The Celestial Mechanic

The Official Newsletter of the Astronomy Associates of Lawrence

Coming Events

Monthly Meeting
April 26, 2026, 7:00PM
Baker Wetlands Discovery Center

Public Observing
April 26, 2026, 8:00PM
Baker Wetlands Discovery Center

Club Officers

President
Rick Heschmeyer email

NSN Coordinator
Howard Edin email

Faculty Advisor
Dr. Jennifer Delgado email.

Newsletter Editor
Chuck Wehner email

Inside This Issue

Report From the Officers

By Rick Heschmeyer

When our January meeting was cancelled due to a winter storm, our scheduled presentation was rescheduled for March 29. In Rick Heschmeyer's talk entitled "The Useful Stars: The Night Sky as Calendar, Navigational Aid, and Cultural Repository" he took us on a journey back in time to illustrate the importance of the night sky to all civilizations. It was the same presentation he gave guests at the Spencer Museum of Art last year, with a few interesting updates.

The March 3 early morning Total Lunar Eclipse was unfortunately clouded out for Lawrence and many other Midwest locations. Hopefully we will have better luck for the upcoming August 2026 Partial Lunar Eclipse. Unfortunately, the next Total Lunar Eclipse visible from Lawrence will not take place until June 2029.

If you are out and about on Saturday, April 11, stop by Stoffer Hall on the Washburn University Campus and enjoy the Space Celebration 2026 presented by the Ad Astra Kansas Foundation and Washburn University. It is a fun-filled day of space and STEM related activities. The event runs from 1pm to 4pm and is fun for the entire family.

The KU Astronomy Public night for April is Thursday, April 16, outside of Slawson Hall. Planetarium shows start at 7:30, 8:00, and 8:30 pm. Stargazing and telescopes after the shows as conditions allow.

Our April Club Meeting will feature a talk by KU Graduate student Rachel Cionitti titled "How do Astronomers Compete for Space-Time?" where she will discuss the process of applying for, and being awarded, observing time on the James Webb Space Telescope for research.

As a reminder, if you have not already done so, please pay your club dues for 2026. Thanks.

Now that Spring is here, the warmer weather should make it easier for all of us to get out and keep looking up, albeit an hour later due to Daylight Saving Time!

Clear Skies!

Astronomers just watched a star 1,540 times the size of our sun transform into a hypergiant. Will it go supernova?

By Robert Lea
SPACE.COM, FEBRUARY 26, 2026

Astronomers have witnessed one of our universe's biggest stars transforming into a rare stellar body, and the dramatic metamorphosis may be the prequel to a powerful supernova explosion that sees this star birth a black hole.

The doomed star in question is WOH G64 (also known as IRAS 04553–6825), located in a satellite galaxy of the Milky Way known as the Large Magellanic Cloud (LMC), around 163,000 light-years away. The star is around 1,540 times the size of the sun, with almost 30 times the mass of our star and a staggering 282,000 times its brightness. Discovered in the 1970s, WOH G64 has always appeared to be a red supergiant star surrounded by a ring, or torus, of dense dust.

However, in 2014, the appearance of this supergiant began to change. A team of astronomers, led by Gonzalo Muñoz-Sanchez at the National Observatory of Athens, noticed the star's color changing along with a corresponding increase in its surface temperature. Muñoz-Sanchez and colleagues determined this must represent the transformation of a red supergiant into a rare yellow hypergiant, which could also mean astronomers are witnessing a star "die" in real time

"The fate of stars with initial masses between 23 and 30 solar masses after evolving into red supergiants is still uncertain. In this case, WOH G64 was the most extreme red supergiant known, with an estimated mass of around 28 solar masses," Muñoz-Sanchez told Space.com. "It remains unclear whether such stars explode as supernovas, collapse directly into black holes, or evolve from the red supergiant phase into a yellow hypergiant stage before ending their lives. "WOH G64 might be the solution to this question."

The team's results represent the first evidence that an extreme stellar object can change its temperature and evolve from red to yellow in the span of a year — and in a smooth, silent manner at that.

"This is especially surprising because rapid changes in stars are typically associated with violent or abrupt processes," Muñoz-Sanchez continued.

That wasn't all the team discovered about this immense star, however. The scientists also found that WOH G64 isn't alone.

Live fast, die young … but not alone

At just 5 million years old, WOH G64 is a cosmic youngster in comparison to other stars such as our middle-aged, 4.6-billion-year-old sun, so it may seem a touch cosmically unjust that it is facing the end of its life. This is the case because massive stars such as this "live fast and die young," burning through their fuel supply needed for nuclear fusion more rapidly than modestly sized stars.

Though this short life span is true for all massive stars, the end stages of the lives of these stellar titans aren't quite so certain. For instance, not all red supergiants shed their outer layers as their cores contract to become yellow hypergiants.

"Yellow hypergiants are extremely rare because they represent a short-lived transitional phase between the red supergiant stage and the eventual supernova explosion," Muñoz-Sanchez said. "Consequently, only a small number of confirmed yellow hypergiants are currently known, amounting to just a few tens of objects."

For this yellow hypergiant transformation to happen, a massive star needs a stellar wind that is strong enough to strip away an outer envelope of previously shed stellar material, a process that drives up its temperature. However, only the brightest red supergiants can drive outflows of material powerful enough to trigger this transitional phase that leads eventually to the death of the star.

The team also found that the huge star actually is part of a binary system, existing with a companion star. This complicates the potential cause of its transformation if the main star is greedily dragging matter from its companion.

