LAAS Yahoo Group—how to join

The group is private, and therefore does not come up in a search. To join, send email to: LAAS-subscribe@yahoogroups.com

Include your full name so the moderator can verify your LAAS membership. Your full name is necessary so we can check our records to see if you really are a LAAS member. If approved, you will receive further instructions via email.

Sky and Telescope Subscription News

Everyone with a club subscription to Sky and Telescope should send the renewal bill directly to Sky Publishing.

People who wish to start a Sky and Telescope subscription should contact the LAAS Treasurer (see the contact information on page 2) directly to subscribe to the magazine at the club rates, and then thereafter send the renewal bills directly to Sky Publishing.

Astronomy Magazine Subscription Rate Changes

For those that subscribe to Astronomy Magazine through the LAAS, the rate has gone up to $35 a year.

Membership Annual Dues:

- Youth: $20.00
- Regular (18-65): $35.00
- Senior Citizen (65 and up): $20.00
- Senior Family: $30.00
- Family: $50.00
- Group or Club: $50.00
- Life: $500.00

Additional fees:
- Charter Star member: $30.00
- Star member, with pad: $70.00
- Star member, no pad: $60.00

(Membership due date is indicated on the mailing label)

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LAAS Answering Machine ...... (213) 673-7355
Griffith Observatory Program ....................... (213) 473-0800
Sky Report ........................................ unavailable for now
Lockwood Site ............................................. (661) 245-2106
(not answered, arrange time with caller.
Outgoing calls – collect or calling card)
Mt. Wilson Institute ................. (626) 793-3100
Editor’s Message

We’re taking nominations for all board positions and officers this month, for the December elections. Please consider being nominated for a position and contribute to the running of our society.

A reminder—Peter De Hoff has stated that he won’t be running for the Secretary position next year. The position requires a lot from prospective candidates, so please get information on it before accepting a nomination for this position. Please contact Peter at: Secretary@laas.org for information on the position’s tasks.

And we still need a New Members Coordinator; anyone interested should try and contact David Sovereign or Peter De Hoff; contact information at left.

My continued thanks to all who have and continue to contribute to the success of the bulletin with their articles and images. And a plea for more of you to write or submit images for our bulletin. The deadline for submitting bulletin material is the 10th of each month. Please submit electronically, if possible, to BulletinEditor@laas.org

All other material may be sent to the address listed at the top of the column at left, but timely reception and publication cannot be guaranteed.

David Nakamoto

Events Calendar

<table>
<thead>
<tr>
<th>Date</th>
<th>Event</th>
<th>Location and Information</th>
</tr>
</thead>
<tbody>
<tr>
<td>Nov 10th (Sat)</td>
<td>Dark Sky Night</td>
<td>Lockwood Valley</td>
</tr>
<tr>
<td>Nov 17th (Sat)</td>
<td>Public Star Party</td>
<td>Griffith Observatory</td>
</tr>
<tr>
<td>Nov 19th (Mon)</td>
<td>General Meeting</td>
<td>Griffith Observatory Speaker to be Determined</td>
</tr>
<tr>
<td>Dec 8th (Sat)</td>
<td>Dark Sky Night</td>
<td>Lockwood Valley</td>
</tr>
<tr>
<td>Dec 10th (Mon)</td>
<td>General Meeting</td>
<td>Griffith Observatory Speaker to be Determined</td>
</tr>
<tr>
<td>Dec 15th (Sat)</td>
<td>Public Star Party</td>
<td>Griffith Observatory See pg 3 for details on how to attend.</td>
</tr>
</tbody>
</table>

The board meeting is held at 8pm on the Wednesday night prior to the general meeting, at Garvey Ranch Park. The Monday general meetings start at 7:30 pm unless otherwise noted. See each month’s bulletin for updates.

New Members Corner

Welcome to the Los Angeles Astronomical Society! Right now, we have lost our previous New Members Coordinator to college, so we’re looking for someone to take over this position. If you’re interested, please contact one of the board members on page 2.

