



**SALT LAKE  
ASTRONOMICAL  
SOCIETY  
NOVA**



VOL. 54 NO.5  
SEPT/OCT 2024

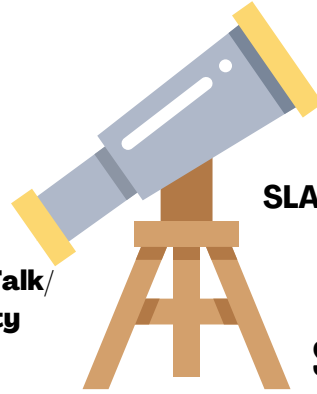


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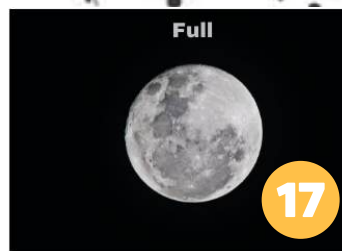
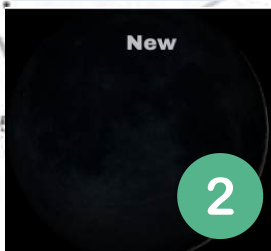


### MOON PHASES

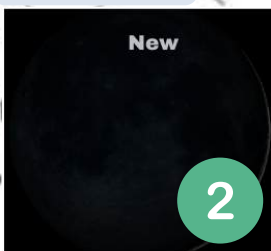
SOURCE: MOONPHASES.ORG

Utah, (Calculated Time Zone: America/Denver (MST), GMT-07:00)

#### SEPTEMBER 2024



#### OCTOBER 2024





# SLAS OFFICERS

## SLAS Board of Directors

President: Don Abernathy

Vice President: Aleta Cox

Secretary/Treasurer: Krista Lemoine

Board Members at Large: Trevor Hebditch and Marlene Egger

### Appointed Positions

Astronomical League Contact: Aleta Cox

Equipment Manager: Trevor Hebditch and Aleta Cox

Library Loaner Telescope Coordinator: Joan Carman

Historian: Patrick Wiggins

NASA Night Sky Ambassador: Krista Lemoine

Nova Newsletter Editor: Jenette Scott

Observatory Director: Jim Keane

Private Star Party Coordinator: Don Colton

Solar Party Coordinator: Louis Maez

Webmaster: Ken Warner

ZAP Grant Writer: Jim Keane



### SPOC Advisory Committee

Chair: Jim Keane

Members: Don Abernathy, Bob Moore, Patrick Wiggins, Luke Moses, Jim Keane, John Drabik, Leslie Fowler, Bill Kennedy.

Members As Obser. Dir. Emeritus: Bruce Grim, Rodger Fry.

### SPOC Telescope Instruction Coordinators

Bogdan Refractor: Marlene Egger

Ealing: Jim Keane

Grim: Rodger Fry

Clements: Leslie Fowler



Contact board: [board@slas.us](mailto:board@slas.us)

contact editor: [astrobug3027@gmail.com](mailto:astrobug3027@gmail.com)

# Meet the 2024 SLAS Election Candidates

## Presidential Candidate: Trevor Hebditch

Astronomy has been a passion of mine since childhood. I joined the High Wycombe Astronomical Society in England at the age of 16, where I actively participated in its operations and gave talks across the country. I also became a member of the Society for Popular Astronomy (SPA), the British Astronomical Association (BAA), and earned the honor of becoming a Fellow of the Royal Astronomical Society (FRAS). However, in my early twenties, after moving to Switzerland for work, I stepped away from astronomy due to the demands of work, travel, and family life.

In February 2023, following some personal life changes, I reignited my passion for astronomy by joining SLAS. Since then, I've been committed to contributing actively to the society and other local groups. Currently, I serve as a Board Member At Large and co-Equipment Loan Manager alongside Aleta, and I regularly attend many of the society's events.

This year, I am submitting my candidacy for President of SLAS. Over the past year, I have gained valuable knowledge and demonstrated my motivation to help guide the society in the coming year.

