



VOL. 50, No. 6 – June 2002

**The 50<sup>th</sup> Anniversary Speakers Series  
Women In Astronomy**

*Search for Binary Stars*

**Jennifer Patience**  
**Lawrence Livermore National Laboratory**  
**June 19, 2002**

I have always been interested in astronomy, since I was a little girl and thought the Moon was located just beyond the last streetlight. I began my career in astronomy as an amateur and was fortunate to receive a lot of encouragement from a local club, the Ventura County Astronomical Society. For a high school science fair project I persuaded the local city council to extinguish the streetlights behind my house so I could photograph Halley's Comet to determine its orbital elements. As an undergraduate, I majored in Physics at Stanford. My first year of graduate school was spent learning optics in a Masters program at the Institute of Optics at the University of Rochester. I went to UCLA for a Ph. D. in Astronomy and my thesis involved high angular resolution studies of binaries in open star clusters. Currently, I am a postdoc at Lawrence Livermore National Laboratory, working with a group specializing in astronomical applications of adaptive optics.

Extensive surveys have revealed that binary stars are very common among nearby stars and are approximately twice as prevalent among young stars in the closest star-forming regions. The presence of a companion star may critically affect the environment around the star and the potential for planet formation. I will describe the results of several binary star searches in open clusters and star-forming regions employing the high angular resolution techniques of speckle interferometry and adaptive optics. The statistics of the binary stars are used to test binary star formation and evolution scenarios and to investigate the effects of companion stars on X-ray emission and stellar rotation.

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**Important Dates**

**Board Meeting** – June 12 – 7:00 p.m.  
-- July 10 – 7:00 p.m.  
Western Addition Library, Scott & Geary Sts., SF  
**SFAA General Meeting** – May 15  
June 19  
July 17  
Morrison Planetarium, Golden Gate Park  
Refreshments at 7:00 p.m. - Speakers begin at 7:30 p.m.

**Mt. Tam Star Party**  
June 8 – 8:30 p.m.  
July 13 – 8:30 p.m.  
**City Star Party**  
May 18 – 8:00 p.m.  
June 15 – 8:30 p.m.  
July 20 – 8:30 p.m.

## 2002 Club Officers & Contacts

<i>President</i>	Bill Stepka (415) 928-7105
<i>Vice President</i>	Nancy Cox (415) 826-2217
<i>Secretary</i>	Jason Burkhart
<i>Treasurer</i>	Chelle Owens (415) 479-5313
<i>City Star Party Coordinator</i>	Randy Taylor
<i>Membership &amp; Subscriptions</i>	Chelle Owens (415) 479-5313
<i>Bulletin Editor</i>	Lorrie Boen (415) 921-1432
<i>Telescope Loans</i>	Pete Goldie (415) 206-9867
<i>Honorary Director</i>	John Dobson
<i>Board Members</i>	Lorrie Boen Dan Christian Art Owens Michael Portuesi Al Stern Dennis Tye Jim Webster
<i>Alt. Board Members</i>	Rita Nossardi Stern Randy Taylor
<i>SFAA Website</i>	<a href="http://www.sfaa-astronomy.org">www.sfaa-astronomy.org</a>

## Club Telescopes

The SFAA owns 3 club loaner telescopes, Dobsonian/Newtownian reflectors: 6" f/10, 8" f/7, and 10" f/8. These 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 (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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*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 seventh day of the month.** Send your articles to Lorrie Boen at 765 Geary Street #302, San Francisco, CA 94109 or at [lorrenlee@aol.com](mailto:lorrenlee@aol.com)

### San Francisco Amateur Astronomer's 50<sup>th</sup> Anniversary Morrison Planetarium Wednesday May 15, 2002

In celebration of our 50<sup>th</sup> anniversary, members of the Cañada College "Magic Flute Ensemble" conducted by Pam Ravanella will perform. Kristine Berta, the daughter of our member, Bob Berta is a member of this ensemble. Dave Watkins playing the synthesizer will accompany the fifteen flute ensemble. Hubble Space Telescope images as well as other breathtaking images of space will be included. Also a surprise encore will be played. Then two of our founding members, Lew Epstein and Betty Neal will talk to us about their memories of the history of the SFAA. Also, long time member Bill Cherrington will share his memories about Herman Fast.