Email: coordinator@laas.org

LAAS Home Page: http://www.laas.org
LAAS Bulletin Online: http://www.laas.org/bulletin.html
The summer triangle is slipping into the west, but the fall constellations are coming up later in the evening. Pegasus and Andromeda are coming into view. Mars in the constellation of Taurus will be rising late at night. For those new members that do not have a telescope of their own or members that would like to try out other types, the LAAS has a large selection of telescopes that can be borrowed.

LAAS-1: Celestron 4.5” f/8 Newtonian reflector on a Polaris equatorial mount.

LAAS-2: Upgraded Tasco 4.5” f/8 Newtonian reflector on a driven Edmund equatorial mount.

LAAS-4: Telescopes 6” f/5 Newtonian reflector on a Dobsonian mount.

LAAS-5: Parks 6” f/6 Newtonian reflector on an equatorial mount equipped with a clock drive.

LAAS-7: 80mm Meade f/15 refractor on an Orion Sky View Deluxe mount.

LAAS-8: 80mm f/11.4 refractor on an equatorial mount.

All telescopes come equipped with a set of three eyepieces. In the case of reflectors, a collimation tool is included and in the case of refractors a star diagonal is included.

For further information call: David Sovereign at (626) 794-0646.

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**Griffith Observatory Public Star Party Update**

**PJ Goldfinger**

PJ Goldfinger handles our Griffith Observatory Public Star Party List. In speaking with our GO public star party contact, Griffith would like the LAAS to adhere strictly to the following understanding. Please note this is not final, changes forthcoming in the future.

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**Current Attendance Policy for the GO Public Star Party**

- LAAS Members Only - sorry no guests and only families that fall under Family Membership status allowed.
- It is the focus and Priority of any LAAS member who attends this event to be of Public Service with their telescopes in showing the patrons of Griffith Observatory the delights of the nighttime sky.
- LAAS Members must sign up on time - Deadline is no later than the Tuesday night prior to the Saturday GO Public Star Party each month. The list information required is the same. Your name, any LAAS Members in your car, The make of car, Car License plate #, Bring Telescope y/n. NOTE: Those attending with out a telescope as a favor will be required to be of some assistance if asked, needed and able - Thanks !!!
- The list currently has been updated to 30 spots for LAAS members.
- To sign up for the Griffith Observatory Star Party the NEW email address is laas.starparty@gmail.com

We understand the disadvantages all around in the change of scheme to LAAS Members Only attending these events. Patience from all LAAS Members is appreciated. The LAAS would like to continue a commendable relationship with Griffith Observatory as we have done so for perhaps some 50+ years now.

This new information as well as reminders and updates will be sent out in the LAAS members email list plus the bulletin to keep everyone informed. So don’t forget to sign up. ✨
**Mt Wilson 60” Nights**

Only one date remains on this year’s schedule. It’s a Friday night.

**Nov 9th**

Only LAAS members are allowed to sign up. If there is still room two (2) weeks prior to the date, paying guests will be permitted. Be sure to let Darrell Dooley know the names of your guests as he is keeping a waiting list. (First Come, First Serve).

Any LAAS member who has not been to a 60 inch night at Mount Wilson should consider it as an opportunity to visit astronomy history. To see the location and equipment used by giants such as Wilson and Hubble, will add to your appreciation of their contributions.

The scope belongs to LAAS all night. We mutually agree upon which objects to view. Often, a member is the operator, so it is a very comfortable environment. (Do bring a coat, however) The viewing is without a doubt the best you are likely to see in your lifetime.

Send your check payable to LAAS, for $60 **per person per night**, to Darrell Dooley, 1815 Avalon Street, Los Angeles 90026.

You can also email treasurer@laas.org to let him know that your check is in the mail. Please specify the names of attendees.

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**President’s Message**

It came as a surprise when we received news that Alisa Lam will no longer be our liaison between the Los Angeles Astronomical Society and Griffith Observatory. Alisa Lam has held this position since we moved back to G.O. She has been helpful and efficient in many ways over the past year. She has been instrumental in providing the badges that allow Society members to drive past the guards on the way to general meetings and public star parties. She made sure that there were carts to help load and unload our instruments at public star parties and make sure that there was someone watching them while we found a pace to park. She has accepted another position with the City of Los Angeles that will prove to be more in line with her career goals. We will miss her, but congratulate her in her advancement.