Professionally, after a long and diverse international career in both technical and management roles within the private sector, I now serve as the Associate Director of Enterprise Architecture for Information Technology at Salt Lake County. In this role, I advise on technological advancements and oversee large-scale projects aimed at improving the county's systems.



## Vice-Presidential Candidate: Jenette Scott

I am honored to be a candidate for Vice-President of the Salt Lake Astronomical Society. I serve as the Salt Lake Astronomical Society Nova Newsletter Editor, Co-NASA Night Sky Network Coordinator with SLAS secretary/treasurer Krista Lemoine, and the Observation Coordinator for the 2025 ASTROCON in Bryce Canyon.

I have had a passion for astronomy since I was a little girl. I grew up in Moab under one of the darkest skies in Utah. I participated in the Grand County School District's science club and went on the astronomy field trips provided. I am a Snow College and University of Utah alum with an education in science and mathematics.

My journey with the Salt Lake Astronomical Society began over 5 years ago. Over these years, I have been actively involved in outreach, teaching, continuing my education in astronomy, writing the SLAS Nova Newsletter, and putting together the observation guide for the 2025 ASTROCON, which have drawn on my skills and understanding of astronomy, use of a telescope and other scientific equipment, learning astrophotography, graphic design for science, and making connections with and educating the public; especially the youth.

My involvement with SLAS has helped me gain insights into our goals and member needs which have equipped me with the skills needed to contribute effectively to our organization.

I am known for my knowledge, organizational skills, pride in my work, attention to detail, integrity, dependability, problem-solving skills, ability to learn new skills, and ability to work well with a team. I am committed to bringing these values to the role of SLAS Vice-President.

If elected, my primary goals are to help enhance member engagement and help SLAS move into the future strong and stable. By focusing on public outreach, hosting a yearly star party event, and working with libraries and schools, we can achieve significant progress and growth and become a very well-known astronomy club.

Thank you for considering my candidacy. I am excited about the opportunity to serve SLAS in this capacity and to work together toward a prosperous future.

## **Board Member At Large: Max Byerly**

I am honored to be considered for the Board Member at Large position for SLAS. I currently work with SLAS as the Observation Coordinator for ASTROCON 2025, as well as recently formed the proposal for an annual dark sky star party.

When I was 15 years old, my father took me out to an observatory that was only a few minutes from the house. Out there, I met an older gentleman, named Bill, that showed me the Ring Nebula, Saturn, and other celestial wonders. That instantly got me hooked into astronomy and I knew I had to get a telescope. Bill showed me how to use his Meade 10" LX200 for months on end, how to find objects, read a star chart, and even how to watch the moons transit Jupiter's surface. He used to let me borrow a small Bushnell reflector to take home and learn the night sky and report back whatever I found that we could look at on a larger instrument. He used to tell me "When I'm gone, inspire some new just like you were as a kid." I've taken that to heart, and I have spread the love of this hobby the best way I can. I served on the board of the Astronomical Society of Harrisburg and the Cherry Springs Star Party Committee for many years.

I moved to Utah in 2018, where I joined SLAS, and started participating in outreach events, sun parties, and the annual dinner bash that we host. The club is very diverse, with people from all backgrounds and educations. Astronomy runs in all of us, and I'd like to serve on the board to give SLAS some forward-thinking ideas. The club is our bread and butter, and we need to think about what is next for the club. I'd like to serve on the board to help with member engagement, formulate the star party, enhance outreach, and push SLAS to become an even bigger club. We have so much potential as a club, and all we need is to let it loose. Together we can all tailor SLAS to be a place we all call a second home.

Thank you for considering my candidacy for Board Member at Large. I am honored by the opportunity to serve SLAS in a new way to help forward the club to new places. Thank you for your consideration.

