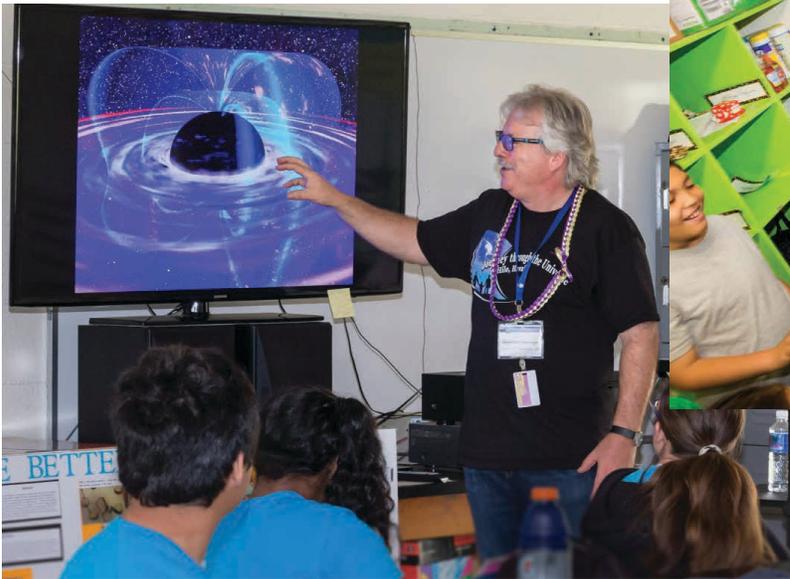
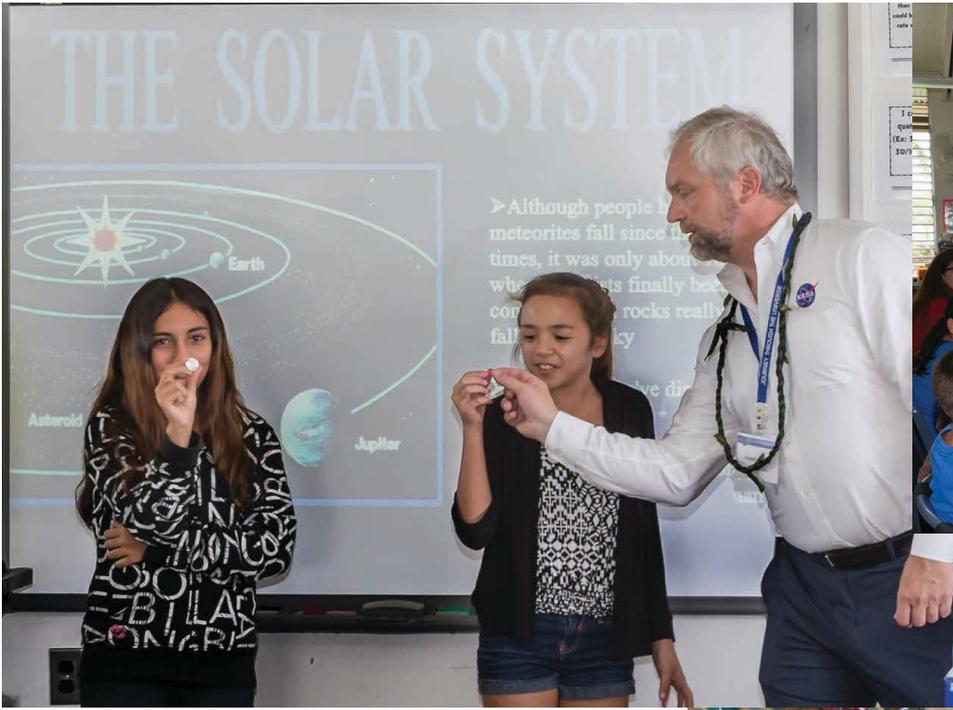
Hawai'i Island and Japanese Chambers of Commerce Event



Journey Through the Universe Classroom Visits









February 27-March 6, 2015
Hilo, Hawai'i

*It Takes a Community!
Thank You to Everyone Involved!*

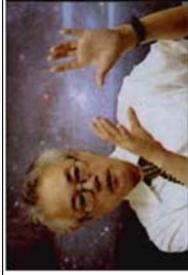
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Astronomy Educator Profiles



Nobuo Arimoto
Subaru Observatory
Contact: arimoto@nao1.org

Nobuo Arimoto's intense interest in astronomy began when a neighbor showed him how to use a telescope when he was 11 years old. He went on to become a student of astronomy at Tohoku University, where he received his Ph.D. in astronomy in 1980. He has held positions the Observatoire de Paris-Meudon in France (1984-1988), the University of Durham in the United Kingdom (1988-1991), the Universitaet der Heidelberg in Germany (1991-1993), the Institute of Astronomy at the University of Tokyo in Japan (1993-2001), and NAOJ in Japan (2001-2004) and as Chair of the Subaru's Time Allocation Committee (2000-2004) and as Director of the Subaru Telescope in April of this year (2012). A heavy user of Subaru's telescope (59 nights as a principal investigator in a little over a decade), Dr. Arimoto focuses his scientific research on understanding galaxy evolution and the properties of individual stars within galaxies.



Brad Bailey
SSERVI/NASA
Contact: brad.bailey@nasa.gov

Brad Bailey will always be an Astrobiologist... dedicated to discovering the origin and evolution of life, both here on Earth and beyond! Brad's road to Astrobiology began with his B.S. in Physics with minors in optics, chemistry and Japanese from the Rose-Hulman Institute of Technology. In 1998, Brad was accepted into the NASA Ames Astrobiology Academy where he worked on determining the composition of the interstellar medium. From there, he received his M.S. in Astrophysics from New Mexico Tech where he used the Very Large Array (VLA) (seen in the movie "Contact") to look at pulsars. After working for two years at NASA Ames as a hardware engineer for the International Space Station, Brad went back to graduate school at Scripps Institution of Oceanography in San Diego and completed his Ph.D. in marine microbiology and geochemistry. His Ph.D. work included diving into submarine volcanoes in Hawaii and Samoa via small submersibles to study how life can survive in extreme environments. Brad is now the NASA Solar System Exploration Institute Staff Scientist at NASA Ames Research Center and also directs the NASA Ames Academy, a summer student research and leadership development program. He actively speaks to the public on a wide variety of topics from astrobiology and planetary science to robotics and exploration.



