

# ABOVE THE FOG

• BULLETIN OF THE SAN FRANCISCO AMATEUR ASTRONOMERS •

Vol. 59, No. 4 – April 2011

**Wednesday, April 20, 2011 – General Meeting**

Randall Museum . 199 Museum Way . San Francisco

7:00 pm Doors Open . 7:30 pm Announcements . 8:00 pm Speaker

SFAA's General Meetings take place on the 3<sup>rd</sup> Wednesday of each month (except January)

**DR. PETER JENNISKENS**  
**SETI INSTITUTE AND NASA AMES RESEARCH CENTER**

## THE IMPACT AND RECOVERY OF ASTEROID 2008 TC3



It is an incredible story at so many levels: the announced impact of a small asteroid and the subsequent search for fragments in the remote Nubian desert of Sudan by University of Khartoum students. What they found changed our understanding of asteroids and meteorite falls.

On October 7, 2008, a small 3-4 m sized asteroid was discovered in space on a collision course with Earth. 20 hours later, it crashed in the Nubian desert of Northern Sudan. This was the first asteroid that was spotted by astronomers before impact. While approaching Earth, astronomers measured the shape and orientation of the asteroid and determined its taxonomic class. The impact occurred around the time of morning prayer and was seen by thousands. The asteroid approached from the west and exploded 37 km high above the ground, much higher than expected for an asteroid. A dust cloud was photographed by cell phone users, seemingly all that survived from the impact.

For two months, no effort was made to search for meteorites, until SETI Institute meteor astronomer Dr. Peter Jenniskens traveled to Sudan in December, at the invitation of Dr. Muawia Shaddad of the University of Khartoum, and together with students and staff of the University succeeded against all expectations: they ended up collecting over 600 fragments and slightly more than 10 kg of meteorites. The meteorites turned out to be of a rare polymict ureilite type, thought to originate from a single unknown source in the asteroid belt. Jenniskens will report on his travels to Sudan and the results of research on these meteorites. Not only did 2008 TC3 show that meteorites could be found under exceptional circumstances, the asteroid also provided new insight into the nature of ureilites and their formation history.

*In Peter Jenniskens latest project, he took NASA's DC-8 Airborne Laboratory and 27 researchers on a mission to study the re-entry of JAXA's Hayabusa mission in June of 2010. Before that, he has been the Principal Investigator of a number of airborne observing campaigns that studied meteor showers and the fireballs created when spacecraft returned from interplanetary space. He received his [Ph.D.in](#) astronomy in 1992 from Leiden University in the Netherlands and has since been associated with NASA Ames Research Center and the SETI Institute. He is the author of "Meteor Showers and their Parent Comets" (2006, softcover 2008), the handbook on meteor showers that established meteor showers as a topic of astronomy.*

<http://airborne.seti.org>

<http://solarsystem.nasa.gov/people/profile.cfm?Code=JenniskensP>



## San Francisco Amateur Astronomers Upcoming Lectures

**Randall Museum Theater** . Randall Museum . 199 Museum Way . San Francisco

**7:30 p.m. . Free & Open to the Public**

### May 18

**BRENDA FRYE**, Assistant Professor of Astronomy and Physics, University of San Francisco  
Research interests include galaxy formation and evolution, protoclusters, galactic structures, high redshift galaxies, the galaxy-IGM interface, and especially all of the above gravitationally-lensed.

San Francisco Amateur Astronomers welcomes member volunteers to bring snacks for the general meeting lectures. Plan to set up “munchie” snacks and soft drinks by 7:00pm. The Randall provides a coffee pot for hot water, instant coffee & tea bags, in addition to paper supplies. You may request reimbursement or donate your items with SFAA’s thanks and appreciation. Volunteers are needed for this year. SFAA’s General Meetings take place on the 3<sup>rd</sup> Wednesday of each month (except January). **Please submit meeting date you wish to volunteer for with your name, e-mail address and telephone number to [doublestar@comcast.net](mailto:doublestar@comcast.net)** You will be contacted to confirm. San Francisco Amateur Astronomers is most appreciative of your participation in supporting our organization.

### June 15

**MICHAEL PORTUESI**, Past President, San Francisco Amateur Astronomers  
Mike Portuesi will give a talk on observing and sketching at the eyepiece. He will begin with historical references, and also plans to give demonstrations in a unique and engaging manner. He is always an informative, creative and delightful speaker.

# PRESIDENT'S MESSAGE

April viewing started a little more hopefully than earlier months...just in time for the Messier Marathon on April 2nd! A wonderfully motivated group of SFAA-ers met on Mt Tam for good early viewing before the winds became too rough for nearly all but a few hardy souls who managed to score the coveted protected viewing locations spots. Monsieur Messier himself (or his ghost!) was in attendance...and regaled us with his proclamation for all astronomers! It was great to see so many of you out and about.

Here are the notices about interesting astro activities that are taking place throughout Spring & into Summer!

## For the club:

**General Meeting & Lecture Series** -April 20<sup>th</sup>, 7pm: Dr Peter Jenniskens PhD. Of SETI and NASA Ames presents "THE IMPACT AND RECOVERY OF ASTEROID 2008 TC3"

**Telescope Clinic** at the Randall Museum – starts March 15<sup>th</sup> through May 17<sup>th</sup>.

**Yosemite Dates Announced** – July 8<sup>th</sup> & 9<sup>th</sup> 2011. Save the Dates!!!

**Mt Tam Summer Program** – commences at the Mt Tam Amphitheater at Rock Springs on May 7<sup>th</sup> with a presentation by Dr. Frank Marchis of the SETI Institute. His talk is entitled *Tiny Moons Around Small Asteroids* Save the Date!!!

## From the broader community:

**California Academy of Sciences** – celebrated Yuri's Night on April 7<sup>th</sup> with telescopes and a star tour. We are working with the CAS to find other ways our members and theirs can work together. If you'd like to participate in upcoming events...please let myself or Vivian know.

## Giant Sundial Project

An enterprising member of the community has contacted the club with an ambitious project that might get some of our club members' minds ticking. As you may know, the Golden Gate Bridge is celebrating its 75<sup>th</sup> anniversary next year and is inviting suggestions of ways to celebrate. As an amateur astronomer Chris Hardman of the *Antenna Theater* has devised a fascinating project called the Golden Gate Bridge Sundial Map which aims to map the periods of the year during which the sun sets between the uprights of the Bridge. He's also looking for amateur astronomers to help him plot other celestial beauties that can be overlaid onto the map. As Chris explains...

*There are two time zones each year during which the sun sets directly behind the Golden Gate Bridge as seen from any point inside the San Francisco Bay area. Because viewing the sunset behind the bridge from Richmond will be different than from Oakland a map could be made that would show which evenings the sun would set directly between the two towers from which vantage point.*

*There are also going to be amazing Moon events -such as full moons over the bridge- which can be calculated and announced. In particular, I am seeking an expert ally in helping me calculate these astronomical events, particularly when and where the azimuth of the sun/moon will be visible through the arches of the Golden Gate. I look forward to hearing from you!*

I liked the romance of this idea because it reminds us of the physical cues that the ancients (and not so ancient mariners) have used in order to keep time. If you are interested in getting involved – contact Chris at [chris@antenna-theater.org](mailto:chris@antenna-theater.org).

## Call for expressions of interest from fellow Amateur Astronomer - Jay Horowitz

Amateur Jay Horowitz wants to take science on the road in 2011 and 2012 and is looking for your help! Astronomy On The Road is collaborating with Kickstarter, an up-and-coming internet startup, to raise money for materials to bring free views of the skies in schools, libraries, and on city streets all over the United States.