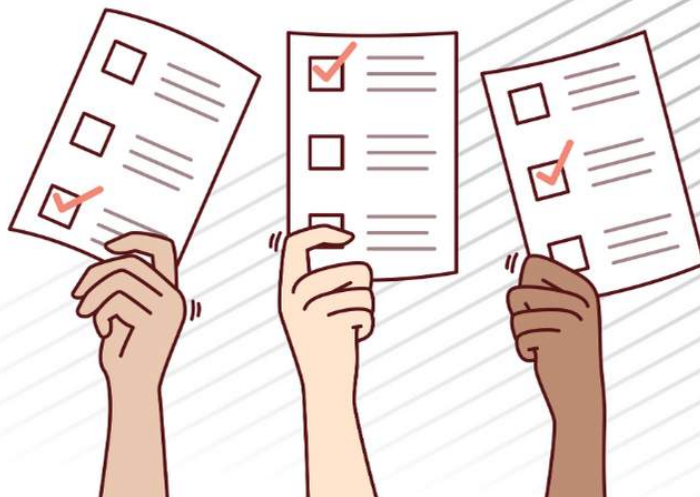


# SLAS ELECTIONS ARE OPEN

Voting is online and it is easy peasy!

SLAS members can vote for new SLAS officers by going to [slas.us](https://slas.us) in your search browser and logging in with your membership username and password. The ability to vote pops up once you log-in.

Please, DO NOT write-in anyone on the ballot unless you have talked to individual personally first, and they have consented to be written in.



# SLAS EVENTS PAGE



Come to a  
Star Party!!  
[www.slas.us](http://www.slas.us)



The Salt Lake Astronomical Society invites you to join us at a FREE public Star Party or Sun Party! Enjoy views of the Sun, Moon, Planets, Stars, Nebulae, and Galaxies through some of Utah's largest telescopes.

## 2024 Star & Sun Party Schedule & Locations

APR	20 <sup>th</sup>	SPOC*
APR	27 <sup>th</sup>	Sun Party- Winchester Park (6400 S. 1100 West)
MAY	11 <sup>th</sup>	SPOC*
MAY	17 <sup>th</sup>	SL Co. Library <b>Taylorsville Branch</b> 4870 S. 2700 West, Taylorsville, UT
MAY	18 <sup>th</sup>	SPOC*
MAY	25 <sup>th</sup>	Sun Party- Winchester Park (6400 S. 1100 West)
JUN	1 <sup>st</sup>	SPOC*
JUN	5-8 <sup>th</sup>	Bryce Canyon Astronomy Festival
JUN	14 <sup>th</sup>	SL Co. Library <b>South Jordan Branch</b> 10673 S. Redwood Rd., South Jordan, UT
JUN	15 <sup>th</sup>	SPOC*
JUN	22 <sup>nd</sup>	Sun Party- Winchester Park (6400 S. 1100 West)
JUN	29 <sup>th</sup>	SPOC*
JUL	12 <sup>th</sup>	SL Co. Library <b>Granite Branch</b> 3331 So. 500 East, South Salt Lake, UT
JUL	13 <sup>th</sup>	SPOC*
JUL	17-20 <sup>th</sup>	Astronomical League Convention- Kansas City
JUL	20 <sup>th</sup>	Sun Party- Winchester Park (6400 S. 1100 West)
JUL	27 <sup>th</sup>	SPOC*
AUG	9 <sup>th</sup>	SL Co. Library <b>Riverton Branch</b> 12877 So. 1830 W., Riverton, UT (accessible from Redwood Road is easier to find)
AUG	10 <sup>th</sup>	SPOC* <b>Stansbury Days</b>
AUG	17 <sup>th</sup>	Sun Party- Winchester Park (6400 S. 1100 West)
AUG	24 <sup>th</sup>	SPOC*
SEP	7 <sup>th</sup>	SPOC*
SEP	13 <sup>th</sup>	SL Co. Library <b>Herriman Branch</b> 5380 W. Herriman Main St., Herriman, UT
SEP	14 <sup>th</sup>	SPOC*
SEP	21 <sup>st</sup>	Sun Party- Winchester Park (6400 S. 1100 West)
OCT	11 <sup>th</sup>	SL Co. Library <b>Holladay Branch</b> 2150 E. Murray-Holladay Rd., Holladay, UT
OCT	12 <sup>th</sup>	SPOC*
OCT	19 <sup>th</sup>	Sun Party- Winchester Park (6400 S. 1100 West)
OCT	26 <sup>th</sup>	SPOC* (final star party of the year)

\*Stansbury Park Observatory Complex



Star Parties run from Dusk until:  
10 PM in Apr, May, Sept, Oct  
11 PM in Jun, Jul, Aug.  
Sun Parties are from 9AM – Noon.