## From Your President

In recognition of our Women in Astronomy Speaker Series I would like to take this space to let you get to know Maria Mitchell. She was born in 1818 on Nantucket Island, one of eight children, whose father taught them all astronomy and celestial navigation. Because they lived in the world's greatest whaling port, knowledge of the stars was vital to safe ocean travel. This started Maria's life long passion for the night sky, as she "swept" the stars with her father from the walk, at the top of their home, on 1 Vestal Street.

You can visit that home, her observatory and a wonderful library with a great collection of rare astronomy books. It is just a short walk from the old historic Nantucket downtown and a must see for anyone with the slightest interest in the history of astronomy. On visit there a couple of years ago, I picked up the commemorative edition of her biography "Sweeper in the Sky" by Helen Wright. It was published by College Avenue Press in 1997 and includes lots of extra material not in the original 1949 edition.

Maria is known for her discovery of a telescopic comet on October 1, 1847 designated Comet Mitchell 1947 VI. For that discovery the King of Denmark awarded her a gold medal, and in 1848 was the first woman elected to the American Academy of Arts and Sciences. Unfortunately for the history of science, the next woman so elected would have to wait until 1943! She was the first female professor of astronomy and observatory director when Vassar College opened in 1865.

Maria was one of our most accomplished observational solar and planetary observers recording surface changes on the planets and solar eclipses. She was a pioneer in the daily photography of sunspots and a leading teacher whose students became scientists in their own time. She was founder and president of the American Association for the Advancement of Women and promoted higher education and suffrage for women. She once said "The eye that directs the needle in the delicate meshes of embroidery will equally well bisect a star with the spider web of the micrometer."

I will end with the quote that ends the book mentioned above: "These immense spaces of creation cannot be spanned by our finite powers; these great cycles of time cannot be lived even by the life of a race. And yet, small as is our whole system compared with the infinitude of creation, brief as is our life compared with the cycles of time, we are so tethered to all by the beautiful dependencies of law, that not only the sparrow's fall is felt to the outermost bound, but the vibrations set in motion by the words that we utter reach through all space and the tremor is felt through all time."

Bill Stepka, [Stepka@aol.com](mailto:Stepka@aol.com), and (415) 928-7105

### **SFAA 50<sup>th</sup> Anniversary SPEAKER CALENDAR 2002**

#### **Women In Astronomy & Related Sciences Series**

**Morrison Planetarium**

**Helen Quinn**

**Stanford Linear Accelerator (SLAC)**

**July 17, 2002**

***Editor's Correction: Golden Jubilee 2002 Speakers Series - Only Timothy Ferris' talk will be followed by a star party, telescopes provided by the members of the SFAA.***

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San Francisco Amateur Astronomers and the  
San Francisco Morrison Planetarium, California Academy of Sciences

## *Golden Jubilee 2002 Speaker Series*

Celebrating Their 50<sup>th</sup> Anniversaries

PRESENT

*Tuesday June 25, 2002 at 7:30 PM*  
*California Academy of Sciences*

**Dr. Jill Tarter**

**Bernard M. Oliver Chair for SETI (Search for Extraterrestrial Intelligence)  
and Director, Center for SETI Research**

Aliens abound on the movie screens, but in reality we are still trying to find out if we share our universe with other sentient creatures. SETI, the search for extraterrestrial intelligence, is actually an attempt to detect evidence of another distant technology. Dr. Tarter in her talk SETI: Science Fact, Not Fiction, will speak to us about this search which is being conducted by the use of radio telescopes and more recently by looking for very short optical pulses as well.

*Thursday September 5, 2002 at 7:30 PM*  
*California Academy of Sciences*

**Timothy Ferris**

Timothy Ferris, the author of twelve books among them the bestsellers The Whole Shebang and Coming of Age in the Milky Way will be our guest speaker. He is a frequent contributor to major magazines, TV shows and TV specials. He is also a consultant to NASA.

Professor Ferris has taught in five disciplines at four universities, and is emeritus Professor at the University of California, Berkeley. He will be talking about his soon to be released book, Seeing in The Dark: How Backyard Stargazers Are Probing Deep Space, Charting Cosmic History, And Guarding the Earth from Interplanetary Peril.

