

The High Desert Observer

April 2023



This Month's Meeting - April 28th

IN-PERSON & Zoom, Friday at 7 p.m.
Mesilla Valley Radio Clubhouse
6609 Jefferson Ave. Las Cruces, NM

At the corner of Wilt and Jefferson -- take the Porter exit from US 70, about 5 miles east from the I-25 interchange. Go south on Porter until you come to Jefferson. From there, turn left and go to the corner of Jefferson and Wilt. The meeting will also be available to members via Zoom.

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Tombaugh Lecture Series Speaker for the Month



Moonzarin Reza
Texas A&M University
Department of Physics and Astronomy

Dark Matter

Ms. Reza will discuss some of the basics of dark matter, what it is and what portion of the universe it occupies. Following will be a more detailed explanation of how dark matter properties can be determined from baryonic parameters (which we can observe) using machine learning. Her recent project at TAMU is based on these principles.

Ms. Reza has recently published a paper on the possible origin of dark energy, which is believed to be the cause of accelerated expansion rate of the cosmos with the aid of superstring theory and the observed matter-antimatter asymmetry. A model is proposed in which the antimatter, and particularly antiquarks, occupies the Calabi-Yau manifold in six dimensions and thus attracts the quarks via 'gluons'. This phenomenon creates an illusionary vision. Ms. Reza provides a conceivable explanation of the observed matter-antimatter asymmetry in the visible universe.

From the President

Tim Kostelecky

The ASLC Telescope Loaner Program has a problem...too many telescopes, and too few members taking advantage and borrowing them. We've been very fortunate to have the majority of these scopes donated to us, and the collection has grown with some quality additions in the past couple of years.



But alas, only four the twelve of our collection are currently on loan, leaving the remainder unused, sitting quietly in storage. For me, this brings a bit of sadness because I tend to think of these wonderful instruments as sheltered and forgotten, just waiting patiently for someone to take them home and give them the attention they deserve.

Much of this is my fault, however. Being the overseer of our loaner program, I need to make a better effort promoting it. And that's what I plan to do, perhaps with a twist. I'm considering not just having the telescopes available for loan, but also for fostering.

Why let them sit in storage when an ASLC member could have one on a semi-permanent basis, tending to it and using it at their convenience. The scope would still be available for loan to our membership as the current program provides, then back to the foster parent when not in demand.

Please give my your feedback, I'd like to hear some of your suggestions. Let's get these scopes in the hands of our members.

Clear Skies to All, Tim

The Astronomical Society of Las Cruces

(ASLC) is dedicated to expanding public awareness and understanding of the wonders of the universe. ASLC holds frequent observing sessions and star parties, providing opportunities to work on Society and public educational projects.

Members receive electronic delivery of The High Desert Observer, our monthly newsletter, plus membership in the Astronomical League including their quarterly publication, Reflector, available in either paper or digital format. ASLC members are also entitled to a discount on a subscription to Sky and Telescope magazine.

Annual Individual Dues are \$36; Family \$42; Student (Full Time) \$24. Dues are payable in January and partial year prorated for new members. Please contact our Treasurer, Patricia Conley, treasurer@aslc-nm.org for further information.

Coming Events

Monthly, on an evening close to the first-quarter moon, ASLC hosts a public "MoonGaze" observing session in Las Cruces. We also hold periodic special evening sessions at Tombaugh Observatory on the NMSU campus.

Also monthly, the ASLC welcomes public viewing at the Walter Haas Observatory in Leasburg Dam State Park, located just 20 miles north of Las Cruces. Our 16-inch Meade LX200 telescope at this site is used to observe under rather dark skies.

Keep updated on the dates, times, and locations through this [link](#) with additional information available at our website www.aslc-nm.org as well as our [Facebook](#) page.

Featured Article

Night Lights: Aurora, Noctilucent Clouds, and the Zodiacal Light

This article is distributed by NASA Night Sky Network. The Night Sky Network program supports astronomy clubs across the USA dedicated to astronomy outreach. Visit <https://nightsky.jpl.nasa.gov/> to find local clubs, events, and more.



By David Prosper

Have you spotted any “night lights”? These phenomena brighten dark skies with celestial light ranging from mild to dazzling: the subtle light pyramid of the zodiacal light, the eerie twilight glow of noctilucent clouds, and most famous of all, the wildly unpredictable and mesmerizing aurora.

Aurora, often referred to as the northern lights (aurora borealis) or southern lights (aurora australis), can indeed be a wonderful sight, but the beautiful photos and videos shared online are often misleading. For most observers not near polar latitudes, auroral displays are relatively rare and faint, and without much structure, more gray than colorful, and show up much better in photos.