So far 39 backers (at time of printing) have pledged \$3,347 of the total \$8,000 goal. You can visit them at the link <http://www.kickstarter.com/projects/astroontheroad/astronomy-on-the-road> to learn more. Kickstarter projects offer prizes for donors, which for this project include lunches with:

- Author and science writer Jonah Lehrer
- Skeptoid podcast host and producer Brian Dunning
- Dr. Geoffrey Marcy, discoverer of more exoplanets than any other person
- Director of The Large Binocular Telescope Observatory Dr. Richard Green
- MacArthur Fellow, Shaw Prize winner and Chair of Princeton University's Department of Astrophysical Sciences Dr. David Spergel
- Dr. Massimo Pigliucci, editor in chief of Philosophy and Theory in Biology, prolific author, and Chair of the Department of Philosophy at Lehman College

Your help will give thousands of people the opportunity to see firsthand the universe in which we live, turning young minds on to the power of science and sparking curiosity and awe in adults.

Contact: Jay Horowitz, project founder, Astronomy On The Road Email: [astroontheroad@gmail.com](mailto:astroontheroad@gmail.com)

# IMPORTANT DATES

## SFAA GENERAL MEETINGS & LECTURES

Randall Museum, 199 Museum Way (Near 14<sup>th</sup> Street and Roosevelt)

Third Wednesday of each month: 7:00 p.m. Doors open. 7:30 p.m. Announcements. 8:00 p.m. Speaker

**SFAA BOARD MEETINGS IMMEDIATELY PRECEDE GENERAL MEETINGS AND BEGIN AT 6:00 P.M.**

April 20	July 20	October 19
May 18	August 17	November 16
June 15	September 21	December 21

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## CITY STAR PARTIES *Land's End (Point Lobos)*

The parking lot at Lands End is currently under construction and will be inaccessible for a few months. SFAA Public Star Party will be held at the multi-tiered parking lot just past the entrance of land's end on Geary Street. We believe the address for this parking lot is 1 Merry Way.

### Directions:

If you are heading west on Geary (toward the Ocean), the entrance will be on your right a few hundred feet after the Lands End turn off. It is located above the Cliff House Restaurant.

Map and directions: <http://www.sfaa-astronomy.org/clubarchive/directions-pointlobos.php>

## **TELESCOPE CLINIC ONE HOUR BEFORE SUNSET**

**NOTE:** While City Star Parties **WILL ALWAYS** be held on a Saturday, some will be close to the last quarter phase of the moon; others will be close to first quarter. This is so we can work around dates for Mt. Tam public star parties as well as our Mt. Tam members-only events.

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## 2010 MT TAM SPECIAL USE PERMIT STAR PARTIES - MEMBERS ONLY

### **GATEKEEPERS NEEDED**

Special Use Permit observing nights on Mount Tamalpais are private and open *only* to SFAA members. Please arrive by sunset. A permit is required for each car. We must vacate the mountain by 2:00 a.m. except on specially approved nights (such as Messier Marathon).

May 28	July 2	October 22
June (None)	August 27	November 26
	September 24	December 24

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## MT TAM PUBLIC STAR PARTIES (May through October)

Public nights on Mount Tamalpais start with a lecture in the Mountain Theatre, followed by public viewing in the Rock Springs parking lot. SFAA members may view privately after crowd departs from approx. 11 pm-2 am.

For more information: <http://www.sfaa-astronomy.org/starparties/>

**April 25, 7:00 – 9:00 p.m.**

**Berkeley Repertory Theater, 2015 Addison Street, (between Shattuck Ave. & Milvia St.), Berkeley**

**Presented by the Lawrence Berkeley National Laboratory**

**Mysterious Dark Energy Speeding Up the Universe**

## **SCIENCE AT THE THEATER: NEW LIGHT ON DARK ENERGY**

Thirteen years ago, scientists at Berkeley Lab and elsewhere made the astonishing announcement that the expansion of the universe is SPEEDING UP! No decent, self-respecting universe was supposed to behave this way! This discovery meant that there was possibly something else in the universe besides the familiar kinds of mass and energy — a mysterious something scientists started calling dark energy. Since then, cosmologists have looked to the stars, galaxies, and Einstein's ideas to uncover the secrets of this elusive force. Find out what they've learned and what's next in our quest to understand the large-scale properties of the cosmos -- from three scientists who work in this field at the Berkeley Lab.

**Who:** Greg Aldering, Head of the "Nearby Supernova Factory" Experiment  
Shirley Ho, Astrophysicist and Seaborg and Chamberlain Fellow  
Eric Linder, Co-Director of the Institute for Nuclear and Particle Astrophysics  
Moderator: Andrew Fraknoi of Foothill College and the Astronomical Society of the Pacific

For more information: <http://www.lbl.gov/LBL-PID/fobl/>

No reservations. Seats are made available on a first-come, first-served basis.

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Greg Aldering will discuss how exploding stars helped us discover and help us track the acceleration of the expanding universe. Aldering is one of the best in the business when it comes to hunting down the distant explosions that give us our best cosmic yardstick. Shirley Ho will report on another great way to measure the expansion history of the universe -- by using the equivalent of sound waves traveling through the large-scale structure of the early universe. Just as sound-waves help doctors and expectant parents to know about the health of an unborn baby, so "baryon acoustic oscillations" can allow scientist to use the arrangement of the great network of galaxies to probe the history of the cosmos.

Eric Linder will pose an intriguing question: what if some kind of dark energy isn't driving the accelerating universe? Maybe it's something even stranger, such as a flaw in our understanding of gravity itself. Linder, author of "The First Principles of Cosmology," likes to ask out-of-the-box questions about the cosmos. You'll get insights from someone whose job it is to ponder extra dimensions, boiling space-time, and gravity waves.

Moderator Andrew Fraknoi is sometimes called the Bay Area's most popular astronomy explainer. Fraknoi is an award-winning science educator known for his skill in interpreting astronomical discoveries and ideas in everyday language. He is the chair of the astronomy program at Foothill College, where he teaches courses on astronomy and physics for poets and was Executive Director of the Astronomical Society of the Pacific.

There will be time for questions from the audience.

## 2011 Mt Tam Astronomy Programs start on MAY 7 Mt. Tamalpais State Park - Explore the Wonders of the Universe

**Greeting to all Mt Tam Enthusiasts! We are about to begin our 23rd series of lectures + star parties on Mt Tam.**

This year we will run monthly May through Oct, and we have 6 really exciting speakers to entertain and inform you about our magnificent universe. As usual, all talks will take place in the Cushing Memorial Theatre (usually just called the Mountain Theatre) and be followed by observing in the Rock Spring Parking Lot. These programs are sponsored by your state park and are FREE and open to the public. Bring you neighbors and friends for some great evenings on the Mountain. Encourage young people to come and introduce them to the experience of learning some science in a friendly setting followed by a chance to view through telescopes provided by the San Francisco Amateur Astronomers.

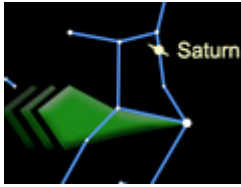
If you know others who may wish to receive notices of our programs send email addresses to [tinkaross@comcast.net](mailto:tinkaross@comcast.net). Or send a reply to this notice if you wish to be removed from this list. Reminder notices are sent the week prior to each event and emails are not shared with anyone else.

You can learn more about our programs by checking out the web site: [www.mttam.net](http://www.mttam.net) or calling our hot line: 415-455-5370. If you still have questions or comments contact Tinka at 415-244-4715.

The complete schedule is listed below and is also attached if you wish to print it out. **MARK YOUR CALENDARS NOW** and join us on the Mountain for some exciting Saturday nights!

