

The High Desert Observer

May 2023



This Month's Meeting - May 26th

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



Dr. Wladimir Lyra
New Mexico State University, Astronomy

How Do Planets Form?

During the first million years of evolution, young planetary systems were formed due to many different processes leading to the formation of planetesimals, which are the building blocks of planets. Dr. Lyra will talk about the latest developments and recent progress in the study of planet formation.

Dr Lyra, a native of Rio de Janeiro, Brazil, earned his PhD in Astrophysics from the University of Uppsala in Sweden, specializing in computer simulations of planet formation. As a postdoctoral researcher, he held the prestigious Carl Sagan prize fellowship from the NASA Exoplanet Science Institute. He joined New Mexico State University in 2019, where he is an associate professor. Dr Lyra received NMSU College of Arts and Sciences Outstanding Faculty achievements in Outreach (2021), Research (2022), and Teaching (2023), as well as the Truly Innovative Award offered by NMSU's Teaching Academy. He has published over 70 peer-reviewed scientific articles, and cited over 5000 times.

From the President

Tim Kostelecky

SUBTLE SPECTACULARITY

That's a term I use on occasion in describing what I see when looking through a telescope at the heavens. With all the talk of novae and planetary nebulae created by "exploding" stars and the thermonuclear reactions occurring throughout the universe, it's not surprising that an astro-fledgling will sometimes approach a telescope expecting to see something akin to fireworks, or at least a similarity to the incredible astronomical images shown in the media. In reality, to the inexperienced, the telescope often brings anticlimactic views, e.g. dim fuzzies. However, a spectacularity lies in the knowledge of what you are actually seeing in terms of the grandiosity of the universe...not necessarily what is immediately apparent to your eye.



For me, this subtle spectacularity came to light once again with the discovery just last week, May 19th, of the supernova SN 2023ixf in the Messier 101 "Pinwheel" galaxy. It's currently visible as a magnitude 11 star, a fairly easy telescopic object. In our sky, there are nearly two million stars visible at magnitude 11 or brighter. So why did I get goose-bumps when I saw this particular star Monday night? Well, for starters, SN 2023ixf is 21 million light-years away! It exploded with such energy, that for a few days, this single star outshines the collective one-trillion stars in the M101 galaxy. In addition, the extreme particle physics and molecular genesis that occurs with a supernova is mind-blowing. That's all.

Henry David Thoreau, the 19th Century naturalist, philosopher and poet, said it best: *The question is not what you look at, but what you see.*

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.

Special ASLC Outreach for Local Girl Scouts by Rich Richins

Daisies and Brownies from Girl Scout Troop 51-462, which meets at Highland Elementary School, reached out to the ASLC to have an astronomer give a presentation while the scouts worked on some of their Space Science Explorer (Daisies) and Space Science Adventurer (Brownies) projects. The girls learned how lenses and mirrors can make objects appear larger, and got to practice viewing thru a telescope eyepiece. Then the girls (and many of their parents) were treated with white light and Ha views of our nearest star, the sun, replete with several sunspots, prominences and filaments. Each received beautiful posters of either the Pleiades or the Andromeda Galaxy (courtesy Charles Turner). It was a great educational experience for them all.



Daisies and Brownies from Girl Scout Troop 51-462 join for a group picture around a pair of solar telescopes, including ASLC's single-stack hydrogen-alpha scope.

Featured Article

Look Up in the Sky - It's a Bird



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 Theresa Summer

Bird constellations abound in the night sky, including Cygnus, the majestic swan. Easy to find with its dazzling stars, it is one of the few constellations that look like its namesake and it is full of treasures. Visible in the Northern Hemisphere all summer long, there's so much to see and even some things that can't be seen. To locate Cygnus, start with the brightest star, Deneb, also the northeastern most and dimmest star of the Summer Triangle. The Summer Triangle is made up of three bright stars from three different constellations – read more about it in the September 2022 issue of Night Sky Notes. "Deneb" is an Arabic word meaning the tail. Then travel into the triangle until you see the star Albireo, sometimes called the "beak star" in the center of the summer triangle. Stretching out perpendicular from this line are two stars that mark the crossbar, or the wings, and there are also faint stars that extend the swan's wings.

From light-polluted skies, you may only see the brightest stars, sometimes called the Northern Cross. In a darker sky, the line of stars marking the neck of the swan travels along the band of

the Milky Way. A pair of binoculars will resolve many stars along that path, including a sparkling open cluster of stars designated Messier 29, found just south of the swan's torso star. This grouping of young stars may appear to have a reddish hue due to nearby excited gas.

Let's go deeper. While the bright beak star Albireo is easy to pick out, a telescope will let its true beauty shine! Like a jewel box in the sky, magnification shows a beautiful visual double star, with a vivid gold star and a brilliant blue star in the same field of view. There's another marvel to be seen with a telescope or strong binoculars – the Cygnus Loop. Sometimes known as the Veil Nebula, you can find this supernova remnant (the gassy leftovers blown off of a large dying star) directly above the final two stars of the swan's eastern wing. It will look like a faint ring of

Sky Map of Cygnus and the Summer Triangle



Look up after sunset during summer months to find Cygnus! Along the swan's neck find the band of our Milky Way Galaxy. Use a telescope to resolve the colorful stars of Albireo or search out the open cluster of stars in Messier 29.

