

★ ABOVE THE FOG

• BULLETIN OF THE SAN FRANCISCO AMATEUR ASTRONOMERS •

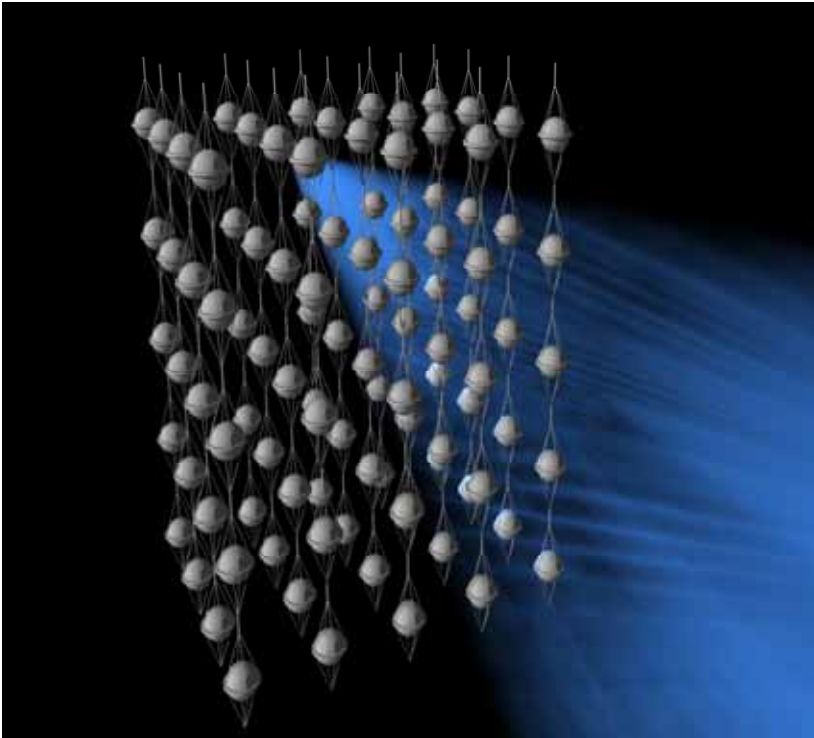
Vol. 55, No. 5 – May 2007

May 16, 2007 – General Meeting

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

**DR. AZRIEL GOLDSCHMIDT
LAWRENCE BERKELEY LAB**

LOOKING AT THE UNIVERSE WITH DIFFERENT EYES: THE ICE CUBE HIGH-ENERGY NEUTRINO TELESCOPE



Why make dozens of mile and a half deep holes in the Antarctic ice at the South Pole? Why bury in them thousands of glass spheres with light sensors? What do we hope to learn by looking for neutrinos coming from the cosmos? How can we learn about the inner workings of gamma ray bursters, supernovae or active galactic nuclei by looking for neutrinos coming from them? In this talk I will offer answers to these questions and describe how the IceCube telescope detects high-energy neutrinos, measures their energy and determines from where they came, thus opening a new window through which to look at our universe.

Dr. Azriel Goldschmidt is a staff physicist at the Lawrence Berkeley National Laboratory's Nuclear Science division. Since 1996 he has been doing research in neutrino astrophysics, currently with the IceCube neutrino telescope at the South Pole. Originally from Argentina, Dr. Goldschmidt received his B.Sc. in physics from the Technion Israel Institute of Technology and his Ph.D. in particle physics from the University of California at Berkeley. In recent years his work has focused on the development, implementation and operation of a data acquisition system for the IceCube high energy neutrino telescope.

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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 pg@lbin.com 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 president@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/agabrielli-sfaa@sbcglobal.net
- 7) 8" f/10 Meade SCT/Stefanie Ulrey/treasurer@sfaa-astronomy.org
- 8) 9.5" f/5.6 Celestron Newtonian/Ken Frank/kennethfrank@planitarium.net

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.