- |                  |   |
|------------------|---|
| May 7<br>8:30pm  | <b>Dr. Franck Marchis</b> , SETI Institute/ UC Berkeley<br>"Tiny Moons Around Small Asteroids"<br>Asteroid multiplicity is an astronomical prize for observers and theorists, constraining theories on the origin of the solar system.  |
| June 4<br>8:30pm | <b>Dr. Michael Kuhlen</b> , Theoretical Astrophysics Center<br>"The Milky Way as a Dark Matter Laboratory"<br>Over the next decade, a combination of astronomical observations and particle physics experiments hold great promise to finally shed light on the nature of Dark Matter, the dominant contribution to the matter content of the universe. |
| July 9<br>8:30pm | <b>Dr. Anja von der Linden</b> , Stanford University<br>"Natures's Biggest Lenses"<br>Gravitational lensing allows us to study dark matter, find exoplanets and see the first objects in the universe.  |
| Aug 6<br>8:30pm  | <b>Steve Bryson</b> , NASA-Ames Research Center<br>"Kepler's Vision: Exoplanets and Songs of the Stars"<br>Since mid 2009, NASA's Kepler space telescope has been constantly watching about 160,000 stars with the ultimate goal of finding Earth-sized planets in Earth-like orbits around Sun-like stars.   |
| Sept 3<br>8:00pm | <b>Dr. Kirill Filimonov</b> , UC Berkeley<br>"Extreme Astronomy: Eyeing the Cosmos through a Cubic Kilometer of Ice"<br>Why physicists are fishing for elusive cosmic neutrinos using Ice Cube, the world's largest telescope located on the harshest continent on the planet.  |
| Oct 17<br>7:30pm | <b>Dr. Anne Metevier</b> , UC Santa Cruz/Sonoma State University<br>"Milky Way Galaxies Across the Universe"<br>The universe contains many vast galaxies containing stars, gas and dust. What do we know about the formation and evolution of galaxies most like our own Milky Way.   |

## NASA WHAT'S UP PODCAST FOR APRIL – BY JANE HOUSTON JONES



### **P** What's Up for April

**April 2011**

Use the Big Dipper to find Saturn this month.

[Download Video](#)

## NASA SCIENCE NEWS

The Science@NASA team is pleased to announce a new product: the ScienceCast. Every week, we produce a short video highlighting a topic in NASA science news. This week's episode is about the night sky. Check out "Spring is Fireball Season" on Youtube: <http://www.youtube.com/watch?v=ssMdlTbvHjk>  
A complete list of ScienceCast episodes may be found on Science@NASA's Youtube channel: <http://www.youtube.com/user/ScienceAtNASA> . Enjoy!

This is a free service.

## DAWN APPROACHES ASTEROID VESTA

After 3 ½ years of thrusting silently through the void, NASA's Dawn spacecraft is on the threshold of a new world. It's deep in the asteroid belt, less than 4 months from giant asteroid Vesta.

"We're closing in," says Marc Rayman, Dawn's chief engineer and mission manager. "And I'm getting more excited every day!"

[http://science.nasa.gov/science-news/science-at-nasa/2011/07apr\\_dawn/](http://science.nasa.gov/science-news/science-at-nasa/2011/07apr_dawn/)

## SOLAR ACTIVITY HEATS UP

If you've ever stood in front of a hot stove, watching a pot of water and waiting impatiently for it to boil, you know what it feels like to be a solar physicist.

NASA's Solar Dynamics Observatory recorded this X1.5-class solar flare on March 9, 2011. [\[movie\]](#)

Back in 2008, the solar cycle plunged into the deepest minimum in nearly a century. Sunspots all but vanished, solar flares subsided, and the sun was eerily quiet.

[http://science.nasa.gov/science-news/science-at-nasa/2011/14apr\\_thewatchedpot/](http://science.nasa.gov/science-news/science-at-nasa/2011/14apr_thewatchedpot/)

**APRIL 2011**  
**ASTRONOMERS WITHOUT BORDERS**  
**GLOBAL ASTRONOMY MONTH**

The Astronomers Without Borders website at <http://www.astronomerswithoutborders.org/about-astronomers-without-borders.html> states:

*Boundaries vanish when we look skyward. We all share the same sky.*

The star-filled night fascinates us all. People have gazed upward at it in wonder and awe for thousands of years. Regardless of earthly differences in culture, nationality or religion, the heavens are a common meeting ground for all of Earth's inhabitants. The boundaries we place between us vanish when we look skyward. Whoever, whatever or wherever we are, we all share the same sky.

Sharing is an integral part of appreciating the cosmos. Amateur astronomers regularly take their telescopes to public sites and invite others to join them in their exploration of the skies. The veterans relive the thrill of discovery alongside these new space explorers. This passion to share the night sky crosses international borders and cultures as well.

The heavens transcend political, ethnic and religious differences. The tensions of everyday life seem to drain away before the wonder and enormity of the skies, and those standing in darkness with heads turned upward never ask people beside them about their origins or beliefs. In that moment, differences are forgotten and we are one beneath the sky we share.

It is this bond between people that Astronomers Without Borders hopes to foster. A brief message or the gift of a small telescope can grow into lasting bonds, goodwill and friendships that reach around the world. Understanding replaces ignorance and suspicion. Media images are superseded by the faces of real people. Relationships, support and personal connections supplant stereotypes. Astronomers Without Borders is people meeting among the heavens. It is only natural to do so. After all, we all share the same sky.

Astronomers Without Borders invites the astronomy community to participate in Global Astronomy Month activities occurring throughout the month of April.

See: <http://www.astronomerswithoutborders.org/global-astronomy-month-2011.html>

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**MAY 7, 2011**  
**INTERNATIONAL SIDEWALK ASTRONOMY NIGHT**

<http://www.sidewalkastronomers.us/id10.html>

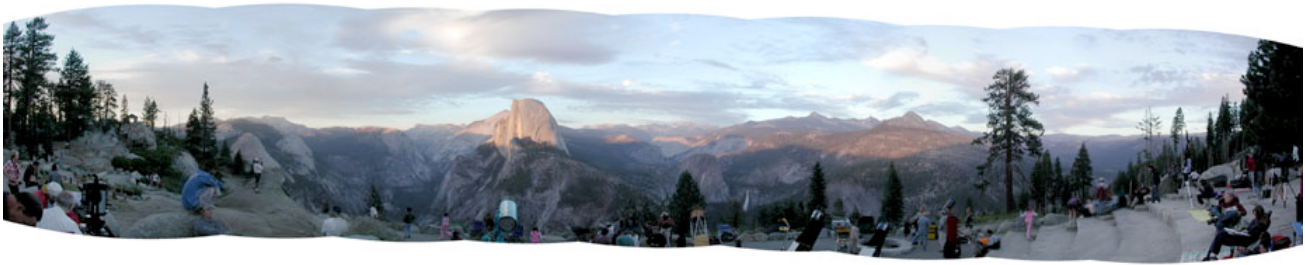
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**SAN FRANCISCO AMATEUR ASTRONOMERS**  
**YOSEMITE WEEKEND AT GLACIER POINT**

**SAVE THE DATES !!!! JULY 8 AND 9 SAVE THE DATES !!!!**

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pan shot courtesy of Mojo

## **SFAA Yosemite Star Party at Glacier Point Friday, July 8 & Saturday, July 9, 2011**

For those of you unfamiliar with this event, we are given free, reserved admission to Yosemite National Park and shared camping space at Bridalveil Group Campground. The campsite is 8.5 miles away from Glacier Point. In exchange, we give two public star parties at Glacier Point, on Friday and Saturday night. We have the public (about 200 - 300 people) from twilight for a few hours, and then the rest of the night (and all day) to ourselves; this is a mighty good deal, considering how some folks come 12,000 miles to see these rocks. The National Park Service limits astronomy clubs to a maximum of 30 SFAA campers. Please do not ask if your friends can come ... unless they are SFAA members.

Want to [join](#) the SFAA? This is our biggest membership magnet; come join the SFAA! You are expected to have at least one public telescope for every two people.

Q & A- In case you have more questions, thanks to [Jim Van Nuland](#) of the SJAA here's a [link](#) to the San Jose club.

