ABOVE THE FOG

• BULLETIN OF THE SAN FRANCISCO AMATEUR ASTRONOMERS •

Vol. 59, No. 5 – May 2011

Wednesday, May 18, 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 3rd Wednesday of each month (except January)

BRENDA FRYE, Ph.D.
Assistant Professor of
Astronomy and Physics
University of San Francisco

RARE VIEWS OF ORDINARY STAR FORMING GALAXIES AT HIGH REDSHIFT

By undertaking galaxy redshift surveys in the fields of massive galaxy clusters, we are identifying the brightest examples of ordinary star forming galaxies back to when the universe was only 900 million years old. Our sample is bright enough to acquire spectroscopy that spatially resolves individual stellar populations along the disks. These studies are made possible by the combination of telescopes bound to the Earth plus large gravitational telescopes. In concert with large statistical studies of galaxy ensemble properties, these rare studies of individual objects are leading to a better understanding of the physics of mass assembly and the distribution of dark matter.

Ph. D. UC Berkeley, NSF Fellow, and Council Fellow on Sciences & Technology, Princeton University, Lecturer in Physics at Dublin City University, Ireland, Assistant Professor 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
Upcoming Lectures

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

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

7:30PM, WEDNESDAY, JUNE 15, 2011

Presentation by Sandra Faber, Ph.D.
University Professor, UC Santa Cruz
Staff Member, UCO/Lick Observatory

Cosmic Wisdom: An Astronomer Looks at Human History…and Our Future Prospects

Join Dr. Sandra Faber, University Professor of Astronomy and Astrophysics at the University of California, Santa Cruz, and staff member of the UCO/Lick Observatory, for a presentation on ***Cosmic Wisdom: An Astronomer Looks at Human History…and Our Future Prospects.*** Using breathtaking images and computer simulations, Faber will tell the story of how human beings got here and where we are headed, cosmically speaking. This "cosmic wisdom" is essential knowledge, she says, for persons grappling with challenges facing humanity today.

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PRESIDENT'S MESSAGE

One of my favorite parts of being an SFAA-er is the Mt Tam Summer Program. For me, showing someone the moon, or even Jupiter for the first time … gives me such joy, and I never miss a chance to bring my scope up.

If you are like me, and enjoy sharing the heavens to people from all walks of life, join us up at Rock Springs each month from now through October. Details below:

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

For the club:

General Meeting & Lecture Series

May 18th , 7pm: BRENDA FRYE, Ph.D., Assistant Professor of Astronomy and Physics, USF
RARE VIEWS OF ORDINARY STAR FORMING GALAXIES
AT HIGH REDSHIFT

June 15th, 7pm: Sandra Faber, Ph.D., UC Santa Cruz
Staff Member, UCO/Lick Observatory
COSMIC WISDOM: AN ASTRONOMER LOOKS AT HUMAN HISTORY…AND OUR FUTURE PROSPECTS

Membership Renewal Time:
A reminder that, for most of us, our memberships expire June 30th. We're trying to grow our club membership, so if you know anyone you think would be interested, please let them know about us!

Membership dues remain $25 for individuals, $30 for families & $10 for students.

Yosemite Dates Announced – July 8th & 9th 2011. Reservations are open…there is a strict limit to the number of people who can attend, so get your reservations in early!

Mt Tam Summer Program – commenced at the Mt Tam Amphitheater at Rock Springs on May 7th with a presentation by Dr. Frank Marchis of the SETI Institute. His talk covered *Tiny Moons Around Small Asteroids*. It was a freezing cold and overcast night but the talk was wonderful. Unfortunately there was no viewing…but come June 4th maybe our clear skies dance will work!

Upcoming dates to mark in your calendars: June 4th, July 9th, Aug 6th, Sept 3rd & Oct 17th.

From the Community:

Dominican University – Is asking for our help! They teach a first year course called 'Big History' which covers everything from the Big Bang through the present covering creation of stars and structure of the universe. They are looking for SFAA volunteers to bring scopes to a 'Stargazing Event' to be held in September. The dates aren't posted yet, but if you have an interest in joining me and manning your scope for the evening - email me at sfaapresident@gmail.com

SUE-ELLEN SPEIGHT
President
San Francisco Amateur Astronomers

IMPORTANT DATES

SFAA GENERAL MEETINGS & LECTURES

Randall Museum, 199 Museum Way (Near 14th 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.

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

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.