**\*\* Timothy Ferris' talk will be followed by a star party,  
telescopes provided by the members of the SFAA**

Admission is \$3.00 per program - Please send a check payable to "Morrison Planetarium" indicate which talk you wish to attend and how many tickets you are purchasing and a SASE to:

Jubilee Lectures  
Morrison Planetarium  
California Academy of Sciences  
Golden Gate Park, San Francisco, CA 94118

**"The Golden Jubilee Speakers Series" is jointly presented by  
the San Francisco Amateur Astronomers and  
Morrison Planetarium of the California Academy of Sciences**

# 2002 MT TAM ASTRONOMY PROGRAMS

**June 8 - 8:30 pm**

**Dr. Jeff Moore**  
**NASA-Ames Research Center**

***"The Moons of Jupiter as Revealed by the Galileo Spacecraft"***

For the last 6 years the Galileo orbiter has been returning stunning images of Jupiter's moon, leading to new discoveries and theories of their nature and evolution.

**July 13 - 8:30 pm**

**Dr. Philip Plait**  
**Sonoma State University**  
***"Bad Astronomy"***

Despite what Fox TV and other dubious sources are telling you,  
NASA really did send men to the moon.

**August 10 - 8:30**

**Dr. Diane Wooden**  
**NASA-Ames Research Center**

***"Are We Stardust? Crystals, Comets and the Formation of Solar Systems"***

Follow the formation of cosmic dust grains through a possible path  
leading from the stars to interstellar space to our bodies.

**September 7 - 8:00 pm**

**Dr. Gibor Basri**  
**University of California Berkeley**  
***"What is a Planet?"***

The Pluto controversy, discovery of "free-floating planets" and brown dwarfs, and the ambiguous nature of some extrasolar "planets", have led astronomers to reconsider what we mean by the word "planet".

**October 12 - 7:30 pm**

**Tinka Ross**  
**California Academy of Sciences**  
***"Astronomy is Women's Work"***

Historically some extraordinary women were able to overcome societal pressures and  
lack of opportunities to make significant contributions in astronomy.

**Dinners with the speakers:** at Mill Valley Wok, Tam Junction, 252 Almonte Boulevard, Mill Valley, 2 1/2 hours before the scheduled talk. To participate, call the restaurant at (415) 389-8868, and add your name to the "Mt Tam Party." The no-host dinner is usually \$15, including tax and tip.

Information: **Telephone: (415) 455-5370, (415) 388-2070 Same day Hotlines: (415) 566-2357, (415) 455-5370 (messages after 4:00 pm)** Mailing Address: **MTIA/Astronomy Programs, P.O. Box 3318, San Rafael, CA 94912**

**The Lone Star(fire)**  
by  
**Jane Houston Jones**

Last month an AP180EDT was offered for sale in Austin, Texas. Last week Mojo and I loaded our green Dodge Caravan with star party clothes, hand warmers, a star chart book box, and a companion telescope -- our 14.5 inch Litebox travelscope -- to set up next to our new one at star parties on the road from Austin to home. We left enough room in the van for the Lone Star(fire).

In the map compartment of the van were roadside geology books for California, Arizona, New Mexico and Texas and some state maps, too. On the dashboard sat the nifty Delorme Earthmate GPS receiver and between our bucket seats, rode our HP Pavilion laptop loaded with the mapping software that came with the receiver. We had the best of low tech and the best of high tech, complete with a computer generated female voice telling us where to go!

We headed south to Interstate 10 then crossed the great American southwest by way of Blythe, California, stopping overnight in Tucson, Arizona, lunching in Mesilla, near Las Cruces New Mexico and stopping the next night in Sonora, Texas. We arrived in Austin Texas on Tuesday afternoon, 65 hours and 1800 miles after we left home Saturday night.

We loaded the new telescope, mount, piers, and accessories in the van and traded it all for a cashier's check. A couple hours later we checked into our hotel in San Antonio, right next to the Alamo, and dined on the San Antonio River.

The next day, Wednesday, March 13, we arrived at the highest town in Texas, Ft. Davis elevation 4800 in the late afternoon. After checking into our motel room, we headed up the road to McDonald Observatory, where a public star party was about to begin.

McDonald Observatory scheduled many special events for this Spring Break week. The previous night, over 1,100 people attended the public star party, set up next to the old visitor center, which is being turned into the Moody Center for Amateur Astronomy.