All Sun & Star Parties are Weather Permitting.  
See you under a clear Sky



## General Meeting Information

BOARD MEETINGS ARE FOR SLAS BOARD MEMBERS AND ARE OPEN TO ANY MEMBER OF SLAS TO ATTEND. PLEASE NOTE THAT ONLY BOARD MEMBERS MAY VOTE AT BOARD MEETINGS. BOARD MEETINGS TAKE PLACE ON THE 2ND WEDNESDAY OF EACH MONTH AT 7:30 PM LOCATED AT THE DENNY'S RESTAURANT ON 1701 WEST NORTH TEMPLE STREET SALT LAKE CITY, UTAH 84116 (WE MEET IN THE BACK MEETING ROOM)

GENERAL MEETINGS FOR SLAS MEMBERS TAKE PLACE ON THE 3RD WEDNESDAY OF EACH MONTH (WITH THE EXCEPTION OF DECEMBER WHEN THE SOLSTICE PARTY AT THE BEGINNING OF DECEMBER TAKES THE PLACE OF THE GENERAL MEETING ) AT 7:30 PM LOCATED AT ROOM TB104, RAMPTON TECHNOLOGY BUILDING, SALT LAKE COMMUNITY COLLEGE REDWOOD ROAD CAMPUS PARKING IS ACROSS THE STREET TO THE NORTH OF THE BUILDING IN PARKING LOT 'R'. GENERAL MEETINGS ARE OPEN TO THE PUBLIC.

- **Sept 11**- Board Meeting
- **Sept 18**- General Meeting
- **Oct 09** -Board Meeting
- **Oct 16**- General Meeting

Please see the info above for the place and time for meetings as well as the webpage: [slas.us](http://slas.us) for more information.

**PLEASE NOTE:** Zoom is no longer available for these meetings unless the guest speaker is joining us virtually.





# SLAS Astronomical League Observation Program Awards

At the SLAS August general meeting, Aleta Cox presented Krista Lemoine with the Astronomical League's Parker Solar Probe Special Observing Award and the Universe Sampler Observing Award. Way to go Krista! Congratulations!!







## SLAS General Meeting Guest Speakers

### September 18, 2024 – **Dr. Joseph Jensen**



Dr. Joseph Jensen

Dr. Joseph Jensen is an infrared astronomer who studies the expansion of the universe. He has been a professor of physics and astronomy at Utah Valley University for the past 15 years. Before that he worked at the international Gemini Observatory in Hawaii, where he helped develop new instrumentation for the twin 8-m telescopes. He got his Ph.D. in astronomy from the University of Hawaii Institute for Astronomy.

**Crisis in Cosmology: Resolving the "Hubble Tension" with JWST**

Dr. Joseph Jensen, Utah Valley University

Twenty-five years ago, astronomers discovered that the expansion of the universe is accelerating and concluded that 95% of the universe is composed of unidentified forms of matter and energy that we now call "dark matter" and "dark energy". Even though we don't know what they are, the model of the universe has been extremely successful and describing how the universe behaves. Recent observations of distances in the universe, however, disagree strongly with the scale of the universe predicted by the accepted model of the universe, and we don't know why. Either our model of the universe is wrong in some major way, or our knowledge of astrophysics of how stars work is way off. The key to determining where the problem lies is removing as many sources of systematic uncertainty as possible. Data from the James Webb Space Telescope obtained this year are giving us a new look at elliptical galaxies in the relatively nearby universe (out to 65 million light years) where we can now see individual stars with JWST. That allows us to connect reliable stellar distance measurements techniques with galaxy-based techniques that extend out to hundreds of millions of light years, where hopefully we will find the answer to this big mystery...or perhaps make it worse!

