



March 7 - 15, 2013



W. M. KECK OBSERVATOR







As the Gemini led Journey through the Universe 2013 program came to a close, we all realized the impact that this science education outreach program has had on our community. For each of the past nine years astronomy educators and engineers have visited an average of 7,000 students in 380 classrooms in the Hilo/Waiakea District. This year was no exception and our astronomers/astronomy educators were able to express their passion and excitement for science, engineering, and education and share this enthusiasm with their students.

Dr. Markus Kissler-Patig joined in the classroom presentations and the students at Waiakea High were enthralled with his presentation on astrobiology. Other Gemini staff joined in the expressive joy of astronomy as they enlightened the Journey students.

The Journey through the Universe program nurtures our students' innate curiosity, but also provides workshops for our teachers in STEM (Science, Technology, Engineering and Mathematics) education and an opportunity for our community members to visit the classrooms alongside our astronomers. Our annual Family Science Event held at the 'Imiloa Astronomy Center was enjoyed by thousands.

Our community partners include observatories on Mauna Kea, the University of Hawaii at Hilo, NASA Lunar Science Institute, the Bank of Hawaii, Big Island Toyota, New West Broadcasting, Hawaii Electric Light Company, 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 goal – to enrich science education in our schools and inspire our children to aim high.

District Superintendent Valerie Takata elaborates, "Our Hilo/Waiakea complex area schools' stellar partnership with the business organizations and community is Journey to 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 nine years. We humbly thank the community for their continued support as we all





work together toward common goals - building a better future.”

We were extremely thrilled that our Governor visited two Journey schools and attended two astronomer’s (Dr. Scott Fisher and Dr. Gordon Squires) classroom presentations at Ha’aheo and Kalaniana’ole. In the evening the Governor spoke at the Chamber event where he expressed his sincere gratitude for the Journey through the Universe program and read his proclamation that supports astronomy and astronomy education. His speech was well received from the over 160 guests at the Yacht Club celebration.

In addition to the numerous distinguished guests and lecturers at Journey 2012, Jeff Goldstein, Journeys’ visionary who started the national program over a decade ago participated in the activities by lecturing, leading a conference for local teachers in STEM education and providing inspiration for moving the program in new directions in coming years. One of those new directions is the Student Spaceflight Experiments Program, which engages students in real scientific research, with the outcome that one student’s experiment travels to the International Space Station. A sixth grader from Waiakea Intermediate School was honored by both the Governor and Dr. Jeff Goldstein for having his experiment selected for spaceflight. Perhaps the greatest impact on the students is the awareness that there are many opportunities available to them in astronomy related fields.

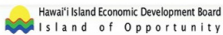
The Journey Team would like to thank everyone involved in the Journey program for their continued support and acknowledgement of this national flagship initiative. A program of this magnitude could not happen without the dedication of our community partners and their ongoing support.

As we look forward to our tenth anniversary of the Journey through the Universe program, we know we will continue to change our student’s lives and encourage them to reach for the stars!

Janice Harvey  
Journey Team Leader







PRINCE KUHIO PLAZA



*Journey through the Universe*  
Hilo, Hawai'i  
2013

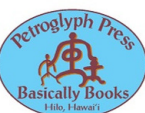
# Astronomy Educators

## in the classroom

DEPARTMENT OF EDUCATION  
Hilo-Waiakea Complex Area

[www.gemini.edu/journey](http://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 Lunar Science Institute  
Kenyan Beals, Hawai'i Electric Light Company  
Matt Benjamin, University of Colorado at Boulder  
Jennie Berghuis, Subaru Telescope  
Dan Birchall, Subaru Telescope  
Kim Brenton, Mauna Kea Visitor Information Station  
Doris Daou, NASA Lunar Science Institute  
Sandra Dawson, Thirty Meter Telescope  
Brian Day, NASA Lunar Science Institute  
Jeff Donahue, Gemini Observatory  
Greg Doppmann, W.M. Keck Observatory  
Angelic Ebbers, Gemini Observatory  
Ryan Felix, University of Hawai'i-Manoa  
Scott Fisher, University of Oregon  
Brian Force, W.M. Keck Observatory  
Suzanne Frayser, Subaru Telescope  
Gary Fujiwara, UH Institute for Astronomy  
Roy Gal, UH Institute for Astronomy  
Tom Geballe, Gemini Observatory  
Jesse Goldman, UH Hilo Physics & Astronomy  
Jeff Goldstein, National Center for Earth & Space Science  
William Gorman, Subaru Telescope  
Tomotsugu Goto, UH Institute for Astronomy  
Olivier Guyon, Subaru Telescope  
John Hamilton, UH Hilo Physics & Astronomy  
Janice Harvey, Gemini Observatory  
Saeko Hayashi, Subaru Telescope  
Michael Hoenig, Gemini Observatory  
Stewart Hunter, Mauna Kea Support Services  
Eric Jeschke, Subaru Telescope  
Russell Kackley, Subaru Telescope  
Rob Kelso, PISCES  
Ka'iu Kimura, 'Imiloa Astronomy Education Center  
Markus Kissler-Patig, Gemini Observatory  
Scot Kleinman, Gemini Observatory  
Shawn Laatsch, 'Imiloa Astronomy Education Center  
Bernhard Laurich, Hawai'i Community College  
Nancy Levenson, Gemini Observatory  
Ramsey Lundock, Subaru Telescope  
Frantz Martineche, Subaru Telescope  
Tony Matulis, Gemini Observatory  
Richard McDermid, Gemini Observatory  
Callie McNew, Joint Astronomy Centre  
Peter Michaud, Gemini Observatory  
Joseph Minafra, NASA Lunar Science Institute  
Brian Mitchell, NASA Lunar Science Institute  
Janet Nathaniel, Mauna Kea Visitor Information Station  
Harriet Parsons, Joint Astronomy Centre  
Christopher Phillips, 'Imiloa Astronomy Education Center  
Derrick Pitts, Franklin Institute Science Museum  
Tae-Soo Pyo, Subaru Telescope  
Bo Reipurth, UH Institute for Astronomy  
Julie Renaud-Kim, W.M. Keck Observatory  
Adam Rengstorf, Purdue University  
Luca Rizzi, W.M. Keck Observatory  
Kathy Roth, Gemini Observatory  
Sharon Schleigh, Purdue University  
Doug Simons, Canada-France-Hawaii Telescope  
Evan Sinukoff, UH Institute for Astronomy-Manoa  
Gordon Squires, Thirty Meter Telescope  
Sunny Stewart, Gemini Observatory  
Marianne Takamiya, UH Hilo Physics & Astronomy  
Aaron Tamura-Sato, Subaru Telescope  
Holly Thomas, Joint Astronomy Centre  
Marcel Tognetti, Gemini Observatory  
Kumiko Usuda, Subaru Telescope/'Imiloa Astronomy Center  
Bernie Walp, Gemini Observatory  
Jonathan Williams, UH Institute for Astronomy  
Josh Williams, Subaru Observatory  
Greg Wirth, W.M. Keck Observatory  
Matthew Wung, Subaru Telescope







## JOURNEY

March 7-15, 2013

through the UNIVERSE Hilo, Hawai'i



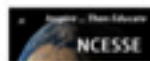
### Journey through the Universe 2013

- [Schedules](#) [Overview](#) [Events](#) [Workshops](#) [Astronomy Educators](#) [Ambassadors](#) [Community](#) [SSEP](#)
- [Contact Us](#)

See Gemini Observatory's [webfeature](#) on Journey 2013

#### **Journey through the Universe (Journey) Week: March 7 – 15, 2013**

- **Friday, March 8, 2013, `Imiloa Astronomy Center:**  
Master Educators/Astronomers' Workshop: 8:30am – 12pm
- **Saturday, March 9, 2013, `Imiloa:**  
Journey STEM conference and workshops: 8am – 2:45pm  
Save the Date! Download the [Program Flyer](#)
- **Sunday, March 10, 2013:**  
`Imiloa's 7th Annual KTA Family Free Day with Journey through the Universe: 9am – 4pm at `Imiloa Astronomy Center. Download the [Program Flier](#), [presentations](#), and [programs](#)
- **Monday - Friday, March 11 - 15, 2013:**  
Astronomy Educators will make classroom visits to [Participating Schools](#)
- **Monday, March 11, 2013:**  
Hawai'i Chambers of Commerce Appreciation Event: 5pm – 8pm at Hilo Yacht Club, download [registration form](#)



# JOURNEY

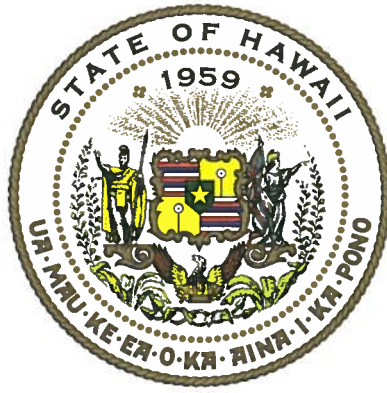
through the UNIVERSE



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

- DOE Hilo/Waiakea Complex Area
- Gemini Observatory
- National Center for Earth & Space Science
- Thirty Meter Telescope
- NASA Lunar Science Institute
- University of Hawai‘i at Hilo
- ‘Imiloa Astronomy Center
- Bank of Hawai‘i
- KTA Superstores
- Basically Books
- Big Island Toyota
- Big Island Chevron
- Business - Education Partnership
- Caltech Submillimeter Observatory
- Canada-France-Hawai‘i Telescope
- Carthage University
- DeLuz Chevrolet
- Franklin Institute Science Museum
- Hawai‘i Community College
- Hawai‘i Electric Light Company
- Hawai‘i Island Chamber of Commerce
- Hawai‘i Island Economic Development Board
- Hawai‘i Space Grant Consortium
- Hawai‘i Tribune-Herald
- James Clerk Maxwell Telescope
- Japanese Chamber of Commerce and Industry
- Joint Astronomy Centre
- KWXX Radio Station
- Mauna Kea Observatories Outreach Committee
- NASA Infrared Telescope Facility
- National Radio Astronomy Observatory
- PISCES, Pacific International Space Center for Exploration Systems
- Rotary Club of Hilo Bay
- Smithsonian Submillimeter Array
- Subaru Telescope
- UH Hilo, College of Pharmacy
- UH Hoku Ke‘a and 2.2 Meter Telescopes
- UH Institute for Astronomy
- United Kingdom Infrared Telescope
- W.M. Keck Observatory

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



# *Proclamation*

## *Presented*

### **In Recognition of Journey through the Universe 2013**

**WHEREAS**, Journey through the Universe 2013 is an education initiative brought to fruition by the National Center for Earth and Space Science Education, collaborating students, teachers, families and the public as they explore space and Earth science; and