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**Free Telescope for a Young Astronomer**

The Society has been offered an incredible telescope to be given to a new, and preferably young, member that does not already own a telescope of their own. It is a vintage **Cave 10” f/5.6 Astrola reflector**. For those newer members that are not familiar with this company, up to the late 60’s or early 70’s Cave Optics was renowned as producers of premium telescopes for the amateur market. It is mounted on a standard German-T equatorial with 1” axes, a clock drive, and rotating rings. The tube assembly is equipped with a 2” focuser and comes with a 26mm Super Plossl eyepiece. Contact David Sovereign at (626) 794-0646.

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**SCT for Sale**

Meade 10” SCT — 2 stands, one that bolts to the ground. Complete set of Televue lens. SBIG digital imaging CCD system. $4600.00 OBO Call Ray @ (661) 264 - 6627

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**Map to Monterey Park Observatory**

(The place to build your telescope)
With coming Greek theater events causing closure of Vermont Ave to through traffic, many have asked for a map of the local area and the alternate directions in case Vermont is closed. Please save this map for future reference. I will post it in the bulletin from June to September, and then not for the rest of the year.

The alternate route is to use Ferndale, which changes into Western Canyon Road. Ferndale is about 1 mile further west on Los Feliz than either Hillhurst or Vermont. Ferndale becomes Western Canyon Road once you enter the park. Western Canyon Road is very windy, so drive carefully. You will have to go through the tunnel at the top of the road and turn right onto East Observatory Road.

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**Soylent Co.**

Providers of high protein supplements, made from seaweed and other high-yield protein sources.

Remember—Soylent Green is people.

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**The Sloan Digital Sky Survey**

*By Tim Thompson*

So, what’s up there in the sky, anyway? How many stars? How many galaxies? How many different kinds of stuff are up there? Of course, these are old questions, and one way to answer them is to look at everything in the whole sky. Good luck. The astronomer of Palomar Observatory did a pretty good job trying. The Palomar Sky Survey (PSS) ran from 1948 to 1958, with images captured on large glass plates, using the 48-inch Oschin Schmidt Telescope. During the 1990’s the same telescope made another survey, using improved glass plates. Both have been digitized, and are available through the Space Telescope Science Institute. The digitized sky survey catalogs 945,592,683 objects, so don’t look for it in your local bookstore any time soon. For sheer count, the PSS remains the king of all sky surveys. But digitizing glass plates, even high quality plates, still leaves much to be desired, in terms of the accuracy & precision required by modern astronomers. And the Palomar Sky Survey does not include spectra.

The Sloan Digital Sky Survey (SDSS) started in 1998, 50 years after the first PSS, and it is the most ambitious of the survey projects using modern CCD detectors in place of glass plates. First light for SDSS came in May 1998, and routine operations began in April 2000. The primary telescope for the survey is a 2.5-meter (100 inch) Cassegrain, located at the Apache Point Observatory in southern New Mexico. The telescope field of view is 3 degrees across, and the drift scan camera carries 30 2048x2048 CCD detectors. The camera sees the entire wavelength range from 3,000 to 10,000 Angstroms. The normal range of human vision is about 4,000 to 7,000 Angstroms, so SDSS looks into the near ultraviolet, and the near infrared. The imaging survey is carried out only on moonless & cloudless nights.

New data are made public annually, and the current Data Release 6 (DR6) was announced in June 2007. The DR6 imaging survey covers 9583 square degrees, nearly ¼ of the whole sky, and includes 287,000,000 unique objects. The spectroscopic survey covers 7425 square degrees, and numbers 1,271,680 spectra (1987 observations which gather 640 spectra each). The collection of spectra includes 790,860 galaxies, 103,647 quasars, 287,071 stars, 68,770 sky backgrounds, and 21,332 unidentified objects. The imaging survey count is low compared to the nearly one billion objects in the PSS, but the photometric precision of the SDSS is nearly 1%, and the PSS includes no spectra at all. And since spectroscopy has become the primary tool of astrophysics, such a large

*(Continued on page 7)*
The 2.5 meter (100 inch) primary telescope for SDSS illuminates a 125 megapixel camera with a 3 degree wide field of view and can gather 640 spectra simultaneously. The telescope is located at Apache Point Observatory in New Mexico.

