



**BATTLE POINT  
ASTRONOMICAL  
ASSOCIATION**

*Igniting passion for science through the lens of astronomy!*



Photo Credit: Frank Petrie

# THE OBSERVER

August 2024, Vol. 39

## Our Education Officer in the News!



Erin Howard in front of the Vera C. Rubin Observatory. Credit: Erin Howard

Recently, our very own Education Officer, Erin Howard, was featured in an article in the Kitsap Sun!

The article details the road to her current position as a Research Scientist working on the Vera C. Rubin Observatory, located at the summit of Chile's Cerro Pachón.

It also contains inputs from one of her mentors, Dr. Bob Abel. That name may sound familiar because he gave a talk on the Rubin Observatory at our May Second Saturday event!

Please take a few minutes to read the entire article at this link:

[Meet the Olympic College grad working on the groundbreaking Vera C. Rubin Observatory \(msn.com\)](https://www.msn.com/en-us/news/science/meet-the-olympic-college-grad-working-on-the-groundbreaking-vera-c.-rubin-observatory)

### Crane Day!

On July 25th, labeled as Crane Day, Millican Crane Service was onsite at the observatory to assist our team of volunteers in the long-awaited day of lifting (and lowering).

The tube and fork assemblies of the 27.5-inch Ritchie telescope were gently lowered into the storage shed at the side of the observatory. Later in the day, the roof to the shed was attached to safely store them.



Ritchie optical tube being lowered.



New CDK telescope being lifted.

Meanwhile, the crates containing our new Corrected Dall-Kirkham (CDK) telescope, its accessories, and its new pier were lifted to the roof. The pier was positioned in the dome, while the other crates were secured and weatherproofed.

Then the real heavy lifting started!

First the north half of the new arch was lifted and positioned.



North arch being lowered into position.



South arch being lowered into the dome.

Then the south half of the arch was positioned and mated with the north half.

Finally, the shutter assembly was lifted and positioned on the arches. We're still working out some kinks on the shutter movement.





Shutter being positioned on the arches.



Some of the team at the end of the day.

A HUGE "Thanks!" to all of those who worked on getting us to this point, and who are continuing the work on the shutter.

For a great video of the livestreamed event by our Chief Astronomer, Cole Rees, follow this link:

[The BIG LIFT! Replacing the old observatory shutter at BPAA](#)

And for some stunning video and images taken by John McKenzie with his drone, try this link:

[Telescope replacement at Edwin E Ritchie Observatory](#)

### BPAA at BI's Grand Old 4th!



BPAA sponsored a booth at the Bainbridge Island Grand Old 4th of July Celebration. An estimated 350 people came by, with 7 new members signing up. We also got 3 pages of email addresses for people who want our monthly newsletter. Success!

Frank Petrie, Peter Moseley, Grace Bonow, Winston Stauffer, Juan Vallarino, Deborah Milton and Denise Hidano were there as volunteers staffing the booth. Denise even met 3 people who knew Ed Ritchie firsthand and helped him with the telescope. Lots of fun facts "history".



### BI Parks Activities at Battle Point Park

BI Parks will continue its **Sounds of Summer Concert Series** every Wednesday at 6:30pm, and its **Movies in the Park Series** every Friday at 8:00pm. Details can be found at this link: [Events from July 31 – August 30 | Bainbridge Island Metro Park & Recreation District \(biparks.org\)](https://www.biparks.org/Events-from-July-31-August-30-Bainbridge-Island-Metro-Park-Recreation-District).

In conjunction with the Friday night movies, BPAA is planning on having telescopes available for viewing, positioned on the ridge near the sundial. We need some Astro Ambassador volunteers (see below) to assist with this activity, so please contact [President@bpastro.org](mailto:President@bpastro.org) to sign up.

### Discord Name Request from Frank Petrie and Cole Rees, BPAA Discord Admins

Many of you are members of our Discord server. But BPAA members are eligible to participate in some “Members Only” channels. To facilitate our ability to identify BPAA members, we’re asking you to use your real name on the server. Your current “handle” will still be valid, but using your name will make it easier for our admins to verify your membership and eligibility for those other channels.

### Planeteers Needed!

We are also still looking to train new Planeteers!

What is a Planeteer you might ask. It’s someone who has been trained to run our new planetarium system and manage presentations in the Rudolph Planetarium! For members that checked off “Operating the Rudolph Planetarium” as a volunteer interest, this is your opportunity to shine! And all Planeteers get a great BPAA-blue shirt!