FOCAL POINT

As I write this column, it is almost May. I don't know about you, but for me, this year is flying by. We have a lot in store for the warmer, clearer, calmer days and nights ahead, starting with our SUP Saturday on May 12 followed by the General Membership Meeting on May 16 with Dr. Azriel Goldschmidt "Ice Cube" observatory, then International Sidewalk Astronomy Day with legions of Dobs and assorted telescopes set up at Ghirardelli Square, Mt. Tam, or the sidewalk you desire on the evening of Saturday, May 19, the John Dobson Speaker Series at the Randall on May 24 (telescopes requested), and the City Star Party at Lands End on Saturday, May 26, with our very own Carter talking about "Black Holes and P-Traps."

For June, make sure you sign up for the ever-favorite SFAA Night at Fremont Peak on June 15-16th [SFAA Night-Fremont Peak](#) Last year we were blessed with dark skies, low humidity and still air in the high 60's. It's your telescope for the night, so let me know what you'd like to see. Only one caveat: the 30 inch ... also your telescope operator ... don't like near northerly skies in the vicinity of Polaris; all else is fair game. Saturday is public day and night. The FPOA has two club solar scopes for great sun viewing. I will bring the Club's PST to compare with Cheryl's for fun. Even though Fremont Peak is a solid two hour drive, it's well worth the experience. If you haven't looked thru the eyepiece of the Challenger, you're truly missing out on one of the Bay Area's finest public telescopes. You won't be disappointed.

I've always got to put my plug in for volunteerism. You the membership are the Club and make it

what it is. Why not submit an article to Above the Fog? or provide the snacks for our General membership meeting for which you will be reimbursed. Speaking of money, I'd like to point out the hard work Stephanie Ulrey has done with wearing the two hats of both Treasurer and Secretary. Now that Vivian White has graciously stepped forward as Treasurer, Club business will be less burdensome for us all.

SLAC wasn't slacker astronomy, but it was fun. Our tour leader, whose father co-discovered a subatomic particle, is currently doing his graduate studies there. Pictures are on our website. http://www.sfaa-astronomy.org/events/annual_slactourphotos.php

At our meeting on April 18th, a new member, David Goggin, mentioned City community feedback meetings regarding light pollution. Fortuitously, a few days ago I met briefly with Supervisor Aaron Peskin and Mayor Gavin Newsom to express the SFAA's interest in preserving the night sky. Both the Mayor and Supervisor Peskin look forward to hearing from us and coming up with solutions. One possible way we could get the City of San Francisco on the IDA bandwagon <http://www.darksky.org> might be to tag into <http://www.sfgov.org/site/uploadedfiles/planning/Citywide/BetterStreets/index.htm> This needs some thoughtful consideration and planning to submit to the Board of Supervisors in what will eventually become, I hope, the General Plan. So who would like to head up this committee???

See you on the sidewalk.

KEN FRANK, President



NEW SFAA MEMBERS
Scope City is offering to new members a \$25 credit toward the purchase of telescopes and binoculars. Obtain a receipt for dues payment from Vivian White, Treasurer, treasurer@sfaa-astronomy.org. Contact Sam Sweiss at Scope City to arrange for your discount.

IMPORTANT DATES

SFAA GENERAL MEETINGS & LECTURES

Wednesdays - May 16, June 20, July 18

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)

BOARD MEETINGS

Tuesdays - May 8, June 12, July 10

7:00-8:30 p.m.

Randall Museum, 199 Museum Way
(Near 14th Street and Roosevelt)

CITY STAR PARTIES - Telescope Clinic one hour before sunset

VOLUNTEERS ARE ALWAYS NEEDED

Saturday, May 26, 8:13 p.m. at Land's End (Point Lobos)

Saturday, June 9, 8:22 p.m. at Randall Museum

Saturday, July 7, 8:26 p.m. at Land's End (Point Lobos)

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

Weather may cancel the City Star Party. Call the SFAA Hotline at (415) 289-6636 AFTER 4 PM to learn the status of the event and the location. If the hotline announces the Star Party is cancelled, the Telescope Clinic and Lecture are cancelled as well. However, if the Hotline does not cancel the Star Party, be assured that the Lecture will proceed as scheduled even given less-than-perfect telescope conditions.