NGC 3184 in Ursa Major, imaged by the SDSS. About 40,000,000 light years away, it played host to SN 1999gi. This is a negative of the original image.

For Sale— 5-inch Refractor

120 mm diameter aperture, f/5 two-element lens refractor (Syntha Co.)
9 x 50 straight-through finder with illuminated crosshairs (illuminator included).
EQ-3 German Equatorial Mount, motorized clock drive on the RA axis needs 6-volt AC adapter, manual slow motion controls on Dec axis.
25mm and 10mm eyepieces with Star diagonal.
Carrying bag for telescope.
Asking $250. Add shipping costs if cannot pick up.
Call David Nakamoto @ (626) 969 — 7098 or email at david.nakamoto@verizon.net for images.
The dim stars clustered together around the center of the image are Andromeda IX, a dwarf companion to M31 discovered by SDSS. It is the dimmest and most diffuse galaxy ever seen. It is about 3000 light years across, 2,400,000 light years away, and 200,000 times brighter than the sun (which makes the integrated brightness of this galaxy somewhat less than that of Alnilam, the central star in the belt of Orion, which by itself is 375,000,000 times brighter than the sun). This is a negative of the original image.

The spectral library has been of particular value in identifying high redshift, very distant quasars. Normal galaxies at high redshift are mostly too dim or too red for SDSS to see, but not so the much brighter quasars. Almost since its inception, SDSS has repeatedly broken its own record for discovering the most distant (or highest redshift) quasar. SDSS has now discovered more than 20 quasars more distant than about 12.65 billion light years (redshift greater than 5.7). The most distant SDSS quasar is at redshift 6.42, or about 12.8 billion light years away. That quasar sits in a universe only about 800,000,000 years old. The ability to study that many high redshift quasars together, in a consistent data set, allows us to study not only the evolution of the quasars and their host galaxies, but the universe itself, from its earliest stages.

SDSS has been a major contributor to our understanding of our own galaxy. Most of the roughly 287 million objects in the SDSS catalog are stars, and the multi-wavelength photometric database allows for an unprecedented study of the dynamics & clustering of the stars in our own Milky Way. As a result, SDSS has discovered tidal tails of stars stripped from globular clusters, and from

(Continued on page 8)
dwarf galaxies merging with the Milky Way. By identifying previously unrecognized clumps of stars, SDSS has discovered numerous dwarf galaxies near the Milky Way, and in the Local Group. Some of those are even in advanced stages of being digested by the Milky Way. The galaxies, and the streams of stars ripped from them, and now intertwined with the Milky Way, can be seen in the SDSS images.

Closer to home, SDSS has identified many previously unrecognized low mass stars and brown dwarfs. These discoveries are important for understanding the low mass end of the stellar mass distribution, and the expanding study of substellar brown dwarfs & planets.

SDSS is not the only large area sky survey, but it is the largest and most comprehensive of the lot. It is also the longest running such survey since the PSS, and the most productive. This is the kind of observing program that will revolutionize astronomy. Until now the major discoveries have been made mostly by small groups of astronomers studying their own observations, or collaborating with other similar groups. But now we have a generation of astronomers who can do research without ever going to a telescope and observing. All they have to do is mine the huge survey databases for a population of objects. The downside of this is obvious to us; as amateur astronomers, we are already more familiar with the sky than most professional astronomers. But the upside is good, as we will learn far more about the universe and what’s in it, from such large surveys, as we could ever hope to learn from the smaller observing programs.

The SDSS is online at ...
http://www.sdss.org/

All of the images accompanying this article are credited to the Sloan Digital Sky Survey, and come from their webpages. ✿

The top image on the opposite page, the dim stars clustered together around the center of the image are globular cluster Palomar 5, imaged by the SDSS 2.5 meter telescope. The cluster is sparsely populated because many star have been stripped away from it by the Milky Way. The image is a negative of the original.

The bottom figure illustrates the tidal tail phenomenon. The bright spot is globular cluster Palomar 5, and the yellow curve shows its proper motion through space. The orange arcs along the proper motion show stars observed by SDSS, the tails of stars, both leading & trailing the cluster, stripped from it by the gravitational tides of the Milky Way.