**WHEREAS**, Journey through the Universe 2013 will be dedicated to the memory of Dr. Richard Crowe, renowned astronomer, in recognition of his research on pulsating stars, stellar evolution and spectroscopy and the inspiration he instilled in children through outreach in public schools; and

**WHEREAS**, Journey through the Universe 2013 advances the pleasures of learning in conjunction with this year's "Building a Human Presence in Space" Science, Technology, Engineering and Mathematics (STEM) conference at 'Imiloa Astronomy Center of Hawai'i, displaying the magnificence of learning beyond the classroom; and

**WHEREAS**, Journey through the Universe 2013 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 2013 incorporates the Student Spaceflight Experiments Program (SSEP), in which more than 650 students from the Hilo-Waiakea complex area participated in developing investigations and writing proposals and a plan for spaceflight experiment; and

**WHEREAS**, Journey through the Universe 2013 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 2013 strengthens the community by partnering with The Gemini Observatory, Hawai'i Department of Education Hilo/Waiakea 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 9th Annual Journey through the Universe program will take place from March 7 to 15, 2013, on Hawai'i Island;

**NOW, THEREFORE, I, NEIL ABERCROMBIE, Governor, and I, SHAN S. TSUTSUI, Lieutenant Governor** for the State of Hawai'i, do hereby proclaim March 7 -13, 2013, as

## **"JOURNEY THROUGH THE UNIVERSE WEEK 2013"**

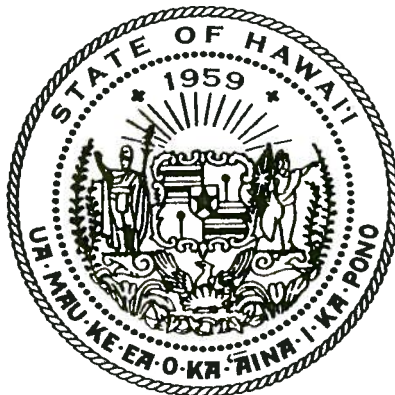
in Hawai'i and ask the people of the Aloha State to join us in extending our passion of scientific endeavors appreciating our dazzling universe.

**DONE** at the State Capitol, in the Executive Chambers, Honolulu, State of Hawai'i, this twenty-seventh day of February, 2013.

  
NEIL ABERCROMBIE  
Governor, State of Hawai'i

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





*Special Message from Governor Neil Abercrombie*  
**"Bringing the Universe to the Classroom"**

March 11, 2013

On behalf of the people of Hawai'i, I extend a heartfelt *aloha* to all Department of Education Hilo/Waiakea Complex Area schools and partners as "Journey through the Universe 2013" promotes science in the classroom in pursuit of attaining National Hawai'i Content and Performance Standards.

Journey through the Universe will educate both parents and the community to increase their knowledge of space science enterprise. I commend Dr. Scott Fisher for his work in supporting scientific exploration, instrument maintenance and outreach to the public and scientific community. Thrilled by his passion, future scientists are inspired by his experiences in astronomy observation and research, particularly within his main area of research of planet-forming disks around young stars.

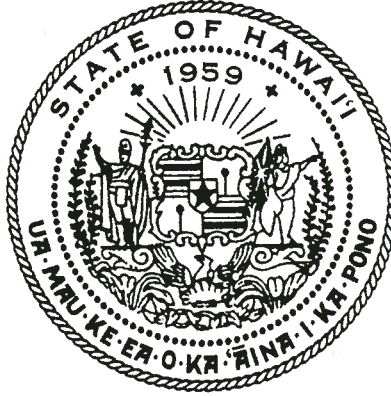
I want to personally thank all the participants and event sponsors as they further encourage the children of Hawai'i to explore space science and follow Dr. Fisher's example of reaching for the stars.

Again, I would like to congratulate all those who made this event possible and share my deepest appreciation for your hard work. *Mahalo*.

*Aloha,*

*Neil Abercrombie*

**NEIL ABERCROMBIE**  
Governor, State of Hawai'i



*Special Message from Governor Neil Abercrombie*  
**“Bringing the Universe to the Classroom”**

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On behalf of the people of Hawai‘i, I extend a heartfelt *aloha* to all Department of Education Hilo/Waiakea Complex Area schools and partners as "Journey through the Universe 2013" promotes science in the classroom in pursuit of attaining National and Hawai‘i Content Performance Standards.

I commend Dr. Gordon Squires, astronomer at the California Institute of Technology, for his work providing scientific research support the Thirty Meter Telescopes. Dr. Squires' primary area of 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.

I wish to personally thank all participants and event sponsor for encouraging the children of Hawai‘i to explore space science and follow Dr. Squires' example of pushing the very limits of scientific knowledge and research.

Again, I would like to congratulate all those who made this event possible and share my deepest appreciation for your hard work. *Mahalo*.

*Aloha,*

**NEIL ABERCROMBIE**  
Governor, State of Hawai‘i



# COUNTY OF HAWAII

## *Proclamation*

**WHEREAS**, the National Center for Earth and Space Science Education's (NCESS) central objective is to continue America's legacy as a leader on the frontiers of science and technology well into the 21<sup>st</sup> century by ensuring a scientifically literate public and a next generation of scientists and engineers; and

**WHEREAS**, NCESS is joined by the local scientific community beginning with Gemini Observatory, Joint Astronomy Centre, Subaru Telescope, Thirty Meter Telescope, Submillimeter Array, National Radio Observatory Telescope, Hoku Ke'a Telescope, James Clerk Maxwell Telescope, Nasa Infrared Telescope, United Kingdom Infrared Telescope, UH Institute for Astronomy, Caltech Submillimeter Observatory, W. M. Keck Observatory, 'Imiloa Astronomy Center of Hawai'i, UH-Hilo Physics & Astronomy, Onizuka Visitor Information Station, Mauna Kea Support Services, Mauna Kea Observatories Outreach Committee, University of Wyoming and the Jet Propulsion Laboratory; and

**WHEREAS**, partnered with the Department of Education Hilo/Waiakea Complex Area, "Journey Through the Universe" continues for a 9<sup>th</sup> year on March 7-15, 2013, and features a full nine days of whirlwind cosmic exploration and 'star-studded' space and science education for students, teachers, and parents as a national team of approximately 70 astronomers working on the frontier of space visit students in 380 classrooms; 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

**WHEREAS**, there are only ten sites across the country and the Hilo site has been recognized as the flagship "Journey" program in the nation,

NOW, THEREFORE, I, BILLY KENOI, Mayor of the County of Hawai'i, do hereby proclaim March 7-15, 2013, 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 3<sup>rd</sup> day of January, 2013, in Hilo, Hawai'i.



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

Billy Kenoi  
MAYOR

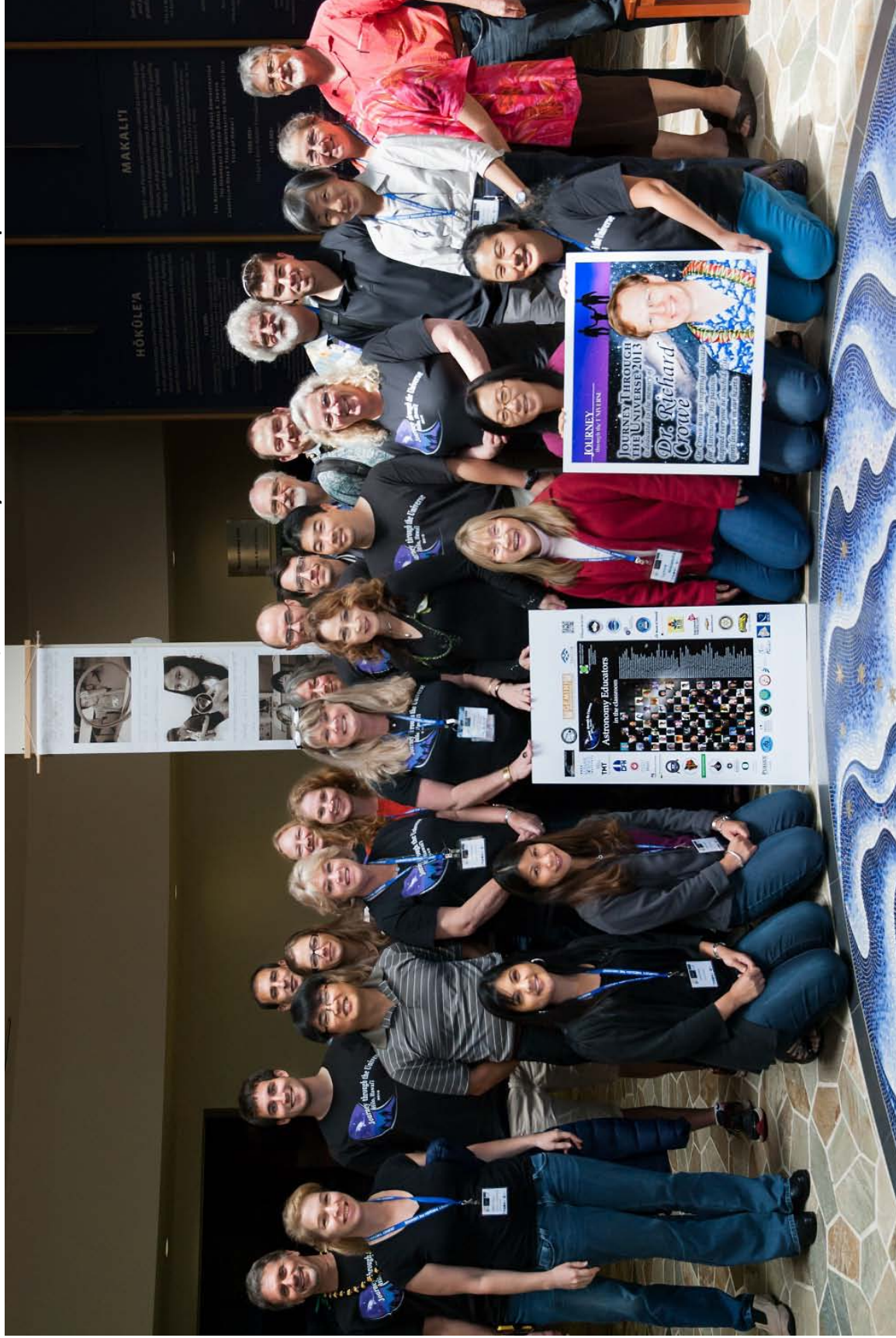




Journey 2013 Ambassadors



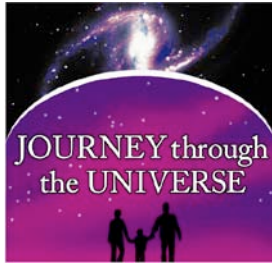
# Master Educator and Astronomers/Astronomy Educator Workshop



*Invitational Event for Hawaii Department of Education  
Hilo / Waiākea Complex Area Schools and Partners*

## **Journey through the Universe**

# **S.T.E.M. Conference**



## *Building a Human Presence in Space*

*Engaging Students in Science, Technology, Engineering and  
Math Learning Experiences within and Beyond the Classroom*

**Saturday, March 9, 2013 'Imiloa Astronomy**



**Featuring**

### **DR. JEFF GOLDSTEIN**

**CENTER DIRECTOR: NCESS  
NATIONAL CENTER FOR EARTH AND SPACE SCIENCE EDUCATION**

Jeff Goldstein is a nationally recognized science educator and planetary scientist who has dedicated his career to the public understanding of science and the joys of learning. As Center Director for the National Center for Earth and Space Science Education (NCESS), Dr. Goldstein oversees the creation and delivery of programs that engage entire communities, train 3,000 teachers annually, and emphasize family learning. He led the inter-organization team that permanently installed the Voyage model Solar System on the National Mall in Washington, DC, in front of the Smithsonian. The Voyage National Program is permanently installing low cost replicas in 100 communities world-wide. Dr. Goldstein also oversees the Student Spaceflight Experiments Program (SSEP) providing real research opportunities for pre-college students on the Space Shuttle and International Space Station. Dr. Goldstein was the Keynote Speaker for the NSTA National Conference in San Francisco, CA, March 2011 and for our 2012 S.T.E.M. Conference in Hilo, HI.