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

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/**

2011 Mt Tam Astronomy Programs
Mt. Tamalpais State Park
Explore the Wonders of the Universe

Greeting to all Mt Tam Enthusiasts!
Join us for our 23rd series of lectures + star parties on Mt Tam.

All talks take place in the Cushing Memorial Theatre (usually just called the Mountain Theatre) and are 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 your 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. 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 or calling our hot line: 415-455-5370. If you still have questions or comments contact Tinka at 415-244-4715.

The schedule is listed below.
MARK YOUR CALENDARS NOW and join us on the Mountain for some exciting Saturday nights!

June 4
8:30pm

Dr. Michael Kuhlen, Theoretical Astrophysics Center
"The Milky Way as a Dark Matter Laboratory"
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
8:30pm

Dr. Anja von der Linden, Stanford University
"Natures's Biggest Lenses"
Gravitational lensing allows us to study dark matter, find exoplanets and see the first objects in the universe.

Aug 6
8:30pm

Steve Bryson, NASA-Ames Research Center
"Kepler's Vision: Exoplanets and Songs of the Stars"
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
8:00pm

Dr. Kirill Filimonov, UC Berkeley
"Extreme Astronomy: Eyeing the Cosmos through a Cubic Kilometer of Ice"
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
7:30pm

Dr. Anne Metevier, UC Santa Cruz/Sonoma State University
"Milky Way Galaxies Across the Universe"
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.

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/planyourvisit/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/wwwyosemiteassociationorg/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

BAY AREA ASTRONOMY EVENTS – Kenneth Lum

Sat. 5/14 7:30PM **EAST BAY ASTRONOMICAL SOCIETY** **Chabot Space & Science Center** **Galileo Room** **10000 Skyline Blvd** **Oakland CA 94619** **COST** **For current EAS Members, the cost for this sponsored event (lecture) is included with your membership dues which are paid annually.**	**LECTURE BY STATIA LUSZCZ –** **"Neptune: Celebrating One Neptunian Year - What We've Learned, What's Surprised Us, and What's Next"** In July 2011, Neptune will complete its first orbital rotation since its discovery in 1846. This long year is a consequence of its distance from the Sun - more than 30 times greater than that of Earth. As a result, Neptune receives very little solar energy to power its atmosphere. Remarkably, when Voyager II flew by Neptune in 1989, it revealed that Neptune has perhaps the most dynamic atmosphere in our Solar System, with 900 mph winds and huge active methane clouds several thousand miles across. Neptune's location in the far reaches of the Solar System makes it incredibly difficult to study. From the ground, Neptune is invisible to the naked eye, and the details of its atmosphere remain unresolved with traditional ground-based telescopes. We will discuss some of the ways scientists have overcome the challenges of studying such a faraway planet. We will examine several of the great discoveries and big surprises of the Voyager II visit to Neptune, and the technological advances of the past two decades that allow us to continue studying Neptune's atmosphere from the Earth. I will describe recent observations from the Keck telescope that help us understand Neptune's cloud activity and dynamic atmosphere. I will also present observations from the CARMA interferometer, which let us look deep into the atmosphere, teaching us about Neptune's chemistry and environment. Finally, we will discuss future prospects for research into Neptune's atmosphere, both from the ground and from space. MEETING ROOM: This EAS meeting and lecture is for all EAS Members, CSSC Volunteers, and invited Guests. It will be held at CSSC in the Galileo Room. Entrance to the CSSC facility MUST be made ONLY through a special side door, which will be appropriately marked. DINNER WITH OUR GUEST SPEAKER: Immediately prior to this event, all EAS Members, CSSC Volunteers, and invited Guests who are hungry are welcome to join us for dinner with Statia Luszcz-Cook and Jonathan Cook. Casual dining will occur at Hunan Yuan, located at 4100 Redwood Road in Lincoln Square (Oakland, CA 94619). We will assemble in the restaurant starting at approximately 5:30PM.
Fri. 5/13 and Sat. 5/14 **Every Friday & Saturday, weather permitting** **7:30pm -10:30pm** **12pm - 5pm:** **Observatories Open** **Chabot Space and Science Center** **10000 Skyline Boulevard** **Oakland, CA 94619-2450** **(510) 336-7300** **Free with General Admission.**	**EXPLORE THE NIGHT SKIES AT THE CHABOT OBSERVATORIES** for more information: http://www.chabotspace.org/ **FREE TELESCOPE VIEWING** 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. (weather permitting)