Daniel Berke
Joint Astronomy Centre
Contact: d.berke@jach.hawaii.edu

Daniel Berke earned his Bachelor's degrees in Physics and Astronomy at UH Hilo in December 2011 after moving to Hawaii from California. He quickly fell in love with the climate and after graduating spent a year working at the Mauna Kea Visitor Information Station before finding a job at the Joint Astronomy Centre. There he keeps an eye on the output of the James Clark Maxwell Telescope, watching to make sure everything is running as it should be. Apart from his main loves of physics and astronomy he enjoys reading anything he can get his hands on, hiking, playing computer games, powerbocking, classical music, spelunking, and singing in choir. In the future Daniel plans to go on to graduate school to obtain a Ph.D. in theoretical physics.



Kelly Blumenthal
UH Institute for Astronomy
Contact: blumenthal.kelly@gmail.com

Kelly Blumenthal is a first year graduate student at the Institute for Astronomy at UH Manoa. She received her B.A. in astronomy and physics, with a minor in music performance from Boston University in 2014. While there, she worked primarily on weak gravitational lensing theory, and its implications on the derived local dark matter distribution. At the IFA, she hopes to study how theories of galaxy evolution are affected by chaotic events such as major mergers. If you manage to find her not ruining her eyesight in front of a computer, Kelly is likely either reading some overly dense sci-fi novel, or trying desperately to teach herself to play the ukulele.



Kathy Cooksey
UHH Physics & Astronomy
Contact: kcooksey@hawaii.edu

Kathy Cooksey, an assistant professor in astronomy, received her PhD in 2009 from UC Santa Cruz and was an NSF postdoctoral fellow at MIT until starting at UH Hilo in January 2014; both institutions enabled her to learn about science pedagogy and practice teaching. She researches the large-scale gaseous structure in the universe to understand how various elements cycle in and out of galaxies, over cosmic time. As for hobbies, she enjoys soccer, hiking, and camping (and crocheting and watching anime, on the sedentary side).



Andre-Nicholas Chene
Gemini Observatory
Contact: achene@gemini.edu

Andre-Nicholas Chene is an assistant scientist at the Gemini North Observatory since early 2013. He obtained his Ph.D. in astrophysics from the Université de Montréal in 2007. He then moved across his home country ("A Mari Usque Ad Mare") to become a research associate for the National Research Council Canada at the Herzberg Institute of Astrophysics from 2007 to 2010. From 2010 to 2013, he held a joint post-doctoral position between the Universidad de Concepcion and the Universidad de Valparaiso, in Chile, and joined the science team of the VISTA Variable in Via Lactea survey. His main scientific interests are massive stars and young stellar open clusters. His expertise covers optical and near infrared imaging and spectroscopy. Two things he enjoys a lot since he moved to Hawaii are long observing runs at Mauna Kea, and his daily bike ride to work up and down Puainako St.



Sandra Dawson
Thirty Meter Telescope Project
Contact: sdawson@tmt.org

Sandra Dawson is Manager, Hawai'i Community Relations, for the Thirty Meter Telescope Project. Dawson has a Bachelor of Arts degree in Political Science and a Master's Degree in International Studies from Claremont Graduate University. For 20 years as an employee of the California Institute of Technology (Caltech) she worked at Caltech's Jet Propulsion Laboratory on some of JPL's largest projects for NASA, including the Galileo, Cassini and Mars missions, and received numerous group and individual awards. With her husband, Dwayne, she moved to Hilo six years ago to work on the Thirty Meter Telescope project and has been engaged in many civic, non-profit, and educational programs.



Brian Day
SSERVI/NASA
Contact: brian.h.day@nasa.gov

Brian Day is the Lead for Citizen Science and Community Development at the Solar System Exploration Research Virtual Institute (SSERVI). In this role, he coordinates programs with numerous internal and external partnering organizations, focusing on providing opportunities for students and the public to directly participate in NASA science and exploration. He currently acts as SSERVI's project manager for NASA's Lunar Mapping and Modeling Portal (<http://lmm.nasa.gov>), a set of tools designed for mission planning, lunar science, and public outreach. From 2010-2014, Brian served as the Education/Public Outreach Lead for NASA's Lunar Atmosphere and Dust Environment Explorer (LADEE) mission to the Moon, which flew through and studied the Moon's tenuous atmosphere. From 2007-2010 he served as the E/PO Lead for NASA's LCROSS lunar impactor mission which discovered deposits of water ice at the Moon's South Pole. He has also participated in producing the Education/Public Outreach sections for numerous NASA mission proposals. Brian has played key roles in various NASA Mars Analog Field Studies, providing technical support in the field for webcasts and robotic rover tests in extreme environments here on Earth. In 2007, he flew on the Aurigid-MAC mission to record fragments of comet Kienass entering Earth's upper atmosphere. Brian is a frequently-requested speaker at local schools and community organizations. As a member of NASA's Speakers Bureau, he is sent by NASA to give talks on a wide range of NASA missions and research topics.



Daniel Devost
Canada-France-Hawaii Telescope
Contact: devost@cft.hawaii.edu

Daniel Devost is the Director of Science Operations at the Canada-France-Hawaii Telescope since 2008. He started at CFHT in 2007 as a Canadian Resident Astronomer and was the WIRCam Instrument Scientist. Before Moving to Hawaii, Daniel worked at Cornell University from 2000 to 2007 as an Instrument Scientist for the Infrared Spectrograph. The spectrograph is one of three instruments on board the Spitzer Space Telescope that was launched in August 2003. Daniel did his PhD at the Université Laval in Québec City, Canada in collaboration with the Space Telescope Science Institute in Baltimore where he spent three years. His science interests are the formation of massive stars and the amount of metals in the Universe.



Angelic Ebberts
Gemini Observatory
Contact: aebbers@gemini.edu

Angelic Ebberts is a Senior Software Engineer for Gemini Observatory. She is part of the Software Operations group as well as a Telescope Technical Manager. Angelic specializes in motion control systems, EPICS real-time development, and troubleshooting. Angelic earned a B.Sc. from York University in the Space and Communications Sciences stream, with Honors in Computer Science and Physics, plus a minor in Astronomy. Prior to joining Gemini, Angelic worked for The Herzberg Institute of Astrophysics as well as the University of Toronto Southern Observatory in Chile. Outside of work, Angelic can be found training/competing in Dog Agility, scuba diving, or reading a good science fiction book.