The first step is to get connected to us on our Discord channel. If you are not already on the Discord, please join here: <https://discord.gg/YSeHM26e59>. After you’re on BPAA’s Discord, please tag or message Erin (@astronomyftw) so they can add the Planeteer role to your account. When you’ve joined the Discord and have the Planeteer role, you’ll have access to our team channel. All Planeteer information is kept in this channel: <https://discord.gg/BMQsfZ8d2r>.

And here are links to sign up for upcoming Planeteer training sessions:

**08/17:** <https://givebutter.com/WasidE>

**08/24:** <https://givebutter.com/vl8ObQ>

## **Astro Ambassador Volunteer Opportunity!**

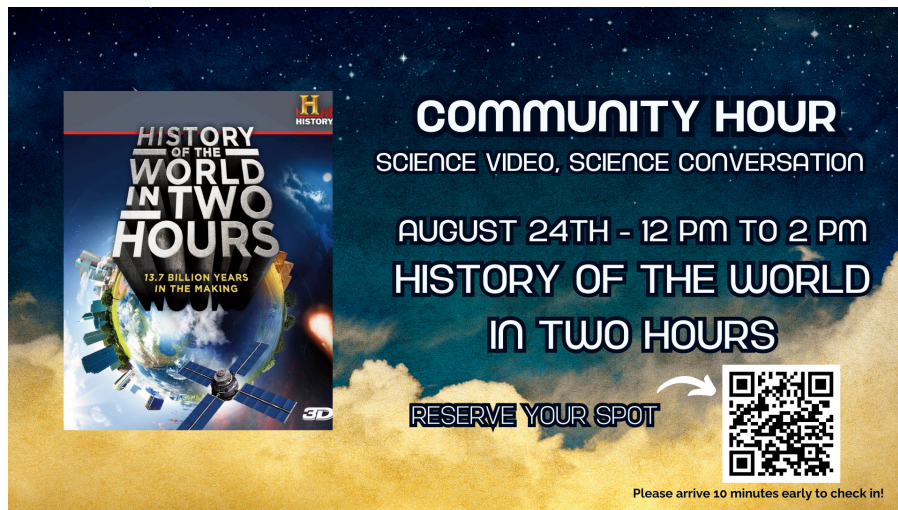
We are starting a new volunteer role, Astro Ambassadors, for members here at the Observatory. It is for individuals who would like to learn how to use basic visual telescopes AND help operate them at our public Star parties, pointing out different objects to the guests.

If anyone is interested in getting involved, they can email [astronomer@bpastro.org](mailto:astronomer@bpastro.org) or get in touch with Cole on discord. We have a dedicated chat on the discord for astro-ambassadors as well.

### **Telescope Tuesdays Every Tuesday, 10:00am - 2:00pm**

There's always a lot to do at the Ritchie observatory! Come on out every Tuesday, 10am to 3pm, and get involved. Learn how stuff works. Help make improvements. An enormous amount of progress has been made, but there's always more to do. And we might even have pizza! Come on out and support Telescope Tuesdays!

**Fourth Saturday Community Hour  
August 24th, 12:00pm to 2:00pm**



The poster features a central image of a DVD cover for 'History of the World in Two Hours' with the subtitle '13.7 BILLION YEARS IN THE MAKING'. To the right, the text reads: 'COMMUNITY HOUR', 'SCIENCE VIDEO, SCIENCE CONVERSATION', 'AUGUST 24TH - 12 PM TO 2 PM', 'HISTORY OF THE WORLD IN TWO HOURS', and 'RESERVE YOUR SPOT' with an arrow pointing to a QR code. At the bottom right, it says 'Please arrive 10 minutes early to check in!'.

BPAA welcomes you to our free, Fourth Saturday Community Hour where we'll show excerpts from a thought-provoking and informative science video followed by a rousing discussion. This month's discussion will center around an 88-minute History Channel DVD titled "History of the World in Two Hours" (which is only 88 minutes long since there are no commercials). We will be taking a stretch break at the 45-minute mark, and occasional pauses for quick discussions.

Proceeding from the Big Bang, the event that started it all, the video rapidly reviews through the major developments of the universe with stunning CGI visual effects. These developments include the first atoms and elements, the birth of stars, the formation of the Earth (and, just as important, the Moon), the earliest signs of life, the evolution of plants, the emergence on land of oxygen-breathing amphibians, the separation of Pangaea into different continents, the age of dinosaurs, and so on... all of it leading to the appearance of primate-like hominids some 7 million years ago. The second half of the program is devoted to human history, leading up to present day. Combining wonderful CGI effects and substantial commentary from an array of scientists, this engaging overview is a rapid-fire epic story that reveals surprising connections from the universe to our daily lives.