### **Bear Alert-**

*Please remember we are guests at Yosemite and among those who live there are the resident [bears](#). Please keep all food (including gum, toothpaste, canned food, you-name-it) in the metal bear boxes and not in your car, tent.*

Observing site at Glacier Point-

The observing area is mostly open, with incredible views from about NNW to the east, around to due south. The horizon from south around to the west is partly blocked by tall trees. Still, there is a lot of open sky, and typically, the seeing and transparency are excellent. It has warm temperatures of 70 to 90 during the day, and cool to chilly 40's at night, due to the elevation of 7200 feet.

### **Star Party-**

One of the rangers does a sunset talk, and then delivers the crowd to us. Following that, a member of the club will give an evening talk, (want to volunteer?) The public will have white flashlights, and we need to be tolerant of that. We will have 3 club members with red brake light tape to politely cover the offending flashlights. Expect many questions from the public. Here is an [object list](#) with corresponding finder charts and some brief information.

The Reward- <http://www.nps.gov/yose/playourvisit/bears.htm>

By around 9:30 or so, we will have the place to ourselves, and can stay until dawn if you so choose. Scopes must be removed when we quit, then set up again on Saturday. Some of us may set up sun scopes during the afternoon, show Half Dome festooned with rock climbers, and invite people to come back again after sunset.

[http://www.yosemiteconservancystore.com/DSN/www.yosemiteassociation.org/Content/Webcam/Original/Large/ahwahnee\\_large.jpg](http://www.yosemiteconservancystore.com/DSN/www.yosemiteassociation.org/Content/Webcam/Original/Large/ahwahnee_large.jpg)  
Gastronomic Astronomic-

Early Saturday eve is the traditional potluck meal and is always [tons of fun](#). Please provide enough for ~ say 3 or 4 people. Salads, main courses, pu pu's and desserts are all welcome. Who will have the best astronomical theme of incredible edibles this year? Remember the Brown Dwarfs? Prizes will be awarded! Please remember this repast takes time. It's better to start our own gastronomic party early so there's no need to rush for set up Saturday evening on Glacier Point.

Check the [National Weather Service](#) for up-to-date weather info on Yosemite Park current weather and conditions.

Here is a live cam of Half Dome from [Ahwahnee Meadow](#) and [NPS Air Quality Cam & data](#).

For newbies and oldsters alike please review the [directions and guidelines](#).

See you at the campsite,

Ken & Dave

Updated Wednesday, March 9, 2011

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## BAY AREA ASTRONOMY EVENTS – Kenneth Lum

<p>Every Weekend Friday &amp; Saturday 7:30pm - 10:30pm Weather Permitting <b>FREE TELESCOPE VIEWING</b></p> <p>Every Weekend Saturday &amp; Sunday 12:00 Noon – 5:00pm Weather Permitting <b>DAYTIME TELESCOPE VIEWING FREE WITH GENERAL ADMISSION</b></p> <p><b>Chabot Space and Science Center</b> 10000 Skyline Boulevard Oakland, CA 94619-2450 (510) 336-7300</p>	<p><b>EXPLORE THE NIGHT SKIES AT THE CHABOT OBSERVATORIES</b> For more information: <a href="http://www.chabotspace.org/">http://www.chabotspace.org/</a></p> <p>Free Telescope Viewing Regular hours are every Friday &amp; Saturday evening, weather permitting: 7:30pm - 10:30pm Come for spectacular night sky viewing the best kept secret in the Bay Area and see the magnificence of our telescopes in action!</p> <p>Daytime Telescope Viewing On Saturday and Sunday afternoons come view the sun, moon, or Venus through Chabot's telescopes. Free with General Admission. (weather permitting) 12pm - 5pm: Observatories Open</p> <p><b>6:00 P.M. DINNER, A MOVIE, AND THE UNIVERSE AT CHABOT SPACE CENTER</b> Start your night off with dinner and drinks, then cozy up in the planetarium as you're whisked to the edge of the universe and cap off the evening with telescope viewing featuring breathtaking views of the cosmos. Dinner: Buy advance tickets to ensure your dinner reservation. Purchase dinner separately at the cafe (\$15).</p> <p><b>ADVANCE TICKETS</b> A Movie and the Universe: Admission to Chabot includes all access to our interactive exhibitions, a film in the MegaDome theater AND a show in the Digital Planetarium. Purchase your advanced tickets online or call the Box Office at (510) 336-7373.</p>
<p>Thursday, April 14 4:15 p.m. – 5:15 p.m.</p> <p><b>SLAC National Accelerator Laboratory, 3rd Floor Kavli Conf Room</b> 2575 Sand Hill Road Menlo Park, CA 94025-7015</p>	<p><b>ASTROPHYSICS COLLOQUIUM BY ERIC BECKLIN (UCLA)</b> <b>FIRST SCIENCE WITH THE STRATOSPHERIC OBSERVATORY FOR INFRARED ASTRONOMY (SOFIA)</b></p> <p>The joint U.S. and German Stratospheric Observatory for Infrared Astronomy (SOFIA), to develop and operate a 2.5-meter infrared airborne telescope in a Boeing 747SP, has obtained first science with the FORCAST camera in the 5 to 40 micron spectral region.</p> <p>The spectacular results on two regions of star formation will be discussed. The infrared images show several discoveries and the potential for determining how massive stars form in our Galaxy. In addition the need for studying star formation in the nucleus of the Milky Way in the presence of a 4 million solar mass Black Hole will be presented. Future observing opportunities and participation in future instrument developments, on the 20 year lifetime of the observatory will also be discussed.</p>
<p>Friday, April 15 7:00 p.m.</p> <p><b>Chabot Space and Science Center</b> 10000 Skyline Boulevard Oakland, CA 94619-2450</p>	<p><b>THE TELESCOPE MAKERS' WORKSHOP</b></p> <p>The Telescope Makers' Workshop is held every Friday night from 7pm - 10pm, excluding major holidays (e.g. Christmas Day and New Year's Day) that fall on Fridays. The Workshop is always closed on Memorial Day Weekend. Attendance every Friday night is not mandatory, and members work at their own pace.</p> <p>Contact us for more specific details: E-mail Richard Ozer or (510) 406-1914</p>