Anna Ferre-Mateu
Subaru Telescope
Contact:

Anna Ferre-Mateu was born in Barcelona, Spain. She always has one eye on the Earth, the other one looking up to the skies. Anna moved to the Canary Islands at the age of 22 to pursue a major in Astrophysics. The magic of the island, so similar to Hawaii, kept her in there for 8 amazing years filled with sun, sea, high mountains, big telescopes and the intrigues from the Universe. After receiving her PhD there in 2013, from the Instituto de Astrofísica de Canarias, Anna moved to another fascinating volcanic island, Big Island. Now she is working as a research specialist in the extragalactic field for Subaru Telescope. Her work is focused on shedding some light into the puzzle of the formation and evolution of the most massive elliptical galaxies in the Universe. Anna studies how the properties of their stars vary over cosmic time and how this evolution fits on the assumed theories. When she is not thinking about the Universe and its secrets, she likes to spend her time outdoors: surfing, skiing, diving, hiking, or simply relaxing at the beach reading a book. But her favorite hobby is to travel, and she travels as much as she can so maybe is not that easy to find her around.



Scott Fisher
University of Oregon
Contact: rscottfisher@gmail.com

Scott Fisher is a faculty member within the University of Oregon, Department of Physics, where he teaches astronomy courses and serves as the Director of Outreach for the department. Scott previously worked at the National Science Foundation in Washington, DC where he was responsible for selecting and funding astronomy programs across the United States. Before his time in Washington, Scott worked as a staff member of the Gemini Observatory as an instrument scientist and as a member of the Gemini Outreach team. Scott lived in Hilo-town for just over 10 years while he worked at Gemini. He obtained his Ph.D. from the University of Florida in 2001 after working his way through the Florida state school system, including a stint at Lake Sumter Community College. Scott's main area of research is searching for and studying planet-forming disks around young stars. He is also involved with the design, construction, and use of infrared camera systems that are used on some of the biggest telescopes in the world. He has spent approximately 350 nights observing from the summit of Mauna Kea since his first trip to Hawai'i in 1996. In addition to his love of astronomy, Scott is an amateur photographer and a Geocacher.



Roy Gal
UH Institute for Astronomy
Contact: rgal@ifa.hawaii.edu

Roy Gal received his B.A. in Astrophysics from Columbia University in 1994, and his Ph.D. in Astronomy from Caltech in 2001, detecting and studying galaxy clusters from the 2nd Palomar Sky Survey. He then worked on the Sloan Digital Sky Survey at Johns Hopkins University, followed by three years at U.C. Davis, studying galaxy evolution in clusters that formed when the Universe was half its present age. He has been a faculty member at UH Manoa's Institute for Astronomy (IFA) for eight years, continuing to study the evolution of galaxies. He oversees all of the IFA's outreach programs and media relations, teaches astronomy classes, and heads the UH National Gemini Office and the Friends of the Institute for Astronomy.



Olivier Guyon
Subaru Telescope
Contact: guyon@naoj.org

Olivier Guyon is an astronomer at the Subaru Telescope. He started looking at stars from the age of 10, and he is now both an avid amateur astronomer and a professional astronomer. Olivier graduated from University of Paris 6 in 2002 (Ph.D. research topic: wide field interferometry), and now works with other scientists to directly observe exoplanets. Olivier has been developing new techniques for imaging exoplanets (planets around other stars) from telescopes on Earth and also future telescopes in space. With these new techniques, astronomers will soon be able to observe planets like ours and start to find out if there is life elsewhere in the Universe. In 2007, Olivier received a Presidential Early Career for Scientists and Engineers award from President Bush at the White House. Olivier received in 2012 the MacArthur fellowship (nicknamed the "Genius grant") for his innovative work in astronomical optics. In his spare time, he builds telescopes which he then uses to observe from the clear skies of Mauna Kea and Mauna Loa.



John Hamilton
UH Hilo Physics & Astronomy
Contact: ich@hawaii.edu

John Hamilton is currently serving as Deputy Director of the Pacific International Space Center for Exploration Systems (PISCES) based at the University of Hawai'i at Hilo. An astronomer by trade, he has been associated with space exploration since 1972 with the Skylab missions, spent most of his career supporting astronomical observations at multiple observatories in Hawai'i on Haleakala and Mauna Kea and also in Chile. He has most recently managed the first two International ISRU analog field tests in Hawai'i in 2008 and 2010 and is currently working on the 2012 deployment. John currently teaches undergraduates in Physics and Astronomy courses at UH Hilo. He also serves as co-founder and chief scientist for a local high-tech R&D company Akeakamai Enterprises LLC.



Janice Harvey
Gemini Observatory
Contact: jharvey@gemini.edu

Janice Harvey is the Community Outreach and Education Programs Leader at Gemini Observatory and serves as the director of the nationally recognized Journey through the Universe Program on the Big Island. Janice is also the National Team Site Leader for the Family Astro/Project Astro program in Hawaii and serves as the StartLab Portable Planetarium instructor and trainer. In 2010 she was awarded the *Outstanding Individual in Business* award by the Rotary Club of Hilo. She is a member of the Astronomical Society of the Pacific, the International Planetarium Society, and the National Science Teachers Association. Janice has a BS in mathematics and went back for her associate degree in astronomy in 2000 at UHH. She has lived on the Big Island for 40 years and has worked as the Mayor's Executive Assistant, owned and operated Sylvan Learning Centers and three travel agencies in Hawaii. Janice's passion is bringing science and astronomy into the local classrooms.



Guenther Hasinger
UH Institute for Astronomy
Contact: ghasinger54@gmail.com

Günther Hasinger is a world leader in the field of X-ray astronomy and in the study of black holes, having received numerous awards for his achievements. Before becoming Director of the IFA in 2011, he was Director of the Max-Planck-Institutes for extraterrestrial Physics and for Plasma Physics, where he also was responsible for space technology and X-ray detector development. Prof. Hasinger gained his doctorate at the University of Munich and holds an honorary professorship at the Technical University Munich. He began his research career in astrophysics, receiving numerous awards for his contributions in this area, including the Leibniz prize in 2005, for his work on cosmic background x-radiation and black holes, and the Cospar award in 2010 for outstanding contributions to space science. He has also been active in explaining cosmology to a wider audience, winning a Science Book of the Year Award in 2008 for his book "Fate of the Universe". He used to be a rock musician.