"Binary interactions may also play a crucial role in the formation of yellow hypergiants," Muñoz-Sanchez said. "If mass transfer or envelope stripping occurs in a binary system, the envelope of a red supergiant can be partially removed, potentially driving its evolution toward the yellow temperatures."

The researcher continued by explaining that in a binary-driven scenario, which sees the evolution of the star caused by interactions with its companion, the binary system would have been embedded in a common envelope, a cocoon of gas surrounding both stars that made it appear as a red supergiant. The partial ejection of this envelope would then reveal the two stars.

"Alternatively, even though the system is binary, the transition may have been driven by intrinsic stellar processes. In this case, the star may have undergone an extraordinary eruptive episode lasting more than 30 years and is now returning to a yellow, quiescent state," Muñoz-Sanchez added. "Both possibilities are extremely rare, and witnessing either occur on human timescales is nearly unprecedented."

Thus, the team does not yet know whether its evolution is a consequence of interactions between WOH G64 and its binary stellar companion or if the metamorphosis is intrinsic to the star itself.

"Recent observations suggest that some of the other extreme red supergiants may also be in binary systems," Muñoz-Sanchez explained. "Understanding whether the extreme properties of these stars arise from their intrinsic nature or from binary interactions is crucial for studying the populations of evolved massive stars, predicting their deaths, and interpreting the supernovas they produce, phenomena that are still not fully understood."

And understanding the binary nature of WOH G64 isn't just key to understanding its life; these details are integral to its death, too.

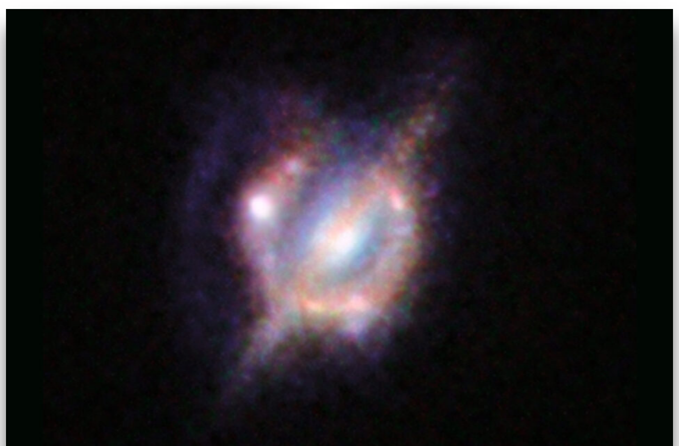
The continued exchange of mass between the stars could lead to their collision and the merger of the two components. However, if interactions between the stars are slight or non-existent, the main star would evolve toward core collapse, ultimately resulting in either a supernova explosion or direct collapse into a black hole. "In astronomical terms, WOH G64 appears to be a highly evolved system, and it is possible that it could undergo core collapse 'soon.' In this context, 'soon' corresponds to a timescale ranging from a hundred to a few thousand years," Muñoz-Sanchez said. "Such an event would be extraordinary, it remains highly unlikely that it will occur within our lifetime.

Although, of course, we are not even sure that this star will explode as a supernova.” ☀

Meet the Gigamaser—the Brightest Microwave Laser Ever Spotted in Deep Space

A lucky alignment of galaxies allowed researchers to identify the most powerful and distant "space laser" ever found.

By Gayoing Lee
GIAMODO, FEBRUARY 24, 2026



A composite image of the galaxy H-ATLAS J142935.3-002836, combining views from the Hubble Space Telescope and the Keck Observatory.

Space is full of odd light sources astronomers don’t quite understand, like double supernovas, weird blue flashes, random Venn diagrams, and more. And just when we thought we’d seen it all, there’s a new addition to the list—a natural "space laser" from the universe's early days.

Researchers using the MeerKAT radio telescope spotted an extremely bright, laser-like beam of microwave radiation—a "maser"—which they tracked back to a violent galaxy merger, designated H-ATLAS J142935.3–002836. The system, located more than 8 billion light-years away, would normally be too distant to detect. But a lucky alignment with an unrelated foreground galaxy boosted the already powerful signal, pushing it within MeerKAT's reach.

A paper detailing the findings has been accepted for publication in Monthly Notices of the Royal Astronomical Society and is currently available as a preprint on arXiv.

"This system is truly extraordinary," Thato Manamela, the study's lead author and a postdoctoral researcher at the University of Pretoria in South Africa, said in a release. "We are seeing the radio equivalent of a laser halfway across the universe."

Galactic lasers

Human-made lasers are focused, or coherent, streams of high-energy photons—light particles—that travel at the same frequency. Something similar can happen in space, when galactic collisions lead to extreme pressures that compress gas from both galaxies. Those conditions also stimulate tiny dust particles containing hydroxyl ions—molecules made of hydrogen and oxygen.

When powerful sources like black holes emit radio waves, already excited particles fall into a concentrated beam of light known as a hydroxyl maser. Such light sources have been observed before but are rather rare, mostly because they typically operate at wavelengths of about 7 inches (18 centimeters)—much longer than those in the optical spectrum.

A perfect alignment

The new discovery was truly serendipitous. Notwithstanding the general rarity of masers, the sheer distance between Earth and the galactic system would normally have made observing it nearly impossible. But when the team pointed MeerKAT at that section of the sky, it just so happened that a completely unrelated—yet perfectly aligned—galaxy passed in front of the faraway signal, acting as a gravitational lens to further amplify the maser.