<p><b>Friday &amp; Saturday April 15 &amp; 16</b></p> <p><b>Chabot Space and Science Center</b> 10000 Skyline Boulevard Oakland, CA 94619-2450 (510) 336-7300</p>	<p><b>EXPLORE THE NIGHT SKIES AT THE CHABOT OBSERVATORIES</b> for more information: <a href="http://www.chabotspace.org/">http://www.chabotspace.org/</a></p> <p>Free Telescope Viewing Regular hours are every Friday &amp; Saturday evening, weather permitting: 7:30 p.m. -10:30 p.m. Come for spectacular night sky viewing -- the best kept secret in the Bay Area -- and see the magnificence of our telescopes in action! Daytime Telescope Viewing on Saturday and Sunday afternoons. Come view the sun, moon or Venus through Chabot's telescopes. Free with General Admission. (weather permitting) 12pm - 5pm: Observatories Open</p>
<p><b>Friday &amp; Saturday April 15 and 16 6:00 p.m.</b></p> <p><b>Chabot Space and Science Center</b> 10000 Skyline Boulevard Oakland, CA 94619-2450 (510) 336-7300</p>	<p><b>DINNER, A MOVIE, AND THE UNIVERSE AT CHABOT SPACE CENTER</b> Join us for Chabot's unique evening social rendezvous. Start your night off with dinner and drinks, then cozy up in the planetarium as you're whisked to the edge of the universe and cap off the evening with telescope viewing featuring breathtaking views of the cosmos. Dinner: Buy advance tickets to ensure your dinner reservation. Purchase dinner separately at the cafe (\$15).</p> <p><b>ADVANCED TICKETS</b> A Movie and the Universe: Admission to Chabot includes all access to our interactive exhibitions, a film in the MegaDome theater AND a show in the Digital Planetarium. Purchase your advanced tickets online or call the Box Office at (510) 336-7373.</p>
<p><b>Friday, April 15 9:00 p.m.</b></p> <p><b>Foothill Community College</b> 12345 Moody Rd. Los Altos Hills</p>	<p>Foothill Observatory is open for public viewing every clear Friday evening from 9:00 p.m. until 11:00 p.m. Visitors can view the wonders of the universe through the observatory's new computer-controlled 16- inch Schmidt-Cassegrain telescope. Views of objects in our solar system may include craters and mountains on the moon, the moons and cloud-bands of Jupiter, the rings of Saturn, etc. The choice of targets for any evening's viewing depends on the season and what objects are currently in the sky.</p> <p>On clear, dark, moonless nights, the telescopes give visitors views into the deeper reaches of space. Star clusters, nebulae, and distant galaxies provide dramatic demonstrations of the vastness of the cosmos.</p> <p>The public viewing programs at Foothill are free of charge and are open to guests of all ages. Please note that the observatory is closed when the weather is cloudy. Also note that visitor parking permits are available from the machines in the parking lots for \$2.00.</p> <p>Come to Foothill Observatory and join us in the exploration of our Universe!</p> <p>Foothill Observatory is located on the campus of Foothill College in Los Altos Hills, CA. Take Highway 280 to the El Monte Rd exit. The observatory is next to parking lot 4. Parking at the college requires visitor parking permits that are available from the machines in the parking lots for \$2.00.</p>
<p><b>Saturday, April 16 10:00 a.m. – 12:00 Noon IF IT IS CLEAR</b></p> <p><b>Foothill Community College</b> 12345 Moody Road Los Altos Hills, CA</p>	<p>Foothill College Observatory Solar observing with a Hydrogen alpha solar telescope every clear Saturday morning. This allows spectacular views of solar prominences and unusual surface features on the Sun not otherwise visible with regular white light telescopes. Admission is free.</p> <p>Foothill Observatory is located on the campus of Foothill College in Los Altos Hills, CA. Take Highway 280 to the El Monte Rd. exit. The observatory is next to parking lot 4. Parking at the college requires visitor parking permits that are available from the machines in the parking lots for \$2.00.</p>

<p><b>Saturday, April 16</b> 11:00 a.m.</p> <p><b>Chabot Space and Science Center</b> 10000 Skyline Blvd Oakland, CA 94619</p> <p><b>Cost: Free with admission</b></p>	<p><b>YURI'S DAY</b> Come celebrate the achievements of cosmonaut Yuri Gagarin, the first human to journey into outer space, with hands on activities and demonstrations. The W Foundation will be on hand with artifacts and pictures to commemorate the event. Saturday, 04/09/11 Starts at 11:00 AM</p>
<p><b>Saturday, April 16</b> 9:00 a.m. – 4:00 p.m.</p> <p><b>UC Berkeley</b> 705 Campbell Hall</p>	<p><b>CALDAY OPEN HOUSE</b> - <a href="http://calday.berkeley.edu/">http://calday.berkeley.edu/</a></p> <p><b>ASTRONOMY EVENTS - ASTRONOMY &amp; SPACE</b></p> <p>10 am–3:45 pm   Astronomy Undergraduate Lab Tour Tour the lab where astronomy students spend their time. Take the elevator to the 6th floor, turn left, and walk upstairs. Professor Carl Heiles and students.</p> <p>10 am–4 pm   Campbell Hall, North Entrance Astronomy Demonstrations and Hands-On Activities Help astronomers read the "fingerprints" of stars, build a soap bubble rocket, create a scale model of the Solar System, see yourself using "heat-vision," and do many more astronomy-related activities.</p> <p>10 am–4 pm   Campbell Hall, north entrance Portable Planetarium Shows Who says you can't see stars in the Bay Area? Learn about the astronomical objects, mythology and the history behind the constellations visible in the spring. (Weather permitting.)</p> <p>10 am–4 pm   Hearst Mining Circle Solar Viewing Safely observe the sun through a telescope! See sunspots, solar flares, and other activity. Get your Science@Cal passport stamped here. (Weather permitting.)</p> <p>11–11:45 am   4 LeConte Hall Conquering the Dark Side of the Universe The new millennium hit scientists the hard way--with lots of unanswered questions! Hear stories of men and women (scientists!) who've been searching for answers and trying to conquer the dark side of the universe, along with some of their findings and where they might take us in this new century. Professor Hitoshi Murayama</p> <p>11 am–noon   2 LeConte Hall Why Are There Stars? New Answers to an Old Question There are a hundred billion stars in our galaxy alone. How are they born? Hear our current understanding of this basic and beautiful process of nature. Associate Research Astronomer Steven Stahler</p> <p>11 am–5 pm   Space Sciences Laboratory (take Hill Shuttle from Evans Hall east entrance) Berkeley Mission &amp; Science Operations Center Tours The Berkeley MSOC serves as the satellite-control and data-archiving facility for a number of different NASA missions and was designed to support multiple spacecraft operations. Tours every 30 minutes, with an additional tour to the 36' satellite-tracking antenna dish available. Aerospace Manager Manfred Bester</p> <p>11 am–5 pm   Space Sciences Laboratory (take Hill Shuttle from Evans Hall east entrance) Space Sciences Laboratory Learn about UV rays, magnetism, solar cooking, and more. Recommended for ages 6 to 12 and their families. Get your Science@Cal passport stamped here, and earn prizes.</p> <p>11 am–5 pm   Space Sciences Laboratory (take Hill Shuttle from Evans Hall east entrance) Stardust Tour Tour the Stardust@Home facility and use nanotechnology to view interstellar and cometary</p>

dust particles embedded in aerogel (the lightest solid in existence). Small groups tours every 30 minutes.

Research Physicist Andrew Westphal

11 am–5 pm | Space Sciences Laboratory (take Hill Shuttle from Evans Hall east entrance)

Walking Tour of Space Sciences Laboratory

See Berkeley's home of cutting-edge space-science research. Visit our 60' high bay, cosmochemistry laboratories that analyzed lunar samples, a clean room where a Hubble instrument was built, and a Nobel laureate's office. Tours leave on the half hour starting at 11 am.

Education Specialist Darlene Yan

Noon–12:30 pm | Space Sciences Laboratory (take Hill Shuttle from Evans Hall east entrance)

High-Energy Astrophysics: From Neutron Stars to Supermassive Black Holes

Learn some of the concepts and challenges inherent in X/gamma-ray astronomy, a relatively new field. Its research relies on ground- and space-based telescopes which, taken together, observe the universe in the full spectrum of electromagnetic waves, from radio to the most energetic gamma-rays.

Postdoctoral Scholar Arash Bodaghee

1–1:30 pm | Space Sciences Laboratory (take Hill Shuttle from Evans Hall east entrance)

Neutron Imaging: Can You See A Flower Through A Granite Wall?

Neutron detection technology developed for NASA astrophysical missions at Space Sciences Laboratory can reveal processes happening inside and behind thick objects--where an organic object can be opaque and many metals can be easily penetrated.

Associate Researcher Anton Tremsin

1–2 pm | 2 LeConte Hall

Are We Alone? SETI@home and Citizen Science

Hear about Berkeley's SETI (Search for Extraterrestrial Intelligence) program at the world's largest telescope. Volunteers have a small but captivating chance that their computer will detect the first signal from a civilization beyond Earth.

SETI Director Dan Werthimer

1–2 pm | 141 McCone Hall

Jupiter's Icy Moon and Fun with Liquid Nitrogen

We perform lecture demonstrations with liquid nitrogen to show how the properties of materials change at low temperature and talk about conditions on Jupiter's icy moons.

Audience participation. Stay for next talk and touch meteorites!