Please also note that while City Star Parties WILL ALWAYS be held on Saturdays, some will be closer to the last quarter phase of the moon, while 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 members-only events on Mt. Tam.

MT TAM STAR PARTIES – SPECIAL USE PERMIT – MEMBERS ONLY

SATURDAYS -- May 19, 8:08 p.m. – Gatekeeper **VOLUNTEER NEEDED**

June 16, 8:25 p.m. – Gatekeeper **VOLUNTEER NEEDED**

July 21, 8:19 p.m. – Gatekeeper **VOLUNTEER NEEDED**

2007 SAN FRANCISCO AMATEUR ASTRONOMERS LECTURE SERIES

RANDALL MUSEUM THEATER , Randall Museum, 199 Museum Way, San Francisco
FREE & OPEN TO THE PUBLIC

JUNE 20 – 7:30 P.M.

DR. THOMAS BERGER, LOCKHEED MARTIN

The latest in Solar astrophysics, including the discovery of “solar moss” on the Sun’s near surface from NASA’s extreme ultraviolet TRACE Spacecraft. Also a report on Japan’s Hinode Solar Mission.

JULY 18 – 7:30 P.M.

DR. KEVIN ZAHNLE, NASA AMES

“Large Impacts, Planetary Evolution and the Atmospheres of Mars and Venus-like Planets”

Check for forthcoming details.

AUGUST 22 - *To be announced*

SEPTEMBER 19 - CHRIS FORD, SENIOR DESIGNER, PIXAR ANIMATION STUDIOS

Using hard data, amateur astronomer Chris Ford will show astronomy visualizations, aspiring to scientific accuracy that will educate and entertain. You will fly across Mars, traverse Saturn’s Rings, see Jupiter up close and learn about how these spectacular simulations are done. Ford will discuss both the tools and the state of the art, and declares, “This media is where Chesley Bonestell would be working today!”

OCTOBER 17 - NOVEMBER 21 - DECEMBER 19 - *To be announced*

WHAT'S UP FOR MAY

The JPL website has a lot of fascinating stories for you astro folks right now!

There's one story about new evidence of ancient volcanic explosions on Mars and another about the molten core of Mercury. Ice on Mars? Read all about it! There are also details about JPL Open House and, drumroll please.....What's Up for May, my new monthly podcast is there, too!

Saturn, Jewel of the solar system is joined by Venus and Mercury in the early evening, and then after midnight, glorious Jupiter returns. Near Jupiter, the Asteroid Vesta can be seen beginning in late May through September. It will be bright enough to see with the unaided eye, if you know where to look. Saturn continues to be a great target through the amateur telescopes clear through July, when a beautiful grouping of Venus, Saturn, Leo's star, Regulus are all bunched together with the slender crescent moon. Between now and then watch Venus and Saturn as they draw closer to each other.

You can get to the 2 minute podcast from the JPL main page: <http://www.jpl.nasa.gov/>

You can also view What's Up on the JPL Amateur Astronomy page. You'll find some simple (aimed at the general public) downloadable sky charts, links to NASA amateur astronomy networks, and this is where the What's Ups are archived, too. <http://education.jpl.nasa.gov/amateurastronomy/index.html> This is the permanent place to access these each month, so it's the best url to bookmark.

This month the Dawn Mission's Amateur Observer Program was added to the JPL Amateur Astronomy page - the link I just mentioned above. The Dawn Amateur Observers Program is modeled on the successful Deep Impact Amateur Observers' Program. <http://dawn-aop.astro.umd.edu/index.shtml> Check it out! There are detailed star charts for several months on this page and lots of other great information.