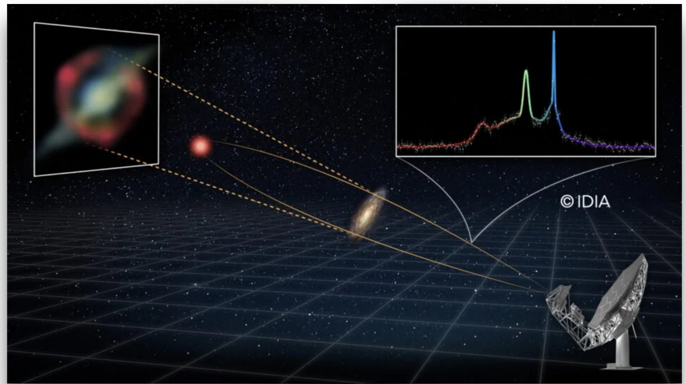


Illustration of the distant galaxy 8 billion light-years away (red), magnified by an unrelated foreground disk galaxy, resulting in a red ring.

"This galaxy acts as a lens—the way a water droplet on a windowpane would behave—because its mass curves the local space-time," Manamela explained. Essentially, we are "seeing it as it was when the universe was less than half its present age," the researchers added.

The first-ever gigamaser

The signal is seriously bright—so much so that it warrants its own category. If particularly bright masers until now were called "megamasers," the new signal is so luminous that it makes more sense to call it a gigamaser, the researchers said in the release.

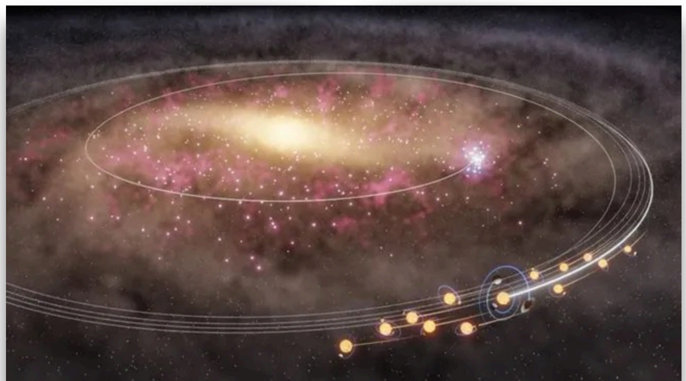
"This is about 100,000 times the luminosity of a star, but in a distant galaxy, concentrated into a very, very small part of the [electromagnetic] spectrum," Roger Deane, study co-author and an astrophysicist at the University of Pretoria, told New Scientist.

Masers, including this particular discovery, are often associated with particularly violent, dusty galactic mergers. As such, astronomers thought they could be useful markers for studying cosmic evolution. Accordingly, the team intends to continue the search for similar cosmic lasers, the study noted.

"This is just the beginning," Manamela said in the statement. "We don't want to find just one system—we want to find hundreds to thousands." ☀

A 'mass migration' of stars from the Milky Way's center could explain why there's life in our solar system

The Gaia telescope spotted more than 6,000 sunlike stars, all of which appear to have migrated from the galaxy's center more than 4 billion years ago.



An illustration of the Milky Way between 4 billion and 6 billion years ago, when the "migration" of sunlike stars was taking place.

By Elizabeth Howell
LIVESCIENCE, MARCH 12, 2026

Thousands of sun "twins" spotted by a space telescope could shed new light on how our star came to host at least one life-friendly world — and a big stellar migration was involved.

Researchers used data from the now-retired Gaia space telescope, a European Space Agency observatory that charted the movements of millions of stars in high definition from 2014 to 2025. The telescope yielded 6,594 stellar "twins" — stars with similar ages, temperatures, compositions and surface gravities as the sun — about 30 times more than previous surveys had found.

Moreover, most of these sibling stars were spotted in our sun's nearby neighborhood. Collectively, the samples tell of a mass movement of stars out of the galaxy's crowded center over billions of years.

"By studying a large population of these solar twins, we found evidence suggesting that many solar twins of the same age migrated through the Milky Way around the same time as the sun, giving us new clues about when and how the sun moved from its

birthplace to its current location," Daisuke Taniguchi, an assistant professor at Tokyo Metropolitan University who co-led the team with Takuji Tsujimoto from the National Astronomical Observatory of Japan, told Live Science in an email.

Migration of the stars

Taniguchi led one of the studies published Thursday (March 12) in the journal Astronomy & Astrophysics and co-authored the other. Together, the studies propose that when the central "bar" of stars and gas in the Milky Way formed, this process both enhanced

The Milky Way's central bar (yellow) is a dense region of stars that links our galaxy's spiral arms.

star formation and sent a number of stars into other regions of the galaxy. This formation and "migration," as the researchers called it, also included the sun.

"We propose that the formation of the Milky Way's central bar enhanced star formation and also triggered large-scale migration, leading to the formation and outward migration of the sun—and many solar twins," Taniguchi said.

Previous studies had noted that, based on its composition, the sun must have moved by at least a few thousand light-years out of the galaxy's center. But the issue is that the bar in the Milky Way serves as a "barrier" to stars moving so far away, some models show. The solution to this issue is to propose that the barrier formed only after all of the stars left the region, the scientists suggested.

"This scenario, if correct, could also provide new constraints on the epoch of the galactic bar formation," Taniguchi said. The researchers suggested that our galaxy's central bar took shape about 4 billion to 6 billion years ago. (The sun itself is roughly 4.5 billion years old, which puts it squarely within that time frame.)

Taniguchi pointed out that in the center of the Milky Way, supernovas and other kinds of "energetic events" tend to occur more frequently than in other regions — in part due to the extreme population density of stars there. This would make the inner parts of the galaxy potentially hostile to life. And that has implications for how life arose on Earth, as well as potentially other planets in the galaxy.