Dr. Goldstein was at the National Air and Space Museum for 8 years, departing in 1996 as acting Chair of the Lab for Astrophysics. He was on the senior staff at Challenger Center 1996-2005. In 2005 he created the National Center for Earth and Space Science Education. Visit Jeff at [blogontheuniverse.org](http://blogontheuniverse.org)

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

*Invitational Event for Hawaii Department of Education  
Hilo / Waiakea Complex Area Schools and Partners*

**Featured Breakout Speakers:**



**Brian Day**

NASA Lunar Science Institute

Contact: [brian.h.day@nasa.gov](mailto:brian.h.day@nasa.gov)

*Brian Day is a NASA contractor at Ames Research Center and currently serves as the Education/Public Outreach Lead for NASA's Lunar Atmosphere and Dust Environment Explorer (LADEE) mission to the Moon, scheduled for launch in 2013. 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. Brian has worked as an instructor in San Jose State University's Internet Business Specialist program, and has taught astronomy through the Metropolitan Education District in San Jose and as part of Project Astro. He is very active in the amateur astronomy community and served as the chairman of the Foothill College Observatory for 16 years. Brian and his wife Pam are avid solar eclipse chasers, having traveled around the world to such exotic places as the wilds of Africa, heights of the Andes to the Great Wall of China and beer gardens of Germany.*



**Olivier Guyon**

Subaru Telescope

Contact: [guyon@naoj.org](mailto: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 was awarded the MacArthur fellowship (nicknamed the "Genius grant") for his innovative work in astronomical optics in 2012. In his spare time, he builds telescopes which he then uses to observe from the clear skies of Mauna Kea and Mauna Loa.*

**State S.T.E.M Resource Teachers**



# Journey through the Universe Presentations

9:30am in the planetarium

## The Quest for Alien Worlds

Olivier Guyon, Subaru Telescope



Are we alone in the Universe?  
If there are other planets with life on them, what are those planets like?  
Find out how astronomers are answering these questions.

10:30am in the planetarium

## Max Goes to the Moon Planetarium Show

Matt Benjamin, NASA Lunar Science Institute



11:30am in the planetarium

## Exploring the Moon with NASA

Brian Day, NASA Lunar Science Institute



Find out how students and the general public can become direct participants in current NASA lunar missions that are dramatically changing our understanding of the Moon. No special background, or equipment is required. Volunteers from grade school to retirement homes are now making important observations contributing to the science of lunar exploration. Learn how you can join in the adventure!

12:30pm in the planetarium

## Weird Universe

Gordon Squires, California Institute of Technology

Dr. Gordon K. Squires, an astronomer with the Thirty Meter Telescope project, will describe his favorite weird and strange things about the Universe. How are aneima and exploding stars related? Why might aliens (if they exist) not like people with cold noses? Why is water weird? Why are there planets everywhere? How does a dying star create new suns? This talk will be a voyage and exploration through the "Hidden and Strange Universe". We will also discuss how the next-generation telescopes, including TMT, will change our view of the Universe, and uncover even stranger things than we can imagine today.



1:30pm in the planetarium

## What's Up? Pictures and Stories about New Discoveries in Astronomy

Scott Fisher, University of Oregon

Dr. Scott Fisher, a professor at the University of Oregon and former astronomer at the Gemini Observatory, will return to Hilo to give a talk about exciting new astronomical discoveries. From new planets orbiting other stars to supernovae exploding on the other side of the Universe, Dr. Fisher will explain these new discoveries in a presentation that is full of great new photos and videos. All of this presentation will be made at a level appropriate for all ages and for all levels of astronomy knowledge. Dr. Fisher will also host a game of "Stump the Astronomer" where audience members get to ask questions about the discoveries discussed in the talk - or about any astronomy related topic!



2:30pm in the Earl & Doris Bakken Moanahōkū Hall

## KEYNOTE ADDRESS

## Celebrating the Past, Embracing the Present, and Inspiring the Future

Jeff Goldstein, NCSSE



We live in a moment in time. It's the place where the accomplishments of those that came before us meet up with what will be undertaken by future generations. It's a great place to be, especially if you're part of the future generation. By learning about the past both in terms of what we know and how we've come to know it, and talking to those that work on the frontiers right now, you can choose to shape the future. It's pretty powerful stuff. You are the link between the past and the future.





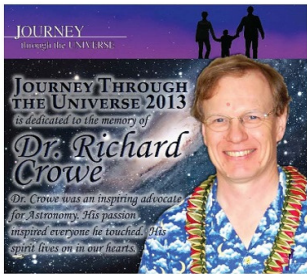
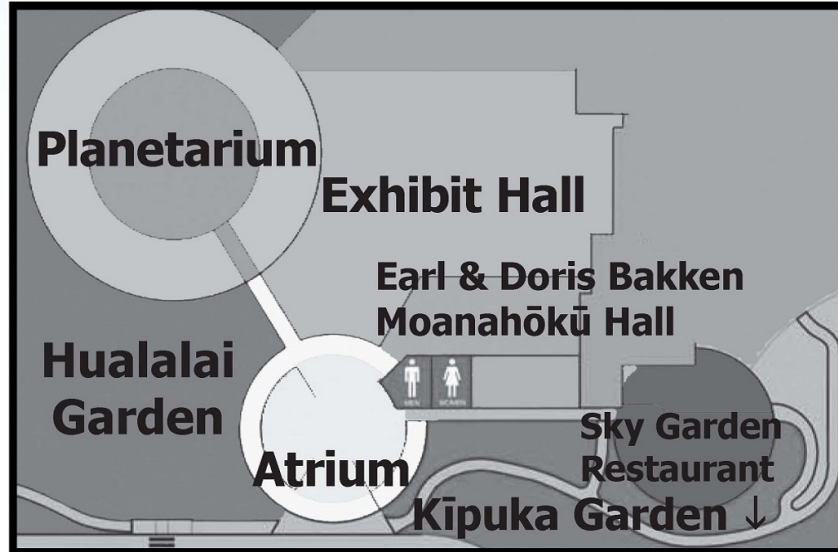
Mahalo for celebrating with us on our 7th Birthday!

# KTA Family FREE Day with Journey through the Universe

March 10, 2013 9:00 am - 4:00 pm



UNIVERSITY  
of HAWAI'I®  
HILO



## At the Entrance

Giveaways for keiki  
Membership Information  
KWXX FM

## In the Moanahōkū Hall

Birthday Cake  
Maunakea Observatories  
'Imiloa Education Activity Booth

**Keynote Address**  
by Dr. Jeff Goldstein at 2:30pm

## In the Exhibit Hall

Exhibit Hall guides throughout  
STARBASE Hawaii flight simulators

## In the Hualalai Garden

KTA Super Stores  
Cookout

## In the Kīpuka Garden

Hands-on activities by UH-Hilo  
Big Island Invasive Species Committee

## In the Planetarium

### Journey through the Universe Presentations

9:30am

**The Quest for Alien Worlds**  
Olivier Guyon, Subaru Telescope

10:30am

**Max Goes to the Moon**  
Matt Benjamin, NASA Lunar Science Institute

11:30am

**Exploring the Moon with NASA**  
Brian Day, NASA Lunar Science Institute

12:30pm

**Weird Universe**  
Gordon Squires, California Institute of Technology

1:30pm

**What's Up? Pictures and Stories about  
New Discoveries in Astronomy**  
Scott Fisher, University of Oregon

**Mahalo to KTA Super Stores for their support of 'Imiloa Astronomy Center!**





# Astronomy Educators Reception

**Monday March 11, 2013  
5pm to 8pm Hilo Yacht Club**

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.

- Pupus
- No Host Cocktails & Beverages
- Door Prizes
- JCCIH & HICC members \$25
- Non-members & guests \$30



**Sponsored by the  
Hawai'i Island Chamber of Commerce  
and Japanese Chamber of Commerce and Industry of Hawai'i**

\*\*\*\*\*

**REGISTRATION DEADLINE: FRIDAY, MARCH 1, 2013**  
No-shows or cancellations after March 1 will be charged in full.

Name: \_\_\_\_\_ amt. \$ \_\_\_\_\_ Company \_\_\_\_\_

Name: \_\_\_\_\_ amt. \$ \_\_\_\_\_ Company \_\_\_\_\_

Payment method:      cash      check      credit card: Visa, MC, Amex (Amex at HICC only)

Credit card # \_\_\_\_\_ Exp. date \_\_\_\_\_

Phone \_\_\_\_\_ Email \_\_\_\_\_

Mailing address \_\_\_\_\_ Signature \_\_\_\_\_

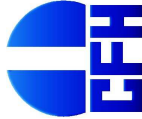
Cardholder's name (print please) \_\_\_\_\_

Payments accepted at either Chamber's offices. Credit card orders also accepted via phone, email or fax.  
JCCIH 714 Kanoiehua Ave. Ste. 202 Hilo, HI 96720 • Phone: 934-0177 • Fax: 934-0178 • Email: jccih@jccih.org  
HICC 117 Keawe St. Ste. 205 Hilo, HI 96720 • Phone: 935-7178 • Fax: 961-4435 • Email: admin@hicc.biz





# Community Sponsors



Sponsored by the  
Hawaii`i Island Chamber of Commerce  
and Japanese Chamber of Commerce and Industry of Hawaii`i



# Astronomy Educators Reception

Monday March 11, 2013  
5pm to 8pm Hilo Yacht Club



Welcome to 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.



