

# ★ ABOVE THE FOG

• BULLETIN OF THE SAN FRANCISCO AMATEUR ASTRONOMERS •

VOL. 53, No. 3 – MARCH 2005

**APRIL 20, 2005 – GENERAL MEETING**

RANDALL MUSEUM  
199 MUSEUM WAY  
SAN FRANCISCO

7:00 PM DOORS OPEN  
7:30 PM ANNOUNCEMENTS  
8:00 PM SPEAKER

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## **RICHARD CRISP NARROWBAND TRICOLOR EMISSION LINE IMAGING**



We've all seen the famous Hubble "Pillars of Creation" image released some years back. Part of what gave that object its unique appearance was the use of [SII], Ha and [OIII] filters instead of the usual RGB. Astro-imaging using such emission line filters can offer several benefits to backyard/suburban imagers: reduction of light pollution effects (manmade or lunar), reveals structure otherwise difficult to see via color contrast, and offers a fresh new appearance to familiar objects. This talk will focus on an overview of the narrowband technique and with many images shown to illustrate the sort of results that can be obtained in your suburban backyard.

*Richard Crisp is a local San Francisco Bay Area astro-imager who has concentrated on developing techniques for taking astronomical images using narrowband filters. Working as a technology development director for an innovative Silicon Valley intellectual property company, he spends his time off taking images from his suburban east-bay backyard. Richard also enjoys designing and building equipment including large aperture cassegrain telescopes. His website, [www.narrowbandimaging.com](http://www.narrowbandimaging.com) has many of his images and photos of various design projects. Richard bought his first telescope from Scope City in November of 2000 and has been very active since that fateful day when Richard first met Sam. Since that time his images have been published in several books, magazines and NASA APOD pages.*

## 2005 CLUB OFFICERS & CONTACTS

## CLUB TELESCOPES

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The SFAA owns 4 club loaner telescopes, Dobsonian/Newtonian reflectors: 6" f/10, 8" f/7, and 10" f/8 and a Starblast. They are available for extended periods (30 days or more) to SFAA members. These are generally very fine scopes, easy to use and well suited for deep sky, planets, and star parties. The loaner custodians are Pete Goldie & Sarah Szczechowicz, located in San Francisco. If you are interested in borrowing a scope, or if you have items you can donate for the loaner program (eyepieces, star maps/books, collimator, etc.) please contact them via email (<mailto:pg@lbin.com>) or phone (415-206-9867). Email communication is preferred and strongly recommended for a quick and accurate reply.

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## 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. Our librarian is Dan Christian.

For information on the course tapes themselves:

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

## MEMBERSHIP DUES

The mailing label on the back of this issue shows the month and year through which your membership was paid. If the date has passed, your membership has expired. Members may receive no more than one bulletin after the expiration of membership.

Please renew soon if your membership is expiring.

## ONLINE SERVICES FOR SFAA MEMBERS



The SFAA's Secretary's Web Site helps keep SFAA information together and accessible to members. The site URL is <http://www.whiteoaks.com/sfaa/>. At this site you can find such information as minutes from meetings of the Board of Directors, the SFAA official by-laws, and other information. SFAA also offers email lists to supplement the bulletin board offered at the SFAA's official web site. At present there are two email lists – an unmoderated list for use primarily for business and discussion by the Board of Directors (but open to all members), and a moderated announcement list for all SFAA members. If you would like to be added to the SFAA-announce email list, please contact the secretary (<mailto:secretary@sfaa-astronomy.org>) and let him know. You can also sign up for the list yourself at this URL: <http://www.whiteoaks.com/mailman/listinfo/sfaa-announce>

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*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 Phil Estrin at [pestrin@dir.ca.gov](mailto:pestrin@dir.ca.gov).

## Times Through The Finder



If you haven't used SFAA's website recently, check it out. Joe Amato, our webmaster, has been hard at work refurbishing the unseen cyber-machinery that makes it go. It will look the same (for a while) but it's firing on all cylinders and runs smoother than ever. Down the road, Joe plans improvements to the "look and feel" as well. For now, you should notice a marked improvement in its functionality. It serves not only as a site for informing members and the general public about upcoming events but is also a live forum for astronomy-related discussions. Lots of links and a hotline for last-minute info on members-only star parties. Our web site is also the quickest and best way to receive "Above the Fog". And in it's in color! Check it out!