However, geomagnetic storms can create auroras that dance and shift rapidly across the skies with several distinct colors and appear to observers much further away from the poles - on very rare occasions even down to the mid-latitudes of North America! Geomagnetic storms are caused when a magnetic storm on our Sun creates a massive explosion that flings a mass of particles away from its surface, known as a Coronal Mass Ejection

(CME). If Earth is in the path of this CME, its particles interact with our planet’s magnetic field and result in auroral displays high up in our ionosphere. As we enter our Sun’s active period of its 11-year solar cycle, CMEs become more common and increase the chance for dazzling displays! If you have seen any aurora, you can report your sighting to the Aurorasaurus citizen science program at aurorasaurus.org

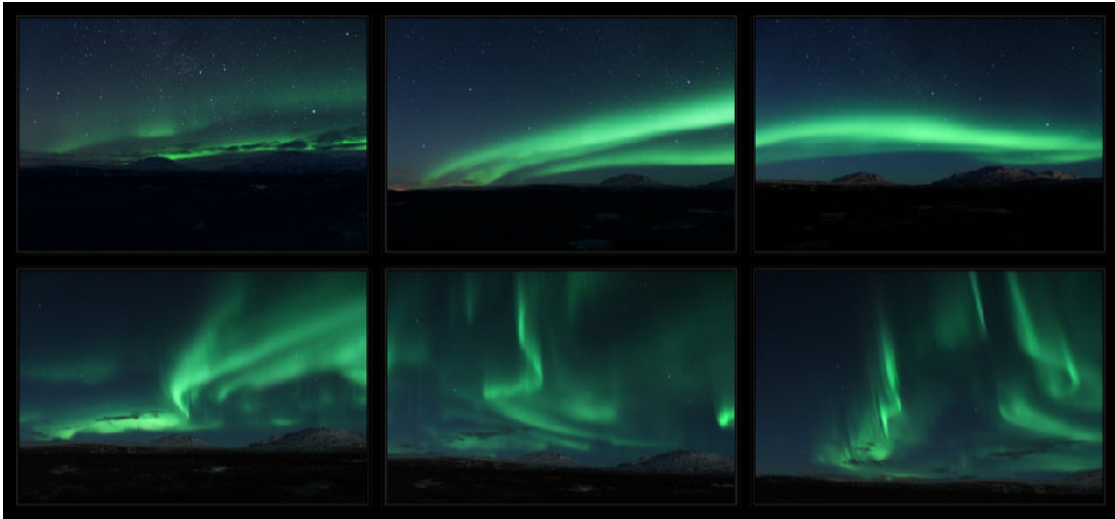
Have you ever seen wispy clouds glowing an eclectic blue after sunset, possibly towards your west or northwest? That wasn’t your imagination; those luminescent clouds are noctilucent clouds (also called Polar Mesospheric Clouds (PMC)). They are thought to form when water vapor condenses around ‘seeds’ of dust from vaporized meteorites - along with other sources that include rocket launches and volcanic eruptions - around 50 miles high in the mesosphere.

Their glow is caused by the Sun, whose light still shines at that altitude after sunset from the perspective of ground-based observers.



Comet NEOWISE flies high above a batch of noctilucent clouds in this photo from Wikimedia contributor Brwynog.

Noctilucent clouds are increasing both in frequency and in how far south they are observed, a development that may be related to climate change. Keeping in mind that observers closer in latitude to the poles have a better chance of spotting them, your best opportunity to spot



A sampling of some of the various patterns created by aurora, as seen from Iceland in 2014. The top row photos were barely visible to the unaided eye and were exposed for 20-30 seconds; in contrast, the bottom row photos were exposed for just 4 seconds- and were clearly visible to the photographer, Wikimedia contributor Shnuffel2022.



The zodiacal light as seen in the evening of March 1, 2021 above Skull Valley, Utah. The Pleiades star cluster (M45) is visible near the top.

Credit and source: NASA/Bill Dunford

noctilucent clouds occurs from about half an hour to two hours after sunset during the summer months. NASA's AIM mission studies these clouds from its orbit high above the North Pole: go.nasa.gov/3uV3Yj1

You may have seen the zodiacal light without even realizing it; there is a reason it's nicknamed the "false dawn"! Viewers under dark skies have their best chance of spotting this pyramid of ghostly light a couple of hours after sunset around the spring equinox, or a couple of hours before dawn around the autumnal equinox. Unlike our previous two examples of night lights, observers closer to the equator are best positioned to view the zodiacal light! Long known to be composed of interplanetary dust orbiting in the plane of our solar system reflecting sunlight, these fine particles were thought to originate from comets and asteroids. However, scientists from NASA's Juno mission recently published a fascinating study indicating a possible alternative origin: dust from Mars! Learn more about their serendipitous discovery at: go.nasa.gov/3Onf3kN

Curious about the latest research into these night lights? Find news of NASA's latest discoveries at nasa.gov.