Come join us to get the whole story of where you came from and how you got here.

Sign up with the QR code above or at: <https://givebutter.com/1tKlkn>

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## WHAT'S UP(COMING)!

Source for events and links are [In-The-Sky.org](https://www.in-the-sky.org), Dominic Ford, Editor. The links provide details for each event including a scale on how difficult they are to observe.

[Aug 4](#) – New Moon

[Aug 6](#) – [Asteroid 16 Psyche at opposition](#)

– [Asteroid 7 Iris at opposition](#)

[Aug 12](#) – [Perseid meteor shower 2024 peak](#)

[Aug 13](#) – [Messier 15 is well placed](#)

[Aug 14](#) – [Conjunction of Jupiter and Mars](#)

– [Messier 2 is well placed](#)

[Aug 17](#) –  [\$\kappa\$ -Cygnid meteor shower 2024 peak](#)

[Aug 19](#) – Full Moon

[Aug 20](#) – [Conjunction of the Moon and Saturn](#)

[Aug 25](#) – [Close approach of the Moon and M45](#)

[Aug 27](#) – [Conjunction of the Moon and Jupiter](#)

– [Conjunction of the Moon and Mars](#)

[Aug 31](#) – [Aurigid meteor shower 2024 peak](#)

[Sep 2](#) – [Asteroid 194 Prokne at opposition](#)

– New Moon

[Sep 6](#) – [Mercury at highest altitude in morning sky](#)

[Sep 7](#) – [Saturn at opposition](#)

[Sep 9](#) – [September  \$\epsilon\$ -Perseid meteor shower 2024 peak](#)

[Sep 17](#) – Full Moon

– [Partial lunar eclipse](#)

– [Lunar occultation of Saturn](#)

– [Lunar occultation of Neptune](#)

[Sep 20](#) – [Neptune at opposition](#)

[Sep 22](#) – [September equinox](#)

– [Close approach of the Moon and M45](#)

[Sep 23](#) – [Conjunction of the Moon and Jupiter](#)

[Sep 25](#) – [Conjunction of the Moon and Mars](#)

[Sep 27](#) – [Daytime Sextantid meteor shower 2024 peak](#)

[Sep 29](#) – [Asteroid 20 Massalia at opposition](#)

[Oct 1](#) – [The Andromeda Galaxy is well placed](#)

[Oct 2](#) – New Moon

[Oct 3](#) – [NGC 253 is well placed](#)



Oct 5 – [October Camelopardalid meteor shower 2024 peak](#)

Oct 8 – [Draconid meteor shower 2024 peak](#)

Oct 10 – [Southern Taurid meteor shower 2024 peak](#)

Oct 11 –  [\$\delta\$ -Aurigid meteor shower 2024 peak](#)

Oct 14 – [Conjunction of the Moon and Saturn](#)

– [The Triangulum Galaxy is well placed](#)

Oct 17 – Full Moon

– [Asteroid 19 Fortuna at opposition](#)

– [136199 Eris at opposition](#)

Oct 18 –  [\$\epsilon\$ -Geminid meteor shower 2024 peak](#)

Oct 21 – [Conjunction of the Moon and Jupiter](#)

– [Orionid meteor shower 2024 peak](#)

Oct 23 – [Conjunction of the Moon and Mars](#)

Oct 24 – [Leonis Minorid meteor shower 2024 peak](#)

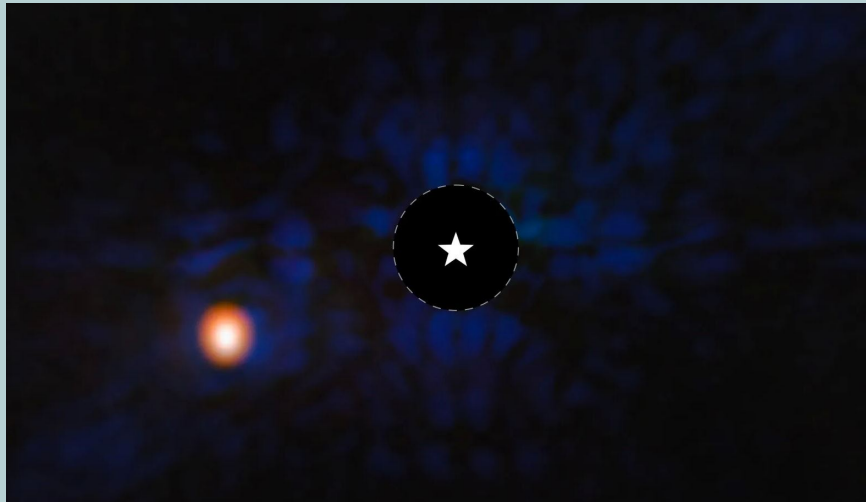
Oct 26 – [The Perseus Double Cluster is well placed](#)