Soon, concrete piers will dot the observing area near a huge flat parking lot, with lots of power outlets. There are two enclosed telescopes, a 24 inch reflector in a roll-off roof, a 16 inch SCT in a dome,

which does double duty --day solar h-alpha observing and night time dark sky observing 7 days a week for the visitors.

This was our first set up of our new 7 inch Starfire, dubbed "The Rod" in honor of its previous owner, Rod Norden. We knew we'd have hundreds at the eyepiece when the star party began an hour later. Surprisingly (for us) setup was a snap. We used the 48 inch pier on that first night, and about 600 people got a Starfire view of Saturn, in mag 7 skies at 6,200 feet elevation. Those of you who have looked through Rich Neushaefer's 7 inch know we were almost speechless after that first look at Saturn.

The next night, Thursday March 14, there was no public star party planned, so we had that whole area to ourselves. Clouds came in at about 1130 p.m., as we were halfway through our Messier Marathon. Still we had alot of fun aiming the Lone Starfire on its higher 54 inch pier and shooting 49 Messiers between 8:30 p.m. and 11:30 p.m., no problem at all with any in the first order shown in Don Machholz's Messier Marathon Guide. It took us a while longer using the strapped-on Telrad we hastily bought at Austin Astronomy on the way out of town, since we discovered we didn't have a finder for the Starfire. We're used to starhopping with big easy-to-move dobs, so it was interesting to have to move the telescope from one side of the pier to the other, and other refractor weenie tasks I haven't had to perform before.

Friday night, March 15 was another public night and we had so much fun on Wednesday night that we booked an additional nights lodging in Fort Davis for Friday night. Another public star party night, another 600 people got to look through both The Rod, and our 14.5 inch Litebox reflector. We had 30 in line for hours behind the big gleaming Starfire, maybe 20 in line for the low-tech Litebox. Saturn was the hands down favorite view of the crowd. Plenty of others aimed at naked-eye comet Ikeya/Zhang, and there were a dozen amateurs with various instruments aimed at various objects throughout the evening.

Saturday morning we awoke at 6:30 a.m., and hit the road for Tucson, driving over 500 miles and arriving in time to find a hotel, and to drive out to the semi-annual Arizona/Sonora Desert Museum Public Star party. There were between 25 and 30 telescopes set up, brought by members of the Tucson Amateur Astronomy Association, the same people who organize the Grand Canyon Star Party in June each year. Telescopes ranged from one 20 inch Obsession, to a homemade 18 inch reflector, on down the reflector line to 8 and 10 inch Orion

Skyquests. Next to us was an AP130 aimed at Jupiter. About 400 people drove out to see the stars come out, the comet go down, and many objects in many telescopes.

Transparency 13th excellent, mag 6.9+, 14th ok mag 6.3, 15th good mag 6.5  
Lat 30 40 12N  
Long 104 1 2W

Tonight is Sunday night, March 18. It's clear and cold in Tucson. We'll just observe at a friend's home observatory in the outskirts of Tucson tonight. We'll take out the Lone Starfire and do some target practice with it, and then head home for California!

March 16th and 17th  
Tucson AZ  
2100 feet elevation  
Seeing in-and-out good  
Transparency fairly good, mag 6 or less, light dome from Tucson in the east  
Lat 32 14 7 N  
Long 111 9 96 W

Observing locations:

March 13, 14th, 15th  
McDonald Observatory  
6200 feet elevation  
Seeing 13th great, 14th ok, 15th crappy

First light pix from TX and AZ :  
<http://www.whiteoaks.com/mojo/TheRod/>

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**Enthusiastic Turnout for SFAA City Star Party  
March 17, 2002  
Stacy Jo McDermott**

The clouds were threatening rain, the wind was blowing cold and the temperature made you feel like it was North Dakota in the middle of winter. But that didn't dampen the enthusiasm of the people who turned out for the 1<sup>st</sup> City Star Party of the 2002 season.

With a wonderful and humorous talk by Bob Berta and 8 telescopes graciously provided by SFAA members, the City Star Party was quite successful.

