

★ ABOVE THE FOG

• BULLETIN OF THE SAN FRANCISCO AMATEUR ASTRONOMERS •

Vol. 57, No. 5 – May 2009

Wednesday, May 20, 2009 – 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)

JOHN DILLON

Curator, Randall Museum

Past President, San Francisco Amateur Astronomers

THE AUTOPSY OF HEAVEN: GALILEO, TELESCOPES AND THE BEGINNING OF MODERN SCIENCE



The world is about to celebrate the 400th anniversary of Galileo's telescope and the revolutionary observations he made with it. When he published his discoveries, the story goes, Galileo threw off the yoke of the ancient Greeks and challenged the authority of the Church – thus opening the way for “modern” science. John Dillon will take a longer view of the history of science and explore a subtler, more complex, relationship between Galileo, telescopes, Science and the Church.

John Dillon is semi-retired as a Curator of the Randall Museum and is a Past President of the SF Amateur Astronomers. He did his graduate work in Zoology and Philosophy at Duke University and studied History of Science at Cambridge University. He currently teaches History and Philosophy of Science at UC Berkeley Extension and Stanford Continuing Studies.

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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, 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 20th day of the month.** Send your articles to Editor@sfaa-astronomy.org

IMPORTANT DATES

SFAA GENERAL MEETINGS & LECTURES - MAY 20 . JUNE 17 . JULY 15

*Third Wednesday of each month: 7:00 p.m. Doors open. 7:30 p.m. Announcements. 8:00 p.m. Speaker
Randall Museum, 199 Museum Way (Near 14th Street and Roosevelt)*

SFAA BOARD MEETINGS - MAY 12 . JUNE 9 . JULY 14

*Second Tuesday of each month: 7:00 p.m. – 8:30 p.m.
Randall Museum, 199 Museum Way (Near 14th Street and Roosevelt)*

CITY STAR PARTIES - MAY 9/8:00 P.M. . (NO JUNE DATE) . JULY 11/8:30 P.M.

TELESCOPE CLINIC ONE HOUR BEFORE SUNSET

Land's End (Point Lobos) - Map and directions: <http://www.sfaa-astronomy.org/clubarchive/directions-pointlobos.php>

NOTE: While City Star Parties WILL ALWAYS be held on Saturdays, 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.

MT TAM STAR PARTIES: SPECIAL USE PERMIT - MEMBERS ONLY

MAY 23 – Gatekeepers: Pat. **Additional person needed**

Special Use Permit observing nights on Mount Tamalpais are private and open *only* to SFAA members. Please arrive by sunset (times listed below). 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).

MT TAM PUBLIC STAR PARTIES - MAY 2/8:01 P.M. . MAY 30/8:25 P.M. JUNE 27/8:36 P.M.

MAY 23 – Gatekeepers: Pat. **Additional person needed**

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 go here: <http://www.sfaa-astronomy.org/starparties/>

UPCOMING GUEST SPEAKERS

June 17 - Dr. Dana Backman – Stratospheric Observatory for Infrared Astronomy (SOFIA), SETI Institute

SPITZER OBSERVATIONS OF EPSILON ERIDANI'S DEBRIS DISK: SIGNS OF A PLANETARY SYSTEM

Observations of the debris disk around the nearby solar-type star epsilon Eridani will be described, especially including results from the Spitzer infrared space observatory.

UC Berkeley, Astronomy Department
INTERNATIONAL YEAR OF ASTRONOMY
PUBLIC TALKS

Saturday, May 16, 11:00 a.m.-12:00 Noon, 100 Plant Biology Building, UC Berkeley
JAMES GRAHAM, Chair, UC Berkeley Astronomy Department

IMAGING PLANETS BEYOND THE SOLAR SYSTEM

The talk will take place in the Genetics and Plant Biology Building, Room 100, at UC Berkeley. Doors will open at 10:30. We would like to start the talks on time, and avoid disruption from people entering the auditorium during the talks, so please try to arrive at least 10 minutes before the start.

Please visit <http://astro.berkeley.edu/iya> for more details and to see the videos of talks from the previous three months.