Saeko Hayashi
Subaru Telescope
Contact: saeko@nao.jorg

Saeko S. Hayashi grew up in Tohoku, a northeastern rural part of Japan, where she spent part of her childhood in Fukushima. After graduating from a local high school, she boldly went on to attend the University of Tokyo as one of the few women undergraduates in STEM majors; she continued there and became the first woman to pursue Ph.D. in astronomy. She conducted her graduate research at the 45-m radio telescope in Nobeyama, Japan. After receiving her doctorate, she worked at the 15-m James Clerk Maxwell Telescope in Hawaii and then joined the 7.5-m Japan National Large Telescope (JNLT) project, which began at the National Astronomical Observatory of Japan in 1990, and later became known as the Subaru Telescope with 8.2-m diameter. She has performed a variety of roles at Subaru from taking care of telescope optics, managing day crews to currently managing the Public Information and Outreach Office. She hopes to participate in the publication of research that will lead to major discoveries of Earth-like exoplanets, possibly with water and vegetation. She says, "Subaru Telescope, where people from all over the world come together and work with each other [as ancient Japanese word "Subaru" stands for], is a great place to work. The technical and other challenges at work and the laid back life in this beautiful island is an ideal combination for me".



Stephanie W. Henry
NASA Marshall Space Flight Center
Contact: stephanie.i.wilson@nasa.gov

Stephanie W. Henry serves as a Communications Strategist with Arctic Slope Regional Corporation, Inc. in Huntsville, AL. Stephanie's duties include external communications for the Lunar Quest and Discovery/New Frontiers Program Office at NASA's Marshall Space Flight Center. Stephanie assists in developing communication products and materials for the programs. She visits schools, museums, and community organizations to excite students and teachers about NASA's mission and encourages the students to study science, technology, engineering, and math. Stephanie is a graduate of the University of North Alabama where she received a Bachelor of Arts degree in Spanish/Political Science and a Master of Arts in Community Counseling. Stephanie also attended Belmont University in Nashville, TN where she earned her teacher certification for kindergarten through eighth grade. Before joining ASRC, Stephanie's experience includes work in a variety of educational arenas. Stephanie spent seven years working in Student Affairs at different universities and seven years teaching in the classroom, formal and informal instruction. Stephanie is a native of Tupelo, MS and has lived in the Huntsville, AL area for the past nine years. She is married and has a 15-year-old stepson. Stephanie enjoys traveling, shopping, tennis, and spending time with her family in her spare time.



Michael Hoenig
Gemini Observatory
Contact: mhoenig@gemini.edu

Michael Hoenig is currently working as a Data Analysis Specialist at Gemini Observatory. He did his undergraduate degree in Astrophysics at the University of Sussex (England) in the mid-1990s, and then went on to do a Ph.D. at the University of Cambridge, which he completed in 2004. His thesis centered around the construction of a wide field infrared camera called CJRSI, which meant he ended up going on a number of observing trips to Mauna Kea and the Canary Islands. Once all the data from the instrument was properly reduced and calibrated, it was used to search for distant clusters of galaxies - and he is happy to report he actually found some, too. After his Ph.D. he worked in translation and publishing for a few years. He is thrilled to be back in astronomy and back in Hawaii. When he's not examining data from the telescope, he likes to go to the beach, read a good book or dance Argentine tango.



Matthew Hosek
UH Institute for Astronomy
Contact: mwhosek@gmail.com

Matt Hosek is a second year graduate student at the University of Hawaii Institute for Astronomy, having received a B.A. in Astrophysics from Williams College in 2012. He is interested in how stars interact with and affect their galactic environment, and is currently studying star formation near the supermassive black hole at the center of our galaxy. Interested in astronomy from a young age, he is excited for the opportunity to share his enthusiasm through education and outreach. Outside of astronomy, he is a huge football fan (GO GIANTS!) and enjoys hiking and playing ultimate frisbee.



Stewart Hunter
Mauna Kea Support Services
Contact: shunter@ifa.hawaii.edu

Stewart Hunter has been the General Manager at Mauna Kea Observatories Services (MKSS) since 2010. MKSS operates and maintains the mid-level astronomy facilities at Hale Pohaku on Mauna Kea. This includes the astronomy dormitories, the dining facility and the Visitor Information Station as well as maintaining the summit roads. Prior to working at MKSS, Stewart spent 24 years in the Navy, serving on submarines as an electronics technician, then after receiving a commission, a logistics officer until retiring in 2004 as a Lieutenant Commander. He received a BS in Earth Science from Oregon State University in 1991 and a MS in Systems Management from the Naval Post Graduate School in 1999. Stewart and his wife Lory have been Hilo residents since 2000, where they also own and operate a local Bed and Breakfast.



Russell Kackley
Subaru Telescope
Contact: rkackley@naoj.org

Russell Kackley holds a Bachelor of Science in Mechanical Engineering from Wayne State University and a Master of Science in Mechanical Engineering from Stanford University. He worked for 16 years on spacecraft design and analysis at Lockheed-Martin before moving to Hawaii. Here in Hilo, he worked for 11 years at the Joint Astronomy Centre and was responsible for the Telescope Control System software. Since April 2011, he has been working at the Subaru Telescope in the Observation Control Software group. He also mentors the Waiakaa Intermediate and Honoka'a High School robotics teams.



Yuko Kakazu
Subaru Telescope
Contact: kakazu@naoj.org

Yuko Kakazu recently joined the Subaru Telescope as an outreach specialist. A native Okinawan, she began her journey into astronomy when she attended NASA's U.S. Space Camp program at age 13. She graduated from Tohoku University in Japan and then obtained her Ph.D. at the Institute for Astronomy, University of Hawai'i at Manoa in 2008. Since then, she has worked as a postdoctoral researcher in Paris, France (Institut d'Astrophysique de Paris), California (California Institute of Technology), and Chicago (University of Chicago). Her research focuses on metal poor galaxies and distant galaxies with the aim of improving our understanding of galaxy formation and chemical enrichment history. At Subaru, Yuko arranges and conducts public outreach events and lectures for the local and the international communities, including Japanese audiences. She is hoping to help fill the gap between scientists and the public and wants to encourage young people, especially women and minorities, to engage in science and technology. When Yuko is not talking about astronomy or playing with her baby galaxies, she enjoys cooking (as well as eating), listening to piano jazz and classical music, and taking yoga or Zumba class at the gym. She is a certified Zumba fitness instructor.