Professor Burkhard Militzer

2–2:30 pm | Space Sciences Laboratory (take Hill Shuttle from Evans Hall east entrance)

Seeing the Universe Through Infrared Eyes: NASA'S WISE Mission

Highlights and beautiful images from NASA's Wide-field Infrared Survey Explorer mission which mapped the sky using infrared light, searching for dangerous asteroids in our solar system, the nearest and coolest stars, the origins of stellar and planetary systems, and the most luminous galaxies in the universe.

Education Specialist Kyle Fricke

2–3 pm | 141 McCone Hall

Touch a Meteorite

Learn where they come from and what they're made of during this session.

Geology Major Jason Utas

3–4 pm | Space Sciences Laboratory (take Hill Shuttle from Evans Hall east entrance)

Cool Careers in Space Science

Join a 1-hour round table discussion at the Space Sciences Laboratory to hear students, scientists, and others share the varied paths they have taken to arrive at working in space science careers.

4–5 pm | Space Sciences Laboratory (take Hill Shuttle from Evans Hall east entrance)

2012 is Not the End of the World: Astronomy and the Maya Calendar

Popular culture has hyped the end of the Maya calendar in 2012 through doomsday misconceptions. This talk will dispel those misconceptions through explaining how the Maya

	<p>calendar works and the significance of the year 2012. Solar System Ambassador Nancy Alima Ali</p>
<p><b>Saturday, April 16 Saturday Night Stargazing: 3rd Saturday on The Lawrence Hall of Science Plaza</b></p> <p><b>Lawrence Hall of Science Centennial Drive Berkeley, CA</b></p>	<p>Special Event: All Public Programs   April 16 – August 20, 2011 the third Saturday of the month every month   9-11 p.m.   Lawrence Hall of Science, Main Plaza</p> <p>Sponsor: Lawrence Hall of Science (LHS)</p> <p>See the Moon, Planets, Stars, Galaxies and More</p> <ul style="list-style-type: none"> <li>* Stargaze through astronomical telescopes</li> <li>* Ask questions and talk with amateur astronomers</li> <li>* Learn how to use a star map to find constellations</li> <li>* Share in the wonder of the universe with your friends</li> </ul> <p>Every 3rd CLEAR Saturday of every month throughout the year, weather permitting</p> <ul style="list-style-type: none"> <li>* 8:00–10:00 p.m. September–March</li> <li>* 9:00–11:00 p.m. April–August</li> </ul> <p>Saturday Night Stargazing is a free public viewing program sponsored by LHS and Bay Area amateur astronomers. Stargazing is always weather permitting—be sure to dress warmly. Foggy and overcast skies can cancel stargazing at the last minute.</p> <p>For more information, join the LHS Stargazing Google Group or follow us on Twitter@LHSstargazing.</p> <p>Target audience: All Audiences Open to audience: All Audiences Attendance restrictions: Stargazing is always weather permitting—be sure to dress warmly. Foggy and overcast skies can cancel stargazing at the last minute.</p> <p>Event Contact: <a href="mailto:lhsweb@berkeley.edu">lhsweb@berkeley.edu</a>, 510-642-5132</p>
<p><b>Saturday, April 16, 2011 7:30 p.m.</b></p> <p><b>Chabot Space &amp; Science Center Physics Lab, 2nd Floor Spees Building</b></p>	<p><b>EAST BAY ASTRONOMICAL SOCIETY GENERAL MEETING</b></p> <p><b>AMBER BAUERMEISTER, UC BERKELEY GRADUATE STUDENT</b> <b>STAR FORMATION IN GALAXIES THROUGH COSMIC TIME: WHY WE CARE ABOUT GAS</b></p>

<p><b>Sunday, April 17 Noon</b></p>	<p><b>ASTRONOMY - EQUIPMENT AUCTION (HOUGE PARK, SAN JOSE)</b></p> <p>At 12 noon on Sunday, April 17, 2011, the San Jose Astronomical Association will hold its 31st annual astronomical auction at the hall at Houge Park in San Jose. The SJAA Auction is a great opportunity for beginners to purchase their first telescope at a great price! Experienced observers often find equipment they need for their next observing project, from O-III filters to finders to star charts. All kinds of interesting items are found in the auction.</p> <p>Doors open at 11:30 a.m. to register material for sale, the auction itself starts at noon and a swap meet will follow.</p> <p>If you are interested in selling, we have set up a Yahoo! group for you to pre-announce what you have available. <a href="http://groups.yahoo.com/group/sjaauction/">http://groups.yahoo.com/group/sjaauction/</a></p> <p>Here's how it works: Compose an email to sjaauction (at) yahoogroups.com. A moderator will approve your mail and it will be posted to the Messages section of the Groups site. Prospective buyers will then review the items that will be available ahead of time, and will be enticed to bid a princely amount for your item.</p> <p>If you are interested in bidding, you can simply go to the same Yahoo! Group and review the Messages section for a preview.</p> <p>The auction is a fundraiser for the SJAA, a non-profit 501(c)(3) educational organization. A 10% donation to the SJAA from the proceeds of sales is suggested, with a maximum \$50 cap.</p> <p>For more about the SJAA, the auction, directions to the site, visit our web site or contact me (email above). I will post more details as they come in, and as we get close to the date of the auction. <a href="http://www.sjaa.net/">http://www.sjaa.net/</a></p> <p>Rob Jaworski San Jose Astronomical Association</p>
<p><b>Tuesday, April 19 4:15 p.m. – 5:45 p.m.</b></p> <p><b>Stanford University Hewlett Teaching Center 370 Serra Mall, Room 201 Stanford, CA 94305</b></p> <p><b>Cost: Free</b></p>	<p><b>Exploring the Universe with WISE</b> Prof. Edward (Ned) Wright of the UCLA Physics &amp; Astronomy Dept. will discuss the observations of the Wide-Field Survey Explorer (WISE), launched in December 2009.</p>
<p><b>Tuesday, April 19 7:00 p.m.</b></p> <p><b>Randall Museum 199 Museum Way San Francisco, CA 94114</b></p>	<p><b>DOBSONIAN TELESCOPE MAKING</b> Build a telescope the Dobson way. You will learn about John Dobson and his reflector telescopes, as well as how these telescopes work. You'll learn the step-by-step method for grinding and polishing the mirror, building the mount, and assembling a complete telescope. Seeing the rings of Saturn, the moons of Jupiter or the Orion Nebulae through a telescope you built yourself is a fantastic experience. Material fees, including mirror glass and plywood, will run approximately \$300 to \$400, depending on the size of the scope you make and are payable to the instructor.</p>