At 6 PM, 5 telescopes were set up and people started gathering. Anxiously watching the rolling clouds pass over from the north, we were wondering if they were going to continue to build up or scatter, allowing us to take in the spectacular winter sky. By the time Bob finished his wonderful and illuminating talk, the clouds indeed started to part and disappear. First target that everyone wanted to see was the recently discovered Comet Ikeya-Zhang. Co-discovered by a Japanese astronomer, Ikeya and Chinese astronomer, Zhang, the comet is beginning to come into its own. Observable in binoculars in the constellation Pisces and stunning in several telescopes, it put on quite a show with its luminous tail.

Other sky sightings included M42 in Orion, Saturn, Jupiter and a lovely sliver of the 2 day old Moon.

As the night progressed, the sky actually kept getting better. But that isn't a surprise.

Pt. Lobos is a wonderful urban stargazing site. Granted you are at the mercy of the weather and the fog in particular, however, patience does pay off. And since it is so close, a short drive will allow you to check out the conditions quite easily. Another advantage to Pt. Lobos is its decent horizons and the light dome is kept at bay by the hillside trees to the east of the parking lot. It is great for planetary observing, lunar observing and believe it or not, some deep sky object observing. Urban stargazing is not only possible, the challenges it presents can add a new dimension of fun. (For more on this, check out S&T's April 2002 issue.)

The people who turned out for the talk and stargazing were all quite enthusiastic despite the coldness of the night. Many questions were asked about the telescopes, about the sky, about stargazing in general. Ohhs and ahhs were a frequently heard comment throughout the night.

At 9.00 PM, it was time to pack it up and turn it in. Grateful for the clear night and steady seeing, a satisfied group of observers and visitors alike made way to the Lucky Penny for some warm coffee and fellowship. Just another one of those advantages to urban stargazing.

## **I Had Planetary Fever**

By John Foster

Despite being sick as hell I saw 6 planets with my own eyes in less than an hour. It happened this last Saturday from my location in San Francisco. Out of all the places to be an amateur astronomer, the city by the bay has to be the worst. Fog in the summer. Overcast in June. Wind in the fall. Rain in the winter. Pacific ocean moisture.... Okay, maybe Seattle is worse. But I've never lived there.

Fever be damned I set up the scope as a lack luster sunset unfolded.

Venus came out first. It showed as a featureless glowing ball in the view finder. It's better when it's a half or a crescent. At least it looks like something. Saturn faded in next. It looked 10 times less bright than Venus. In the twilight and with the wind the ring was merged in with the planetary disc. Okay, maybe it was the warm scope. Nah, it was the wind.

Disappointed with that view I moved away from the scope to find Mercury. There! Nope, that's an airplane. Look, nothing, look, nothing, there! I moved the scope to the tiny dim dot and sure enough it was a planet. The eye piece revealed half a disc. The round half glowed bluish and the straight part glowed red. Hmm. Atmospheric refraction? A combination of the wind and the ocean air? I tried to think of the last time I saw Mercury in the view impaired city as it's usually it's lost in the fog rolling over the hill. Oh yea, the transit across the sun in November 1999. That was cool.

Remember how big Mars was just one year ago? Remember all the features that you could see? It certainly isn't anything special now. Especially on this tour. A quick view verified that that it was red and round and with Mars bagged there were 5 to go.

Four down, Five to go. Five? What five? Venus, Saturn, Mercury, Mars. Wouldn't that be four down one to go? Hidden behind the tree until just a minute before was Jupiter and its four worlds. Okay, moons if you want to get technical. These were "five" I was thinking about. Even in the finder scope Jupiter and its four moons impress. Through the big eyepiece the bands of the big giant are visible (no red spot) and all the moons are off the right side. The one and only time when I can easily name them in order without fear of getting two flipped around.

By now I'm part cold and part overheated. My forehead is burning. With the scope stuffed inside it's hiding place and I go inside to die. For about 40 minutes I forgot that I didn't feel well. With my day made, I sleep well past 4:30AM missing my chance to see the other three planets. Pluto is almost a project by itself, a photo project no less! And Neptune and Uranus are best seen using the Hubble. Which is totally cheating and no where near as cool as seeing boomerang light with my own eye. Maybe I'm crazy. San Francisco. Outer planets. Right. Sure. Easy to do...uh huh.

Goals are good. Right? Right! There are only 22 days left to see photons from nine in one day. What am I waiting for! The sky is clear!