Rob Kelso
Pacific International Space Center
for Exploration Systems (PISCES)
Contact: rkelso54@gmail.com

Rob Kelso has worked for NASA for 38 years at the Johnson Space Center in Houston, Texas. During the late 1980's and 90's, Rob served as a Shuttle Flight Director in NASA's famed Mission Control Center (MCC) while directing 25 Space Shuttle missions. His role as Flight Director is the same as Gene Kranz (*Failure is Not an Option*) in the movie "Apollo 13" starring Tom Hanks. During the missions, Rob often used the NASA and Air Force tracking/communications ground stations in Hawaii to monitor the Shuttle and communicate with the astronauts. He is currently the Executive Director of PISCES (Pacific International Space Center for Exploration Systems) in Hilo. PISCES is responsible for conducting robotic operations on the Big Island for testing planetary surface technologies before launch. He has a bachelor's degree in physics and an MBA in public management.



Markus Kissler-Patig
Gemini Observatory
Contact: mkissler@gemini.edu

Markus Kissler-Patig grew up in Switzerland and France before moving to Germany for his university studies. He obtained his PhD in astrophysics in 1997 from the University of Bonn and held post-doctoral positions at the University of California Santa Cruz and the European Southern Observatory (ESO) in Germany. He joined the latter as faculty in 2000 as instrument scientist for a series of instruments for ESO's Very Large Telescope. In 2008, he took up the position of project scientist for the 40m European Extremely Large Telescope. In August 2012, Markus Kissler-Patig joined the Gemini Observatory as director. He remains an adjunct professor at the Ludwig-Maximilians University in Munich where he has been teaching astrophysics and a strobology since 2005.



Bernhard Laurich
Hawai'i Community College
Contact: laurich@hawaii.edu

Bernhard Laurich received his Ph.D. in Physics at the University of Stuttgart, Germany, where he studied the electronic properties of silicon. In 1986 he moved to the U.S. and spent 10 years at the Los Alamos National Laboratory doing research on layered inorganic and organic semiconductors and their structural, electric and electro-optic properties. In 1996 he followed his passion to create and foster interest in science, and since that time he has been teaching Physics, Chemistry and Astronomy at Hawai'i Community College. His most recent interests are astrobiology and sustainable energy systems.



Mary Beth Laychak
Canada-France-Hawaii Telescope
Contact: name@cft.hawaii.edu

Mary Beth Laychak is the outreach program manager at the Canada-France-Hawaii Telescope, her second time working at CFHT. Previously, Mary Beth was one of CFHT's service observers and outreach coordinator before moving to Oahu. On Oahu, she worked as the manager at the Imaginarium planetarium and astronomy lecturer at Windward Community College. Mary Beth has a BA in astronomy and astrophysics from Penn State University as well as a MA in Education from San Diego State.



Nadine Manset
Canada-France-Hawaii Telescope
Contact: manset@cft.hawaii.edu

Nadine Manset has been a resident astronomer at CFHT since 1999, right after finishing her PhD thesis at Université de Montréal. Over the years, she has helped astronomers observe in classical mode at CFHT, with spectrographs and imagers. Now in charge of the Queued Service Observing mode, she prepares observations for CFHT's spectropolarimeter and oversees the nightly observations taken with the various instruments. In addition to chairing the Mauna Kea Astronomy Outreach Committee, Nadine participates to public outreach events a few times every year.



R. Pierre Martin
UHH Physics & Astronomy
Contact: rpm33@hawaii.edu

Dr. R. Pierre Martin is an Assistant Professor of Physics and Astronomy and the Director of the UH Hilo Hoku Ke'a Observatory on Mauna Kea. He earned his MS and PhD in astrophysics at Université Laval in Quebec, Canada. He has held post-doctoral fellowship positions at Steward Observatory in Arizona, and with the European Southern Observatory New Technology Telescope in Chile. Between 1997 and 2008, Dr. Martin was a resident astronomer at the Canada-France-Hawaii Telescope on Mauna Kea, and its Director of Science Operations for six years. Prior to joining UH Hilo, he was the Executive Director of the WIYN 3.5m telescope on Kitt Peak (Arizona) and also a consultant for the Giant Magellan Telescope project. Dr. Martin fields of research include the chemical evolution of galaxies, massive star formation, galaxy morphology, planetary nebulae, astronomical instrumentation and the optimization of the observational process for instrumental observations.



Tony Matulonis
NASA IRTF
Contact: matuloni@ifa.hawaii.edu

Tony Matulonis works at NASA Infrared Telescope Facility (IRTF). He earned his Bachelor of Science in Astronomy from the University of Hawai'i at Hilo in 2002. After working as an Interpretive Guide at the Ellison Onizuka Center for International Astronomy Visitor Information Station, Telescope Operator at the UH 2.2-meter telescope, Science Operations Specialist at Gemini Observatory, he joined IRTF in 2013.



Callie Matulonis
James Clerk Maxwell Telescope
Contact: mcnew@hawaii.edu

Callie Matulonis is currently a Telescope System Specialist at the James Clerk Maxwell Telescope. Callie graduated from the University of Hawai'i at Manoa in the Spring of 2012 with a Master's degree in Educational Technology. Callie has worked for several Mauna Kea observatories over the past ten years fulfilling a variety of positions including public outreach, laser operations, and telescope operations.