James Graham is a professor at UC Berkeley and the Chair of the Astronomy Department, where he works on observational astronomy and with cutting-edge astronomical instruments, including adaptive optics (using lasers to counteract the blurring effect of the Earth's atmosphere) and SOFIA (an observatory which flies aboard a Boeing 747). His main scientific interest is in the dusty disks around nearby stars, which are candidates for forming planetary systems. Prof. Graham was a member of a team of scientists who obtained the first visible-light images of an extrasolar planet with orbital motion around the star Fomalhaut, at a distance of 25 light years from Earth, research which was featured in the New York Times, and was picked as one of Time Magazine's 10 biggest scientific breakthroughs of 2008. Prof. Graham has also been honored with the Noyce Prize for excellence in undergraduate teaching.

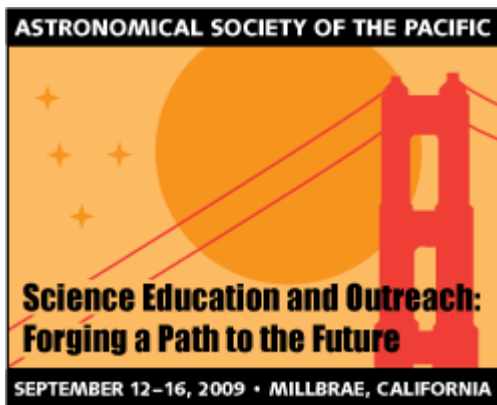
For most of human history, planets were mysterious points of light that wandered among the fixed stars. With the discovery of the astronomical telescope by Galileo (who we are celebrating this year) it became possible to see that planets are other worlds. The last few years has seen a revolution in the study of planets because we now have detections of nearly 250 planetary systems. These detections are indirect, based on observation of the parent star (eclipses or changes in velocity that betray orbital motion). The next step in this adventure is to see these planets directly. Direct detection is exceedingly hard; for example, Jupiter is about a billion times fainter than our Sun. Prof. Graham will describe the first glimpses of extrasolar planets themselves allowed by new technologies.

Saturday, June 20, at 11 a.m.-12:00 Noon, 100 Genetics & Plant Biology Building
ALEX V. FILIPPENKO, Professor of Astronomy Dark Energy and the Runaway Universe

Alex Filippenko, 2006 "National Professor of the Year", gives a public talk about exploding stars, and how they can be used to trace the accelerating expansion of the fabric of spacetime.

Observations of very distant exploding stars (supernovae) show that the expansion of the Universe is now speeding up, rather than slowing down due to gravity as expected. Other, completely independent data strongly support this amazing conclusion. Over the largest distances, our Universe seems to be dominated by a repulsive "dark energy" --- an idea Einstein had suggested in 1917, but renounced in 1929, anecdotally as his "biggest blunder." Dark energy stretches the very fabric of space itself faster and faster with time. But the physical origin of dark energy is unknown, and is often considered to be the most important unsolved problem in physics; it probably provides clues to a unified quantum theory of gravity.

Alex Filippenko joined the UC Berkeley faculty in 1986, where he is a leading authority on exploding stars, active galaxies, black holes, gamma-ray bursts, and the expansion of the Universe. Recently elected to the National Academy of Sciences and one of the world's most highly cited astronomers, he is the recipient of numerous prizes for his research. He was a member of both teams that discovered the accelerating expansion of the Universe; this was named the "Top Science Breakthrough of 1998" by Science magazine, and the teams received the 2007 Gruber Cosmology Prize for their discovery. An extraordinary educator, Dr. Filippenko has won the highest teaching awards at UC Berkeley, where the student body has voted him the "Best Professor" on campus six times, and he was selected as the 2006 Carnegie/CASE National Professor of the Year among doctoral institutions. He has appeared in numerous television documentaries, produced several introductory astronomy video courses with The Teaching Company, and coauthored an award-winning textbook.



Science Education and Outreach: Forging a Path to the Future

September 12-16, 2009
Westin SFO, Millbrae, California

[Registration is now open](#) for the 2009 ASP meeting to be held in the San Francisco Bay Area at the Westin San Francisco Airport Hotel, 1 Old Bayshore Highway in Millbrae, California.

The ASP's annual meeting will be held in Northern California where the ASP was founded 120 years ago. The meeting will be located at the Westin SFO in Millbrae, California. In addition to the EPO symposia, there will be additional weekend hands-on workshops designed specifically for educators, as well as special sessions targeted to non-astronomy science practitioners.

How to Present	Registration	Proceedings	Meeting Schedule
Exhibitors	Lodging	Committee	Co-Sponsors

September 12-16, 2009
Westin SFO, Millbrae, California

Save the date for the Astronomical Society of the Pacific's 120th Anniversary celebration!