Oct 27 – [Asteroid 1036 Ganymed at opposition](#)

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Here are some interesting things going on in Astronomy. If they pique your curiosity, please follow the link at the bottom of each for the full article!

### NASA's Webb Images Cold Exoplanet 12 Light-Years Away



This image of the gas-giant exoplanet Epsilon Indi Ab was taken with the coronagraph on NASA's James Webb Space Telescope's MIRI (Mid-Infrared Instrument). A star symbol marks the location of the host star Epsilon Indi A, whose light has been blocked by the coronagraph, resulting in the dark circle marked with a dashed white line. Epsilon Indi Ab is one of the coldest exoplanets ever directly imaged. Light at 10.6 microns was assigned the color blue, while light at 15.5 microns was assigned the color orange. MIRI did not resolve the planet, which is a point source. Credit: NASA, ESA, CSA, STScI, E. Matthews (Max Planck Institute for Astronomy)

An international team of astronomers using NASA's James Webb Space Telescope has directly imaged an exoplanet roughly 12 light-years from Earth. The planet, Epsilon Indi Ab, is one of the coldest exoplanets observed to date.

The planet is several times the mass of Jupiter and orbits the K-type star Epsilon Indi A (Eps Ind A), which is around the age of our Sun, but slightly cooler. The team observed Epsilon Indi Ab using the coronagraph on Webb's MIRI (Mid-Infrared Instrument). Only a few tens of exoplanets have been directly imaged previously by space- and ground-based observatories.

"Our prior observations of this system have been more indirect measurements of the star, which actually allowed us to see ahead of time that there was likely a giant planet in this system tugging on the star," said team member Caroline Morley of the University of Texas at Austin. "That's why our team chose this system to observe first with Webb."

"This discovery is exciting because the planet is quite similar to Jupiter — it is a little warmer and is more massive, but is more similar to Jupiter than any other planet that has been imaged so far," added lead author Elisabeth Matthews of the Max Planck Institute for Astronomy in Germany.

(Sources: [NASA Science](#))

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## A Moon of Uranus Could Have a Hidden Ocean, James Webb Space Telescope Finds



An illustration shows the moon Ariel orbiting the ice giant Uranus. (Image credit: Robert Lea (created with Canva)/NASA)

Using the James Webb Space Telescope (JWST), astronomers discovered that Ariel, a moon of Uranus, could be hiding in a buried liquid water ocean.

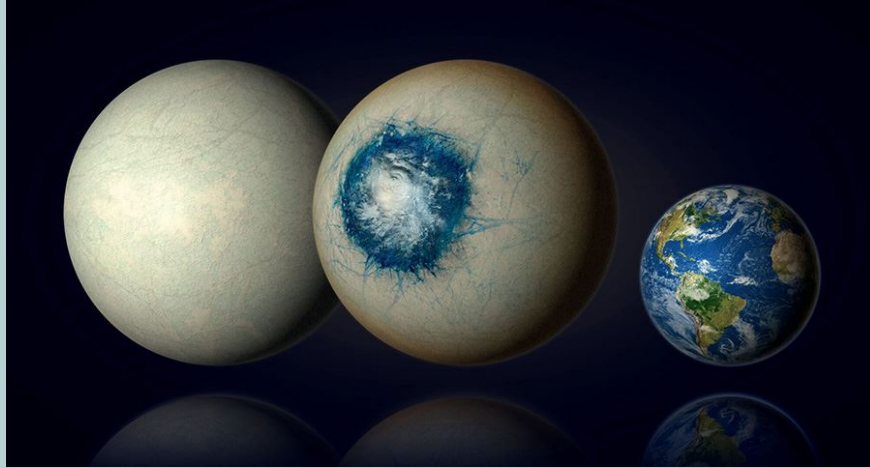
The discovery could supply an answer to a mystery surrounding this [Uranian moon](#) that has perplexed scientists: the fact Ariel's surface is covered with a significant amount of carbon dioxide ice. This is puzzling because at the distance [Uranus](#) and its moons exist from the sun, 20 times further out from [the sun](#) than [Earth](#), carbon dioxide turns to gas and is lost to space. This means some process must refresh the carbon dioxide at the surface of Ariel.