Sponsored by the  
Hawaii`i Island Chamber of Commerce  
and Japanese Chamber of Commerce and Industry of Hawaii`i

# *Welcome to the Journey Through The Universe Astronomy Educators Reception*

## **Program**

### **Master of Ceremonies**

Vaughn Cook, President  
Hawai'i Island Chamber of Commerce

### **Welcome**

Jon Arizumi, President  
Japanese Chamber of Commerce & Industry of Hawaii

### **Introductions**

Janice Harvey  
Gemini Observatory, Journey Through the Universe Team Leader

Governor Neil Abercrombie  
State of Hawai'i

Mayor Billy Kenoi  
County of Hawai'i

Jeff Goldstein  
"A Place Called Home"

Kathryn S. Matayoshi, State Superintendent  
Department of Education

Valerie Takata, District Superintendent  
Department of Education

Dr. Markus Kissler-Patig, Director  
Gemini Observatory

## **Door Prizes**

# *Mahalo to our 2013 Astronomy Educators*

Nobuo Arimoto	Eric Jeschke	Christopher Phillips
Brad Bailey	Russell Kackley	Tae-Soo Pyo
Matt Benjamin	Rob Kelso	Bo Reipurth
Jennie Berghuis	Markus Kissler-Patig	Adam Rengstorf
Kimberly Brenton	Shawn Laatsch	Luca Rizzi
Jon Brown	Bernhard Laurich	Kathy Roth
Brian Day	Ramsey Lundock	Sharon Schleigh
Jeff Donahue	Franz Martinache	Doug Simons
Angelic Ebberts	Tony Matalonis	Evan Sinukoff
Ryan Felix	Shannon McConnell	Gordon Squires
Scott Fisher	Richard McDermid	Marianne Takamiya
Gary Fujihara	Callie McNew	Aaron Tamura-Sato
Roy Gal	Peter Michaud	Holly Thomas
Olivier Guyon	Joseph Minafra	Kumiko Usuda
John Hamilton	Brian Mitchell	Jonathan Williams
Saeko Hayashi	Janet Nathani	Joshua Williams
Michael Hoenig	Harriet Parsons	Pierre Martin
Stewart Hunter	Geoff Patterson	Sylvana Yelda





### SPORTS

Warrior works hard to find college home  
Page B1



### CALENDAR

Journey through the Universe is What's Hot  
Page A8



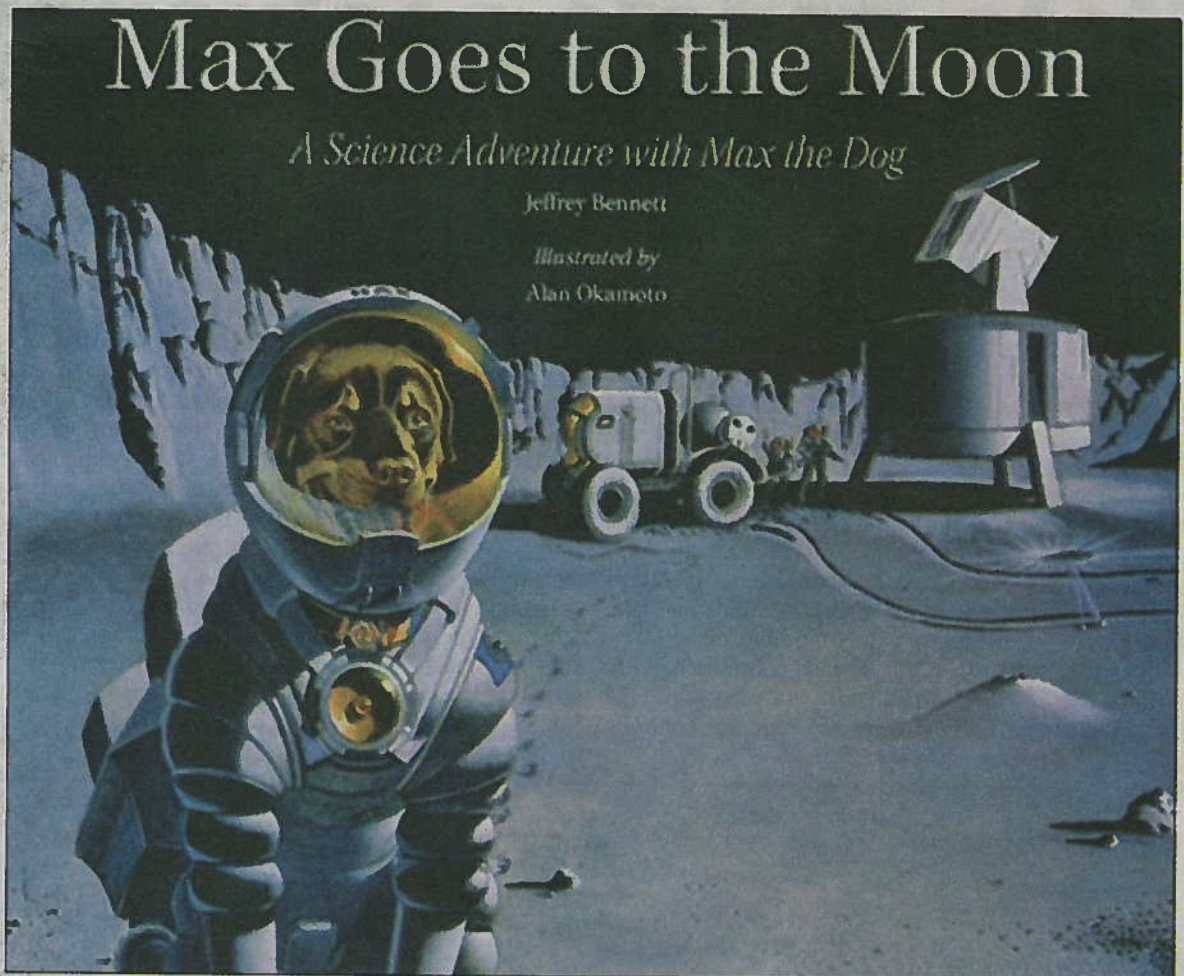
### NATION

First lady promotes healthy eating  
Page A2

**WEEKLY SECTIONS**  
Sunday TRAVEL  
Tuesday GRINDS  
Wednesday LIFE  
Thursday BUSINESS  
Friday ARTS & ENTERTAINMENT  
▶ Saturday CALENDAR

# CALENDAR

A8



## Max Goes to the Moon

*A Science Adventure with Max the Dog*

Jeffrey Bennett

Illustrated by Alan Okamoto

Courtesy photo

**SPEND SUNDAY AT 'IMILOA** — Celebrate 'Imiloa Astronomy Center's seventh anniversary at the annual KTA Family Free Day, featuring "Journey through the Universe." The exhibit hall and planetarium presentations will be free to the public. Among the many activities will be a 10:30 a.m. presentation on "Max Goes to the Moon," based on the popular children's space series.

## WHAT'S HOT

### SUNDAY, March 10

#### 'JOURNEY THROUGH THE UNIVERSE' & KTA FREE DAY AT 'IMILOA ASTRONOMY CENTER

**Where:** 'Imiloa Astronomy Center, 600 'Imiloa Place, Hilo  
**When:** 9:30 a.m. March 10  
**Details:** Celebrate 'Imiloa Astronomy Center's seventh anniversary at the annual KTA Family Free Day, featuring "Journey through the Universe." The exhibit hall and planetarium presentations will be free to the public. Here is schedule for the "Journey Through the Universe Family Science Day": 9:30 a.m., "The Quest for Alien Worlds"; 10:30 a.m., "Max Goes to the Moon"; 11:30 a.m., "Exploring the Moon with NASA"; 12:30 p.m., "Weird Science"; 1:30 p.m., "What's Up? Pictures and



Stories about new Discoveries in Astronomy"; 2:30 p.m., "Celebrating the Past, Embracing the Present and Inspiring the Future."  
**Contact:** 969-9703, info@imiloahawaii.org  
**Where:** 'Imiloa Astronomy Center, Hilo  
**When:** 9 a.m. March 10

**Contact:** 969-9703, info@imiloahawaii.org

#### HUI OKINAWA TAIKO, MARK YAMANAKA AT BENEFIT FOR TOHOKU EARTHQUAKE, TSUNAMI

**Where:** Hawaii Community College cafeteria, Hilo  
**When:** 4 p.m. March 10  
**Details:** Support children in Japan who need physical and emotional assistance after 2011 disaster. Family-friendly benefit will include performance by Hui Okinawa Kobudo Taiko drum, food booth and silent auction of items donated by local businesses and artists. Mark Yamanaka will sing. Proceeds benefit Japanese organizations.  
**Contact:** Japan Club at Hawaii Community College, 938-3384; japanclub@hawaii.edu