Registration is now open for the 2009 ASP meeting to be held in the San Francisco Bay Area at the Westin San Francisco Airport Hotel, 1 Old Bayshore Highway in Millbrae, California. The theme of the 2009 gathering will be "Science Education and Outreach: Forging a Path to the Future."

The meeting proper begins on Sunday evening, September 13, with the annual members' meeting and the opening reception. Meeting sessions begin on Monday, September 14, with the annual awards banquet held on Tuesday evening, September 15. The meeting will conclude the early evening of Wednesday, September 16.

In addition, the meeting will be preceded by hands-on workshops scheduled on Saturday and Sunday, September 12-13, for formal and informal educators, with a separate daily workshop registration fee from the meeting registration fee -- watch for specific information and an announcement of scholarships for workshop attendees shortly. (If you would like to propose a weekend workshop, contact the ASP separately at [asilva {at} astrosociety.org](mailto:asilva@astrosociety.org).) Additional special events for the weekend are in the offing -- watch for announcements shortly.

Click on the links to find information and details on [hotel reservations](#), [meeting registration](#), [exhibiting](#), submitting [poster and presentation abstracts](#), and submitting [proceedings write-ups](#). Be sure to [sign up](#) to receive more information and meeting alerts, and check back frequently as information is added.

Please join us in September in the San Francisco Bay Area, during the International Year of Astronomy, the International Year of Science, and the 120th anniversary of the founding of the Astronomical Society of the Pacific, as we look forward and consider how, working together, we can advance a future of science literacy, enlightenment and achievement!

[Sign up to be notified](#) as additional meeting program events are announced.



Rendezvous in the Sun

View a total eclipse of our sun in Sichuan Province, China
July 14-24, 2009

A superior-deluxe small group tour, all-inclusive:

International Economy Class Airfare, Hotels, Meals. \$4,995.00 Per person, based on double occupancy. Airfare upgrades and Single Supplements are available at wholesale rates.

Itinerary

July 14 Day 1 – Depart from Los Angeles International Airport for Guangzhou, China with a connecting flight to Kunming. Our departing flight is #CZ328. You must arrive at the group check in desk for China Southern Airlines in the Tom Bradley International Terminal at LAX no later than 7:30 p.m. For domestic connecting flights to Los Angeles within the U.S., please contact our Travel Agent, Margaret Jones, Owner of A1 Tuscany Travel at (951) 677-4856 Mon-Fri. 9:00 am to 5:00 pm. Please refer to the Departure Instructions inside of your booking packet for details about our group check in policy and further information on group departures.

July 15 Day 2 – In flight. Lose a day crossing the International Date Line.

July 16 Day 3 – Arrive in Guangzhou at approximately 6:30 am. Transfer to the domestic terminal with your group leader and board your connecting flight to Kunming. You will have approximately 1 hour of leisure time in the Guangzhou Airport before boarding. Stay together as a group so you do not miss your connecting flight. Upon arrival in Kunming, you will be met by our National Chinese Guide and transferred to the five star Park Garden Hotel in the Green Lake District. Your bags will be carried by porters and held at the front desk until your group leader checks in and retrieves room keys. Meanwhile, you will be served a Chinese lunch in the hotel's dining room. After check in, you are at leisure until dinner at a Ch'ing dynasty mansion within walking distance of the hotel. There are many shops and flea markets near the hotel, as well as the antique district.

July 17 Day 4 – Group breakfast in the hotel dining room. Morning visit to the Stone Forest with lunch there. Walk or take the small tram around the edges of the forest with several stops. Return to Kunming later in the afternoon. Visit to the Academy of Sciences and the new radio telescope at the observatory. We will meet with the scientists there who specialize in solar observations. Dinner will be at a local restaurant.



Kunming Observatory Telescope

July 18 Day 5 – Group breakfast in the hotel dining room. Afterward, we will attempt to visit the new museum of nationalities near the airport before our flight to Chengdu in Sichuan. The availability to visit the museum will depend on flight schedules which are not released yet. We will keep all group members posted on this information. Upon arrival in Chengdu, we will check in to the Tibet Hotel and have lunch in the hotel dining room while your group leader acquires your room keys. You are at leisure this afternoon until dinner at a nearby local restaurant. You may spend your afternoon shopping at nearby stores and flea markets, or with traders you may find near the hotel. Traders come from long distances and usually carry very fine old pieces for sale. Your National Guide can help you translate and can give advice on the authenticity of items for sale, as well as help you in bargaining for the best price.