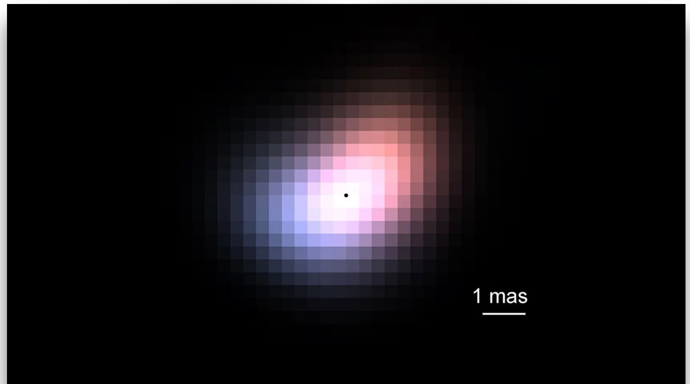
"If the sun migrated outward relatively soon after its birth, as our study suggests, the solar system may have spent most of its history in the quieter outer disk," Taniguchi said. "In other words, the sun may not have arrived in a life-friendly environment purely by chance, but rather as a consequence of the formation of the galactic bar." ☀

Astronomers just captured the sharpest view of a distant star ever seen

A revolutionary photonic lantern has unveiled hidden structure around a distant star, redefining how we see the universe.

SCIENCEDAILY, OCTOBER 25, 2025

A UCLA-led team has achieved the sharpest-ever view of a distant star's disk using a groundbreaking photonic lantern device on a single telescope—no multi-telescope array required. This technology splits incoming starlight into multiple channels, revealing previously hidden details of space objects.



Reconstructed image of the compact, fast-rotating asymmetric disc around β CMi. The white scale bar at the bottom right marks 1 milliarcsecond — equivalent to a 6 feet scale at the distance of the moon.

Key Takeaways

- **Sharper views from a single telescope:** Normally, astronomers link multiple telescopes together to get the clearest images of distant stars and galaxies. A UCLA-led team has now achieved record-breaking detail of the star *beta Canis Minoris* using just one telescope equipped with a breakthrough device called a photonic lantern.
- **How it works:** The photonic lantern divides starlight into many fine channels that capture subtle spatial patterns. Advanced computational techniques then combine these channels to rebuild a high-resolution image filled with details that would otherwise be lost.
- **A new frontier for astronomy:** This innovative approach could let scientists explore objects that are smaller, fainter, and farther away than ever before, offering fresh insight into the hidden structure of the universe and sparking new discoveries.

A Breakthrough View From a Single Telescope

For the first time, astronomers have used a new imaging method on a ground-based telescope to capture the most detailed look ever at the disk surrounding a distant star. Led by UCLA researchers, the achievement revealed hidden structures that had never been seen before. This breakthrough paves the way for scientists to study finer details of stars, planets, and other celestial objects, potentially transforming how we explore the universe.

A telescope's ability to reveal faint or distant objects depends on its size. Larger telescopes can collect more light, allowing them to see dimmer targets and produce sharper images. The highest levels of detail are usually reached by linking multiple telescopes together to form an array. Building these large instruments, or connecting them, has long been the key to achieving the precision needed for discovering new cosmic features.

Harnessing Light With a Photonic Lantern

Using a device called a photonic lantern, astronomers can now make better use of the light gathered by a telescope to produce extremely high-resolution images. The details of this breakthrough appear in *Astrophysical Journal Letters*.

"In astronomy, the sharpest image details are usually obtained by linking telescopes together. But we did it with a single telescope by feeding its light into a specially designed optical fiber, called a photonic lantern. This device splits the starlight according to its patterns of fluctuation, keeping subtle details that are otherwise lost. By reassembling the measurements of the outputs, we could reconstruct a very high-resolution image of a disk around a nearby star," said first author and UCLA doctoral candidate Yoo Jung Kim.

The photonic lantern divides the incoming light into multiple channels based on how the light wavefront is shaped, much like separating the notes of a musical chord. It also divides light by color, creating a rainbow-like spectrum. The device was designed and built by the University of Sydney and the University of Central Florida, and it forms part of the instrument FIRST-PL, developed and led by the Paris Observatory and the University of Hawai'i. This system is installed on the Subaru Coronagraphic Extreme Adaptive Optics instrument at the Subaru Telescope in Hawai'i, which is operated by the National Astronomical Observatory of Japan.

"What excites me most is that this instrument blends cutting-edge photonics with the precision engineering done here in Hawai'i," said Sebastien Vievard, a faculty member in the Space Science and Engineering Initiative at the University of Hawai'i who helped lead the build. "It shows how collaboration across the world, and across disciplines, can literally change the way we see the cosmos."

Pushing Beyond Traditional Imaging Limits

This method of separating and analyzing light enables a new way to see fine detail, achieving sharper resolution than traditional telescope cameras.

"For any telescope of a given size, the wave nature of light limits the fineness of the detail that you can observe with traditional imaging cameras. This is called the diffraction limit, and our team has been working to use a photonic lantern to advance what is achievable at this frontier," said UCLA professor of physics and astronomy Michael Fitzgerald.

"This work demonstrates the potential of photonic technologies to enable new kinds of measurement in astronomy," said Nemanja Jovanovic, a co-leader of the study at the California Institute of Technology. "We are just getting started. The possibilities are truly exciting."

At first, the researchers faced a major challenge: turbulence in Earth's atmosphere. The same shimmering effect that makes distant horizons appear wavy on a hot day causes starlight to flicker and distort as it travels through the air. To correct for this, the Subaru Telescope team used adaptive optics, a technology that continuously adjusts to cancel out these distortions and stabilize the light waves in real time.