<p>Wednesday, April 20 Noon</p> <p>SETI Institute Colloquium Series 189 Bernardo Ave Mountain View, CA 94043</p>	<p><b>IGNACIO MOSQUEIRA, SETI INSTITUTE</b> <b>ORIGINS OF THE GIANT PLANETS, THEIR REGULAR SATELLITES AND RINGS: LATEST FINDINGS AND THE WAY FORWARD</b></p> <p>The formation of the regular satellites of giant planets mirrors in profound ways the physical processes leading to the formation of the parent planetary bodies and provides an independent probe of the early history of the solar system. Ongoing results from the Cassini spacecraft are radically changing this field. Dr. Mosqueira will briefly describe combined Jupiter-Saturn models of satellite formation in disks of dust and gas, emphasizing exchange mechanisms taking place between the solar nebula and the subnebulae of the giant planets. He will take us on a tour of the Kronian system starting with captured Phoebe, moving on to home-grown Iapetus, Hyperion and Titan and ending with the close-in moons and rings. Dr. Mosqueira will focus on the implications of Cassini observations for the origins of the rings, moons and planets of the solar system.</p>
<p>Wednesday, April 20 7:00 p.m. - 9:00 p.m.</p> <p>Smithwick Theater Foothill College Perimeter Road &amp; South El Monte Road Los Altos Hills, CA 94022</p> <p>Cost: Free (\$2 parking charge)</p>	<p><b>SILICON VALLEY ASTRONOMY LECTURE SERIES</b></p> <p><b>DR. THOMAS BERGER</b> <b>LOCKHEED MARTIN SOLAR &amp; ASTROPHYSICS LABORATORY</b></p> <p><b>OUR EXPLOSIVE SUN: NEW VIEWS OF THE NEAREST STAR AND THE LARGEST EXPLOSIONS IN THE SOLAR SYSTEM</b></p> <p>Recent satellite missions are giving scientists dramatic new views of the Sun and the huge magnetic explosions in its outer layers that cause flares and the ejections of huge masses of superheated gas. For example, the Solar Dynamics Observatory, a NASA satellite launched in 2010, is producing images of the Sun's million-degree outer atmosphere -- the corona -- with new telescopes that produce the fastest movies of the Sun ever taken. Dr. Berger will take us on a tour through our Sun's atmosphere with images and movies from these missions and show why the Sun continues to fascinate and perplex both scientists and the public.</p> <p>Dr. Thomas Berger is an astrophysicist at the Lockheed Martin Solar and Astrophysics Laboratory in Palo Alto. He specializes in designing and using telescopes and other instruments to observe the Sun's magnetic fields and outer atmosphere. He studied physics and engineering as an undergraduate at U. C. Berkeley and originally planned on a career in aeronautical engineering. But during graduate education at Stanford University, he became fascinated by the physics of the Sun and he hasn't looked back since. He has been a principal investigator on several NASA grants to study the Sun using ground-based solar telescopes, and is currently a co-investigator on the Japanese/US/UK Hinode space mission.</p>
<p>Wednesday, April 20 7:30 p.m.</p> <p>Randall Museum 199 Museum Way San Francisco</p> <p>Geared for adults All ages welcome</p> <p>Cost: FREE Donations encouraged</p> <p>Info: 415.554.9600 or <a href="http://www.randallmuseum.org">www.randallmuseum.org</a></p>	<p><b>SAN FRANCISCO AMATEUR ASTRONOMERS' LECTURE SERIES</b></p> <p><b>DR. PETER JENNISKENS, SETI INSTITUTE AND NASA AMES RESEARCH CENTER</b> <b>THE IMPACT &amp; RECOVERY OF ASTEROID 2008 TC3</b></p> <p>Join Dr. Peter Jenniskens from SETI Institute and NASA Ames Research Center for a presentation on The Impact and Recovery of Asteroid 2008 TC3. Dr. Jenniskens shares the incredible story of the impact of a small asteroid and the subsequent search for fragments in the remote Nubian desert of Sudan. The impact took place in October 2008 and was witnessed by thousands. Two months later Jenniskens travelled to Sudan at the invitation of the University of Khartoum, and together with students and staff of the University collected over 600 fragments and slightly more than 10 kg of meteorites. What they found changed our understanding of asteroids and meteorite falls.</p>



<p>Wednesday, April 20 7:30 p.m. – 8:30 p.m.</p> <p>Terra Linda High School 320 Nova Albion Way Room 207 San Rafael CA 94903</p> <p>Cost: Free</p>	<p><b>MARIN SCIENCE SEMINAR</b> <b>"THIS IS MISSION CONTROL" WITH JAY TRIMBLE OF NASA-AMES</b> NASA's space exploration missions are guided by teams of mission controllers on the ground. Whether it's the control of robots that extend our senses to the surface of distant planets, telescopic eyes that peer deep into the universe with multi-spectral vision, or human beings on a space station or the surface of the Moon, mission control is there. This is the story of what we do in mission control. Jay Trimble founded and leads the User Centered Technology (UCT) Group at NASA Ames Research Center. The UCT group uses teams of people with different backgrounds, including design, anthropology and computer science, to build software for mission control for human and robotic spaceflight. His training includes an M.S. Computer Science from the University of Southern California, B.A. in Geology from the University of California, Berkeley. <a href="http://www.marinsscienceseminar.com/speakers/jtrimble.html">http://www.marinsscienceseminar.com/speakers/jtrimble.html</a></p>
<p>Thursday, April 21 4:15 p.m. – 5:15 p.m.</p> <p>Stanford University Physics &amp; Astrophysics Building, First Floor Conference Room 102/103</p>	<p><b>ASTROPHYSICS COLLOQUIUM BY RAYMOND CARLBERG (U. OF TORONTO)</b> <b>DARK MATTER SUB-HALOS AND AN M31 STAR STREAM</b> Galaxy halos in an LCDM universe are expected to contain thousands of dark matter sub-halos. Only a few dozen dark sub-halos, containing dwarf galaxies, are typically seen in local galaxies. However, the sub-halos do leave a gravitational mark on the very low velocity dispersion star streams that are being discovered in local galaxies. The Pan Andromeda Archeological Survey (PAndAS) CFHT Megaprime survey of the M31-M33 system has found a star stream which extends about 120 kpc NW from the center of M31. The great length of the stream, and the likelihood that it does not significantly intersect the disk of M31, means that it is unusually well suited for a measurement of stream gaps and clumps along its length as a test for the existence of thousands of dark matter sub-halos. Measurements of that stream will be presented.</p>
<p>Thursday, April 21 4:15 p.m. - 05:45 p.m.</p> <p>Stanford University Hewlett Teaching Center, Rm 201 370 Serra Mall Stanford, CA 94305</p> <p>Cost: Free</p>	<p>PROFFESOR JOEL FAJANS, UC BERKELEY <b>HOW TO CREATE AND TRAP ANTIHYDROGEN</b> Prof. Joel Fajans of UC Berkeley will give the April 12, 2011 Physics/ Applied Physics colloquium, entitled, "How to Create and Trap Anti-Hydrogen"</p>
<p>Friday, April 22 7:00 p.m.</p> <p>Chabot Space and Science Center 10000 Skyline Boulevard Oakland, CA 94619-2450</p>	<p><b>THE TELESCOPE MAKERS' WORKSHOP</b> The Telescope Makers' Workshop is held every Friday night from 7:00 p.m. – 10:00 p.m., excluding major holidays (e.g. Christmas Day and New Year's Day) that fall on Fridays. The Workshop is always closed on Memorial Day Weekend. Attendance every Friday night is not mandatory, and members work at their own pace.  For more specific details: E-mail Richard Ozer or (510) 406-1914</p>
<p>Friday, April 22 8:45 p.m. - 11:45 p.m.</p> <p>San Jose Astronomical Association Houge Park Twilight Drive San Jose, CA 95124</p> <p>Cost: Free</p>	<p><b>APRIL STAR PARTY</b> <b>STAR PARTY AT HOGUE PARK</b></p>