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Morrison Planetarium's  
**Benjamin Dean Lecture Series**

*presents*

**Dr. Valerie Connaughton**, University of Alabama

***Gamma Ray Astronomy***

**June 4**

Gamma rays, the Universe's most energetic light, are difficult to capture in telescopes. How do astronomers study gamma rays and what do they hope to learn from them? Discover some of the stranger objects seen at this end of the spectrum.

All programs begin at 7:30 p.m. in the Planetarium - Tickets are \$3.00 each  
DEAN LECTURE INFORMATION LINE at (415) 750-7141

## Bay Area Calendar of Events

| <u>Date</u>        | <u>Event</u>                                                                                                               | <u>Place &amp; Time</u>                                                            |
|--------------------|----------------------------------------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------|
| <b>June 4</b>      | Benjamin Dean Lecture Series - Dr. Valerie Connaughton                                                                     | Morrison Planetarium 7.30 PM \$3.00<br>415-750-7141 for ticket info                |
| <b>8</b>           | Mt. Tam Star Party                                                                                                         | Rock Springs, Mt. Tam 8.30 PM                                                      |
| <b>12</b>          | SFAA Board Meeting - Members only                                                                                          | Western Addition Library 7.00 PM                                                   |
| <b>15</b>          | City Star Party                                                                                                            | Land's End, San Francisco 8.30 PM                                                  |
| <b>19</b>          | SFAA General Meeting - Women In Astronomy Speaker Series – Jennifer Patience                                               | Morrison Planetarium 7.30 PM                                                       |
| <b>22</b>          | NCHALADA -Northern California History of Astronomy Lucheon and Discussion Association - Alan Fisher and Nancy Cox to speak | Chabot Science Center - Oakland 10 AM contact nsperling@california.com for details |
| <b>25</b>          | Golden Jubilee Speakers Series: Dr. Jill Tarter                                                                            | Morrison Planetarium 7.00 PM \$3.00                                                |
| <b>July 10</b>     | SFAA Board Meeting - Members only                                                                                          | Western Addition Library 7.00 PM                                                   |
| <b>13</b>          | Mt. Tam Star Party                                                                                                         | Rock Springs, Mt. Tam 8.30 PM                                                      |
| <b>17</b>          | SFAA General Meeting - Women In Astronomy Speaker Series - Helen Quinn, Stanford Linear Accelerator                        | Morrison Planetarium 7.30 PM                                                       |
| <b>20</b>          | City Star Party                                                                                                            | Land's End, San Francisco 8.30 PM                                                  |
| <b>August 10</b>   | Mt. Tam Star Party                                                                                                         | Rock Springs, Mt. Tam 8.30 PM                                                      |
| <b>14</b>          | SFAA Board Meeting - Members only                                                                                          | Western Addition Library 7.00 PM                                                   |
| <b>17</b>          | City Star Party                                                                                                            | Land's End, San Francisco 8.00 PM                                                  |
| <b>21</b>          | SFAA General Meeting - Women In Astronomy Speaker Series - Check back for details                                          | Morrison Planetarium 7.30 PM                                                       |
| <b>September 5</b> | Golden Jubilee Speaker Series - Mr. Timothy Ferris with star party following                                               | Morrison Planetarium 7.30 \$3.00                                                   |
| <b>7</b>           | Mt. Tam Star Party                                                                                                         | Rock Springs, Mt. Tam 8.00 PM                                                      |
| <b>11</b>          | SFAA Board Meeting - Members only                                                                                          | Western Addition Library 7.00 PM                                                   |
| <b>14</b>          | City Star Party                                                                                                            | Land's End, San Francisco 7.30 PM                                                  |
| <b>18</b>          | SFAA General Meeting - Women In Astronomy Speaker Series - Check back for details                                          | Morrison Planetarium 7.30 PM                                                       |

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, 13 Mabry Way, San Rafael, CA 94903**

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:**

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Email address:

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

## San Francisco Amateur Astronomers Membership Application

**San Francisco Amateur Astronomers**  
 c/ Morrison Planetarium  
 California Academy of Sciences  
 Golden Gate Park, San Francisco, CA 94118



Information Hotline: (415) 566-2357

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

*Sharing the Wonders of the Universe*