Peter Michaud
Gemini Observatory
Contact: pmichaud@gemini.edu

Peter D. Michaud, Gemini's Public Information and Outreach Manager, has pursued a career that has provided a broad set of experiences in education, media relations and photography. These have ranged from the initiation and management of many informal science education programs to the authoring of a monthly newspaper column on astronomy. Prior to moving to Honolulu in 1989 to manage the Bishop Museum Planetarium, Peter obtained his Bachelor's Degree in Atmospheric Physics and certification in Physical Science Education in 1985. This led to his selection for the highly competitive annual planetarium education internship at the Strassenburg Planetarium in Rochester N.Y. in 1985 - 86. During almost a decade at the Bishop Museum Planetarium, Peter worked closely with local educators as well as the Mauna Kea astronomical community and initiated many new projects that included a NASA-funded project to produce a nationally distributed planetarium program about Mauna Kea. In June 1998, Peter accepted his current position at the Gemini Observatory in Hilo. Since arriving here, Peter has been involved in a variety of projects that have included the management of multiple outreach, education and media relations initiatives. An example of the innovative products produced by his office is the Gemini Observatory Virtual Tour CD-ROM/Kiosk which is currently being translated into multiple languages and has been installed in a variety of public facilities around the world.



Joseph Minafra
NASA Ames Research Center
Contact: joseph.minafra@nasa.gov

At the NASA Ames Research Center, **Joseph Minafra** serves as Lead of Technical Systems and Collaborative Technology Specialist for the NASA Solar System Exploration Research Virtual Institute (SSERV). Joe has an extremely diverse background that ranges from Meteoritic studies, biology and project management, software development including web design, collaborative technology development to Scientific Illustration and a few years as a professional Chef. With his varied background, Joe has been responsible for a broad set of technical tasks for the NASA Ames Center Director as well as the Space and BioSciences Divisions. Currently, his work is to oversee technology innovation in order to enable collaboration and communication between competitively selected science and research teams across not only the United States but internationally as well. Joe has a long history of integrating government work with commercial enterprises and bringing that message to the public through the education and public outreach sectors. He is excited to share his NASA experiences with the Journey through the Universe communities! Ad Astra!



Brian Mitchell
NASA Lunar Science Institute
Contact: brian.k.mitchell-1@nasa.gov

Brian Mitchell is the Education and Public Outreach manager for NASA's Discovery/New Frontiers/Lunar Quest Program Office. He has more than 25 years at the Marshall Space Flight Center located in Huntsville, Alabama and has worked on various Space Shuttle payload missions including ASTRO, ATLAS, and Spacelab, as well as several experiments for the International Space Station. He has been the Program Office Education and Outreach lead during the LRO, LCROSS, LADEE, JUNO, GRAIL, and IML missions to our Moon, Jupiter and Mars. Future missions in his Office include the asteroid sample return mission OSIRIS-REx, INSIGHT seismic mission to Mars, and the New Horizon spacecraft nearing Pluto now. Brian is tasked with educating the general public and inspiring/engaging students and educators on Discovery/New Frontiers/Lunar Quest Office missions, Agency science and exploration objectives, by using existing or creating new opportunities. He spends much of his time speaking in classrooms and public venues, as well as designing innovative interactive exhibits that travel the country. When not talking about space, Brian keeps his 1965 Ford tractor alive, competes in shooting events, and occasionally gets to swing a golf club with his two teenagers.



Harriet Parsons
Joint Astronomy Centre
Contact: h.parsons@jach.hawaii.edu

Harriet Parsons moved to Hilo in 2011 and is a Staff Astronomer for the James Clark Maxwell Telescope. This is her first job after completing her Ph.D. at the University of Hertfordshire in the United Kingdom. Her day-to-day job varies widely from assisting visiting astronomers both in terms of health and safety and in terms of quality of images, to working on data from the newest instrument on the JCMT: SCUBA-2. When she has time, her research focuses on cold dense clouds (made of gas and dust) within our own Milky Way galaxy looking at where massive stars may be forming. These stars are more than eight times the mass of our sun and end violently in supernovae; however the way they form is shrouded in mystery (well, OK, dust!). Using the JCMT astronomers can "see" through the dust helping to unlock the secrets of these clouds. Away from astronomy she enjoys paddling with Puna Canoe Club, learning Hula, snorkeling, and traveling. She also loves going to the diverse events available in Hilo, from Shakespeare in the Park to watching Paradise Roller Girls!



Emily Peavy
UHH Physics & Astronomy
Contact: peavye@hawaii.edu

Emily Peavy is a planetarium student worker majoring in astronomy at the University of Hawaii at Hilo and is currently in her third year of the program. She has been working at 'Imiloa as Planetarium Operator since January of 2012. Emily also enjoys volunteering at the Mauna Kea Visitor Information Center, and has completed an internship through the Akamai Workforce Initiative working at the Institute for Astronomy. She can easily see herself going into the outreach and education side of astronomy, but is also intrigued by much of the research that is occurring in the field.



Andrea Petric
Gemini Observatory
Contact: apetric@gemini.edu

Andrea Petric is a Science Fellow at the Gemini North Observatory since November 2013. She has received her PhD from Columbia University with a thesis on X-ray scattering halos and was a postdoctoral fellow at Caltech working on IR and millimeter observations of interacting galaxies and galaxies hosting Active Galactic Nuclei (AGN). Her current research focuses on near-IR observations with Gemini of the impact of AGN on the interstellar medium of their host galaxies.



Christopher Phillips
Freelance Astronomy Educator
Contact: achernan.uk@gmail.com

Christopher Phillips works internationally as an independent consultant and researcher on projects as diverse as museum programming, exhibit design, science communication training, international development and education. Most recently Christopher has served as scientific consultant for the construction of new radio telescope at Kazan University in the Russian Federation and science park facilities at Goomhilly satellite base station in the United Kingdom. Christopher is also a regular contributor to Guru Magazine, a brand new online popular science publication. He is also an active member of Astronomers without Borders and he founded the 'Reach for the Stars - Afghanistan' program – an effort to bring science education to children of conflict zones and the developing world.



Bo Reipurth
UH Institute for Astronomy
Contact: reipurth@ifa.hawaii.edu

Bo Reipurth graduated from the University of Copenhagen in Denmark. After spending some years as a postdoc there, he took up a position as staff astronomer with the European Southern Observatory in Chile for 11 years. Subsequently, he worked at CASA in Colorado as a Research Professor, and later joined the Institute for Astronomy at the University of Hawaii in Manoa in order to pursue studies of star and planet formation. "One of my first astronomical experiences as a small kid was to see the craters of the Moon and the rings of Saturn through the telescope at the public observatory on top of the Round Tower in Copenhagen. After that I was never in doubt that I had to become an astronomer. Conditions in Copenhagen were already in those days not ideal for looking at the night sky, but instead I spent innumerable hours with my small telescope drawing sunspots as they crossed the Sun. I took out a subscription to Sky and Telescope, which I then painstakingly read through with the help of a dictionary. One day I read an article about small mysterious blobs called Herbig-Haro objects which might be signposts of stars in the making. I was completely captivated by the possibility that we might actually be able to see stars in the process of being born, and I have spent most of my professional career trying to learn about how stars are formed."