July 19 Day 6 – After breakfast, we will take a day excursion to the Giant Panda Research Center. This area is lush and green, and very entertaining. Lunch nearby. We return to the hotel in the late afternoon before we visit Remin Park, to visit a beautiful old tea house there. After dinner, you will enjoy a formal Sichuan Opera Show featuring what the Chinese call “magic face mask changes” during the performance. We return to the hotel for overnight.

July 20 Day 7 – After breakfast today, we drive to Leshan and check in at the five star Emei Shan Grand Hotel. We will be staying in the No. 5 Building, which is supplied with natural hot springs. Summer is the most ideal time to visit Mt. Emei Shan, one of the four sacred mountains of China. Temperature should be approximately 78°F at the base, but quickly cools as one ascends the forested trails and is usually about 53°F at the summit. We will have lunch right after we check in to our rooms, and then spend the afternoon at leisure enjoying the mountain area. This evening we will have dinner at a local restaurant and enjoy the hot springs.



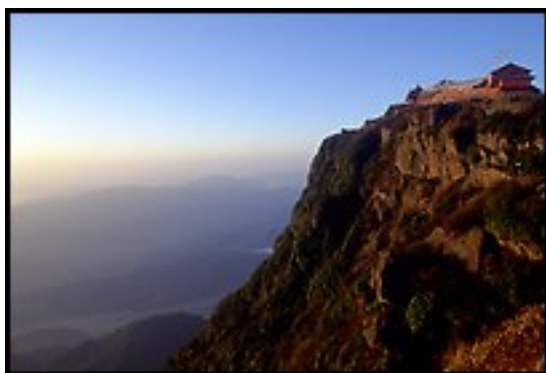
Emei Shan Grand Hotel



Standard Room at Hotel



One of the many pool areas

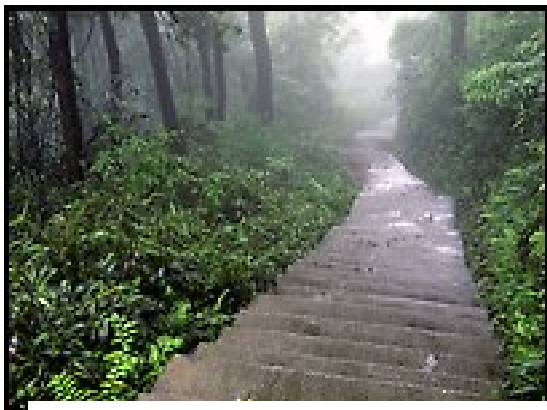


Mt. Emei Shan Summit



Emei Shan Temple at Summit

July 21 Day 8 – Group breakfast in the hotel dining room. Hike or take a cable car to the summit of Mt. Emei Shan for a picnic lunch and a tour of the monastery. Monkeys are on the trail; you would be wise not to feed them as they always want more. If advance weather reports indicate rain or overcast, you can go to into Leshan town for many activities instead. Tonight we will have an early evening dinner at a nearby local restaurant before we go out for a campfire on the mountain for stargazing. Chinese beer included.



Shady trails, waterfalls and suspension bridges on Mt. Emei Shan

July 22 Day 9 Day of the eclipse. Get up just before sunrise and hope for a clear day. We will have an early morning breakfast in the hotel dining room and then hike to the nearest plateau on Mt. Emei Shan for the most unobstructed impressive view. The eclipse should happen at about 9:20 am and in this area it should be at least 4 minutes long. Every tour member will receive an eclipse viewer. A Buddhist friend of ours will chant during the eclipse. After the eclipse, we descend the mountain and go into Leshan town just 6 km from the base. After lunch and a rest, we will see the gigantic statue of the huge Buddha (Da Fo) carved into a cliff. One can descend a staircase to the base where 100 men can stand on the foot of the

Buddha. We will have a group photo taken here, then we will take a late afternoon drive to Dazu, about two hours away. We will stay overnight in Dazu and have dinner in a local restaurant.

July 23 Day 10 – After breakfast today, we take a short drive to view the carvings in a canyon. We will have lunch and then a late afternoon departure for Chongqing on the banks of the mighty Yangtze River. We check into a five star hotel upon arrival, and have lunch. You are at leisure today in Chongqing, now one of the largest cities in all of China. Explore the city and enjoy your time here. Tonight we will have a special Farewell Banquet.

