



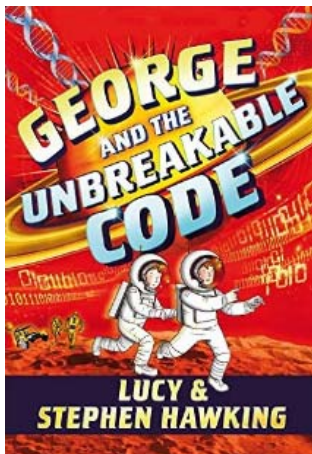
M27 Dumbbell Nebula Image by CCAS Member Ron Setina. "Took this last week and processes in Photoshop Elements. This was a tough one to photograph and process. I will have to try this one again."

Next Meeting: Thursday, Sept 22 at 7pm is Movie Night! Join us for *Seeing in the Dark* PBS 60-min film by Timothy Ferris.

Next Star Gazing: Saturday, Oct 1 & Oct 29 (no star gazing in Sept) at sunset at the Santa Margarita KOA

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New book by Stephen Hawking!

George and Annie are off on another cosmic adventure to figure out why strange things are happening on Earth in the fourth book of the George's Secret Key series from Stephen and Lucy Hawking.

Awesome gift for kids and adults! Available in Sept 2016.

Upcoming Meeting

Wesley Room, 1515 Fredericks Street, San Luis Obispo

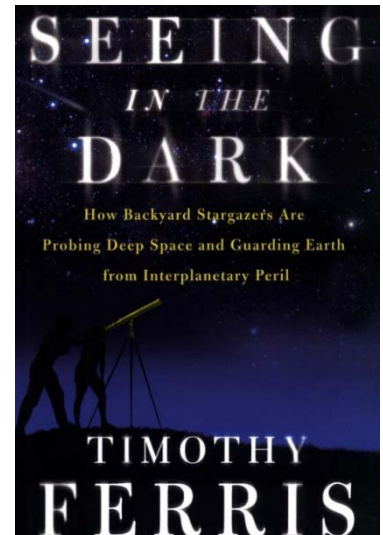
6:30pm Doors Open | 6:45 Refreshments & Solar Telescope Viewing | 7:00 Meeting Starts

Sept 22, 2016

MOVIE NIGHT: Seeing in the Dark

by Timothy Ferris

Timothy Ferris recounts his own experiences as an enthralled lifelong amateur astronomer and reports from around the globe -- from England and Italy to the Florida Keys and the Chilean Andes -- on the revolution that's putting millions in touch with the night sky. In addition, Ferris offers an authoritative and engaging report on what's out there to be seen -- what Saturn, the Ring nebula, the Silver Coin galaxy, and the Virgo supercluster really are and how to find them. The appendix includes star charts, observing lists, and a guide on how to get involved in astronomy.



Seeing in the Dark production footage was shot on location in pure 1080p HD video, through Zeiss lenses on low-compression Sony 900 cameras working at 30 frames per second. The optics included 24-inch and 18-inch carbon-fiber Schmidt-Cassegrain, Ritchie-Chretien, and Newtonian reflectors plus an array of refractors and traditional telephoto lenses. Time: 60 minutes.

Our meetings are at 7pm at the United Methodist Church. We're at the Wesley Building. The address for the UMC is 1515 Fredericks Ave, San Luis Obispo.

We're also going to have a short presentation from one of our members on their current scope work in addition to our main content. Our meetings include time for show-and-tell, telescope setup questions, special introductory content for newcomers, socializing time, and in-depth astronomy content for our more experienced members... in short, something for everyone!

The info you need to attend this free public astronomy event is here:

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

Upcoming Astronomy Events

Mars & Lagoon – Sept 28th



Image Source: APOD <http://apod.nasa.gov/apod/ap050803.html>

Article Source: National Geographic <http://news.nationalgeographic.com/2015/12/151229-astronomy-sky-events-2016-stargazing-night-sky/>

While Mars will be at its biggest and brightest in Earth's skies earlier in the year, around late May and early June, it will pose pretty with one of the most famous interstellar clouds of gas and dust. Once darkness sets in on September 28, the red planet will make it a convenient marker for training backyard telescopes on the 4,000 light-year-distant Lagoon Nebula.

The two celestial objects will appear less than 1 degree apart, making them easily fit inside the same field of view in both binoculars and telescopes, and will surely create a particularly impressive photo opportunity.