Our next local southern California sidewalk astronomy viewing dates will be May 18 (Pasadena) and May 19 (Monrovia). May 19 is also International Sidewalk Astronomy Night <http://home.earthlink.net/~sidewalkastronomynight/> Look at events all over the world! If you haven't seen Saturn (or Venus, or Mercury) and you want to, let me know, or let your local sidewalk astronomers know and we'll see if we can't fix that! Last weekend over 530 people stopped by our two telescopes for a look at the moon, Venus and Saturn. May 19 and 20 are also JPL Open House - info on the main JPL website <http://www.jpl.nasa.gov/> if you are in the southland, stop by and say hi - I'll be working both days near the Cassini Spacecraft Model

For those of you with iPods you can subscribe to the NASA Jet Propulsion Laboratory video and audio podcasts (podcasts are free and on iTunes under science podcasts) and have "What's Up" and other JPL podcasts downloaded automatically every month when you sync your iPod. Of course you can watch them on your computer too! Keep looking up!

Jane Houston Jones

Monrovia, CA

34.2048N 118.1732W, 637.0 feet

<http://www.whiteoaks.com>

Old Town Astronomers: <http://www.otastro.org>

OBSERVING THE NIGHT SKY FROM AUSTRALIA

Bob Douglas

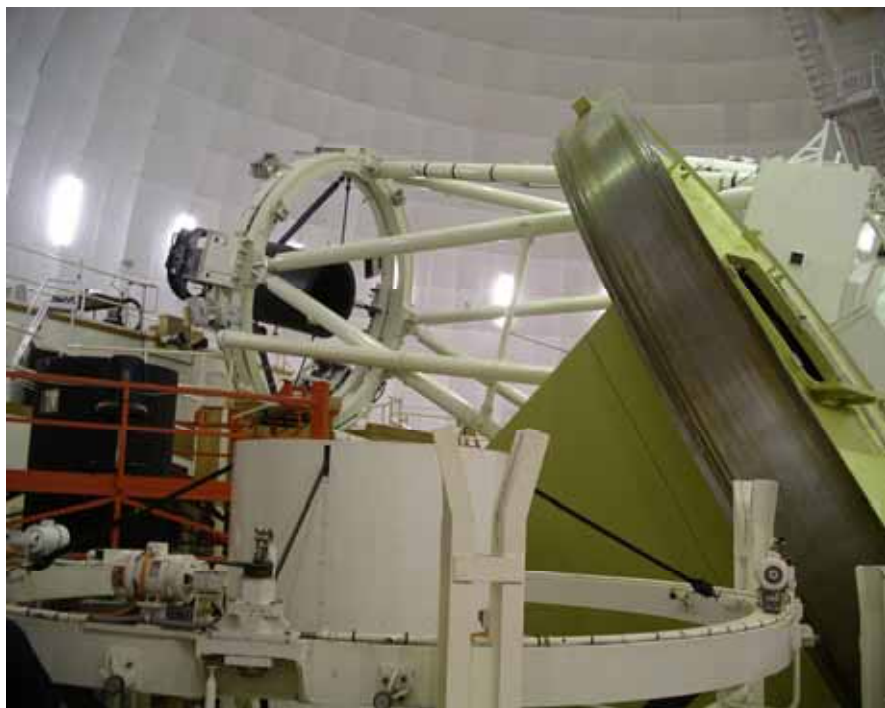


Bob Douglas - SFAA 2006 Observer of the Year

On March 24th, I returned from viewing the night sky from Australia and thought I would give a brief report to members of SFAA. Unlike four previous viewing trips to Oz in the past six years, this time I was with a large group of amateur astronomers, most being from Texas. It was the fourth (and by far the largest) annual occurrence of the Deepest South Texas Star Safari to Coonabarabran, Australia. It was organized in Texas and supported by the Three Rivers Foundation (www.3rf.org), which promotes astronomy and other educational topics. This foundation has an astronomy campus located near Crowell, Texas, and is looking into establishing a similar one in Australia. Several Australian

amateur astronomers served as on-site hosts. The equipment provided by the foundation and our Aussie hosts consisted of four 18-inch obsessions, two 20-inch obsessions, two 25-inch obsessions, a 17.5-inch hand-crafted Dobsonian, and several smaller scopes, including a 14.5-inch and 12.5-inch Newtonian, and a 10-inch Dobsonian. In addition, there was a motor-driven binocular chair and 25x150 Fujinon binoculars. The star party was located 10 km west of the town of Coonabarabran, which is located about seven driving hours NW of Sydney. We were only about 10 km east of the Siding Spring Observatory, which houses the 3.9-meter Anglo-Australian telescope. We were given a personal tour of the telescope and observatory by the observatory's director, Fred Watson.