Fri. 5/13 and Sat. 5/14 **06:00 PM** **Chabot Space and Science Center** **Skies!** **10000 Skyline Boulevard** **Oakland, CA 94619-2450** **(510) 336-7300**	**DINNER, A MOVIE, AND THE UNIVERSE AT CHABOT SPACE CENTER** 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 are 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). ADVANCED TICKETS 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.
Saturday, 05/14/11 **8PM** **San Jose Astronomical Association** **Houge Park** **Twilight Drive** **San Jose, CA 95124** **Cost: Free**	**SEARCHING FOR OTHER EARTHS: LATEST RESULTS FROM THE NASA KEPLER MISSION** **SPEAKER: DR. JESSIE CHRISTIANSEN, SETI INSTITUTE**
Fri. 5/13 9PM-11PM **Foothill Community College** **12345 Moody Road** **Los Altos Hills**	**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. 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. 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. Come to Foothill Observatory and join us in the exploration of our Universe! 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.
Sat. 5/14 10AM-12PM **IF IT IS CLEAR** **FOOTHILL COLLEGE OBSERVATORY** **Foothill Community College** **12345 Moody Rd.** **Los Altos Hills, CA** **Admission is free.** **Parking: $2.00**	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. 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.

Monday, 05/16/11 **Starts at 05:30 PM** **Commonwealth Club** **595 Market Street** **2nd Floor** **San Francisco, CA 94105** **USA** **Cost:** **$20 General** **Free for Members** **$7 Students**	**ANOTHER LOOK AT PARTICLE PHYSICS** Our understanding of the universe is about to change. The Large Hadron Collider (LHC), the world's largest particle accelerator, is being used by physicists at CERN near Geneva, Switzerland, to discover the Higgs boson, which some have referred to as the God particle, since it is required for particles to have mass. Breedon, a physicist on the CMS experiment at CERN, will speak about what discoveries might be expected from experiments at the LHC. Ryan, an artist, privileged to have twice toured one of the LHC experiments both before and after it was lowered underground, speaks of these life-changing visits, and her response as an artist. Marianne Ryan, Artist Richard Breedon, Physicist
Tues. 5/17 5PM **UC Berkeley** **Martin Luther King Jr.** **Student Union** **Berkeley, CA 94720** **Cost: Free**	**DISCOVERY OF THE FIRST EARTH-SIZE PLANETS AND PROSPECTS FOR LIFE IN THE UNIVERSE** **SPEAKER: GEOFFREY MARCY, UNIVERSITY OF CALIFORNIA, BERKELEY** Science fiction taught us that our Milky Way Galaxy abounds with habitable planets populated by advanced civilizations engaged in interstellar commerce and conflict. Back in our real universe, Earth-like planets and alien life have proved elusive. Has science fiction led us astray? NASA recently launched a new space-borne telescope, Kepler, dedicated to discovering the first Earth-like worlds around other stars. We announced a truly rocky planet and the discovery of over 1200 planets having sizes less than twice that of Earth. These discoveries offer clues about the prevalence of worlds suitable for life. But what properties make a planet livable? How common is life in the universe, especially intelligent life? New telescopic and biological observations are providing the first answers to these questions.
Tues. 5/17 **7PM** **Randall Museum** **199 Museum Way** **San Francisco, CA 94114**	**DOBSONIAN TELESCOPE MAKING** 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.
Wed. 5/18/11 **Noon** **SETI Institute** **Colloquium Series** **189 Bernardo Ave** **Mountain View, CA** **94043**	**CONSTRUCTION ON THE 10,000 YEAR CLOCK BEGINS** **Alexander Rose, Executive Director and Clock Project Manager, Long Now Foundation** 20 years ago computer scientist Danny Hillis thought up a monument scale slow moving mechanical clock to serve as an icon to long-term thinking. 10 years ago a first prototype was completed and put into the Science Museum of London. 5 years ago the full size clock project began design. A few months ago that project began construction. Project manager Alexander Rose will discuss the process and methods underway in the Clock of the Long Now.
Wed. 5/18 **7PM-8:30PM** **Smithwick Theater** **Foothill College** **Perimeter Road &** **South El Monte Road** **Los Altos Hills, CA 94022** **Cost: Free, $2 parking**	**MULTIPLE UNIVERSES & COSMIC INFLATION-THE QUEST TO UNDERSTAND OUR UNIVERSE (AND FIND OTHERS)** **SPEAKER: ANTHONY AGUIRRE, PH.D., ASSISTANT PROFESSOR OF PHYSICS, UNIVERSITY OF CALIFORNIA, SANTA CRUZ** About a decade ago, scientists completed a great transformation in the understanding of our cosmos, establishing a broad and deep understanding of how the observable universe has evolved from a hot, dense state 13.7 billion years ago. Yet a second, even bigger transformation may now be taking place, because this understanding points to an early epoch during which the universe expanded at a stupendous rate to create the vast amount of space we can observe. Cosmologists are now coming to believe that this "cosmic inflation" may do much more: In many versions, inflation goes on forever, generating not just our observable universe but also infinitely many such regions with similar or different properties, together forming a staggeringly complex and vast