ASLC West Outreach Update - Mike Nuss

On Friday, April 14th, we had fourteen participants at our outreach event at Rockhound State Park. Then on Saturday, April 15th, there were at least 56 folks at City of Rocks State Park. Two couples that were at Rockhound came out to City of Rocks on Saturday evening!

Bill Nigg and myself covered Friday evening. With Charles (Meade Master) Turner running the observatory scope helping us on Saturday. The crowds both evenings were very appreciative of our efforts and the views!

Monthly Meeting Minutes

March 2023

John McCullough - Secretary

Call to Order:

Tim Kostecky, President, Astronomical Society of Las Cruces (ASLC, the Society), called the March 2023 meeting to order at 7:00 pm on 24 March 2023 at the Mesilla Valley Radio Clubhouse. There were fourteen (14) members, spouses, and guests in attendance, as well as eleven (11) attendees via Zoom at the start of the meeting.

Tim welcomed the group to tonight's meeting and announced that the minutes from the February 2023 meeting (thanks to John McCullough, Secretary) were published in the March 2023 issue of the Society newsletter, the High Desert Observer (HDO). Tim asked if there were any required additions, deletions, or corrections to the minutes as submitted. A motion to accept the February 2023 minutes as submitted was offered by Rani Bush and seconded by Rich Richins. There being no objections, the motion was passed by acclamation.

New member Anthony Hyde from High Rolls, NM, was joining tonight's meeting via Zoom. Anthony produced the recognition plaque for the Walter Haas Observatory at Leasburg Dam State Park (LDSP).

Presentation:

Tonight's Tombaugh Series speaker was ASLC

member and current President, Tim Kostecky. His presentation was titled: "Telescope Eyepieces – A Guide to Navigate the Myriad of Choices". This was one of a series of presentations Tim has planned on practical aspects of visual observing.

Tim discussed many of the details to be considered when choosing a selection of eyepieces for a system to optimize the viewing experience, including the individual's needs, experience, and budget.

Officer/Committee Reports:

Treasurer:

Trish Conley, Treasurer, was not available to present a report. In her stead, Tim Kostecky announced that Trish had informed him that \$492 in net income had been received since the February meeting.

Outreach:

Stephen Wood, outreach coordinator, reported on recent events. The Moon Gaze on 25 February at the Plaza de Las Cruces had a good turn-out. The Sonoma Elementary STEAM (Science, Technology, Engineering, Arts, and Math) night (a private event) was also a good time. Last week's 3rd Quarter Moon event (18 March) at LDSP was cold. There will be another Moon Gaze on 01 April and a LDSP event on 15 April.

Rani Bush reminded members the Las Cruces Space Festival will be next weekend, 31 March through 02 April. There will be a lecture on the history of the NMSU Tortugas Mountain

Observatory (TMO) on “A” Mountain including a livestream tour next Friday evening hosted by Drs. Nancy Chanover and Jon Holtzman. Check the Space Fest’s website for more information. The Festival committee is already planning the 2024 event; Rani will post more info on the groups.io.

Rich Richins reported the Plutomania event at the Museum of Nature and Science was very successful. Another event will be held on 22 April in conjunction with Earth Day 2023 activities.

Contact Stephen if you can support any or all events.

Apparel:

Rani Bush, committee chair, did not have an apparel related report. However, she had several astronomy related posters available for educators and outreach events.

ASLCWest:

Mike Nuss, committee chairman, was not available to provide a report. Charles Turner reported that last week’s events at both Rockhound State Park and City of Rocks State Park were canceled because of winds and dust.

Gary Starkweather will host a Messier Marathon at his facility on 2526 March. Email him for directions and details.

Chris Brownell’s observation of a potential

super nova was announced.

Old Business:

Longtime member Keith Schirmer is moving out of the area. He is selling his 15” Classic Obsession w/ServoCat GoTo, several eyepieces, and many accessories. He has a flyer with the details. He has lowered the asking price to \$2999 compared to today’s estimated system cost of \$13,000. More information on groups.io.

There was no additional old business for discussion.

New Business:

There was no new business offered for discussion.

Announcements:

There were no announcements for the membership.

The March 2023 meeting was adjourned at 8:26 pm.