Next Star Gazing

Oct 1st at sunset (7pm) at
the Santa Margarita KOA

Our Sky Star Parties occur once a month, and are free and open to the public, and also weather-permitting.



You might want to bring your own set of binoculars, hot cocoa, and a warm coat!

If you'd like to join us, park at the bottom of the hill and walk up to the telescopes just before sunset. If you're got a large, bulky telescope, please arrive *before* sunset to set up.

If you arrive after dark (you need headlights to see the road), DO NOT drive toward the telescopes! Park at the bottom of the hill and walk up. We welcome students and supervised children to our events.

Please no smoking or pets, and do not bring white flashlights.



CCAS Member Renewals & Magazine Discounts Due Sept. 25th !

It's time to renew your membership (see last page) and get a discount on your favorite magazine subscriptions!

For Astronomy Magazine: (\$34/yr or \$60/2yrs.)

New subscriptions - Send check made out to "C.C.A.S." and mail to CCAS, P.O. Box 1415, San Luis Obispo, CA 93406

Renewals - Same as above or via the Internet at

www.astronomy.com/promo

1. When prompted for the promotion code, type in our club's offer code, "RCLUB174" and click on the "Get Offer" button.
2. Select the order term (1 yr., 2 yrs., or 3 yrs.).
3. Enter your name, address and credit card information. Please note: You do not need to enter the promotion code a second time on this order page. That entry field can be disregarded.
4. Click on the "Submit" button. You will receive a confirmation page immediately.



For Sky & Telescope Magazine: (\$33/yr.)

New subscriptions - Send check for \$33 made out to "C.C.A.S." and mail to CCAS, P.O. Box 1415, San Luis Obispo, CA 93406

Renewals - Don't mail renewals to our P.O. Box! Can renew by phone at 1-800-253-0245 or via Internet at

www.skyandtelescope.com/4CLB09

** If you're not a current member and you'd like to be one and get these magazine discounts, please add \$20 (\$15 student/senior) to your new magazine subscription check payment to us.*

Outreach Events

Here's a quick snapshot of events we've done recently that showcase our members in action!



Dave Majors, Joseph Carro, Scott Mc Millian, Ron Setina, Glen Smeltzer and Tom Frey had scopes out for both solar and lunar observing on Aug 12 at Lefondusac Winery in Templeton.

"We did of course, look at Mars, Saturn, several of the brighter Messier object and some double stars. The Moon was in a waxing gibbous phase so not many dark sky objects were possible." ~Tom

Helping others discover what's up there in the sky allows our astronomers not only to continue their own education learning about the sky, but also using their equipment and communicating their ideas to others.





Lefondusac Winery is located at the end of a cul-de-sac in Paso Robles. The people there were inviting and appreciated that we took the time from our schedules to share our enjoyment of astronomy.

The evening was warm and there was a breeze blowing, which became calm as the



Sun set. We set up our telescopes at the back of the winery in an area of decomposed granite. There was also a grassy area that was available for our use.

The attending members were Joseph Carro, David Majors, Scott McMillan, Glen Smeltzer, Tom Frey and Ron Setina. There were H-alpha and white light filters telescopes for daytime viewing, and for evening, we had 6 telescopes and 2 binocular setups.

The visitors started off looking at the Sun thru the H-alpha and white light filters. They even had a look at Mars during the daylight hours thru an 8 inch scope! Someone had mentioned that it was quite a site with the blue sky as a contrasting color, rather than the black. Venus was visible thru the binoculars once the Sun had set.

As night fell we had 6 telescopes and 2 binoculars setup. Seeing was good to very good. The Moon was a wonderful site thru the binoculars as well as the telescopes. Saturn was a big hit as usual. Two moons of Saturn, Titan and Rhea, were visible even with the Moon as bright as it was. Glen Smeltzer had his 11 inch telescope with a Denkmeier 3D eyepiece binoculars.



Even with the Moon at 75% illumination, we were able to view some deep sky objects as well. Some of them were M22, M15 M13, M11 the Wild Duck Cluster, M27 the Dumbbell Nebula, M31 the Andromeda Galaxy, M57 the Ring Nebula, and NGC 457 the Owl Cluster. The view thru Glen's binoculars was stunning.

We all had a great time with lots of laughs, and the visitors and owners thanked us for sharing our passion of astronomy. We all look forward to doing this again.



Upcoming Events

Outreach Programs We Need Your Help With!

CCAS provides community service and outreach programs to schools and other venues that request them. Our astronomers who fulfill these requests are all volunteers, and are always grateful if you can provide an extra hand to help out. You don't need to be an expert in anything... just show up and be prepared to learn and have fun.