Hawaii

# Tribune Herald



Monday, March 11, 2013

Proudly serving Hilo and the Big Island since 1923

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## NATION

Delta CEO opposes  
TSA policy on knives  
Page A3



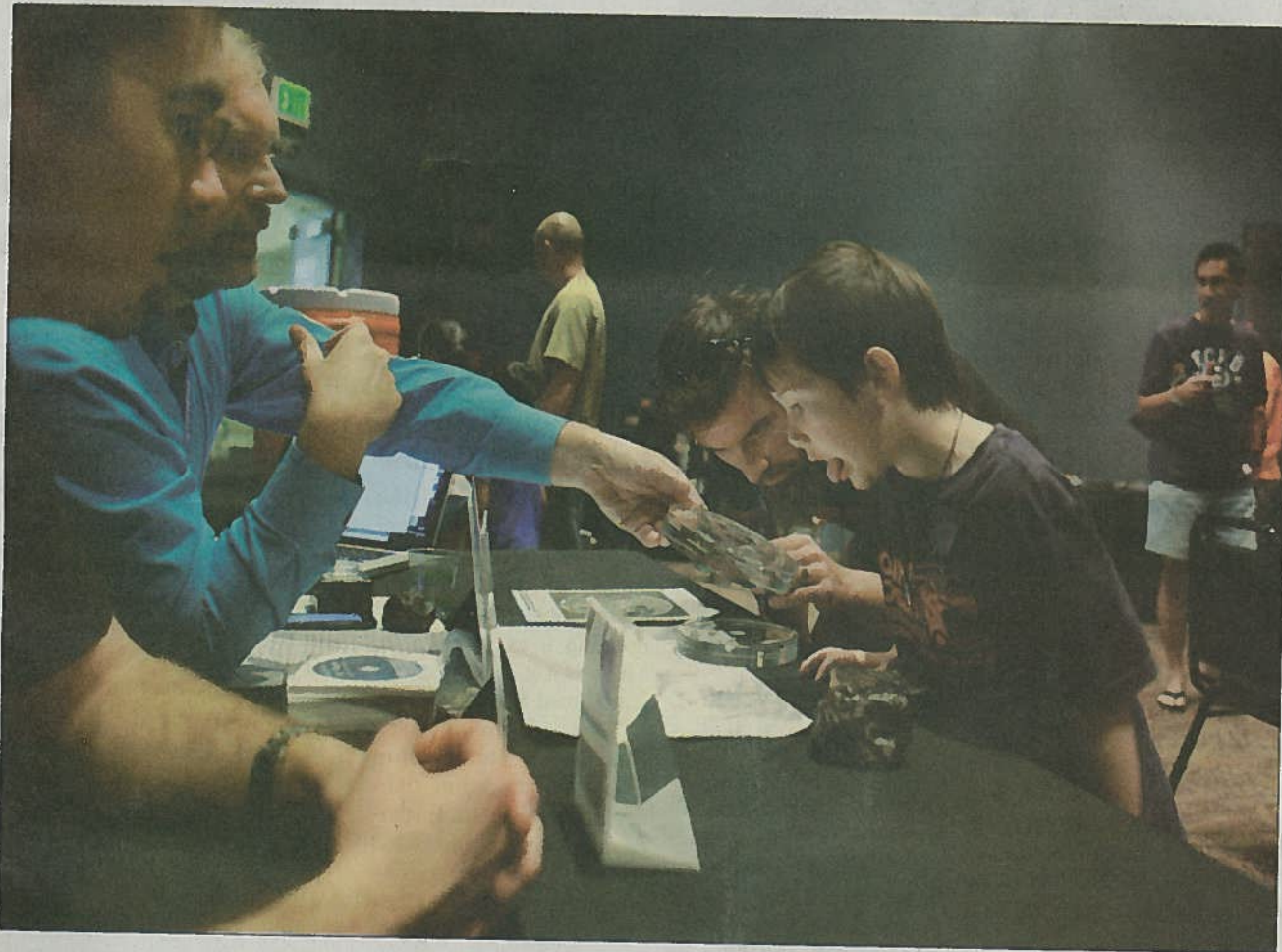
## NATION

NYC establishments  
brace for soda rule  
Page A3



## SPORTS

Lakers continue  
playoff surge  
Page B1



Photos by HOLLYN JOHNSON/Tribune-Herald

Arjuna Lake, 6, reacts to seeing samples from a meteorite with his father, Drew, that are being shown to him by engineer Joe Minafra and astrophysicist Matt Benjamin at the "Ask a NASA Scientist" table during "Journey through the Universe" at 'Imiloa Astronomy Center on Sunday afternoon.

## 'Inspire the future'

### 'Imiloa marks birthday with special exhibits, presentations

By COLIN M. STEWART  
Tribune-Herald staff writer

**T**his moment in time, right now as you read this sentence, is an incredibly important one. Why you ask?

Because this place in time is where all the accomplishments of the people who came before us intersect with and inspire the future generations and all the wondrous discoveries that they will one day make.

And that's a pretty good place to be, argued Jeff Goldstein, astrophysicist and director of the National Center for Earth and Space Science Education.

Right now is our opportunity to take the ball and run with it when it comes to scientific discovery, or any other pursuit for that matter. We have to "push the envelope as far as we can," he said Sunday afternoon as he spoke at the

See JOURNEY Page A4



UH-Hilo astronomy student Krystal Schlechter aligns a solar scope to see solar storms on the sun during "Journey through the Universe" at 'Imiloa Astronomy Center on Sunday.



## FROM THE FRONT PAGE

## JOURNEY From front page

'Imiloa Astronomy Center of Hawaii as part of Journey through the Universe's Journey Week, which brings world-renowned scientists and educators to area schools to share with Hawaii Island's keiki their love for the pursuit of knowledge.

Such an effort is important, he said, because "eventually, we'll reach the point where we'll say to our kids 'I've gone as far as I can, and now it's your turn to keep this dream alive ... so you can take the human race to somewhere we've never been before, to inspire the future,'" he said.

Sunday marked the seventh birthday for 'Imiloa, a place that largely embodies the themes of which Goldstein spoke — a place where the study of Hawaii's ancestors and their tradition of voyaging using the stars as guides goes hand in hand with the modern science of astronomy utilizing the worldclass telescopes atop Mauna Kea.

Sponsored by KTA, the day offered free admission to families, with nearly 2,000 people coming through the doors, said Margaret Shiba, director of institutional advancement. There was a cookout with birthday cake, and plenty of exhibits and presentations to entertain and inform all ages.

"It's an opportunity for us to enjoy a real family day here," said 'Imiloa Director Ka'iu Kimura. "We can open our doors and say 'Thank you for your support over the years.'"

Matt Benjamin, an astrophysicist with the NASA Lunar Science Institute, sat with a colleague at a table in 'Imiloa's exhibit hall as kids raced back and forth taking in all the



HOLLYN JOHNSON/Tribune-Herald

Phi Delta Chi pharmacy fraternity president Janine Masri shows Edwin Wouterloot, 4, how to make silly putty out of diluted glue and borax at the UH-Hilo College of Pharmacy table during "Journey Through the Universe" at 'Imiloa Astronomy Center on Sunday afternoon.

sights and sounds. On the table in front of him were two meteorites, each a bit smaller than a baseball, and two large glass discs with rocks and dust incased inside them.

"This is my favorite," he said, spinning one of the discs in his hand and pointing to one of the rocks inside. "This was brought back by the Apollo astronauts from the moon. ... That right there is 4.5 billion years old. It's older than the Earth."

Six-year-old Arjuna Lake was so impressed by that statement, he declined to pick up the disc when it was offered.

"No way, what if I drop it?" Arjuna said.

The boy did, however, take a shine to one of the meteorites, which he said looked just like a large

hunk of chocolate with a bite taken out of it.

"This is such a great opportunity," Benjamin said of coming to Hilo for the second year in a row. "We come out here, and in a week we get to impact up to 7,500 kids. They all have such different perceptions, and different questions. They're so pristine. They haven't been tainted yet by all the bad information out there."

University of Hawaii at Hilo astronomy students Nick Ackerman and Krystal Schlechter operated a telescope out in front of the building, allowing attendees to get a filtered, up-close-and-personal look at the sun during the brief interludes when Hilo's rain clouds opted to play along.

"It's white through the filter, so some kids have

told us it looks like the moon," Schlechter said. "And it does. There haven't been a lot of sunspots lately, so there's not as much exciting going on, but they still like to look at it."

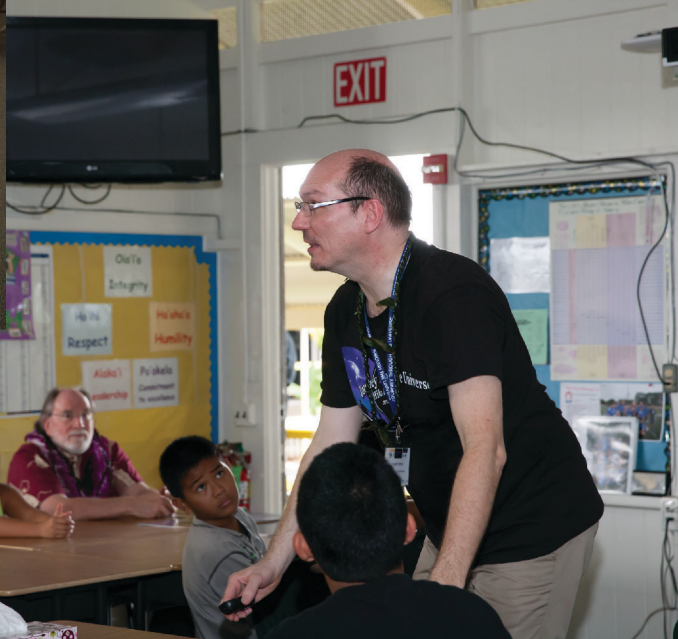
About 70 astronomers and educators will be visiting classrooms throughout the Hilo-Waiakea school complex, today through Friday. The complex is one of 10 communities across the country that participate in Journey through the Universe, a national science education initiative developed by the National Center for Earth and Space Science Education.

For more information on the program, visit <http://www.gemini.edu/journey>.

Email Colin M. Stewart at [cstewart@hawaii-tribune-herald.com](mailto:cstewart@hawaii-tribune-herald.com).



Journey through the  
Universe  
2013  
Classroom visits





Journey through the  
Universe  
2013  
Classroom visits







Journey through the  
Universe  
2013  
Educators Workshop  
and Journey  
Chamber Reception





# Journey Through the Universe

2013

## Astronomy Educator Profiles



**JOURNEY**  
through the UNIVERSE

**JOURNEY THROUGH  
THE UNIVERSE 2013**  
*is dedicated to the memory of*  
**Dr. Richard  
Crowe**

*Dr. Crowe was an inspiring advocate  
for Astronomy. His passion  
inspired everyone he touched.  
His spirit lives on in our hearts.*

The profile features a portrait of Dr. Richard Crowe, a smiling man with glasses wearing a blue and red patterned lei. The background is a dark space scene with stars and a nebula. In the top left corner, there is a silhouette of three people holding hands against a purple and blue gradient background.



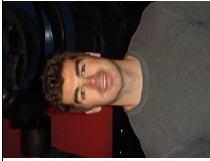
**Nobuo Arimoto**  
Subaru Observatory  
Contact: [arimoto@naoj.org](mailto:arimoto@naoj.org)

**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 (2001-2012). He served as part of Subaru's Time Allocation Committee (2000-2004) and as Chair of the Subaru Advisory Committee (2004-2012). He took over 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.



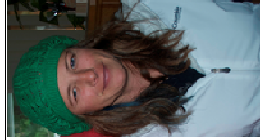
**Brad Bailey**  
NASA Lunar Science Institute  
Contact: [brad.bailey@nasa.gov](mailto:brad.bailey@nasa.gov)

**Brad Bailey** received 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 the spectroscopic determination of polycyclic aromatic hydrocarbons in the interstellar medium. From there, he received his M.S. in Astrophysics from New Mexico Tech where he used the Very Large Array (VLA) to qualitatively analyze spectra from 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 where 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 the interaction between biology, hydrothermal vent water chemistry and rock surfaces. Brad is now the NASA Lunar Science Institute Staff Scientist at NASA Ames and also directs the NASA Ames Academy, a summer student research and leadership development program.