Previous theories have suggested this happens as a result of interactions between Ariel's surface and charged particles trapped in [Uranus' magnetosphere](#) that provide ionizing radiation, breaking down molecules and leaving carbon dioxide, a process called "[radiolysis](#)."

(Source: [space.com](#))

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## A Closer Look at a Potential "Eyeball Planet"



Temperate exoplanet LHS 1140 b may be a world completely covered in ice (left) similar to Jupiter's moon Europa or be an ice world with a liquid substellar ocean and a cloudy atmosphere (centre). LHS 1140 b is 1.7 times the size of our planet Earth (right) and is the most promising habitable zone exoplanet yet in our search for liquid water beyond the Solar System. Credit: B. Gougeon/University of Montreal

New James Webb Space Telescope observations of LHS 1140b hint at a temperate water world with a nitrogen-rich atmosphere.

Imagine a world hospitable to life, with a single temperate ocean surrounded on all sides by ice. This "eyeball planet" might sound straight out of science fiction, but it is entirely possible — and astronomers think they might have found such a world in LHS 1140b.

Located only 49 light-years away in the constellation Cetus, LHS 1140b is one of the closest discovered planets that lies within its star's habitable zone — the region where a planet could retain liquid water.

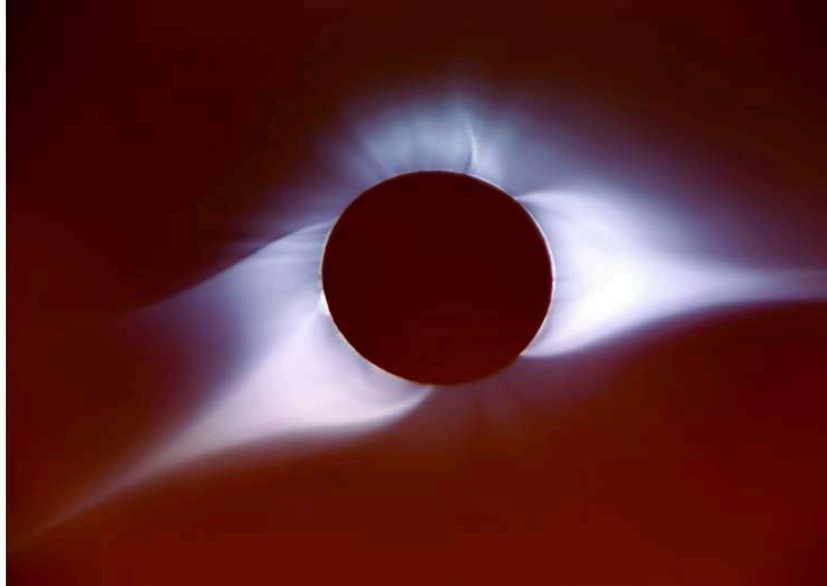
In a paper published in *Astrophysical Journal Letters*, researchers analyzed atmospheric data from the James Webb Space Telescope's Near Infrared Imager and Slitless Spectrograph, finding hints that LHS 1140b could host a nitrogen-rich atmosphere.

Added to the team's previously published conclusions that this world might be made of water ice, the hints of nitrogen-based air would allow for oceans on this planet's surface. It's also possible, because LHS 1140b always faces the same side toward its star, that the world could be largely icy, with a temperate ocean only on its dayside — making it look like an "eyeball planet."

(Source: [skyandtelescope.org](https://skyandtelescope.org))

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## Why The Solar Corona Is So Much Hotter Than Sun's Surface



The corona, or solar atmosphere, a region that extends 8 million kilometers above the sun's surface and is characterized by extraordinarily high temperatures. Credit: CSPAR

In a [new study](#), published in *The Astrophysical Journal*, a researcher from The University of Alabama in Huntsville (UAH), a part of the University of Alabama System, explores critical aspects of a phenomenon called kinetic Alfvén waves (KAWs) to provide fresh insights into an age-old heliophysics mystery.

Syed Ayaz, a graduate research assistant at the UAH Center for Space Plasma and Aeronomic Research (CSPAR), examined the potentially pivotal role of KAWs in heating the solar corona, moving science one step closer to solving the puzzle of why the corona is many times hotter than the surface of the sun itself.