<p><b>Saturday, April 23</b>  <b>Sunset : 7:52 p.m.</b>  <b>INCLEMENT WEATHER</b>  <b>(CLOUDS, EXCESSIVE</b>  <b>WIND, SHOWERS) WILL</b>  <b>CANCEL EVENT</b>  <b>WITHOUT NOTICE</b></p> <p><b>Crestview Park</b>  <b>San Carlos</b></p>	<p>San Mateo County Astronomical Society Star Party  Star Parties At Crestview Park  Come out and bring the kids for a mind expanding look at the universe</p> <p>The City of San Carlos Parks and Recreation Department and the San Mateo County Astronomical Society has open Star Parties twice a month. These events are held in Crestview Park, San Carlos California.</p> <p>Note that inclement weather (clouds, excessive wind and showers) will cause the event to be canceled without notice.</p> <p>For more information call Bob Black, (650)592-2166, or send an email to <a href="mailto:SMCAS@live.com">SMCAS@live.com</a> or call Ed Pieret at (650)862-9602.</p> <p>Reasons to Attend  If you have kids interested in space or planets, bring them here for a real-life view of planets, nebula, star clusters and galaxies.  If you are thinking of buying a telescope or want help using a telescope you own, come here to talk with experienced users.  If you think you might have an interest in astronomy come and talk to experienced amateur astronomers.</p> <p>Cautions  Dress warmly and wear a hat.  Visitors should park on the street and walk into the park so your headlights don't affect the observer's dark adaptation.  Only park in the parking lot if you are arriving before dark and plan to stay until the end of the event.  You shouldn't need lights but if you feel you do, only bring a small flashlight with the lens covered using red cellophane or red balloon.  Please respect the telescopes and ask permission from the owner if you wish to touch.  Parents, please watch your children.  The park is residential, and adjacent to homes and backyards, please keep noise to a minimum.</p> <p>Schedule  Time</p> <p>Astronomers arrive to set up at around sunset. Observing starts at about one hour after sunset and continues for two to three hours.</p>
<p><b>Friday, April 22</b>  <b>9:00 p.m.</b></p> <p><b>Foothill Community College</b>  <b>12345 Moody Road</b>  <b>Los Altos Hills</b></p>	<p>Foothill Observatory is open for public viewing every clear Friday evening from 9:00 p.m. until 11:00 p.m. Visitors can view the wonders of the universe through the observatory's new computer-controlled 16- inch Schmidt-Cassegrain telescope. Views of objects in our solar system may include craters and mountains on the moon, the moons and cloud-bands of Jupiter, the rings of Saturn, etc. The choice of targets for any evening's viewing depends on the season and what objects are currently in the sky.</p> <p>On clear, dark, moonless nights, the telescopes give visitors views into the deeper reaches of space. Star clusters, nebulae, and distant galaxies provide dramatic demonstrations of the vastness of the cosmos.</p> <p>The public viewing programs at Foothill are free of charge and are open to guests of all ages. Please note that the observatory is closed when the weather is cloudy. Also note that visitor parking permits are available from the machines in the parking lots for \$2.00.</p>

<p><b>Sat. 4/23 10AM</b></p> <p><b>Foothill Community College</b>  <b>12345 Moody Rd.</b>  <b>Los Altos Hills, CA</b></p>	<p>Come to Foothill Observatory and join us in the exploration of our Universe!</p> <p>Foothill Observatory is located on the campus of Foothill College in Los Altos Hills, CA. Take Highway 280 to the El Monte Rd exit. The observatory is next to parking lot 4. Parking at the college requires visitor parking permits that are available from the machines in the parking lots for \$2.00.</p> <p>Foothill College Observatory 10AM-12PM if it is clear  Solar observing with a Hydrogen alpha solar telescope every clear Saturday morning. This allows spectacular views of solar prominences and unusual surface features on the Sun not otherwise visible with regular white light telescopes. Admission is free.</p> <p>Foothill Observatory is located on the campus of Foothill College in Los Altos Hills, CA. Take Highway 280 to the El Monte Rd. exit. The observatory is next to parking lot 4. Parking at the college requires visitor parking permits that are available from the machines in the parking lots for \$2.00.</p>
<p><b>Monday, April 25</b>  <b>7:00 p.m. - 9:00 p.m.</b></p> <p><b>Friends of Berkeley Lab</b>  <b>2025 Addison Street</b>  <b>Berkeley Repertory Theater</b>  <b>Berkeley, CA 94704</b></p>	<p>'New Light on Dark Energy' Friends of Berkeley Lab  Berkeley Rep Talk Sheds 'New Light on Dark Energy'</p> <p>A panel of Lab scientists along with Andrew Fraiknoi, the Bay Area's most popular astronomy explainer, will gather at the Berkeley Rep on Monday, April 25, from 7 to 9 p.m. for a discussion about "New Light on Dark Energy." Topics will include hunting down Type 1a supernovae, measuring the universe using baryon oscillation, and whether dark energy is the true driver of the universe.</p>

## 2010 CLUB OFFICERS & CONTACTS

<i>President</i>	Sue-Ellen Speight	<a href="mailto:sfaapresident@gmail.com">sfaapresident@gmail.com</a>
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<i>Board Members</i>	Angie Traeger Dave Goggin Joe Heavey Annette Gabrielli Anil Chopra Doug Smith Matthew Jones	
<i>1<sup>st</sup> Alternate</i>	Mitchel Schoenbrun	
<i>2<sup>nd</sup> Alternate</i>	Chris Coffin	
<i>Webmaster</i>	Mitchell & Matthew	

## CLUB TELESCOPES

The SFAA owns eight very fine, easy to use, loaner telescopes well-suited for deep sky, planets, and star parties. All scopes are available to any SFAA member. The loaner custodians for the majority of our fleet are Pete & Sarah Goldie. Please contact them at [telescopes@sfaa-astronomy.org](mailto:telescopes@sfaa-astronomy.org) for details if you are interested in borrowing a scope or if you have items you can donate for the loaner program (eyepieces, star maps/books, red flashlights, collimator, etc.). Please contact the appropriate member indicated below if you are interested in borrowing one of the telescopes.

- 1) 6" f/10.3 Dobsonian/Ken Frank [ken@sfaa-astronomy.org](mailto:ken@sfaa-astronomy.org)
- 2) 8" f/7 Dobsonian/Pete Goldie
- 3) 8.5" f/6 Dobsonian/Pete Goldie
- 4) 10" f/8 Dobsonian/Pete Goldie
- 5) 114mm f/4 Newtonian StarBlast/Pete Goldie
- 6) 8" f/10 Celestron SCT/Annette Gabrielli/ [annette@sfaa-astronomy.org](mailto:annette@sfaa-astronomy.org)
- 7) 8" f/10 Meade SCT/Stefanie Ulrey/[treasurer@sfaa-astronomy.org](mailto:treasurer@sfaa-astronomy.org)
- 8) 9.5" f/5.6 Celestron Newtonian/Ken Frank/ [ken@sfaa-astronomy.org](mailto:ken@sfaa-astronomy.org)

## CLUB ASTRONOMY VIDEOS

The SFAA owns a series of astronomy videotapes featuring Alex Filippenko, a world-renowned professor of astronomy at UC Berkeley. The videotapes provide an introduction to astronomy and cover topics such as the Solar System, the lifecycles of stars, the nature of galaxies, and the birth of the Universe. The SFAA loans the tapes free to all members. If you are interested in viewing these tapes, you may check them out at any of the SFAA General Meetings. These tapes were kindly donated to the SFAA by Bert Katzung. For information on the course tapes themselves:

<http://www.teach12.com/ftc/assets/coursedescriptions/180.asp>

## MEMBERSHIP DUES

Membership is billed for each upcoming year on June 30. Members may receive no more than one bulletin after the expiration of membership.

## SFAA WEBSITE AND ONLINE SERVICES

The SFAA web site at [sfaa-astronomy.org](http://sfaa-astronomy.org) is provided to our members and the general public for the sharing of club information and services. The web site contains links for club [star parties](#), [events](#), [newsletters](#), [lectures](#) and [meetings](#). If you wish to interact with other people who are interested in astronomy, the SFAA web site offers public and members only [bulletin board forums](#). If you wish to remain up-to-date on club activities, then we encourage you to subscribe to one or both of our public [mailing lists](#), which will allow you to receive our newsletter and/or club announcements via email. Other useful and interesting information and services are available on the site such as [observing location reviews](#), member [astronomy photos](#), and [members only telescope loans](#). Information about SFAA's membership, organization and by-laws are available at the club's online public document [archive](#). If you need to contact a representative of the SFAA, then please visit our [contacts](#) page to help in finding the right person to answer your questions.

*Above the Fog* is the official bulletin of the San Francisco Amateur Astronomers. It is the forum in which club members may share their experiences, ideas, and observations. We encourage you to participate by submitting your articles, announcements, letters, photos and drawings. We would also like to hear from our new members. Tell us about yourself – what you have done in the past and what other clubs you have joined. **The deadline for the next issue is the 25th day of the month.** Send your articles to [Editor@sfaa-astronomy.org](mailto:Editor@sfaa-astronomy.org)