Image created with assistance from Stellarium: stellarium.org

illuminated gas about three degrees across (six times the diameter of the Moon).

Speaking of long-dead stars, astronomers have detected a high-energy X-ray source in Cygnus that we can't see with our eyes or backyard telescopes, but that is detectable by NASA's Chandra X-ray Observatory. Discovered in 1971 during a rocket flight, Cygnus x-1 is the first X-ray source to be widely accepted as a black hole. This black hole is the final stage of a giant star's life, with a mass of about 20 Suns. Cygnus x-1 is spinning at a phenomenal rate – more than 800 times a second – while devouring a nearby star.

Astronomically speaking, this black hole is in our neighborhood, 6,070 light years away. But it poses no threat to us, just offers a new way to study the universe.

Check out the beautiful bird in your sky this evening, and you will be delighted to add Cygnus to your go-to summer viewing list. Find out NASA's latest methods for studying black holes at www.nasa.gov/black-holes.

Black Hole in Cygnus



While the black hole Cygnus x-1 is invisible with even the most powerful Optical telescope, in X-ray, it shines brightly. On the left is the optical view of that region with the location of Cygnus x-1 shown in the red box as taken by the Digitized Sky Survey. On the right is an artist's conception of the black hole pulling material from its massive blue companion star.

(Credit: NASA/CXC)

Monthly Meeting Minutes

April 2023

John McCullough - Secretary

Call to Order:

Tim Kostelecky, President, Astronomical Society of Las Cruces (ASLC, the Society), called the April 2023 meeting to order at 7:01 pm on 28 April 2023 at the Mesilla Valley Radio Clubhouse. There were fourteen (14) members, spouses, and guests in attendance, as well as twelve (12) attendees via Zoom at the start of the meeting.

Tim welcomed the group to tonight's meeting and announced that the minutes from the March 2023 meeting (thanks to John McCullough, Secretary) were published in the April 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 March 2023 minutes as submitted was offered by Bob Kimball and seconded by Steve Barkes. There being no objections, the motion was passed by acclamation.

Tim also recognized several guests in attendance at tonight's meeting.

Presentation:

Tonight's Tombaugh Series speaker was Texas A&M University (TAMU) Department of Physics and Astronomy graduate student Moonzarin Reza. Her presentation was titled: "Dark Matter: Discovery, Significance, and Prediction". Ms. Reza discussed some of the basics of dark matter, what it is and what portion of the universe it occupies. She then provided a more detailed explanation of how dark matter properties can be determined from baryonic parameters (which can be observed) using machine learning. Her recent project at TAMU is based on these principles.

Ms. Reza recently published a paper on the possible origin of dark energy, which is believed to be the cause of the 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 provided a conceivable explanation of the observed matter-antimatter asymmetry in the visible universe.

Officer/Committee Reports:

Treasurer:

Trish Conley, Treasurer, reported on the status of the Society's accounts. She paid the rental on the storage unit (\$330), which resulted in a negative \$125 balance for the month. However, accounts are still a positive \$512 for the fiscal year.

Outreach:

Stephen Wood, outreach coordinator, reported on recent events. The Moon Gaze on 01 April at the Plaza de Las Cruces had approximately 150 attendees. The Leasburg Dam State Park (LDSP) event on 15 April had approximately 75 in attendance. The Earth Day event on 22 April had nearly 200 attendees. There will be a Moon Gaze on 29 April and a 3rd Quarter Moon event at LDSP on 13 May. There will be a star party at Berino (Anthony) Elementary before sunset on 04 May.

Rani Bush, Rich Richins, and Steve Barkes had a solar scope at the Museum of Nature and Science on Earth Day. They may repeat this event on 20 May.

Contact Stephen if you can support any or all events.

ASLCWest:

Mike Nuss, committee chairman, reported on events in the Deming area. Recent star parties at Rockhound and City of Rocks State Parks have had good public turnouts. Public events on 19 and 20 May will be the last public events until after the summer “monsoon” season.

Gary Starkweather hosted a great Messier Marathon at his facility on 2526 March. He will host another Dark Sky event on 20 May (New Moon).

Loaner Telescope Program:

Tim Kostecky, program coordinator, reported four (4) telescopes are out on loan. He is considering starting a “foster” program, possibly leading to telescope “adoption”, for other instruments in the program.

Old Business:

There was no old business for discussion.

New Business:

There was no new business offered for discussion.

Announcements:

Steve Barkes demonstrated a tracing pad.

There were no additional announcements for the membership.

The April 2023 meeting was adjourned at 8:37 pm.