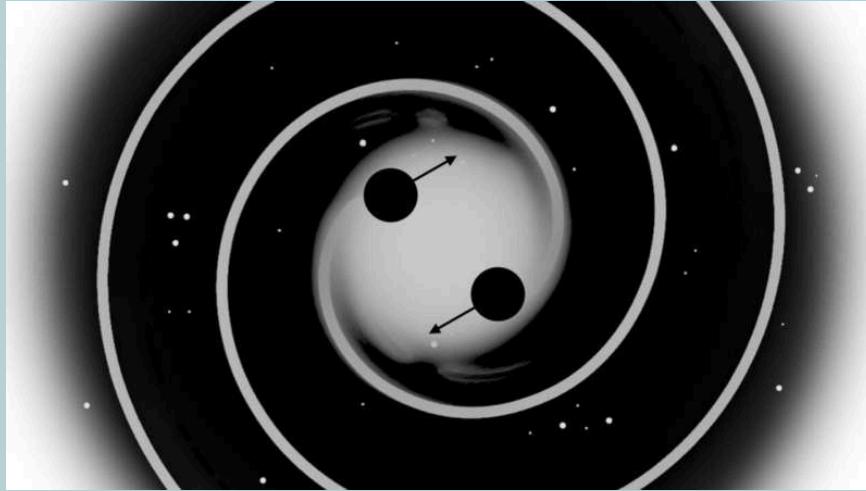
"For decades, Alfvén waves have been proven to be the best candidates for transporting energy from one place to another," Ayaz says, noting the potential role of KAWs in driving coronal heat.

(Source: [phys.org](#))

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## New Study Uses Self-Interacting Dark Matter to Solve the Final Parsec Problem



Illustrative representation of a black hole binary immersed in a dark matter spike at the center of a galaxy. Credit: Original image: [NASA science.nasa.gov/resource/spiral-galaxy-blue/](https://www.nasa.gov/resource/spiral-galaxy-blue/). Modified by Alvarez, Cline, and Dewar.

In a new study, scientists from Canada have proposed a solution to the final parsec problem of supermassive black hole (SMBH) mergers using self-interacting dark matter.

When two galaxies merge, gas and dust collide, leading to star formation. However, the stars themselves don't collide due to their vast distances. The SMBHs at the center of the two galaxies also begin to merge.

However, the merger of the [black holes](#) stalls when they are 1 parsec (or 30.9 trillion kilometers) apart. This problem is known as the final parsec problem in astronomy and astrophysics.

The study, [published](#) in *Physical Review Letters (PRL)*, attempts to solve this problem and explain the gravitational wave spectrum observed in 2021 by the Pulsar Timing Array collaborations.

Phys.org spoke to the first author of the study, Dr. Gonzalo Alonso Alvarez, a postdoc at the University of Toronto.

Speaking of the motivation behind the team's work, he said, "What struck us the most when Pulsar Timing Array collaborations announced evidence for a gravitational wave spectrum is that there was room to test [new particle](#) physics scenarios, specifically [dark matter](#) self-interactions, even within the standard astrophysical explanation of supermassive black hole mergers."

(Source: [phys.org](https://phys.org))

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## Deep Space Really Is Completely Dark, New Horizons Shows



This region of space, viewed first iconically by Hubble and later by JWST, shows an animation that switches between the two. Both images still have fundamental limitations, as they were acquired from within our inner Solar System, where the presence of zodiacal light influences the noise floor of our instruments, and cannot easily be removed. [Credit:](#) NASA, ESA, CSA, STScI, Christina Williams (NSF's NOIRLab), Sandro Tacchella (Cambridge), Michael Maseda (UW-Madison); Processing: Joseph DePasquale (STScI); Animation: E. Siegel

From inside our Solar System, zodiacal light prevents us from seeing true darkness. From billions of miles away, New Horizons finally can.

The darkest night skies, both from Earth as well as from interplanetary space, aren't completely dark, as sunlight reflected off of tiny particles always generates light pollution.

However, by traveling billions of miles away from the Sun, this pollutive zodiacal light can be left behind, enabling astronomers to measure how dark the depths of intergalactic space truly is.

In a stunning find from New Horizons, they overturn a previous study that suggested a "cosmic optical background" existed atop the light from known galaxies. Deep space truly appears to be completely dark.

(Source: [Big Think](#))

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### 2024 Officers

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Chief Astronomer - Cole Rees  
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Facilities Officer - Denise Hidano  
Education Officer - Erin Leigh Howard  
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