Plans for the SFAA hosted **AANC Conference at the Randall Museum on August 27** are gathering steam. Ken Frank has been busy making contacts with speakers, demonstrators, educators, sellers - professional, amateur, & corporate. He is looking for volunteers to help set up and run the event. If interested email Ken ([kennethfrank@planitarium.net](mailto:kennethfrank@planitarium.net)) and put "volunteer AANC" in the subject line. John Dobson will be in attendance and we will celebrate his 90th Birthday. If you have any photos of John, or other SFAA activities from the "early days," we'd love to display them around the Randall Museum during the conference.

Ken is also the contact for those wanting to reserve space for this summer's **Yosemite Star Party July 8 & 9**. And an ongoing reminder:

**Camp Mather's first-ever Astronomy week, Sept. 8-12**, is now open for reservations. This is an experiment on the part of SF's Rec & Park Dept. to gauge interest in keeping the camp open beyond Labor Day. Summer dates have been hard to get for years (ever since they built the Hetch Hetchy damn Dam). This is a truly great opportunity for dark skies and bright days, cozy cabins and hot food. See you in the dark....

**JOHN DILLON, PRESIDENT  
SAN FRANCISCO AMATEUR ASTRONOMERS**

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## IMPORTANT UPCOMING DATES



### **BOARD MEETING**

**APRIL 13 . MAY 3 . JUNE 7  
7:00-8:30 P.M.**

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

### **SFAA GENERAL MEETING & LECTURE**

**APRIL 20 . MAY 18 . JUNE 15  
7:00 P.M. DOORS OPEN  
7:30 P.M. ANNOUNCEMENTS  
8:00 P.M. SPEAKER**

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

### **CITY STAR PARTY**

**APRIL 2 - TELESCOPE CLINIC 6:30 PM,  
APRIL 30 - TELESCOPE CLINIC 7:00 PM,  
JUNE 25 - TELESCOPE CLINIC 7:30 P.M.**

*Land's End, San Francisco (Map and directions <http://www.sfaa-astronomy.org/sfaa/starparties/cspmap.shtml>)*

### **MOUNT TAM PUBLIC STAR PARTY**

**APRIL 16 - 8:30 P.M. . MAY 14 - 8:30 P.M. . JUNE 11 - 8:30 P.M.**

### **SAN FRANCISCO AMATEUR ASTRONOMER'S**

**ROCK SPRINGS MEMBERS ONLY EVENT (AT OR NEAR NEW MOON)**

**APRIL 8 . MAY 7 . JUNE 4 - 7:00 P.M. MOUNT TAMALPAIS - ROCK SPRINGS**



And the winner is...



Randy Taylor won top prize at Scope City in the drawing for his choice of focal length Type 6 Nagler...he chose the 13mm. **Congratulations Randy!**

Here is Sam Sweiss, manager of Scope City, with Steve White of Tele Vue who donated the eyepiece. John Dobson did the drawing for the prizes. Of course, he had to do some sidewalk astronomy with Ken Frank on Bay Street showing tourists "the zits on the Sun."

John Dobson & Ken Frank doing Sidewalk Sun viewing



Eyepieces? You want eyepieces? I don't got to 'cho you no stinkin' eyepieces. Sam at his best.



Hey, you can't look at the sun indoors! Can you?



The Schumacher family lend a hand.

## SCOPE CITY RAFFLE



The always photogenic Pete Goldie suns with John

Steve White of Tele Vue showing how to clean an eyepiece. "See, nothin' up my sleeve"!



## **SFAA Yosemite Star Party at Glacier Point** **YOSEMITE -- July 8th & 9th 2005**

The annual Yosemite star party is held at Glacier Point, hosted by the National Park Service (NPS). 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 camp 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 do 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. We take a maximum of 30 people, with priority given to SFAA members. Please do not ask if your friends can come...unless they are SFAA members. You are expected to have at least one public telescope for every two people. Check the SFAA website for up-to-date info on Yosemite Park current weather and conditions. Once you've signed up, I'll send you a gate pass, map of our campsites and page of rules.

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.

Here are folks and their scopes who are signed up so far --

Jane & Morris Jones	14.5" & 17.5" Liteboxes
Sarah Szczechowicz & Pete Goldie	10" Dobsonian
Jorge Morales + 1	C 8, Giant Binocs & 10" Dob
Bob Franklin + 2	C 9.25
Ken, Aeddán Frank & Jayni Allsep	10" f/6 Dob
Stefanie Ulrey	4" Star Blaster
Mark & Maureen Mickels & Emma Button	12.5" 2004 RTMC winning Dob
Jennifer, Jeff & Anna Myer	12.5" True Dobsonian
Margaret Petrie	Unknown Scope
Patrick McNichols	8" Dob
Danny Christian	10" Reflector
Jung Thomas & Jinsook Cho	8" SCT
Peter & Barbara Schumacher + 2	10" Dob
Tom Kellogg + 2	4.5" Star Blaster, 10" Dob

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

One of the rangers does a sunset talk, and then delivers the crowd to us. Following that, Jane and Mojo have been kind enough to give the evening talk complete with slides, which as you all know is always informative and insightful. Some of the public will have white flashlights, and we need to be tolerant of that. We'll have club members with red brake light tape to cover the offending flashlights. We will supply an object list with corresponding finder charts and some brief information. Expect lots of questions from the public.