If you can help us provide an outstanding experience for these people, please feel free to connect with Dave Majors (Email: davercrb1@charter.net)

3 September - Los Flores 7:30 PM to 9:30 PM

10 September - Justin Winery in West Paso Robles 6:30pm

23 September - Cal Poly Week Of Welcome.

30 September - Harmony Cellars in Harmony 6:30pm

1 October - CCAS at KOA

7 October - Girl Scout Troop 40300

8 October - Calcareous Winery in west Paso Robles

29 October - CCAS at KOA

3 December - Los Flores 5:00 Pm to 8:00 PM

Member's Work

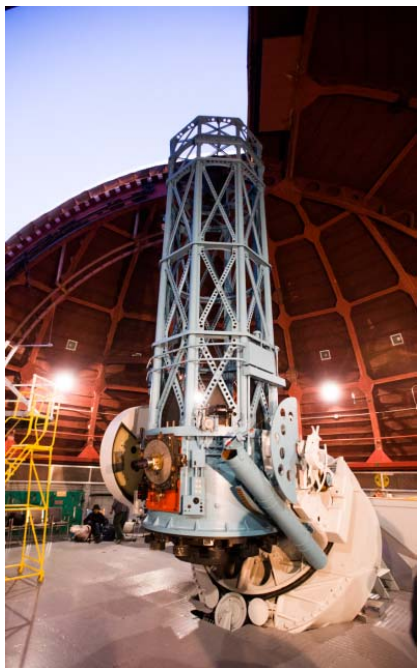
These are originals from our very own members!



Tom Frey is happily setting up his new StellarVue refractor for a star gazing event.

Our speaker for September was the president of StellarVue Vic Maris, who taught us about optics of refractors and what's involved with making a true apochromatic lens assembly, and why it's so difficult to do.

Come join us for a star gazing event and get your feet wet in a passion that lasts for a lifetime!



Astronomy Road Trip!

Visit Mt. Wilson and stay up all night long observing with us!

Would you be interested in going on a star gazing trip to Mt Wilson this year? CCAS is planning a trip on Nov 5. The trip cost will be approximately \$150 per person for CCAS members, \$195 for non-members and includes transportation both ways on a hired bus. (Note: if you're a CCAS officer, your trip is paid for entirely by the club as our way of saying "Thanks!")

Space for this trip is limited to 25 people ages 18 and over. If you are interested in attending, please send an email to Aurora at aurora@CentralCoastAstronomy.org to get on the invite list when the official registration opens. (Images shown here are from last year's trip!)



Astronomy Article

Is there a super-Earth in the Solar System out beyond Neptune?



By Ethan Siegel. This article is provided by NASA Space Place. Visit spaceplace.nasa.gov to explore space and Earth science!

When the advent of large telescopes brought us the discoveries of Uranus and then Neptune, they also brought the great hope of a Solar System even richer in terms of large, massive worlds. While the asteroid belt and the Kuiper belt were each found to possess a large number of substantial icy-and-rocky worlds, none of them approached even Earth in size or mass, much less the true giant worlds. Meanwhile, all-sky infrared surveys, sensitive to red dwarfs, brown dwarfs and Jupiter-mass gas giants, were unable to detect anything new that was closer than Proxima Centauri. At the same time, Kepler taught us that super-Earths, planets between Earth and Neptune in size, were the galaxy's most common, despite our Solar System having none.

The discovery of Sedna in 2003 turned out to be even more groundbreaking than astronomers realized. Although many Trans-Neptunian Objects (TNOs) were discovered beginning in the 1990s, Sedna had properties all the others didn't. With an extremely eccentric orbit and an aphelion taking it farther from the Sun than any other world known at the time, it represented our first glimpse of the hypothetical Oort cloud: a spherical distribution of bodies ranging from hundreds to tens of thousands of A.U. from the Sun. Since the discovery of Sedna, five other long-period, very eccentric TNOs were found prior to 2016 as well. While you'd expect their orbital parameters to be randomly distributed if they occurred by chance, their orbital orientations with respect to the Sun are clustered extremely narrowly: with less than a 1-in-10,000 chance of such an effect appearing randomly.