While the star party lasted seven nights, unusual weather left us with only two nights of clear skies. But no one was disappointed at this because of what was visible in the sky on those two clear and pitch black nights. The Milky Way, running from west of Carina and east through Crux, Scorpius and Sagittarius, was resplendent in the sky. At the SFAA December meeting, I gave a talk (and I just gave an expanded version of that talk to the Sonoma County Astronomical Society on April 11th) on observing from Australia and on outstanding objects one can see from there that are not visible from our latitude. So I will not here attempt to list the many objects that thrilled the star party participants. March is a good month to observe from Oz, as the Large and Small Magellanic Clouds, the Eta Carina Nebula, the globulars Omega Centauri



3.9-meter Anglo-Australian telescope at Siding Spring

as the Large and Small Magellanic Clouds, the Eta Carina Nebula, the globulars Omega Centauri

and 47 Tucanae, the galaxy Centaurus A, and the Tarantula Nebula (NGC 2070) are all visible. The Australian aborigines have a "constellation" which is unlike any of the 88 constellations we are familiar with. It is called the Great Emu, and the figure consists of dark nebulae, starting with the Coal Sack (the head and beak) next to Crux and running east all the way through Sagittarius. It was in full view! And I saw, for the first time, the Fishhook asterism in an open cluster that is in the emission nebula IC 2948, and the Dark Doodad in Musca, a dark streak about three degrees long that is very obvious in binoculars. In addition, I saw the Ghost of Jupiter better than I have ever seen it from northern latitudes. Through an 18" obsession with 500x, the central star was visible and was surrounded by a dark annulus, which itself was surrounded by a bright annulus, which was again surrounded by a less bright, but broader annulus. I was astounded.

To become aware of observing opportunities in Oz, I recommend the website of the Astronomical Society of New South Wales, www.asnsw.com. In particular, within that website, you might contact Tony Buckley, international liaison officer for the ASNSW, and past president of the society.

I recommend to anyone interested in observing, at least once in your lifetime, to make a trip to Oz. Beware, it can become addictive! But not all addictions are bad!



The Great Emu

David Perlman

Science Editor, San Francisco Chronicle

Interview by Kenneth Frank

From delivering Chron's as a kid, I've always wanted to go into the Chronicle Building on 5th and Mission, and only recently did the opportunity present itself. What's really cool is looking at the ceiling as you enter the building, a vaulted blue heaven with letters floating in the firmament. Going up to the 3rd floor through the ornately carved dark hardwood entrance let me know that I, a native San Franciscan, was going somewhere very special. Striding past desks piled high with news stories was exciting. There in a corner of that floor is where David has USGS charts and NASA missions tacked up all over, with legions of bookcases marching around the room. He sat behind his expansive oak desk, also piled with journals periodicals and papers. As I sat down, I knocked over a mailing tube of charts. At home as a child before WW II, my parents read the New York World. What sparked his writing?

In junior high, his parent's friend had been a reporter; that was exciting to him. In college, David later wrote and edited at the Columbia University "Spectator". He has a spark and verve for the deadline and has done nothing else but write. In 1952 by happenstance, the Chronicle needed a writer to cover environmental aspects of water resources and conflicts over the Colorado River, and other topics such as offshore drilling in Santa Barbara Channel. That led to a story on directing slant drilling from onshore, merging science and technology.

Space interests like Sputnik were very elusive to him; he couldn't understand why the satellite wouldn't fall from the sky.

David Perlman has been at the Chronicle for 57 years, and Science Editor for over 40 years.

One of the first questions I asked was where he got his knack for plain English for describing Fred Hoyle's Steady State Universe Model to reporting the '52

earthquake in Tehachapi. The most useful thing, he said, came from Miss Debbins, his fifth thru twelfth grade grammar school teacher at a small private school. Every day she had the class write a theme for five minutes on some topic of discussion.