By around 11 or so, we'll 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 small scopes during the afternoon, show Half Dome, and invite people to come again after sunset.

Saturday eve is traditionally potluck and it was quite an international fete last year. I'm not going to assign what to bring... just 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 as we did for last year's desserts at our place for the SFAA Star B Q.

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 setup Saturday evening on Glacier Point.

If you'd like to attend and are a current dues-paying member, send me an email with: Yosemite subject line, your name, number of people, type & size of scope(s) to: [kennethfrank@planitarium.net](mailto:kennethfrank@planitarium.net).

As Pete Goldie reminded me, there will be a sliver of a Moon before it sets with Venus and Mercury ...maybe an eyepiece full! Below, and a short hop are Saturn, Pollux and Castor in the lineup too with Comet Machholz above. It will be spectacular. Don't miss it.

Let's make it another great year at Glacier Point. See you there, Ken



## **Give a Child The Universe at a Classroom Near You**

Project ASTRO is looking for amateur and professional astronomers who would like 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.

Through Project ASTRO, you will be paired in a one-on-one partnership with a Bay Area teacher at a school near you. Together, educators and astronomers attend a 2-day summer workshop where participants learn to do hands-on, inquiry-based astronomy activities that 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 that demonstrate astronomy activities from "The Universe at Your Fingertips" and telescopes available in the lending library.

The project emphasizes ongoing partnerships, which fosters a nurturing environment for students to learn. During the school year, astronomers make at least four visits to their adopted classroom at mutually convenient times. The program has been operating since 1993 in the Bay Area. Previous participants often report that being a Project ASTRO Volunteer has been one of the most satisfying volunteer endeavors they have undertaken.

Astronomer applications are now being accepted for the 2005 - 2006 school year. The deadline is May 6 and space is limited to 35 partnerships. All participants must attend a hands-on training workshop, which will be held August 19 & 20, 2005, at the San Mateo County Office of Education in Redwood City.

Astronomer application forms are available from:

Christina de Leon, Project ASTRO , Astronomical Society of the Pacific  
390 Ashton Avenue, San Francisco, CA 94112  
Tel. 415-337-1100 ext. 101 . E-mail: [cdeleon@astrosociety.org](mailto:cdeleon@astrosociety.org)

Information and forms can also be found on the Web at:  
<http://www.astrosociety.org/education/astro/bayarea/volunteer.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. It has now expanded to 12 other sites around the country and has trained over 1,300 astronomer-teacher partnerships.*

## **ASTRONOMY AT YOSEMITE AND THE GRAND CANYON**

If your vacation plans are taking you to Yosemite National Park or Grand Canyon National Park this summer, keep an eye out for the Sidewalk Astronomers. Members of the San Francisco Sidewalk Astronomers, plus other Bay Area Astronomy groups, will be appearing at Yosemite and the Grand Canyon this summer.

More information is available on our website <http://sfsidewalkastronomers.org/newsarticles/starparties2005>

**Michael Portuesi . SF Sidewalk Astronomers**

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**April 15**

### **EXCELLENT SF BAY AREA GRAZE OF UPSILON GEMINORUM**

The best grazing occultation for the S.F. Bay Area this year will be the evening of April 15, 2005, a Friday. The star, Upsilon Geminorum, at magnitude 4.1 is almost bright enough to qualify this graze as Spectacular. This graze is included in the map on page 80 of the January 2005 Sky and Telescope Occultation Highlights article.

**\_Features\_.** This fine graze is especially suitable for beginners. The 46% sunlit waxing moon will be west at a high elevation (56 degrees), and there will be a large cusp angle (12 degrees on the dark side of the south cusp). It should even be possible to observe this graze with binoculars, and the time of the event, immediately after 9:35 p.m. PDT, near the end of the workweek for most of us, is unusually convenient. The Universal Time (UT) and date are: 0435 hours, April 16.

**\_Location\_.** The graze path of particular interest for this event is a little more than one kilometer wide. A location on the west side of I-880 in south Fremont, near the intersection with Fremont Blvd, has been chosen for an expedition. There are good views to the west, and there should be very little vehicular traffic.