Whenever we see a new phenomenon with a surprisingly non-random appearance, our scientific intuition calls out for a physical explanation. Astronomers Konstantin Batygin and Mike Brown provided a compelling possibility earlier this year: perhaps a massive perturbing body very distant from the Sun provided the gravitational "kick" to hurl these objects towards the Sun. A single addition to the Solar System would explain the orbits of all of these long-period TNOs, a planet about 10 times the mass of Earth approximately 200 A.U. from the Sun, referred to as Planet Nine. More Sedna-like TNOs with similarly aligned orbits are predicted, and since January of 2016, another was found, with its orbit aligning perfectly with these predictions.

Ten meter class telescopes like Keck and Subaru, plus NASA's NEOWISE mission, are currently searching for this hypothetical, massive world. If it exists, it invites the question of its origin: did it form along with our Solar System, or was it captured from another star's vicinity much more recently? Regardless, if Batygin and Brown are right and this object is real, our Solar System may contain a super-Earth after all.



A possible super-Earth/mini-Neptune world hundreds of times more distant than Earth is from the Sun. Image credit: R. Hurt / Caltech (IPAC)

CCAS Officers

Feel free to connect with us!



President: Aurora Lipper

Vice President: Tom Frey

Vice President: Joseph Carro

Outreach Coordinator: Dave Majors

Treasurer: Lee Coombs

Celestial Advisor: Kent Wallace

Webmaster: Joe Richards

CCAS Contact Information

Founded in 1979, the Central Coast Astronomical Society (CCAS) is an association of people who share a common interest in astronomy and related sciences.

Central Coast Astronomical Society

PO Box 1415

San Luis Obispo, CA 93405

Website: www.centralcoastastronomy.org

Facebook: www.facebook.com/CentralCoastAstronomicalSociety

Lectures & Star Parties

MONTHLY MEETING & LECTURE

On the fourth Thursday of the month (Jan-May, Aug-Oct), we often have world-renowned professionals and amateurs in astronomy speak about their projects during our monthly meetings. The talks are informal and questions are invited.

Meetings begin at 7:30 p.m. in San Luis Obispo. For location and directions, visit our website: www.sloastro.org

OUTREACH PROGRAM

We offer a limited number of outreach programs where we bring our star party to you. These custom events include a talk about current topics in space science. After the lectures, we make our telescopes available for your group to observe the wonders of the night sky.

STAR-GAZING EVENTS

Join us for a star-gazing evening by observing the dark skies through club members' telescopes. It begins just before sunset on one Saturday each month. The Star Party is hosted in Santa Margarita. (See website www.sloastro.org for dates, times and locations).

Need help operating your telescope? Bring your telescope one hour early for help on how to work your telescope by our friendly astronomers.



Why Join CCAS?

BENEFITS OF MEMBERSHIP

- Subscription to *Celestial Newsletter*, our monthly bulletin of articles and events
- Interaction with world class speakers as they present cutting edge astronomical research
- Discounts on *Sky & Telescope* and *Astronomy* magazines
- Social events, such as our annual Star-B-Que
- Club telescopes – use one of the club's loaner scopes, complete with instructional lessons
- Access to 'Members Only' are of the website containing observing tips, scope tricks, and educational articles for all levels
- Field trips – to observatories and other locations of scientific interest, such as Mt. Wilson Observatory in Pasadena, Chabot, Space and Science Center, Fremont Peak, and the Stanford Linear Accelerator Center (registration fee may be requested)
- Extended observing hours on public nights and private observing sessions exclusively for CCAS members
- Assistance from club members, and other "how-tos" to help you best enjoy amateur astronomy and astrophotography

Questions about membership or other events?
Call Lee Coombs at (805) 466-2788 or visit our website at:

www.sloastro.org

How to Join

MEMBERSHIP APPLICATION

Membership is annual for each upcoming year, beginning when you first sign up. You can sign up online or mail in this form:

Membership Categories (Check one):

- ☐ \$15 Youth/Student
☐ \$15 Seniors
☐ \$20 Individual/Family

Magazine subscriptions Add specified amount to membership fee for a 1-year subscription.

- ☐ *Sky & Telescope* (+ \$33) only in September
☐ *Astronomy* (+ \$34) only available in September

Information: (PRINT CLEARLY!)

Name(s) _____

Address _____

City _____

State, Zip _____

Home Phone _____

E-Mail _____

Newsletter Subscription:

You can choose E-Mail (recommended) or hard copy delivery for *Celestial Observer*. (check one)

- ☐ E-Mail (full color)
☐ Hard Copy (black & white)

Please make checks payable to Central Coast Astronomical Society and mail to P.O. Box 1415, San Luis Obispo, CA 93405.