-Respectfully submitted:
John McCullough
Secretary, ASLC

ASLC Board of Directors

President:	Tim Kostelecky	board@aslc-nm.org
Vice President:	Ranimo Bush	president@aslc-nm.org
Treasurer:	Patricia Conley	vp@acslc-nm.org
Secretary:	John McCullough	treasurer@aslc-nm.org
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		PastPres2@aslc-nm.org

Committee Chairs

ALCOR:	Patricia Conley	tconley00@hotmail.com
Calendar:	Stephen Wood	Outreach@aslc-nm.org
Education:	Rich Richins	education@aslc-nm.org
Loaner Program:	Tim Kostelecky	LoanerScopes@aslc-nm.org
Observatories:		
Leasburg Dam:	Steve Barks	LDSPObservatory@aslc-nm.org
Tombaugh:	Preston Hager	ASLCObservatory@aslc-nm.org
Outreach:	Stephen Wood	Outreach@aslc-nm.org
Website:	Steve Barks	Webslave2@aslc-nm.org
HDO Editor:	Tim Kostelecky	HDO@aslc-nm.org

Member Images

M65, M66, NGC 3628 (Leo Triplet) - Bob Kimball



Finally some clear weather so I revisited the Leo Trio. This image was taken inside the city limit over four nights (8.3 Hours). I am imaging with a W.O.110 refractor on a Mach 1 AP mount, Software N.I.N.A., Phd 2.0, and PixInsight. This is my first image using three of the new AI plugins.

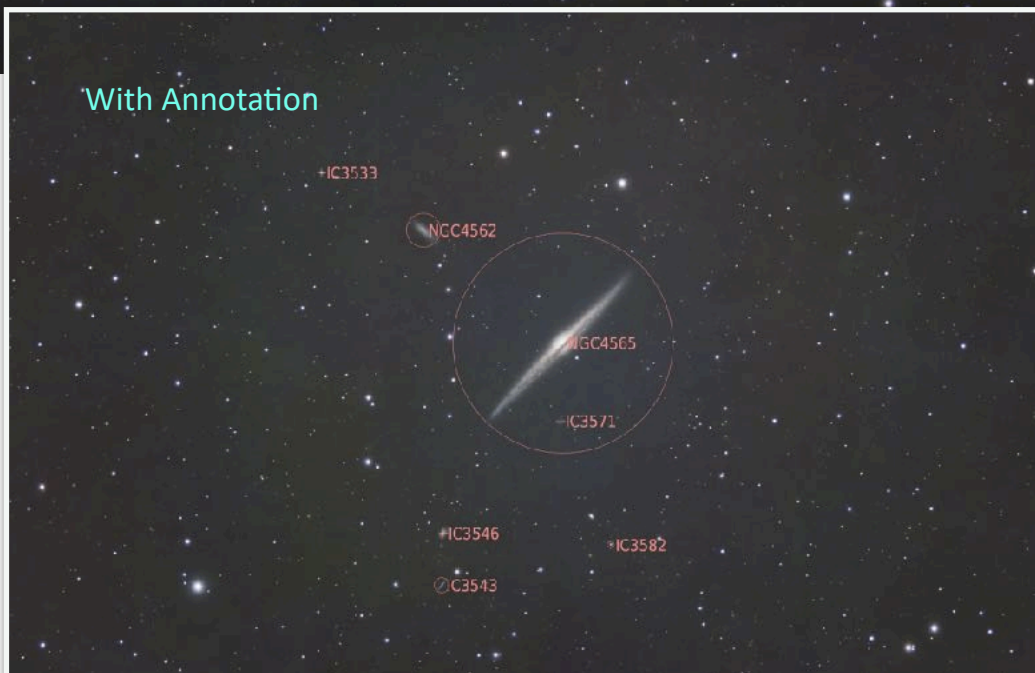
NGC4565 in Coma Berenices - Bob Kimball



This galaxy is highlighted in a recent Sky and Telescope magazine.

About 4 hours of light (40 X 120sec) RGB.

Galaxies are tough for my little 4 inch refractor.



Nebula CG4 & Galaxy PGC 21338 in Puppis - Alex Woronow



CG4: When Aliens Attack--Better call Fry!

OTA: CDK17
Camera: Morovian 61000
Observatory: Deep Sky West, Chile

Exposures:

R: 27 x 300 sec

G: 29 x 300

B: 28 x 300

H: 25 x 1800 sec

Total Exposure time used: 19.5 hours

Processing used PixInsight, Topaz Studio2, 3DLut Creator, (and my scripts...AC_Restar and Nb_Assistant). Considerable luminance was captured but added noting to the image detail, but adversely affected the image color intensity, so it was discarded.

Set against the foreground nebula CG4, the galaxy PGC 21338 appears to be the target of a giant alien wormlike creature (A dreaded Red-Form Gaboid from Tremors?). I wonder if the beings in PGC 21338 know what looms? (The title references https://en.wikipedia.org/wiki/When_Aliens_Attack with a side reference to Better Call Saul.)

Seriously, for a moment, I mapped the Ha into the RGB and estimated an amount of Hbeta (blue) to include. A good approximation for hydrogen clouds is the Hbeta emission is about 34% of the Ha emission intensity.