	"multiverse". Dr. Aguirre will trace the genesis of this idea, explore some of its implications, and discuss how cosmologists are currently seeking ways to test this idea by actually searching for hints of other universes. Don't miss this introduction to one of the most mind-boggling parts of modern astronomy.
Thurs. 5/19 **4:15PM** **Lockheed Martin's Advanced Technology Center** **Bldg. 201** **3251 Hanover Street,** **Palo Alto, CA 94304**	**THE MICROWAVE THERMAL ROCKET** **Dr. Kevin Parkin, Carnegie Mellon Silicon Valley** In 1924, K.E. Tsiolkovsky wrote "there is a third and most attractive method of acquiring velocity. This consists in the transmission of energy from the outside, from Earth." He envisaged a "parallel beam of shortwave electromagnetic rays" directed from the ground to power spaceships into orbit at a future time when the problems of beam generation, tracking and refractory materials had been solved. Over the past 60 years, the power output of microwave sources in the key millimeter wavelength range has increased by over six orders of magnitude, for the first time putting Tsiolkovsky's vision within economic reach. This presentation introduces The Microwave Thermal Rocket, a vehicle which uses a beam-absorbing heat exchanger in place of a combustion chamber to bypass the fundamental energy density limit of chemical reactants. It is shown how this implies a 1-2 stage rocket with a 5-15% payload fraction, as opposed to a 3-4 stage rocket with a 1-4% payload fraction. Key simplifying approaches to refractory materials, trajectories, tracking, beam combining and millimeter wave telescopes are reviewed, particularly near-term (sometimes bordering on garage-ready) solutions that can be demonstrated in the next few years. Finally, the R&D now underway is discussed in the context of current technical uncertainties and future 1-100 meter altitude tests planned using NASA's 1.2 MW gyrotron beam facility, which is anticipated to be available for academic and industrial teams starting in 2012. Dr. Parkin is a member of the research faculty at Carnegie Mellon Silicon Valley. He received his M.Phys. from the University of Leicester (UK), and his M.S. and Ph.D. degrees in aeronautics from Caltech. His research focuses on thermal propulsion and advanced concept design tools. For the former, he was awarded the Korolev Medal in 2005. For more information, visit http://www.cmu.edu/silicon-valley/faculty-staff/parkin-kevin.html
Fri.5/20 **7PM** **Chabot Space and Science Center** **10000 Skyline Boulevard** **Oakland, CA 94619-2450**	**THE TELESCOPE MAKERS' WORKSHOP** 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. The Workshop meets at Chabot Space & Science Center, 10000 Skyline Blvd., Oakland. Contact us for more specific details: Contact: E-mail Richard Ozer (rozer@pacbell.net) or (510) 406-1914
Saturday, 05/21-22/11 **10:00 AM - 08:00 PM** **San Mateo County Event Center** **1346 Saratoga Drive** **San Mateo, CA 94403** **Cost: $5-30**	**Maker Faire Bay Area 2011** The ultimate 21st century county fair, Maker Faire Bay Area 2011 mashes items possessing an On/Off switch with old-fashioned human curiosity, resulting in a round-up of robots, musical Tesla coils, fresh-squeezed sunflower oil, futuristic chariot races, antique pinball machines, super-sized Lego projects, and more neon, flame, and brightly gaseous glows than are normally seen outside an MIT lab. A celebration of DIY culture, Maker Faire Bay Area 2011 runs Saturday-Sunday, May 21-22, at the San Mateo County Event Center, 1346 Saratoga Drive, San Mateo. Saturday, 10am to 8pm; Sunday, 10am to 6pm. $5-$25; 3 and under are free. www.makerfaire.com **Event Contact Info: Sherry Huss** **Email: bayarea@makerfaire.com Phone: 707-827-7074**