Rodrigo Romo
Pacific International Space Center
for Exploration Systems (PISCES)
Contact: rfvromo@gmail.com

Rodrigo Romo is the Project Manager for the Pacific International Space Center for Exploration Systems (PISCES), and is primarily in charge of the Robotic Village – an initiative to test in-situ resource utilization (ISRU) and robotics at planetary analogue testing sites. He is currently leading and supervising the development of PISCES' Alpha Argo planetary exploration rover, as well research and integration of future components for the Robotic Village. Romo began his career near Tucson, Arizona at Biosphere II - the largest fully enclosed facility dedicated to researching climate change, ecosystem interactions, and space colonization during its time. From 1992 through 1997, he held several key positions overseeing instrumentation and air monitoring systems, as well as working in research and engineering departments. Romo held his last position at Biosphere as the Plant Manager for a 6 megawatt cogeneration power plant on site. From 1997 through 2014, Romo served as the Vice President of Engineering for the Zeta Corporation, researching and developing new applications for the company's technologies. He is originally from Guadalajara, Mexico and earned his undergraduate degree in Chemical Engineering from ITESO University in 1992. He later obtained his Master's degree in Business Administration from the University of Arizona.



Kathy Roth
Gemini Observatory
Contact: kroth@gemini.edu

Kathy Roth is an Associate Scientist based at Gemini North. She is the instrument scientist for the Gemini Multi-Object Spectrograph (GMOS-N) and has been with Gemini since July 2000. She obtained her B.Sc. in Physics and Computer Science at Duke University in 1985 and her Ph.D. in Astrophysics from Northwestern University in 1992. She held a postdoctoral position at the Space Telescope Science Institute (STScI) in Baltimore from 1992 until 1995, followed by a Hubble Fellowship at the University of Hawai'i Institute for Astronomy from 1995 until 1998. In 1998 she joined the staff of the Far Ultraviolet Spectroscopic Explorer (FUSE) at Johns Hopkins University in Baltimore. Her research interests include the chemical enrichment of the interstellar medium in our galaxy and in the high-redshift universe via quasar absorption line spectroscopy, the study of distant young galaxies, and the use of gamma ray bursts to probe chemical enrichment of the early universe by the first stars.



Dennis Schatz
Pacific Science Center
Contact: Dennis_Schatz@patsci.org

Dennis Schatz is Senior Advisor at Pacific Science Center in Seattle, Washington. A research solar astronomer prior to his career in science education, he worked at the Lawrence Hall of Science at the University of California, Berkeley, prior to moving to Seattle in 1977. At Pacific Science Center he has held a broad range of positions from Director of the Planetarium in his early years to VP for Exhibits and VP for Education to Senior VP in more recent years. In the last 4 ½ years, he was a Visiting Scholar at the University of Queensland, Brisbane, Australia, followed by four years as a Program Director at the National Science Foundation (NSF). He has provided leadership to several of Pacific Science Center's major initiatives, including Washington State LASER and Portal to the Public. He is active in the Association of Science-Technology Centers (ASTC), being a past member of its Program Committee, Professional Development Committee and past chair of its Education Committee, and its Leading Edge Awards Selection Committee. He is also active in the National Science Teachers Association, having been Program or General Chair for three of NSTA's Conventions. He has dedicated many years to identifying effective ways to teach astronomy concepts, especially through his involvement with the Astronomical Society of the Pacific (ASP), the largest international society dedicated to astronomy education in and out of school. He is a past board member and a past president of the ASP. He has received numerous honors, including the 1996 Distinguished Informal Science Educator Award from the National Science Teachers Association (NSTA). He received NSTA's 2005 lifetime achievement award (Distinguished Service to Science Education). In 2006 ASTC made him an ASTC Fellow for his lifetime achievement in service to the field and furthering the public's understanding of science. He is only one of 24 ASTC Fellows awarded in the history of ASTC and the first non-CEO or public official to receive the award. In March, 2009 he received the Faraday Science Communicator Award, presented annually by the National Science Teachers Association (NSTA). This award recognizes and honors an individual or organization that has inspired the public's interest in and appreciation of science. He joins an elite group of highly prestigious honorees, including the PBS series NOVA and NPR Science Correspondent Ira Flatow. Most recently, he received the 2014 Klumpke-Roberts Award from the Astronomical Society of the Pacific for outstanding contributions to the public understanding and appreciation of astronomy. Past awardees include stellar astronomy communicators, such as Carl Sagan, Isaac Asimov, Timothy Ferris and Dava Sobel. He is the author of 23 science books for children, including Uncover A T.rex, the Fossil Detective series of four books and the popular Totally series of six books (Totally Dinosaurs in 2000 to Totally Sea Creatures in 2003). His most recent book is The Amazing Squishy T.rex. His books have sold almost 2 million copies worldwide and have been translated into 23 languages. His Uncover A T.rex book was a 2003 Parents Choice Award Winner, and his Fossil

Detective Woolly Mammoth received a 2006 iParenting Media award. He is also co-author/editor of several curriculum resources for teachers, including Astro-Adventures, Universe At Your Fingertips and More Universe At Your Fingertips.



Sharon Schleigh
East Carolina University
Contact: schleighs@yahoo.com

Sharon Price Schleigh has been an educator for over 20 years, teaching all ages from pre-school to university. She received her doctoral degree from Arizona State University. Her research interests include understanding how people think about and engage in science. This has led to research projects that have examined argumentation in a science classroom; authentic research in astronomy and problem-based curriculum designs; how students, teachers and scientists think about the nature of science; and how curriculum impacts content knowledge and attitudes about science. She has been involved in projects such as the NASA Deep Impact Mission (Institute for Astronomy, Hawaii); Toward Other Planetary Systems (IFA/NSF); Ali'i Astrobiology Summer Workshops; and Teacher Leaders in Research-Based Science Education (NOAO, Kitt Peak). She has been on the education board for the Las Cumbres Observatories of Global Telescopes network (LCOGT), the Faulkes Telescopes, and GoScience. She is the current director of the Research Engaged Science Teacher Education Program to improve STEM (RESTEP to STEM), funded by NASA and the NC Space Grant to promote astronomy/science education with pre-service teachers. She has served as a Regional Science & Engineering Fair Director, a Regional Science Olympiad Director, a trainer and presenter of the ECU Portable Planetarium program, an AAPT State Representative (HI), as the Mentor Coordinator for the Near East School Alliance Virtual Science Fair.