**Matthew Benjamin**  
Fiske Planetarium, University of Colorado at Boulder  
Contact: [Matthew.Benjamin@Colorado.Edu](mailto:Matthew.Benjamin@Colorado.Edu)

**Matt Benjamin** is the Producer and Education Programs Manager at Fiske Planetarium at the University of Colorado Boulder. He has a degree in Astrophysics from the University of Colorado. Matt also works for the one of the NASA Lunar Science Institute (NLSI) teams - the Lunar University Network for Astrophysics Research (LUNAR) as assistant E/PO lead. He has written and produced half a dozen planetarium shows that are shown both nationally and internationally. He also created the locally successful lecture series, "Colorado Skies". Matt has been a Co-investigator on about 15 funded grants from NASA, NOAA and NSF.



**Jennie Berghuis**  
Subaru Telescope  
Contact: [jp\\_lolo@hotmail.com](mailto:jp_lolo@hotmail.com)

**Jennie Berghuis** is an Assistant Telescope Operator for Subaru Telescope. She did her education at the University of Hawai'i at Hilo, graduating with a B.S. in Astronomy in 2007. She gained experience through locally offered internships included studying and reducing asteroid research data collected at NASA's Infrared Telescope Facility (IRTF), working as a Night Attendant for IRTF, assisting in the fabrication, assembly, and organization of Subaru's HiCIAO instrument project, and building a remotely-controlled telescope dome currently in operation on Mauna Loa. She enjoys adventure, backcountry hiking, skydiving, surfing, paddling, snowboarding, movies, playing music, and most importantly: looking up!



**Kim Brenton**  
Visitor Information Center  
Contact: [khibrenton@gmail.com](mailto:khibrenton@gmail.com)

**Kim Brenton** is an Interpretive Guide and the Volunteer Coordinator at the Visitor Information Station on Mauna Kea. She graduated from the University of Hawai'i at Hilo in 2011 with bachelor degrees in both physics and astronomy. Originally an art major, Kim decided to pursue her undergraduate studies in astronomy shortly after completing an astronomy 101 course at Montgomery College in Maryland. Kim intends on continuing her education with a master's degree, possibly in materials engineering. When not working on the mountain showing the stars to visitors, she enjoys relaxing at the beach, light hiking, and building her photography portfolio.

**Jon Brown**  
University of Hawaii Manoa  
Contact: [jbrown@math.hawaii.edu](mailto:jbrown@math.hawaii.edu)



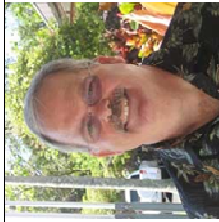
**Sandra Dawson**  
Thirty Meter Telescope Project  
Contact: [sdawson@tmt.org](mailto:sdawson@tmt.org)

**Sandra Dawson** is Manager, Hawai'i Community Relations, for the proposed 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. She retired from Caltech in December and is now on the staff of the TMT Observatory Corporation. She lives in Hilo with her husband Dwayne.



**Brian Day**  
NASA Lunar Science Institute  
Contact: [brian.h.day@nasa.gov](mailto:brian.h.day@nasa.gov)

**Brian Day** is a NASA contractor at Ames Research Center. His duties there have included serving as Education and Public Outreach Lead for NASA's LROSS lunar impactor mission and for the upcoming Lunar Atmosphere and Dust Environment Explorer mission. His hobbies and professional life focus on astronomy. For 16 years, he was chairman of the Foothill College Observatory. Brian and his wife Pam are avid solar eclipse chasers, having traveled around the world to see eight total, five annular, and numerous partial eclipses from such exotic locations as the wilds of Africa, the heights of the Andes, the jungles of Central America, the Australian Outback, the frozen wastes of Northern Mongolia, the base of the Great Wall of China, and the beer gardens of Germany.



**Jeff Donahue**  
Gemini Observatory  
Contact: [jdonahue@gemini.edu](mailto:jdonahue@gemini.edu)

**Jeff Donahue** is Senior Laser Technician at Gemini Observatory. He supports the laser guide star, preparing the laser for each laser run. Jeff and his wife came from Oregon, where he spent 17 years at Hewlett Packard. Jeff also worked in Corvallis, Oregon as an electronic and laser maintenance technician supporting Inkjet Manufacturing. Jeff has a B.S. degree in Industrial Technology from Central Washington University and an A.S. degree in Electronic Engineering Technology from Linn Benton Community College. In addition to his laser activities, Jeff enjoys snorkelling and exploring the Big Island.



**Angelic Ebberts**  
Gemini Observatory  
Contact: [aebbers@gemini.edu](mailto: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.



**Ryan Felix**  
University of Hawaii – Manoa  
Contact: [ryan.michael.felix@gmail.com](mailto:ryan.michael.felix@gmail.com)

**Ryan Felix** a graduate student at UH Manoa and is a Super-M fellow, with Lanai High and Elementary School, researching mathematics and mathematics education. SUPER-M is a project at the Department of Mathematics of the University of Hawai'i at Manoa funded by a National Science Foundation, Graduate STEM Fellows in K-12 Education (GK-12) program. As part of this program he works with K-12 teachers to design innovative, developmentally appropriate, and engaging activities for K-12 students to enhance STEM skills.



**Scott Fisher**  
University of Oregon  
Contact: [scottfisher@gmail.com](mailto:scottfisher@gmail.com)

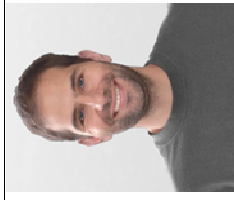
**Scott Fisher** is a faculty member within the University of Oregon, Department of Physics, where he teaches astronomy courses and serves as the Director of Outreach for the department. Scott previously worked at the National Science Foundation in Washington, DC where he was responsible for selecting 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.



**Gary Fujiwara**  
UH Institute for Astronomy  
Contact: [fujihara@ifa.hawaii.edu](mailto:fujihara@ifa.hawaii.edu)

**Gary Fujiwara** was born in Honolulu, and a resident of Hilo since 1980, with a background in graphic arts, music and computer software engineering, Gary heads the Office of Science Education and Public Outreach at UH Institute for Astronomy. While he was a telescope operator at Subaru in 2002, Gary founded **Astro Day**, a nationally recognized and award-winning annual event that attracts over 15,000 people every year in Hilo. Gary has been a NASA Jet Propulsion Laboratory Solar system Ambassador since 2004, and is a member of the Astronomical Society of the Pacific, the Astronomical League and the International Dark Sky Association.





**Roy Gal**  
UH Institute for Astronomy  
Contact: [rgal@ifa.hawaii.edu](mailto: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 for six years, continuing to study the evolution of galaxies, while teaching Honors and regular astronomy classes and also heading the Friends of the Institute for Astronomy.



**Tom Geballe**  
Gemini Observatory  
Contact: [tgeballe@gemini.edu](mailto:tgeballe@gemini.edu)

**Tom Geballe** obtained a Ph.D. in physics in 1974 under Prof. Charles Townes at U.C. Berkeley. Following postdoctoral fellowships at Berkeley, Leiden, and a Carnegie Fellowship at Hale Observatories in Pasadena, he became a staff astronomer at the United Kingdom Infrared Telescope (UKIRT) in 1981. He was Astronomer-in-charge, Associate Director, and Head of Operations at UKIRT from 1987 until 1998. Among his research interests are the galactic center, the physics of quiescent and shocked molecular clouds, the late stages of stellar evolution, the composition of interstellar dust, the surfaces, atmospheres, and aurorae of planets and moons, and brown dwarfs. Recent significant papers include spectroscopy/classification of brown dwarfs, detection of H<sub>3+</sub> in both dark and diffuse interstellar clouds, and infrared evolution of erupting stars V838 Monocerotis and Sakurai's Object.



**Jeff Goldstein**  
National Center for Earth and Space Science Education  
Contact: [jeffgoldstein@ncsesse.org](mailto:jeffgoldstein@ncsesse.org)

**Jeff Goldstein** is a nationally recognized science educator and planetary scientist who has dedicated his career to the public understanding of science and the joys of learning. As Center Director for the National Center for Earth and Space Science Education, Jeff oversees the creation and delivery of programs that engage entire communities, train 3,000 teachers annually, and emphasize family learning. He led the inter-organization team that permanently installed the Voyage model Solar System on the National Mall in Washington, D.C., in front of the Smithsonian. The Voyage National Program is permanently installing low-cost replicas in 100 communities world-wide. Jeff also oversees the Student Spacelight Experiments Program (SSEP) that provides real research opportunities for pre-college students on the Space Shuttle and International Space Station. Jeff was the keynote Speakers for the NSTA National Conference in San Francisco, California, in March 2011. Jeff was acting Chair of the Lab for Astrophysics. He was on the senior staff at Challenger Center from 1996-2005. In 2005 he created the National Center for Earth and Space Science Education. Visit Jeff's website at <http://blogontheuniverse.org>.



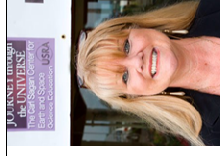
**Olivier Guyon**  
Subaru Telescope  
Contact: [guyon@nao1.org](mailto:guyon@nao1.org)

**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: [jch@hawaii.edu](mailto:jch@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](mailto:jharvey@gemini.edu)

**Janice Harvey** is the Community Outreach and Education Programs Leader for Gemini Observatory and serves as the local team leader for the Journey through the Universe Program on the Big Island. Janice is also the National Team Site leader for the Family Astro program in Hawai'i and serves as a StarLab 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, the National Science Teachers Association, and is coordinator for many of the local science outreach programs on the Big Island. Janice is a long time resident of Hilo and is dedicated to bringing science and astronomy into the local classrooms.

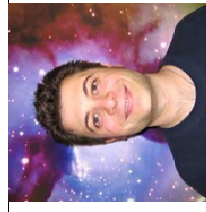


**Saeko Havashi**  
Subaru Telescope  
Contact: [saeko@naoj.org](mailto:saeko@naoj.org)

**Saeko S. Hayashi** grew up in Tohoku, a northeastern region of Japan, where she spent part of her childhood in Fukushima. After graduating from a local high school, she boldly went on to attend Tokyo University as one of the few women undergraduates (1% in STEM majors); she continued there and became the first woman to enroll as a full-time student in the Ph.D. astronomy program. 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 Hawai'i and then was a staff member of the 7.5-m Japan National Large Telescope (JNL T) project, which began at the National Astronomical Observatory of Japan in 1990, and later became known as the Subaru Telescope. She has performed a variety of roles at Subaru from fixing mirrors and 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. Saeko is also an active member of the **Rotary Club of Hilo**. She says, "Subaru Telescope, where people from all over the world come together and work with each other, is a great place to work. The challenges of working at the Mauna Kea summit and the satisfaction of community life in Hilo enrich family life".