Friday & Saturday **May 20 and May 21** **Weather permitting** **7:30PM -10:30PM** **12PM – 5PM** **Observatories Open** **Chabot Space and Science Center** **10000 Skyline Boulevard** **Oakland, CA 94619-2450** **(510) 336-7300** **Free with General Admission**	**EXPLORE THE NIGHT SKIES AT THE CHABOT OBSERVATORIES** for more information: http://www.chabotspace.org/ **FREE TELESCOPE VIEWING** 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.
Friday & Saturday **May 20 and May 21** **6:00PM** **Chabot Space and Science Center** **10000 Skyline Boulevard** **Oakland, CA 94619-2450** **(510) 336-7300**	**DINNER, A MOVIE, AND THE UNIVERSE AT CHABOT SPACE CENTER** 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). ADVANCED TICKETS 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.
Saturday, 05/21/11 **09:00 PM - 11:00 PM** **Lawrence Hall of Science** **1 Centennial Drive** **Berkeley, CA 94720** **Cost: Free**	**SATURDAY NIGHT STARGAZING** **SEE THE MOON, PLANETS, STARS, GALAXIES AND MORE** * Stargaze through astronomical telescopes * Ask questions and talk with amateur astronomers * Learn how to use a star map to find constellations * Share in the wonder of the universe with your friends Stargazing is always weather permitting-be sure to dress warmly. Foggy and overcast skies can cancel stargazing at the last minute.
Friday, 5/20 **9PM (CLOSED WHEN WEATHER IS CLOUDY)** **Foothill Observatory** **Foothill Community College** **12345 Moody Road** **Los Altos Hills** **The public viewing programs at Foothill are free of charge and are open to guests of all ages.** **Parking: $2.00**	**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. 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. Come to Foothill Observatory and join us in the exploration of our Universe! 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.

Saturday, 5/21 **10AM-12 NOON** **IF IT IS CLEAR** **Foothill Community College** **12345 Moody Road** **Los Altos Hills** **Admission is free** **Parking: $2.00**	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. 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.

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

What's Up for May
May 2011
All month long watch four planets and the moon gather just before sunrise.
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!

GALILEO DATA REVERAL MAGMA OCEAN UNDER JUPITER MOON

New data analysis from NASA's Galileo spacecraft reveals a subsurface ocean of molten or partially molten magma beneath the surface of Jupiter's volcanic moon Io.
http://solarsystem.nasa.gov/news/display.cfm?News_ID=37243

100 ORBITS AND COUNTING

MESSENGER will begin its 100th orbit around Mercury. Since its insertion into orbit about the innermost planet on March 17, the spacecraft has executed nearly 2 million commands
http://solarsystem.nasa.gov/news/display.cfm?News_ID=37224

NASA YEAR OF THE SOLAR SYSTEM

http://solarsystem.nasa.gov/yss/index.cfm
1 May 2011 - 31 May 2011 **YSS Theme: Volcanism!**

2011 Club Officers & Contacts

President	Sue-Ellen Speight	sfaapresident@gmail.com
Vice President	Vivian White	vicepresident@sfaa-astronomy.org
Secretary	Douglas Smith	
Treasurer	Bob Haberman Angie Traeger	treasurer1@sfaa-astronomy.org
Speaker Chair	Linda Mahan	
City Star Party	David Frey	
Bulletin Editor	Annette Gabrielli	
Telescope Loans	Pete Goldie	
Honorary Director and Board Member Emeritus	John Dobson	
Board Members	Doug Smith Dave Goggin Joe Heavey Dean Gustavson Matthew Jones Anil Chopra	joe@sfjupiter.com
1st Alternate	Mitchel Schoenbrun	
2nd Alternate	Chris Coffin	
Webmaster	Mitchell Schoenbrun Matthew Jones	

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 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
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
7) 8" f/10 Meade SCT/Stefanie Ulrey/treasurer@sfaa-astronomy.org
8) 9.5" f/5.6 Celestron Newtonian/Ken Frank/ 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/ttc/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 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. 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***

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Sharing the Wonders of the Universe

Has your membership expired? Your mailing label includes the month and year through which your membership is paid. If it is past, your membership has expired and this may be your last issue.

MEMBERSHIP APPLICATION

Membership is billed for each upcoming year on June 30. Between January 1 and June30, new members pay one half the amount listed below

Membership Categories (Check one):

_____ $10 Youth/Student
_____ $25 Individual
_____ $30 Family
_____ $40 Institutional
_____ $75 Supporting

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You can choose E-Mail (Recommended) or hard copy delivery for Above the Fog(Check one)

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San Francisco Amateur Astronomers
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