David Perlman seems most connected when he watches or participates with scientists in action and then writes a story on it -- from finding biota coming up from the earth's crust in the Galapagos rift zone on a vessel, to the planetary science mission story on Mariner IV to Mars in '65, to traveling to Ethiopia digging up hominid fossils.

Someone gave David a dramatic and controversial astronomy text, so he went down to Lick Observatory. He spoke with George Herbig, co-discoverer of the Herbig/Haro objects -- bright patches of nebulosity excited by bipolar outflow from a star being born. He was highly intrigued. "So what do you do for a living?" he asked, to which Herbig replied, "I watch the stars being born in the Orion Nebula." It was an epiphany for him. One thing led to another ... and he became Science Editor.

In '68, his first encounter with John Dobson was on the corner of Jackson in Presidio Heights with a cluster of people to whom John was showing the rings of Saturn or craters of the Moon. A cop drove up and apparently some mother was worried about what John was doing. David showed the cop his press pass and said that John was an astronomer. "Would you care to look at the Moon," John asked? The police drove away.

Last week, David wanted to go a half-mile deep into a Minnesota iron mine with UC researchers looking for neutrinos.

By the way, David was given a 60mm refractor in a wooden box by his dad in the early 60's; with it, he showed his son the rotation of our nearest star.

SFAA STANFORD LINEAR ACCELERATOR CENTER TOUR – APRIL 7, 2007

Our trip to the Stanford Linear Accelerator this April was a great success. We had full capacity. A special thanks to Ken our venerable president for his tireless and creative promotion of our field trip helping to insure our success.

Christopher, our guide and lecturer, was most gracious and articulate and went out of his way to insure that we had a most interesting tour of SLAC's very impressive 426-acre facility. One of the most interesting stops on our tour was the 3.2 kilometer (2.0 mile) long underground accelerator. This is the world's longest building and is claimed to be "the worlds straightest object." This accelerator can accelerate electrons and positrons up to 50 GeV, and has been operational since 1966. With a \$200,000,000 budget and four Nobel Peace prize winners, a lot of fascinating research continues to be done. DARPA nearby has done some advanced biological research that has truly been other worldly, but that is another story.

Once a month a lecturer speaks at the Panofsky auditorium located near the entrance to SLAC and where our tour started. Here you may hear a Nobel Peace prize winner speak or sit in the audience surrounded with renowned visiting scientists from around the world. You may go to slac.stanford.edu for the times and details. I have arranged these tours with SLAC for the SFAA, mostly, for the last 15 years and have never tired of the experience and have always looked forward to it and have found it most rewarding, interesting and "fun". Incidentally, on a full moon night, the Cantor Art museum nearby at Stanford provides a fascinating and extensive outdoor exhibit of Rodin's sculptures and other great sculptural pieces in a beautiful outdoor setting. Another truly unique and and wonderful experience that we are blessed with.

Jim Webster



ANNUAL YOSEMITE STAR PARTY AT GLACIER POINT FRIDAY, JULY 13, AND SATURDAY, JULY 14, 2007



Panshot courtesy of Mojo

We have a New Moon weekend so our quota will fill up quickly. To sign up, please email [peter.schumacher at ucsf.edu](mailto:peter.schumacher@ucsf.edu) with "Yosemite" in the subject line, and include in the text body: your name(s), number of people, type & size of scope(s).

If you are currently registered and decide for some reason you cannot come, please let Peter know as soon as possible so others may fill your campsite. Those on the wait list will thank you for your consideration.

A note for non-members and those not making the list: Yosemite is your National Park, and you may come if you arrange your own accommodations. In this case, you would be welcome to join us at Glacier Point for the public star party and the observing afterward; however, you would not be obligated to set up for the public.

Regarding location, the Star Party will be held at Glacier Point and will be hosted by the National Park Service (NPS). For directions and guidelines, rustic camping is located at the Bridalveil Creek campground group site. There is room for several tents. Cold running water is convenient but *sans* showers. The campsite is 8.5 miles away from Glacier Point.