July 24 Day 11 – After breakfast afternoon flight to Guangzhou international flight to Los Angeles will have lunch before we go. Our afternoon. The flight back to Los 8:40 pm. You will arrive home the pm. Allow about two hours to continuing flights or having



we pack up and prepare for our where we will connect with our on China Southern # CZ327. We flight to Guangzhou will be in the Angeles departs at approximately same day at approximately 6:30 clear customs before taking any someone pick you up.

Reservations:

Reclining Buddha at Dazu

(800) 317-8925

This tour was designed by Phila McDaniel of East-West Tours, Inc. for:

A1 Tuscany Travel CST# 200731-2, 40485 Murrieta Hot Springs Rd., Ste. B3, Murrieta, CA 92563

A \$1,000.00 per person non-refundable trip deposit is required to hold space. You may fill out our online travel application here: <http://www.eastwesttours.net> Make checks payable to A1 Tuscany Travel. Your deposit is due at the time of booking, and the remaining balance is due by June 10, 2009. Final billing will be sent out to all passengers on May 10th along with information packets which contain maps, reading material, packing list, baggage tags, eclipse viewers, and departure instructions.

East-West Tours is a tour operating corporation and not a travel agency. We have been in business since 1964 and specialize in unique, small group tours to rural areas of China, Tibet and Nepal. Phila McDaniel, MFA, Owner of East-West Tours is a published author and guest curator for national folk art museums. She is also the world's leading expert in Chinese minorities and their arts & textiles. You can learn more about Phila and the company from our web site at: <http://www.eastwesttours.net> or email us at: eastwesttours@hotmail.com for more information.

All passengers must agree to the following Terms and Conditions for travel:

The published tour price is all-inclusive of round trip international economy class airfare, all hotels, all meals, and all taxes. The following are not included in the tour price:

VISAS: A Chinese visa is required for travel and is not included in the tour price. If you wish for us to process your visa, please mail a check for \$180.00 per person directly to:

East-West Tours, Inc., 40485 Murrieta Hot Springs Rd., Ste. 213, Murrieta, CA 92563

- **Make checks for visa processing payable to: East-West Tours, Inc.**

TRAVEL INSURANCE: Full travel insurance coverage is mandatory unless a waiver is signed. For suggestions on travel insurance companies, or to obtain a waiver form, please contact:

A1 Tuscany Travel (800) 317-8925 or (951) 677-4856 Fax only: (951) 677-4859

AIRFARE UPGRADES: You may upgrade your airfare to Premier Economy on China Southern Airlines. Premier Economy is China Southern's Business Class seating. East West Tours is granted premium first choice seating for our Premier Economy passengers. To upgrade your airfare at our wholesale rate, please add \$800.00 per person to the tour price and include it with your final payment. Your bill will be adjusted to reflect your preference.

SINGLE SUPPLEMENTS: The published tour price is based on double occupancy. If you need a roommate, we will find one for you. If you wish to have your own room, you may request a Single supplement. To upgrade to a single room, please add \$500.00 to the tour price and include it with your final payment. Your bill will be adjusted to reflect your preference.

CANCELLATION POLICY: Trip deposits are non-refundable. Cancellations received before 90 days prior to departure will receive a 50% refund of all trip money paid, except for your trip deposit and air ticket (if applicable). If you cancel your tour within 90 days of the departure date, no refund will be given. Air tickets are non-refundable once they are printed.

Sign below that you have read and understand these terms and wish to reserve space on this tour. Return this page with your application.

Name: _____ Make a photocopy for your records.



Astronomical Society of the Pacific

GIVE A CHILD THE UNIVERSE: SHARE YOUR ENTHUSIASM FOR ASTRONOMY WITH A CLASSROOM NEAR YOU

Project ASTRO is looking for amateur and professional astronomers to work with teachers and students in 3rd-9th grade classrooms. This is a great opportunity to share your love of astronomy with an enthusiastic audience and help kids learn about science.

Project ASTRO pairs you with a Bay Area teacher at a school convenient for you. Together, you and your teacher partner first attend a 2-day summer workshop to learn hands-on, inquiry-based astronomy activities designed to involve students in the excitement of scientific discovery.

Project ASTRO partners receive "The Universe at Your Fingertips," a rich curriculum resource book, as well as access to books, videos, and telescopes from our lending library. Throughout the year, partners are invited to attend follow-up workshops.