"We need a very stable environment to measure and recover spatial information using this fiber," said Kim. "Even with adaptive optics, the photonic lantern was so sensitive to the wavefront fluctuations that I had to develop a new data processing technique to filter out the remaining atmospheric turbulence."

Exploring Beta Canis Minoris in Stunning Detail

The team put their technique to the test by observing the star beta Canis Minoris (β CMi), located about 162 light-years away in the constellation Canis Minor. This star is surrounded by a fast-spinning hydrogen disk. As the gas in the disk moves, the side rotating toward Earth appears bluer, while the side moving away looks redder, a result of the Doppler effect (the same phenomenon that changes the pitch of a moving car's sound). These color shifts slightly alter the apparent position of the starlight depending on its wavelength.

By applying new computational methods, the researchers measured these color-based position shifts with about five times more precision than ever before. In addition to confirming the rotation of the disk, they discovered that it is lopsided.

"We were not expecting to detect an asymmetry like this, and it will be a task for the astrophysicists modeling these systems to explain its presence," said Kim.

A New Way to See the Universe

This innovative approach will allow astronomers to observe smaller and more distant objects with unprecedented clarity. It may help solve long-standing cosmic mysteries and, as in the case of the lopsided disk around β CMi, uncover entirely new ones.

The project involved an international collaboration that included scientists from the Space Science and Engineering Initiative at the University of Hawai'i, the National Astronomical Observatory of Japan, the California Institute of Technology, the University of Arizona, the Astrobiology Center in Japan, the Paris Observatory, the University of Central Florida, the University of Sydney, and the University of California Santa Cruz. ☀

Library Telescope Donation

By Jerelyn Ramirez

The Topeka & Shawnee County Public Library (TSCPL) is the recipient of the Apertura 114mm telescope I won through the Astronomical League's 2025 library telescope drawing. The Apertura 114mm is a tabletop Newtonian telescope made by High Point Scientific (HPS). After finally receiving the telescope just two weeks ago I made arraignments with the library to deliver it.

Since 2019 I have won 4 of these telescopes and distributed them to various libraries. To date I have been instrumental at placing 37 telescopes and 23 binocular kits at 16 libraries across Kansas.

I had been negotiating with the Topeka Library for over 5 years about the library telescope program (LTP) with very mild interest on their part. Even though they were not that interested in the LTP, or maybe unsure how this would impact their library and their patrons, it did open the door to invite me to give public astronomy educational outreach for their library patrons, young and old. I've logged a total of 16 hours of public outreach to 500 Topeka library patrons since the introduction of the LTP. I even have an event scheduled for June 9th on Asteroids and Dinosaurs.

After I was notified by the Astronomical League that I won the 2025 Library Telescope drawing for the MSRAL section last July, I then reached out to the Topeka Library once again about the telescope program and offered them a free telescope, the telescope I just won. This indeed piqued their interest. I encouraged them to reach out to Sarah Kittrell of the Wichita Library, who has a very successful LTP with 17 telescopes available for circulation. As of this writing there are 9 people waitlisted to use the telescope. When their program first started in 2021, they had a waitlist of over 100 people wanting to use a telescope. These people were willing to wait months for their turn to explore the cosmos with one of their telescopes. I have spoken to a few library patrons who had the opportunity to use this telescope, and they told me, it was well worth the wait. Many have been repeating customers. The Topeka Library is now considering increasing their inventory to five telescopes when they launch their program.

Because Orion folded and the Zhumell products went out of production, we were left with no alternative telescope to take the place of the Orion 4.5" StarBlast and the 144mm Zhumell, the preferred telescope for the LTP.

High Point Scientific came on board last year to build a telescope that meets the Library Telescope's specific needs. It needed to be a low cost, high quality, easy to transport and use telescope. We wanted to have the telescope available completely modified for the library user right out of the box. This way the libraries can purchase them without having them modified by a participating local astronomy club. This meant that the Library Telescope Program took the extra step and officially became a non-for-profit organization and secured their 501c3 status last year. This strengthened the deal with HPS to work with the LTP to develop a telescope that meets our needs. Indeed, they have exceedingly done so. The LTP is now offering a Library Telescope

Ambassador Certification, the first class begins this April.

I donated the telescope I won on behalf of the Astronomy Associates of Lawrence and placed a sticker on the telescope saying as much. I have dual club membership with AAL and KAO (Kansas Astronomical Observers). Since TSCPL is much closer to AAL, it just made better sense. I made a QR code so the patrons who check out the telescope can see AAL's public outreach events that have been scheduled on the NSN calendar. This segways nicely to the next item I would like to share…

Many club members may not realize AAL is a member of the Night Sky Network (NSN) since 2017. There are many advantages and perks that come with being a member of the NSN. One of the many perks is the availability of free educational astronomy outreach toolkits. There are actually 16 of them that have been developed since 2004. The path to earning these toolkits from NSN is by holding educational astronomy outreach events and reporting these events to NSN. Once you meet the minimum criteria, they send you a free toolkit full of really cool activities with props, some with banners, and handouts to give to your guests. There are also videos and PowerPoint presentations that can be modified to your narrative however you see fit to keep it updated with new material and technology. This practice is encouraged since some of these were written in 2004.

My background with NSN; I am among the charter members of NSN when they first launched the program in 2004. KAO became members of NSN in 2004 just weeks after they launched. I've seen how NSN has evolved over the last 22 years. KAO has earned every toolkit and many other bonus prizes. The reason being of reporting the events on their NSN portal, is they want to see how astronomy clubs across the nation are using the toolkits, and how many people these activities impact the public. They don't want to give you an expensive toolkit and bonus prizes if you're not going to use them.