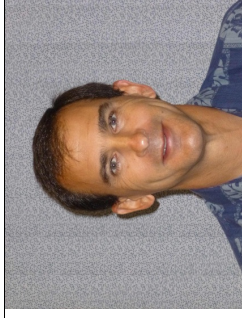
**Stephanie W. Henry**  
Analytical Services, Inc.  
Contact: [stephanie.l.wilson@nasa.gov](mailto:stephanie.l.wilson@nasa.gov)

**Stephanie W. Henry** serves as a Communications Strategist with Analytical Services, 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.



**Michael Hoenig**  
Gemini Observatory  
Contact: [mhoenig@gemini.edu](mailto: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 CIRS, 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 Hawai'i. When he's not examining data from the telescope, he likes to go to the beach, read a good book or dance Argentine tango.



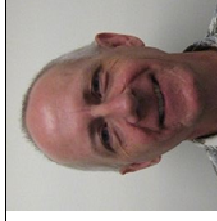
**Stewart Hunter**  
Mauna Kea Support Services  
Contact: [shunter@ifh.hawaii.edu](mailto:shunter@ifh.hawaii.edu)

**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.



**Eric Jeschke**  
Subaru Telescope  
Contact: [eric@subaru.naoj.org](mailto:eric@subaru.naoj.org)

**Eric Jeschke** is a software engineer at Subaru Telescope, based in Hilo, Hawai'i. He received a Ph.D. in Computer Science from Indiana University in 1995 and has worked since then in various capacities as a software engineer, technical consultant and educator before joining Subaru in 2004. At Subaru, he works on various software development projects, including a next-generation observation control system. His hobbies include photography, music, kayaking and Japanese language, in addition to a perpetual role heading the Big Island Linux Users Group.



**Russell Kackley**  
Subaru Telescope  
Contact: [rkackley@naoj.org](mailto: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 Hawai'i. 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 Waikae Intermediate and Honoka'a High School robotics teams.



**Rob Kelso**  
Pacific International Space Center  
for Exploration Systems (PISCES)  
Contact: [rkelso54@gmail.com](mailto: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](mailto: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 astrobology since 2005.



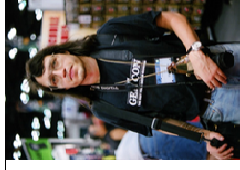
**Shawn Laatsch**  
'Imiloa Astronomy Center of  
Hawaii'  
Contact: [slaatsch@imiloahawaii.org](mailto:slaatsch@imiloahawaii.org)

**Shawn Laatsch** is Planetarium Manager for the 'Imiloa Astronomy Center of Hawaii'. He serves as an Executive Officer in the International Planetarium Society, the world's largest organization of planetarium professionals. Over the past 24 years Shawn has been actively involved in planetarium program development and astronomy education in museum, university, and K-12 settings. He is also actively involved in astronomy outreach and education and is a NASA JPL Solar System Ambassador. He has taught astronomy at the University of Louisville, East Carolina University, and Pitt Community College. In 2008 he received the International Planetarium Society's Service Award for dedication to the planetarium field, and in 2010, Shawn and Richard Crowe each won the **Taniguchi Excellence and Innovation in Teaching Award** for their teamwork teaching introductory astronomy in the 'Imiloa planetarium. He has a passion for cultural and historical astronomy and worked on a major program for the International Year of Astronomy in 2009. Prior to his position at 'Imiloa Astronomy Center of Hawaii', he served as the Director of the Gheens Science Hall & Rauch Planetarium at the University of Louisville and the Arthur Storer Planetarium in Prince Frederick, Maryland. He has been an invited guest speaker on astronomy and planetariums in Argentina, Brazil, Germany, Greece, Japan, New Zealand, and Russia.



**Bernhard Laurich**  
Hawaii'i Community College  
Contact: [laurich@hawaii.edu](mailto: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 Hawaii'i Community College. His most recent interests are astrobology and sustainable energy systems.



**Ramsey Lundock**  
Subaru Telescope  
Contact: [lundock@nao.jorg](mailto:lundock@nao.jorg)

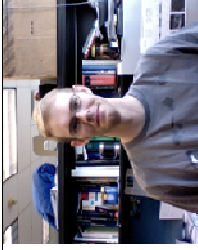
**Ramsey Lundock** graduated from the University of Florida with degrees in Japanese and Physics, including a year of studying abroad at Kansai Gaikoku Daigaku (Kansai Foreign Language University). He worked for 3 years on the family thoroughbred horse farm and cattle ranch, where he had the incomparable thrill of watching their horse Supervisor run in the 2003 Belmont. He later entered graduate school, first at the University of Florida then at the Tohoku University Astronomical Institute in Sendai, Japan. Here Ramsey created the Tohoku-Hiroshima-Nagoya Planet Spectra Library, the world's first comprehensive library of solar system planet spectra. Unfortunately, his five wonderful years in Japan are overshadowed by the 2011 earthquake and tsunami that struck Sendai. Luckily, Ramsey and his new bride were spared the worst of the damage and were able to recover quickly enough to graduate on time and find a new job at the Subaru Telescope. In his spare time Ramsey is an author. His work has appeared in three languages and the English Edition of Japan's Asahi Newspaper.



**R. Pierre Martin**  
UHH Physics & Astronomy  
Contact: [rjm33@hawaii.edu](mailto:rjm33@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 professional observatories.





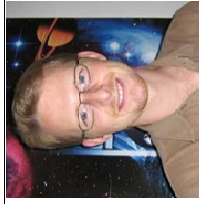
**Frantz Martinache**  
Subaru Telescope  
Contact: [frantz@hao.org](mailto:frantz@hao.org)

**Frantz Martinache** grew up in France and graduated from the University of Marseille in 2005 with a Ph.D. in astronomy, completed under the direction of optical interferometry pioneer Prof. Antoine Labeyrie. His Ph.D. work also included a 7- month internship at the Subaru Telescope in Hilo, during which time he fell for the Big Island. His research interests include low mass stars, brown dwarfs and extrasolar planets. However, instead of simply using telescopes and instruments the way they were designed (which is too boring), he likes to tinker and tweak, and have the instruments do new things. He came back to the Subaru Telescope in the fall of 2008 to assemble and test an extreme Adaptive Optics system that will take direct images of planetary systems around nearby stars. In his spare time, Frantz trains in the martial art of aikido, plays heavy metal with his guitar, hacks computers and electronics, as well as reads and draws.



**Tony Matulonis**  
Gemini Observatory  
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**Tony Matulonis** is a System Support Associate at the Gemini North Observatory in Hilo Hawai'i. 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, Observatory Night Attendant at the NASA IRTF, and Telescope Operator at the UH 2.2-meter on Mauna Kea, he joined Gemini Observatory in 2003. His interests include adaptive optics and laser guide star systems.



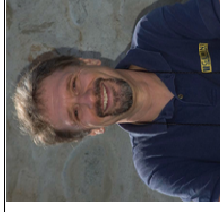
**Richard McDermid**  
Gemini Observatory  
Contact: [rmcdermi@gemini.edu](mailto:rmcdermi@gemini.edu)

**Richard McDermid** is a Gemini Science Fellow at Gemini North, and currently the NIFS instrument scientist. Richard obtained an M.Sc. in 1999 from St. Andrews University in his native country of Scotland, and studied his Ph.D. at Durham University in the north-east of England. From 2002, following his Ph.D., he spent five years as a postdoctoral fellow at Leiden Observatory in the Netherlands, and joined Gemini in 2007. Richard's instrumentation expertise is focused on integral-field spectroscopy and adaptive optics, which also form the basis of his research interests. Richard currently works on investigating stellar populations and dynamics in early-type galaxies with a view to understanding how massive galaxies form and evolve. Richard also works on measuring the properties of super-massive black holes in nearby passive galaxies through the application of dynamical models.



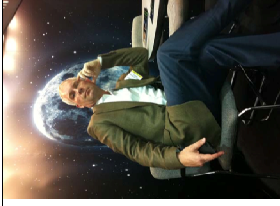
**Callie McNew**  
James Clerk Maxwell Telescope –  
Joint Astronomy Centre  
Contact: [mcnew@hawaii.edu](mailto:mcnew@hawaii.edu)

**Callie McNew** is currently a Telescope System Specialist at the James Clerk Maxwell Telescope. Callie recently 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 eight years fulfilling a variety of positions including public outreach, laser operations, and telescope operations.



**Peter Michaud**  
Gemini Observatory  
Contact: [pmichaud@gemini.edu](mailto: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. His staff has grown from himself to seven employees since 1998 and he continues to expand the impact of Gemini's Public Information and Outreach programming locally, nationally and world-wide.



**Joseph Minafra**  
 NASA Lunar Science Institute  
 Contact: [joseph.minafra@nasa.gov](mailto:joseph.minafra@nasa.gov)

**Joseph Minafra** currently serves as Deputy Director of Communications and Outreach for the NASA Lunar Science Institute (NLSI). Additionally he is Sr. Application Developer and Collaborative Technology Specialist for Lockheed Martin at NASA Ames Research Center. Minafra formally was responsible for a wide variety of tasks for the NASA Ames Center Director, Space Sciences and BioSciences Divisions. His work will link the communication and educational public outreach needs of competitively selected science teams across the nation. The NASA Lunar Science Institute helps to lead the agency's research activities related to NASA's lunar exploration goals. NLSI research includes studies of the Moon (including lunar samples), from the Moon, and on the Moon.



**Brian Mitchell**  
 NASA Lunar Science Institute  
 Contact: [brian.k.mitchell-1@nasa.gov](mailto:brian.k.mitchell-1@nasa.gov)

**Brian Mitchell** has worked on various Space Shuttle payload missions including ASTRO, ATLAS, and Spacelab, as well as several commercial payloads for the International Space Station. He is currently the Education and Public Outreach (EPO) Lead for the Robotic Missions Program Office at the Marshall Space Flight Center in Huntsville, Alabama. This office includes the Discovery, New Frontiers, Lunar Quest, and Technology Demonstration Missions program offices. He has supported LRO, LCROSS, JUNO, GRAIL, and IML launches to the Moon, Jupiter, and Mars, and is currently working with the LADDE EPO team to develop educational launch activities at Wallops Island, for a science mission to study the thin lunar exosphere.



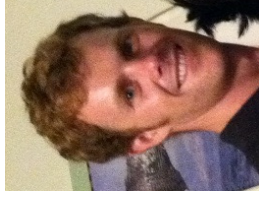
**Janet Nathani**  
 Mauna Kea Visitor Information Station  
 Contact: [Nathani@hawaii.edu](mailto:Nathani@hawaii.edu)

Originally from Pennsylvania, **Janet Nathani** started school at East Stroudsburg University, majoring in Biology. During her senior year, she decided to come to Hawai'i through the National Student Exchange program. Falling in love with the ocean and Mauna Kea, Janet found her new home on the Big Island, where she is now living permanently. Currently, Janet Nathani is an Interpretive Guide at Mauna Kea Visitor Information Station (VIS), where she provides safety information to visitors, conducts star gazing activities and summit tours. She is also the Universe Tonight coordinator at the VIS, which is a free public event that enables astronomers from different observatories to present their research to the public. Aside from work, Janet aims to obtain her biology degree in May 2013. In the future, Janet plans to attend a Natural Medicine School in Hawai'i, where she can learn the skills of Chinese medicine and preventive care. In her spare time, Janet enjoys stargazing on Mauna Kea, going surfing and living the Aloha lifestyle.