Project ASTRO emphasizes ongoing partnerships that foster a nurturing environment for students to learn. To accomplish this, astronomers make at least four visits to their adopted classroom at mutually convenient times.

Project ASTRO has been operating since 1993 in the Bay Area. Previous participants often report that it is one of the most satisfying volunteer endeavors they have undertaken.

Graduate students and advanced undergraduate students majoring in astronomy are also encouraged to apply.

Astronomer applications are now being accepted for the 2009-2010 school year. The deadline is Friday, May 29th and space is limited. All participants are required to attend a 2-day workshop to be held August 7 & 8, 2009, at the San Mateo County Office of Education in Redwood City.

APPLY ONLINE by MAY 29th:

<http://www.astrosociety.org/education/astro/bayarea/volunteer.html>

CONTACT:

Allyson Clark, Project ASTRO Coordinator

Email: bayareaastro@astrosociety.org

MORE INFORMATION:

<http://www.astrosociety.org/baprojectastro.html>

Project ASTRO, a program of the nonprofit Astronomical Society of the Pacific, began with support from the National Science Foundation and the NASA Office of Space Science. Currently, over 500 active educator-astronomer partnerships bring the excitement of scientific discovery through astronomy to over 20,000 students annually.

Contacts mailing list

Contacts@aanc-astronomy.org

<http://mail.aanc-astronomy.org/mailman/listinfo/contacts>

MOUNT TAMALPAIS STATE PARK MOUNT TAMALPAIS INTERPRETIVE ASSOCIATION

2009 ASTRONOMY PROGRAMS

INTERNATIONAL YEAR OF ASTRONOMY

**5/2 8:00pm John Dillon
Randall Museum**

***“The Autopsy of Heaven:
Galileo, Telescopes and the Beginning of Modern Science”***

400 years ago when Galileo announced his telescopic discoveries, the story goes, he threw off the yoke of the ancient Greeks and challenged the authority of the Church – thus opening the way for “modern” Science. John Dillon will take a longer view of the history of science and explore a subtler, more complex, relationship between Galileo, telescopes, Science and the Church.

**5/30 8:30pm Kenneth Frank
Astronomical Society of the Pacific**

“Your Other Address: Where We Are in the Universe”

Our view of where we live is one which most of us don't think about. OK, Kenneth Frank knows he has a 94920 address on the Tiburon Peninsula, and If he takes out a AAA map or browses Google online he gets a better idea of where he lives. But what else defines where we are situated? In this talk he seeks to inform the audience of where we are on a grander scale and find that sense of place that we call home.

**6/27 8:30pm Professor Lynn R. Cominsky
Sonoma State University**

“Exploring the Extreme Universe with Fermi”

NASA's Fermi Gamma-ray Space Telescope (formerly known as GLAST) mission is exploring the most energetic and exotic objects in the cosmos: blazing galaxies, intense stellar explosion and super-massive black holes. Fermi Probes the Universe on scales from the infinite to the infinitesimal, and future observations may shed light on the nature of dark matter.

**7/25 8:30pm Dr. Natalie Batalha
San Jose State University
"Kepler's Hunt for Habitable Planets"**

NASA's Kepler Mission has begun its 3.5-year quest for habitable planets like Earth in our galaxy. Dr. Batalha will describe how and where the spacecraft will look for planets we might call home and what to expect in the coming years as we work to understand whether Earth-like planets in our galaxy are common or rare..

**8/22 8:30 Dr. Anthony Colaprete
NASA-Ames Research Center
"Prospecting for Water on the Moon"**

In 2009, NASA will purposely crash two spacecraft into one of the Moon's polar regions. The impacts should raise huge plumes of material, visible even to smaller telescopes on Earth. Astronomers will search for evidence of water in the plumes to get a better sense of how much frozen water may lay hidden in the deep, shadowed craters of the Moon's North and South poles.

**9/19 8: 30 Wil van Breugel, Ph.D
University of California Merced
"Astrobiology: What is Life & Where is It?"**

Astrobiology combines astronomy, biology, physics and chemistry to investigate the origin and evolution of life in extreme environments, including early Earth, and guides the search for alien life on other planets in our Solar System and beyond. Dr. vanBreugel will discuss how our perception and understanding of life has evolved, and the close connection of life to the cosmos.

**10/24 7:30 Professor Michael Dine
University of California Santa Cruz
"The Dawn of the LHC Era: *The Convergence of Particle Physics and Astrophysics*"**

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