I was on the beta team when they upgraded their server on two occasions and helped with isolating bugs while offering many suggestions to their website that are being used today. I have been accredited of developing toolkit hacks when I submitted them for other clubs to have access to them as well. With that being said, I was able to reach out to the NSN administrators and ask them for a toolkit. I received it yesterday. The toolkit is *"Life in the Universe"* with 5 different activities and I'll be donating it to the AAL club. The activities are fun and thought provoking for ages 5 years on up.

One of the many perks being a member of NSN is the ability to subscribe to *Astronomy*, *Sky & Telescope*, and *Star Date* magazines. Once you have login access to NSN you can subscribe to one or all these magazines at a club discounted rate. That includes subscription renewals. You can renew with your current subscription at the new discount rate through the NSN portal.

The NSN website is more than a calendar where you advertise your scheduled events, a whole lot more. ☀

The Backyard Observer, April 2026

By Rick Heschmeyer

Hydra

Just to the south and east of the star Procyon, in CANIS MINOR, is located a ring-shaped asterism that makes up the "head" of this month's constellation, HYDRA, the Water Serpent. Not only is this sprawling constellation the largest of all the constellations it is also the longest, stretching nearly one-third the way around the celestial sphere! Yet in relation to its large size, HYDRA is poorly stocked with objects for the backyard observer.

Epsilon Hydrae is located at the top of Hydra's "head". It is a quadruple star system that in medium-sized amateur telescopes appears as a colorful double star whose components are yellow and blue.

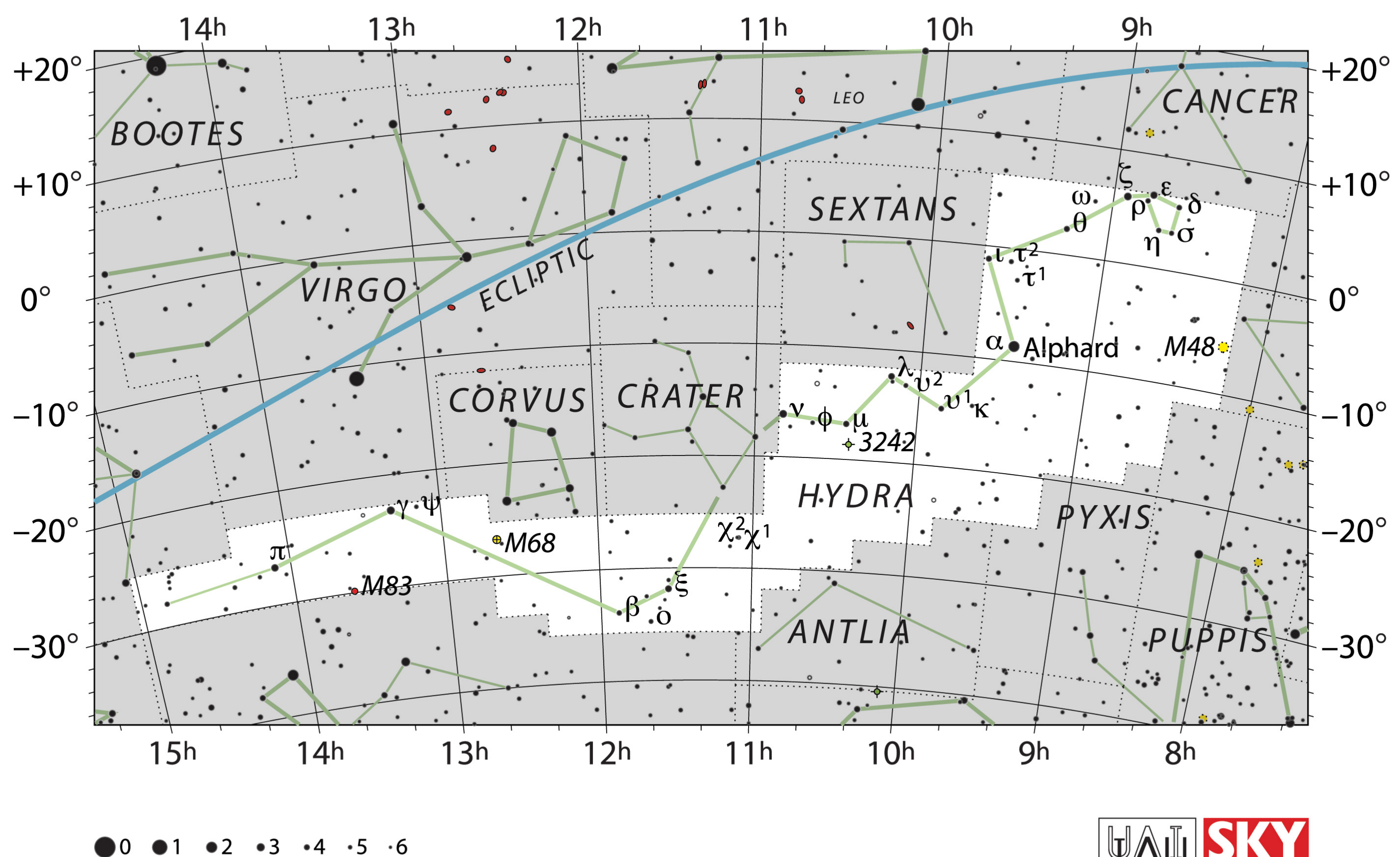
Messier 48 was long regarded as a missing Messier object. Nothing resides at the coordinates Messier reported for the open cluster. The nearest open cluster is NGC 2548, which lies several degrees to the south of Messier's spurious position. Yet from Messier's description of NGC 2548 there is little doubt that M48 and NGC 2548 are, in fact, one and the same and that Messier merely made an error in recording the cluster's position. Visible with any optical aid, the cluster's brightest members are concentrated in a line cutting across the cluster's center.