**Harriet Parsons**  
 Joint Astronomy Centre  
 Contact: [h.parsons@jach.hawaii.edu](mailto: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!



**Geoff Patterson**  
 University of Hawaii Manoa  
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**Geoff Patterson** is a graduate student at UH Manoa studying mathematics, as well as a Super-M Fellow with Kaniakaono Public Charter School, Kauai. The Super-M program is a project funded by a National Science Foundation, Graduate STEM Fellows in K-12 Education (GK-12) program, focused on bringing university level STEM research to K-12 teachers and classrooms. Geoff's research primarily involves control theory, and spacecraft mission design.





**Christopher Phillips**  
**Imiloa Astronomy Center of Hawaii**  
**Contact:** [cpPhillips@imiloahawaii.org](mailto:cpPhillips@imiloahawaii.org)

**Christopher Phillips** is originally from the United Kingdom and is based at the 'Imiloa Astronomy Center of Hawaii'. He has been involved in science communication and education working in science centers and museums internationally. At 'Imiloa Astronomy Center he is part of the planetarium team responsible for producing full-dome content and has worked on numerous full-dome productions including the Awesome Light series. Christopher also 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 Goonhilly 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.



**Tae-Soo Pyo**  
**Subaru Telescope**  
**Contact:** [pyo@naoj.org](mailto:pyo@naoj.org)

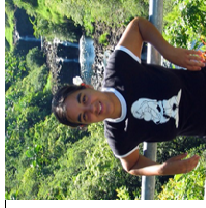
**Tae-Soo Pyo** is a Support Astronomer at the Subaru Telescope. His research focuses on star formation, especially, outflows from young stellar objects. He is actively involved in the development of new infrared instruments which will facilitate this research. Tae-Soo Pyo did his undergraduate work in the Department of Astronomy at Seoul National University in 1992 and continued on to get his Master's degree in 1994. He then transferred to University of Tokyo. Pyo worked at the Subaru Telescope as a Jr. Astronomical Researcher from 2000 until he received his Ph.D in 2003. During this time, he participated in the final development and engineering observations for the Infra-Red Camera and Spectrograph (IRCS). After graduating, he continued at the Subaru Telescope as a Korea-Subaru Liaison Researcher for Multi-Wavelength Observational Study of Outflows Emanating from Young Stellar Objects. In 2005 he became a support astronomer for IRCS, the same instrument he helped develop as a Jr. Astronomical Researcher.



**Bo Reipurth**  
**Institute for Astronomy**  
**Contact:** [reipurth@ifa.hawaii.edu](mailto: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."



**Julie Renaud-Kim**  
**W.M. Keck Observatory**  
**Contact:** [julierk@keck.hawaii.edu](mailto:julierk@keck.hawaii.edu)

**Julie Renaud-Kim** was born the youngest of seven children in Alhambra, California. While at Alhambra High School she became involved in Biomed, a program promoting scientific research. By her senior year, she was studying comets Hale-Bopp and Hyakutake at California State University, Los Angeles. After graduation, she continued her studies in astronomy and garnered more telescope experience at Pomona College. The next stop in her personal astronomical journey was the W.M. Keck Observatory, where she is an Observing Assistant, a position which requires her to operate the Keck telescopes and aid researchers in obtaining scientific data. She has always been interested in sharing her knowledge with others, through tutoring, teaching or just talking story. Journey Through the Universe has given her a new way to reach out.



**Adam W. Rengstorf**  
Purdue University  
Email: [adamwvr@purduecal.edu](mailto:adamwvr@purduecal.edu)

**Adam Rengstorf** is an associate professor of physics & astronomy in the Dept. of Chemistry and Physics at Purdue University Calumet, where he has been teaching since 2005. When not teaching physics and astronomy courses, his research is on the time variability of quasars. Prior to that, Adam spent a couple years as a post-doc at the University of Illinois, where he split his time between the Dept. of Astronomy and the NCSA. He received his M.A. and Ph.D. in astronomy from Indiana University and a B.S. in physics from Binghamton University in New York.  
He currently lives in northwest Indiana with my wife, daughter, and a retired greyhound.



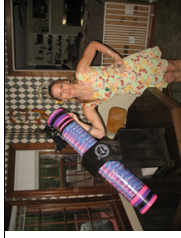
**Luca Rizzi**  
W.M. Keck Observatory  
Contact: [lrizzi@keck.hawaii.edu](mailto:lrizzi@keck.hawaii.edu)

**Luca Rizzi** received his Ph.D. from Padova University, Italy, in 2003. He then came to the University of Hawai'i at Manoa as a post-doctoral researcher. His interest in observational astronomy brought him to the island of Hawai'i in 2007, when he became a support astronomer at UKIRT, within the Joint Astronomy Centre, mostly working on the large international project called UKIDSS and on the wide field infrared camera WFCAM. In 2011, he moved to the W.M. Keck Observatory in Waimea, where he is a support astronomer. Luca studies nearby galaxies, to understand their formation and their history, using the properties of their resolved stellar populations. He likes cooking and scuba diving, and is involved in the hula community.



**Kathy Roth**  
Gemini Observatory  
Contact: [kroth@gemini.edu](mailto: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 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.



**Sharon Schleigh**  
Purdue University  
Contact: [schleighs@yahoo.com](mailto: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 and is currently an Assistant Professor at Purdue 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 projects such as the NASA Deep Impact Mission (Institute for Astronomy, Hawaii); Toward Other Planetary Systems (IFA/NSF); All'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**  
Canada-France-Hawaii Telescope  
Contact: [simons@cfht.hawaii.edu](mailto:simons@cfht.hawaii.edu)

**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 Hawai'i in 1990, before working as a staff astronomer at the Canada-France-Hawai'i Telescope (CFHT) for 4 years. Doug joined Gemini in 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.



**Evan Sinukoff**  
UH Institute for Astronomy -  
Manoa  
Contact: [sinukoff@ifa.hawaii.edu](mailto:sinukoff@ifa.hawaii.edu)

**Evan Sinukoff** is a first 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 the detection and characterization of these extrasolar planets, especially those which might be host to alien life. Presently, as a graduate research assistant of Dr. Andrew Howard, he is analyzing the occurrence patterns of hot Jupiter-size planets to better understand how they form. He has participated in searches for smaller planets using some of the world's most powerful telescopes at the summit of Mauna Kea. Aside from astronomy, I love to hike, surf and play a variety of different sports, and, as most Canadians, this includes ice hockey.



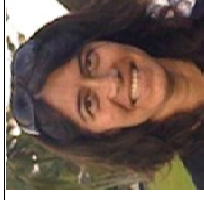
**Gordon Squires**  
Thirty Meter Telescope Project  
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**Gordon K. Squires** is an astronomer at the California Institute of Technology, working with the Thirty Meter Telescopes as well as NASA's Spitzer Space Telescope, the Herschel Space Observatory, 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.



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**Marianne Takamiya**  
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**Marianne Takamiya** comes from Chile where she obtained her B.Sc. in Physics. She earned her Ph.D. in Astronomy and Astrophysics from The University of Chicago and came to Hilo in 1998 as one of the first Gemini Science Fellows. She is a mother of two children and wife of an astronomer. She is currently an Assistant Professor in the Department of Physics and Astronomy at the University of Hawai'i at Hilo where she teaches physics and astronomy courses and studies the evolution of galaxies and star formation in galaxies near and far.



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**Holly Thomas**  
Joint Astronomy Centre  
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**Holly Thomas** is a Staff Astronomer at the James Clerk Maxwell Telescope. She received her Ph.D. in Astrophysics in 2007 from the University of Manchester in the UK. In her current role she is responsible for maintaining the pointing model for the telescope, assisting visiting astronomers, as well as spending some time pursuing her own research. Her research interests center on galactic star formation with a particular focus on the most massive stars. These huge stars form deep inside giant clouds of gas and dust, which makes them impossible to see directly. Instead, Holly uses the JCMT and other submillimeter telescopes to peer inside these clouds and understand the mechanisms by which stars form within them. In her spare time she likes to explore the islands both on land and in the sea. She also enjoys finding new places to eat and drink, reading mystery novels and trying out different sports.



**Kumiko Usuda**  
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**Kumiko Usuda** is a Japanese astronomer who served as an outreach scientist at Subaru Telescope until March of 2011. Since that time she has been a volunteer at 'Imiloa helping with educational events and planetarium projects. She has visited many local classrooms and provided hands-on workshops to share the fun of astronomy and science with pre-K children, K-12 students, and their families. She is also happy to talk to sight- and hearing-impaired students about outer space. Working with the Mauna Kea Observatories Outreach Committee (MKOOC), she led several outreach projects such as "Mauna Kea Brand Astronomy Trading Cards" using images taken with Mauna Kea telescopes, and "Mauna Kea Coin Contest" for K-12 students on the Big Island of Hawai'i.



**Jonathan Williams**  
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**Jonathan Williams** is an Astronomer at the University of Hawai'i at Manoa and currently the Faculty Chair of the Institute for Astronomy. He grew up near Oxford, England, but left that shabby university town to read mathematics at Cambridge. He then followed his childhood passion to become an astronomer by getting a Ph.D. at the University of California at Berkeley. He has since worked at five U.S. universities, doing research at Harvard, Arizona, then teaching at Florida, before finding his place in paradise. He uses the radio telescopes on Mauna Kea and elsewhere to study the formation of stars and planets.



**Josh Williams**  
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**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.



**Sylvana Yelda**  
 University of California Los Angeles  
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**Sylvana Yelda** is a postdoctoral researcher in the Galactic Center Group at UCLA. She took somewhat of an untraditional academic path, first getting a Bachelor's degree in Psychology from the University of Michigan in 2002, and then deciding to switch fields and take up Astronomy. She received her Ph.D. in Astronomy at UCLA in 2012. In her current role, Sylvana studies the dynamics of stars orbiting the supermassive black hole at the center of the Milky Way in order to understand how they formed in this hostile environment. She is also conducting a study on the expected performance of the future Thirty Meter Telescope's first-light instrument, IRIS, using simulated images of the Galactic center. Aside from Astronomy, Sylvana likes to run, play beach volleyball, and snowboard.