Doug Simons received his B.S. in astronomy at the California Institute of Technology in 1985, and a Ph.D. in astronomy at the University of Hawaii in 1990, before working as a staff astronomer at the Canada-France-Hawaii Telescope (CFHT) for 4 years. Doug joined Gemini's May of 1994 as the Systems Scientist, then managed Gemini's instrument development program for 5 years before becoming Gemini's Director from 2006-2011. Doug returned to CFHT in 2012 where he now serves as Executive Director. Principal areas of interest include infrared instrumentation and studies of the Galactic center, low mass stars, and star formation regions.



Doug Simons
Canada-France-Hawaii Telescope
Contact: simons@cfht.hawaii.edu



Evan Sinukoff
UH Institute for Astronomy -
Manoa
Contact: sinukoff@ifa.hawaii.edu

Evan Sinukoff is a second year graduate student at the University of Hawaii Institute for Astronomy. Born and raised in Toronto, Canada, he completed his undergraduate degree at McMaster University, majoring in Physics. As part of this degree, he spent time working as a research assistant at NASA's Goddard Space Flight Center in Maryland. There, he had the opportunity to meet astronauts, and was exposed to the amazing world of space exploration. He became particularly interested in those which might be host to alien life. Presently, as a graduate research assistant, he is using some of the world's most powerful telescopes to search for Earth-sized exoplanets and the black hole remnants of exploded stars. His research team recently measured the mass and composition to be mostly rocky like Earth. Aside from astronomy, Evan loves to hike, surf and play a variety of different sports, and, as most Canadians, this includes ice hockey.



Breann Sitarski
UCLA/TMT
Contact: bsitarski@astro.ucla.edu

Breann Sitarski is a graduate student researcher in the Galactic Center Group at UCLA. She got her Bachelor's degree in Astrophysics from UCLA, and continued there for graduate school, where she is currently working on her Ph.D. in Astronomy. Breann studies dusty objects near the supermassive black hole at the center of our Galaxy to try to understand where they come from, what they are, and how they survive in such a hostile environment. She also studies the adaptive optics system on the Keck II telescope to try to correct for aberrations that the NIRC2 instrument itself is making on astronomical data. She is also one of the lead outreach coordinators of Astronomy Live! - UCLA's award-winning astronomy outreach group. Breann also likes studying history, traveling, playing various sports, and reading!



Gordon Squires
Thirty Meter Telescope Project
Contact: squires@tmt.org

Gordon K. Squires is an astronomer at the California Institute of Technology, working with the Thirty Meter Telescopes as well as NASA's Spitzer Space Telescope, the Herschel Space Observatory, the Galaxy Evolution Explorer and other space telescopes with Caltech involvement. His research explores the old, cold and distant universe, understanding how galaxies formed billions of years ago, and the nature of the dark matter and dark energy that fills space.



Chad Trujillo
Gemini Observatory
Contact: trujillo@gemini.edu

Chad Trujillo is an Astronomer at Gemini Observatory in Hilo. He obtained a BS in Physics from MIT in 1995 and a PhD in Astronomy from the University of Hawaii in 2000. After work as a Postdoctoral Scholar at Caltech he joined Gemini in 2003. At Gemini, he has been involved in the science operation of the Adaptive Optics system (Altair) guiding with both natural stars and laser beacons. His research interests include the Kuiper Belt, the solar system, star and planet formation and extrasolar planets. His recent work includes co-discovery and surface measurements of several of the largest Kuiper Belt Objects including the so-called "10th Planet", and co-discovery of the first high inclination Neptune Trojan asteroid.



Vivian U
Thirty Meter Telescope Project
Contact: vivianu@ucr.edu

Vivian received her Bachelor of Science degree in astrophysics in 2006 from the California Institute of Technology, and then a Ph.D. in astronomy from the University of Hawaii at Manoa in 2012. She was a visiting predoctoral fellow at the Harvard-Smithsonian Center for Astrophysics, and a recipient of the NASA-Harriett G. Jenkins Predoctoral Fellowship. Vivian is currently the Thirty Meter Telescope (TMT) Postdoctoral Scholar at UC Riverside working on the InfraRed Multi-object Spectrometer, one of the three first-light instruments that will be on the TMT.



Josh Williams
Subaru Observatory
Contact: jwilliams@naoj.org

Josh Williams is an Operator for Subaru Observatory where he's been since March of 2011. He got his Bachelor's of Science degree in 2007 from the University of Hawaii – Hilo where he majored in Astronomy, and minored in Physics and Mathematics. Since graduating he has spent a significant amount of his time above an altitude of 9,000 ft. in various facets – as a volunteer and then Interpretive Guide at the Visitor Information Station on Mauna Kea (9,100 ft.), a Telescope Operator for the AMIBA Observatory on Mauna Loa (~11,100 ft.), and now as a Telescope Operator on the "proper" mountain, Mauna Kea (13,800 ft.). As a long time regular on Mauna Kea he has enjoyed eating copious amounts of ice cream at the mid-level facility.



Sherry Yeh
Subaru Observatory
Contact: yeh@naoj.org

Sherry Yeh joined Subaru Telescope in 2013 as a NAOJ-Subaru Research Fellow. She knew she wanted to become a scientist at a young age, and she made up her mind to become an astronomer after attending summer schools at the Ken-Ting Observatory and Academia Sinica Institute of Astronomy and Astrophysics in Taiwan. Sherry received her PhD at the University of Toronto in Canada; using near- and mid-infrared instruments on telescopes around the world, her research focuses on the interplay between massive star clusters and their interstellar medium in nearby galaxies. When not exploring the Universe, Sherry enjoys knitting, long-distance cycling, and wandering in the volcano park.