Messier 68 is a globular star cluster that can be seen in small telescopes as a fuzzy, slightly oval-shaped, glowing ball. Six-inch or larger apertures are needed to resolve any stars in this small, yet highly concentrated globular.

Messier 83 is one of the ten largest galaxies in the night sky and ranks in the top 25 in brightness as well. Messier 83 is a beautiful example of a face-on spiral galaxy. Unfortunately for northern hemisphere viewers it is very difficult to observe because of its low declination in the southern sky. In amateur telescopes Messier 83 appears as a fairly bright object with a slightly elliptical shape.

NGC 3242 is a planetary nebula more commonly known as the "Ghost of Jupiter" nebula since its apparent size if similar to the apparent size of the planet Jupiter. Visible in small telescopes, this planetary nebula glows with a distinct blue tint. In larger instruments a bright inner ring of gas surrounded by a faint outer shell can be viewed.

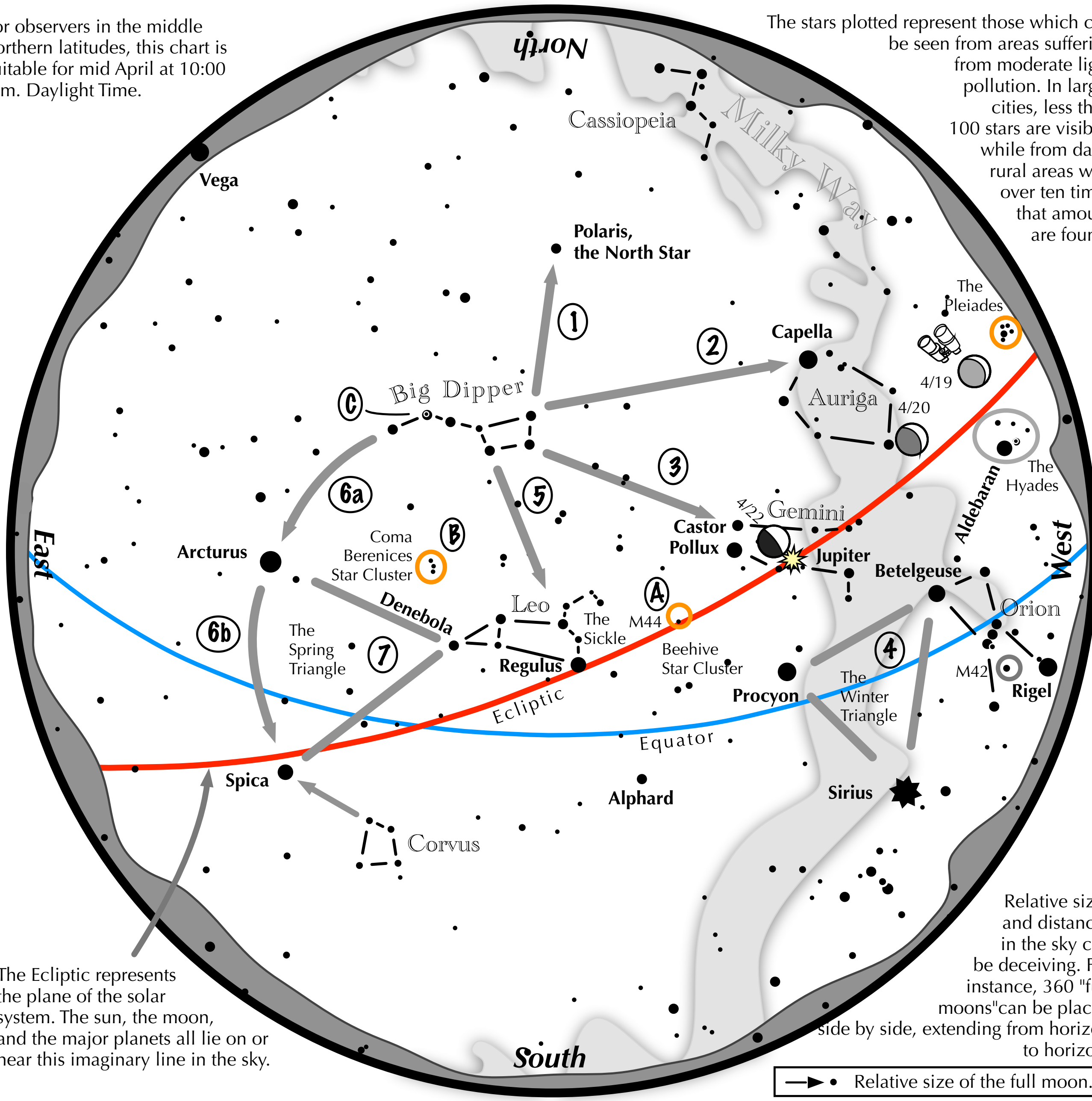
Because of its long length, HYDRA is visible in the evening sky from early spring until late summer, meaning that it can be enjoyed for many months to come.



Navigating the mid–April Night Sky 2026

For observers in the middle northern latitudes, this chart is suitable for mid April at 10:00 p.m. Daylight Time.

The stars plotted represent those which can be seen from areas suffering from moderate light pollution. In larger cities, less than 100 stars are visible, while from dark, rural areas well over ten times that amount are found.