**\_Techniques\_.** I will be video-recording this graze with an audio timing signal from WWV superimposed, a technique that has become very affordable, and one that nearly eliminates timing inaccuracies. Scientifically useful data can also be obtained using the traditional method of recording the observer's voice and a timing signal onto an audiotape. It is also quite acceptable for a person to join the group just to observe -- disappearances and reappearances of a bright star on the dark lunar limb are never-forgotten experiences.

**\_Profile\_.** The predicted lunar profile is a single large peak, with a fairly steep slope on the leading edge, and a long ramp on the trailing edge. The steep leading edge means that the first Disappearance for all observers will happen within a span of about 30 seconds. Then, depending on the observer's location, the star will be hidden for one to three minutes. The subsequent reappearances for the group will be spread over about two minutes, and during that time many observers might see multiple events as the star passes briefly behind small irregularities on the lunar limb.

**\_Alternate locations\_.** The graze path also crosses San Francisco, from the Presidio to the Portrero area. Further south it can be observed near I-5 south of Los Banos, and near Fresno, Bakersfield, Mojave, Victorville and Yuma. Maps and other assistance can be provided for anyone who would like to organize an expedition for any of these locations by contacting me at [Apr15UGem@AOL.com](mailto:Apr15UGem@AOL.com), a virus-protected address dedicated to this graze.

**\_More information\_.** Persons wishing to join me in Fremont may obtain details, including a JPEG map of the meeting site and a plot of the predicted profile, by emailing requests to the [Apr15UGem@AOL.com](mailto:Apr15UGem@AOL.com) address. And all are invited to make this information available to your local clubs.

**Walt Morgan via Tinka Ross  
Ken Frank**

**APRIL 6, 2005 – 5:45 P.M.**  
**UC BERKELEY – ASTRONOMY DEPARTMENT – 1 PIMENTEL HALL**  
**2005 SACKLER LECTURE – FREE ADMISSION**  
**STEVEN SQUYRES: THE MARS EXPLORATION ROVER MISSION**

The Mars Exploration Rovers Spirit and Opportunity have both found evidence for water-related processes at their landing sites. In Gusev crater, Spirit found only trace evidence for the action of water on the lava-covered plains of the crater floor. This water action left thin salt-rich deposits on the surfaces of rocks and in fractures within rocks, and what appear to be magnesium sulfate salt concentrations in soils. The older rocks in the Columbia Hills, however, show evidence for substantial alteration by water. At Meridiani Planum, Opportunity has found layered sedimentary rocks that are a mixture of fine-grained silicate particles and chemical sediments precipitated from liquid water. Environmental conditions that these rocks record include episodic inundation by shallow surface water, evaporation, and desiccation. After deposition, the rocks underwent a complex history of modification by water that resulted in recrystallization and growth of hematite-rich concretions. A stratigraphic section obtained within Endurance crater shows significant variation of rock chemistry and texture as a function of depth. Environmental conditions at Meridiani may have been suitable for supporting life at some point in the planet's history.

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**APRIL 8, 2005**  
**BOB GARFINKLE: THE CRAB NEBULA (M1)**  
**Foothill College, El Monte Road and Freeway 280, Los Altos Hills - Parking on campus (\$2.00)**

My talk will cover the presumed observations of the supernova beginning in July 1054 by Native Americans in the Southwest and what astronomers have learned about the deep space by studying this object.

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**WEDNESDAY, APRIL 20, 2005, 7 PM:**  
**SILICON VALLEY ASTRONOMY LECTURE SERIES**  
**NON-TECHNICAL, ILLUSTRATED TALK**  
**ASTRONOMER FRANK DRAKE**  
**"ESTIMATING THE CHANCES OF LIFE OUT THERE"**  
**Smithwick Theater, Foothill College**  
**El Monte Road and Freeway 280, Los Altos Hills**  
**Free and open to the public. Parking on campus costs \$2.**  
**Call the series hot-line at 650-949-7888 for more information.**

No background in science will be required for this talk, which will interest both fans of astronomy and science fiction.

In 1960, Dr. Frank Drake performed the first experiment search for radio signals from possible civilizations around other stars. In 1961, he proposed an intriguing method of estimating the number of intelligent life-forms out there that we might communicate with. In the intervening years, both of Dr. Drake's ideas have become cornerstones of a full-fledged branch of astronomy, commonly called SETI -- the Search for Extra-Terrestrial Intelligence. And Dr. Drake helped found the SETI Institute, the main organization involved in the search.

In the talk on April 20, Dr. Drake will provide a modern update on estimates for the existence of "E.T." He will draw on new ideas and new observations (including the discovery of surprising planets around other stars), which have helped astronomers refine both the targets where they search for life and the methods they use.