-Respectfully submitted:
John McCullough
Secretary, ASLC

ASLC Board of Directors

		board@aslc-nm.org
President:	Tim Kostecky	president@aslc-nm.org
Vice President:	Ranimo Bush	vp@acslc-nm.org
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Committee Chairs

ALCOR:	Patricia Conley	tconley00@hotmail.com
Calendar:	Stephen Wood	Outreach@aslc-nm.org
Education:	Rich Richins	education@aslc-nm.org
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HDO Editor:	Tim Kostecky	HDO@aslc-nm.org

Member Images

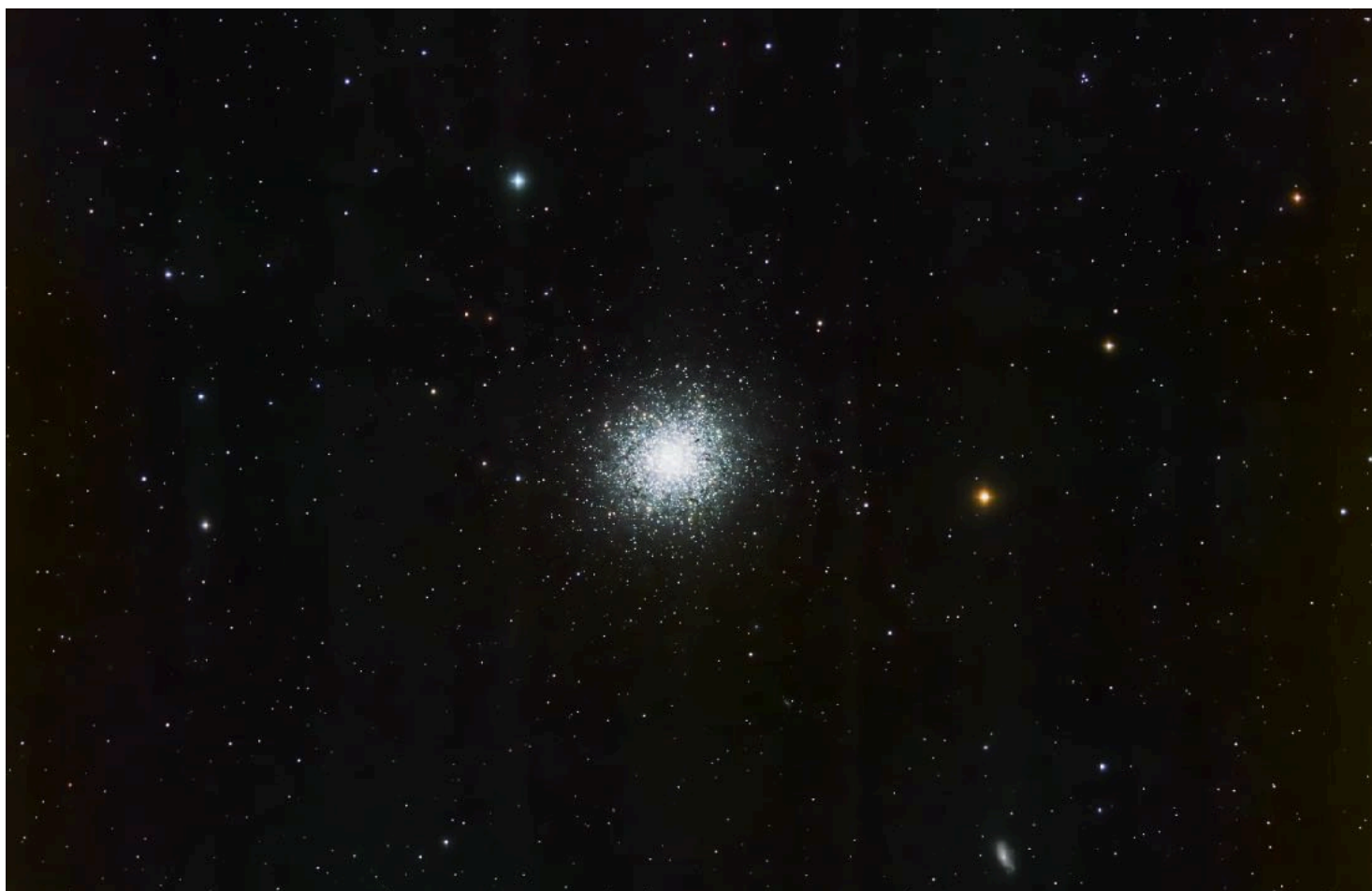
M51 - Whirlpool Galaxy in Canes Venatici - Jeff Johnson



Takahashi TOA-130F, AP1100GTO mount (first light for the mount), QSI690wsg camera @-15C

7x10min Lum, 2x5min ea RGB

M13 Hercules Cluster - Bob Kimball



50 X 15 sec. exposures, RGB

Arp 94 (NGC 3226 & 3227) in Leo - Alex Woronow



Arp 94: Two Buddies Doing a Little Star Sharing

OTA:.....CHI-1: CDK24 f/6.5
Camera:.....FLI PL9000 – very noisy, wish it had a CMOS!
Observatory:..... Telescope Live, Chile

EXPOSURES:
...R: 20 x 300
...G: 20 x 300
...B: 21 x 300
Total exposure 5 hours

Processed by Alex Woronow (2023) using PixInsight, SWT, Topaz, 3DLut