The Ecliptic represents the plane of the solar system. The sun, the moon, and the major planets all lie on or near this imaginary line in the sky.

Relative sizes and distances in the sky can be deceiving. For instance, 360 "full moons"can be placed side by side, extending from horizon to horizon.

Relative size of the full moon.

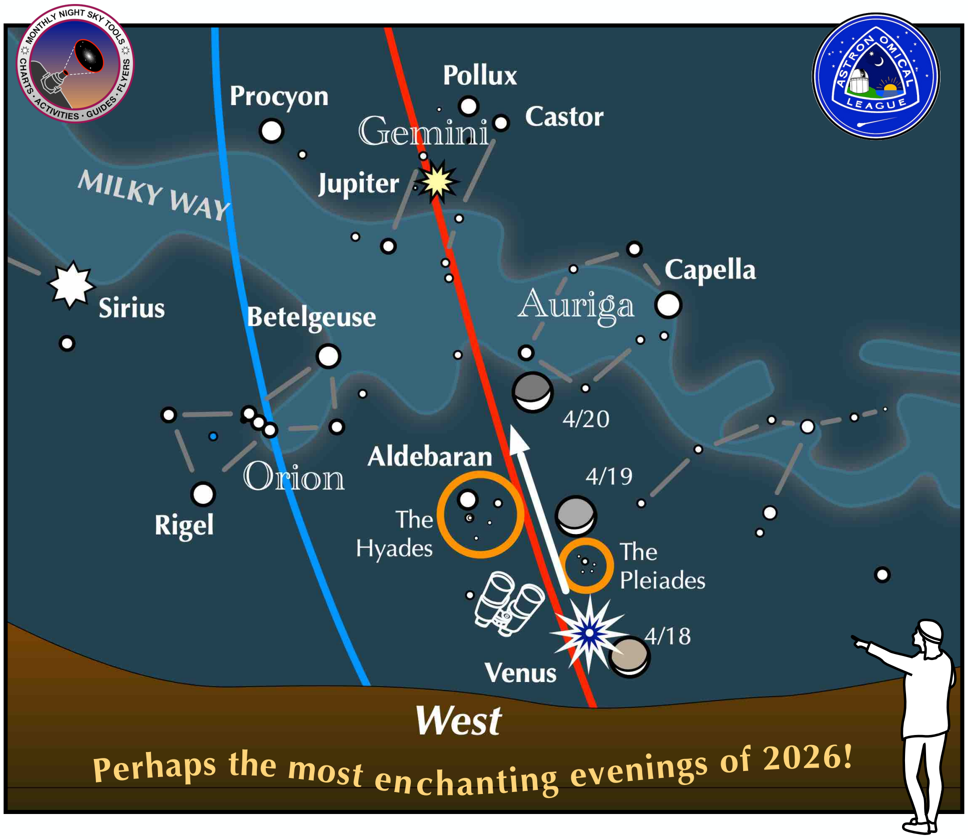
Navigating the April night sky: Simply start with what you know or with what you can easily find.

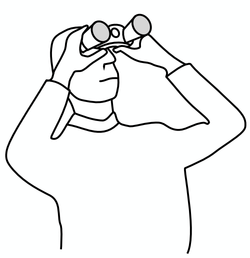
1 Extend an imaginary line north from the two stars at the tip of the Big Dipper's bowl. It passes Polaris, the North Star.
2 Draw another imaginary line west across the top two stars of the Dipper's bowl. It strikes Capella low in the northwest.
3 Through the two diagonal stars of the Dipper's bowl, draw a line pointing to the twin stars of Castor and Pollux in Gemini.
4 Look in the west-southwest for the bright Winter Triangle stars of Sirius, Procyon, and Betelgeuse.
5 Directly below the Dipper's bowl reclines the constellation Leo with its primary star, Regulus.
6 Follow the arc of the Dipper's handle. It first intersects Arcturus, then continues to Spica.
7 Arcturus, Spica, and Denebola form the Spring Triangle, a large equilateral triangle.

Binocular Highlights
A: M44, a star cluster barely visible to the naked eye, lies to the southeast of Pollux.
B: Look nearly overhead for the loose star cluster of Coma Berenices.
C: In the Big Dipper's handle shines Mizar next to a dimmer star, Alcor.

Astronomical League
www.astroleague.org

If you can see only one celestial event this April, see this one.





Enhance the scene – use binoculars!

www.astroleague.org

On April 18, 19, & 20, look low in the west-northwest 60 minutes after sunset.

- On the first evening, the crescent moon, glowing full with earthshine, floats near brilliant Venus, while on the second evening, it moves just above the delicate Pleiades star cluster, and to the right of the bright star Aldebaran and the intriguing Hyades star cluster.
- On the third evening, the slightly thicker, but more pronounced crescent moon hangs above the Pleiades and the Hyades.
- Above it all, bright Jupiter plows through Gemini, shining near Castor and Pollux.

About Astronomy Associates

The club is open to all people interested in sharing their love for astronomy. Monthly meetings are typically on the last Sunday of each month and often feature guest speakers, presentations by club members, and a chance to exchange amateur astronomy tips. These meetings and the public observing sessions that follow are scheduled at the Baker Wetlands Discovery Center, south of Lawrence. All events and meetings are free and open to the public. Periodic star parties are scheduled as well.

Because of the flexibility of the schedule due to holidays and alternate events, it is always best to check the Web site for the exact Sundays when events are scheduled.

Copies of the Celestial Mechanic can also be found on the web at newsletter.
Annual Dues for the club are: $12 for regular members; $6 for students Membership forms can be accessed at the club website form.