Dr. Drake is the Director of the Center for the Study of Life in the Universe at the SETI Institute. He served as Professor of Astronomy and Dean of Natural Sciences at the University of California, Santa Cruz, and as Director of the Arecibo Observatory (which has the largest radio dish in the world.) Among his many awards, he was the winner of the prestigious Education Prize of the American Astronomical Society for his many contributions to the public understanding of astronomy. He is the co-author, with Dave Sobelof "Is Anyone Out There", published by Delacorte Press.

Co-sponsored by

\* NASA Ames Research Center \* The Foothill College Astronomy Program \* The SETI Institute \* The Astronomical Society of the Pacific



**APRIL 28, 2005 - 6:30 – 9:00 PM**  
**EVOLUTION AND THE UNIVERSE - SCIENCE AND THE HUMAN SPIRIT**  
**NASA Exploration Center . NASA Ames Research Center . Mountain View, CA**

Father George Coyne SJ PhD, Director of the Vatican Observatory, and Dr. Lynn Rothschild PhD, NASA research scientist, will dialogue on science, the human spirit and the beginnings of life at an evening sponsored by the Vatican Observatory Foundation. The event will be held from 6:30 to 9:00 in the Exploration Center at NASA Ames Research Facility. The presentation will be from 7:00 - 7:45 with a 30 minute question and answer period afterward. Guests will also have the opportunity to view the many exhibits in the facility.

For directions and other information on the Ames facility please visit

<http://www.NASA.gov/centers/ames>

The Exploration center is the white tent to your right just before entering the Moffett Field Gate.

<http://www1.nasa.gov/centers/ames/home/Directions.html>

More on the Exploration Center:

<http://www1.nasa.gov/centers/ames/home/home-explorationcenter.html>

The Vatican Observatory's website is

<http://www.VaticanObservatory.org>.

For more information please contact Nancy Knoche at

[nknoche@earthlink.net](mailto:nknoche@earthlink.net) or 602-482-9147.



*May 4-8, 2005*

*Desert Sunset Star Party*

***Caballo Loco Ranch . South of Three Points, AZ***  
**Speakers - Door Prizes - Day Trips**

**Area Attractions**

**Kitt Peak National Observatory UA Mirror Lab . Whipple Observatory/Mt Hopkins Old Tucson  
Pima Air and Space Museum Titan Missile Museum . Flandrau Planetarium Biosphere 2 Center  
Arizona Sonora Desert Museum' . And much more**

**Sponsored by Pat and Arleen Heimann**

**Additional information and Registration materials are available on our website <http://www.chartmarker.com/sunset.htm>**

**SHINGLETOWN STAR PARTY - JULY 6 - 11, 2005**

The rain is nearly over... in fact the skies have just cleared over Northern California (for a few hours anyhow). That means it's time to start thinking about SUMMER STAR PARTIES!!! And if it didn't pop into your head right away, it's a particularly good time to start thinking about the SHINGLETOWN STAR PARTY. This is SSP's 4th year. Located just 17 miles from Mt. Lassen, the Shingletown Star Party is a fun and unique event, drawing hundreds of amateur astronomers from around the western US. The event is held at the Shingletown Airport (don't worry... no airplanes) boasting dark skies and lots of daytime activities as well.

This year's event will be held from Wednesday July 6th through Monday July 11th. Registration is now open! To register or to get more information, visit [www.shingletownstarparty.org](http://www.shingletownstarparty.org).

Founded in September 1952, the San Francisco Amateur Astronomers (SFAA) is an association of people who share a common interest in astronomy and other related sciences. Our membership consists of people from all walks of life, educational backgrounds and ages. Many SFAA members own their own telescopes; some have been made by hand in local telescope-making classes and vary in size from 6 to 25 inches.

**Treasurer, SFAA, POB 15097, San Francisco CA 94115**

make checks payable to **San Francisco Amateur Astronomers** and mail to:

- \$10 enclosed, youth/student membership
- \$25 enclosed, individual membership
- \$30 enclosed, family or foreign membership
- \$40 enclosed, institutional membership
- \$75 enclosed, supporting membership

**Select one category:**

\_\_\_\_\_  
Email address:

\_\_\_\_\_  
Address:

\_\_\_\_\_  
Name: Telephone:

## San Francisco Amateur Astronomers Membership Application

**San Francisco Amateur Astronomers**  
P.O. Box 15097  
San Francisco, CA 94115



Information Hotline: (415) 289-6636

Web Page: [www.sfaa-astronomy.org](http://www.sfaa-astronomy.org)

*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.