For those of you unfamiliar with this event, we are given free reserved admission and camping space. In exchange, we give two public star parties at Glacier Point, on Friday and Saturday night. We'll have the public (about 200 - 300 people) starting twilight and 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. NPS 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? You are expected to have at least one public telescope for every two people. Check the National Weather Service for up-to-date weather info on Yosemite Park current weather and conditions. There is a live cam of Half Dome from Ahwahnee Meadow. Once confirmed, you will be given an Entrance Fee Waiver Form you must present to the ranger at the park entrance. These forms will

be available at our meetings. You may be asked to show the ranger your telescope when you enter the park.

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

During our Star Party, one of the rangers gives a sunset talk, and then turns the crowd over to us. A SFAA member will then deliver an evening talk. Some of the public will have white flashlights, so we need to be tolerant of that; we will have club members with red brake light tape to cover the offending flashlights.

Expect many questions from the public! Here is an object list with corresponding finder charts and some brief information.

Fun part- By around 9:30 or so, we will have the place to ourselves, and can stay until dawn. 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, and invite people to come again after sunset.

Gastronomic Astronomic- Early Saturday eve is traditionally potluck and is always fun. Please provide enough for ~ say 4 or 5. Salads, main course, pu pu's and desserts are all welcome. Let's try again for the best astronomical theme of incredible edibles. Prizes will be awarded! Please remember this repast takes time so 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. Sunset Saturday will be 8:23 pm.
See you there.

Peter & Ken

MT TAM ASTRONOMY PROGRAMS . MAY 19- 8:30 P.M. . MT. TAM MOUNTAIN THEATER

Mt Tam Enthusiasts - Well, the rain came in April, but we have high hopes for May. Please join us for our first astronomy program for 2007 on SATURDAY, MAY 19 AT 8:30PM in the Mountain Theatre on Mt Tamalpais.

Dr. Scott Sandford, from NASA-Ames Research Center, will give us an overview of the Stardust Mission and an update on what has been learned from the comet sample it returned to Earth from Comet 81P/Wild2.

Weather permitting, the talk will be followed by observing in the Rock Springs Parking Lot, with the San Francisco Amateur Astronomers. This a FREE program, sponsored by Mt Tamalpais State Park, open to the general public. Student and youth groups are encouraged to attend. Dress warmly, bring a flashlight and car pool if possible. More information and directions are on our website: www.mttam.net. If the weather is questionable that day (dare I even suggest it?) call the hotline 415-455-5370 after 3:00pm for an update.

Thank you for your interest in the Mt Tam Astronomy Programs. See you on the Mountain!

Jun 23 – 8:30 p.m.	Prof. Alex Filippenko UC Berkeley	"The Birth of the Universe" <i>There is evidence in favor of a "big bang" origin for the cosmos - a hot, dense beginning with an inflationary expansion. More recent theories, however, also suggest that our universe may be only one of many.</i>
Jul 21 – 8:30 p.m.	Dr. Janice Voss NASA-Ames Research Center	"Life as an Astronaut: Highlights of STS-99" <i>Shuttle Mission STS-99 launched on Feb 11, 2000 was Dr. Voss' fifth space flight. Dr. Voss will describe the mission and other aspects of life as an astronaut.</i>
Aug 18 – 8:30 p.m.	Dr. Joseph F. Hennawi UC Berkeley	"Weighing the Dark Matter in the Universe with Gravitational Lensing" <i>A description of the mysterious problem of Dark Matter in the Universe which has confounded astronomers and physicists for nearly half a century, and recent progress on understanding it based on one of the predictions of Einstein's theory of general relativity.</i>
Sep 15 – 8:00 p.m.	John Dillon Randall Museum	"When Astronomy Became a Science" <i>An examination of the amazingly sophisticated astronomy that flowered more than 2000 years ago at the legendary Museum of Alexandria.</i>
Oct 13 – 7:30 p.m.	Dr. Steve Stahler UC Berkeley	"How Stars Are Made" <i>Stars are the natural outcome of processes that occur throughout galaxies. Research has led to a good understanding of the basic evolutionary process, but deep mysteries still remain.</i>

Spring 2007 Benjamin Dean Lecture Series in Astronomy

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