### October 16, 2024 – **Dr. Robert Zellem**



Dr. Robert Zellem

Dr. Robert Zellem is an astrophysicist at NASA's Goddard Space Flight Center. Rob is the Deputy Project Scientist for Communications for NASA's Nancy Grace Roman Space Telescope where he is the primary liaison between the Roman Project Science team and Goddard's Office of Communications. He is also a member of the Roman Coronagraph Project Science team where he led the development of the science calibration plan. Dr. Zellem presented an insightful discourse to SLAS members at the August General Meeting, centered on the Nancy Grace Roman Telescope, NASA's next flagship mission. He has graciously consented to address the SLAS membership once more, focusing on his research specialty, exoplanets.



## Say Hello to Our New

Hi!

## Members!



**Tayla Andresen**

**Chelsea Dell**

**Laura Finch**

**Richard Lucy**

**Kevin Seegmiller**

**William Knight**



**At SLAS, we are observational astronomers who:**

**\*Promote astronomy\***

**\*Encourage public education and interest\***

**\*Coordinate activities with professional research\***

## Featured Astronomical Documentary



PBS NOVA Series

“The Telescope | Breakthrough: The Ideas That Changed the World”

Originally aired in 2019, this episode of NOVA will take the viewer on a journey to, “Meet the brilliant minds throughout history, from Galileo to Edwin Hubble, who was responsible for creating the telescope. Their invention allows humanity to reach the furthest limits of seeing – 13 billion light-years out.” (PBS NOVA descriptor)

This 55-minute documentary narrated by Sir Patrick Stewart, will take the viewer on a fascinating journey through the beginnings of night sky observation, from stone formations to the building of the first telescopes. This is a perfect Plan B for those cloudy nights when the astronomer can't be out with the telescope. To view this featured documentary, click [here](https://youtu.be/eChiW3coNcY?feature=shared), copy and paste the following address in your web browser (<https://youtu.be/eChiW3coNcY?feature=shared>), or scan the QR code below.



THE TELESCOPE

DarkSky Advocate Action

# Engaging Young People in Light Pollution

September 5th • 10am PDT (5pm UTC)  
& 5pm PDT (12am UTC)

Featured Speakers: Waleska Valle, Teen Programs Manager of Far Horizons at the Adler Planetarium in Chicago and Ken Walczak, Senior Manager of Far Horizons at the Adler Planetarium.



Thursday, September 5th at 10am & 5pm PDT

Dear Friend,

Join us for the September DarkSky Advocate Action meeting, where Waleska Valle and Ken Walczak from the Adler Planetarium will discuss their successful programs and strategies for engaging youth in dark sky conservation.

They will share valuable insights into how their initiatives, including the Youth Organization for Lights Out (YOLO) program, have effectively connected young people to the cause of reducing light pollution.

This session offers a unique opportunity to learn from experienced advocates about fostering youth involvement in environmental conservation and inspiring the next generation to take action.

Be sure to register early using the links below.

Session one : Thursday, September 5th at 10am PDT

Session two: Thursday, September 5th at 5pm PDT

We look forward to seeing you there!

Chris Peterson

Engagement Manager

DarkSky International



# NASA Night Sky Network



## International Observe the Moon Night

Join the NASA Night Sky Network tonight, Wednesday, August 7, at 5:00 PM Pacific Time (8:00 PM Eastern) with the International Observe the Moon Night team and experienced event hosts to learn about this global observing program, how you can get involved, and program resources available to event hosts this year.

This webinar will prepare you to hold a great International Observe the Moon Night event!

There are many ways to observe, and many ways to get involved! Find out about this year's new Moon maps, advertising materials, and social media shareables. Discover hands-on activities, as well as tips and resources for hosting in-person or virtual events, and for evaluating them. Ask questions of the project leadership team and other event hosts, share your own ideas for event planning, and find out how to stay connected throughout the year.

Andrea Jones and Caela Barry from NASA's Goddard Space Flight Center and Theresa Summer from the Astronomical Society of the Pacific will guide the discussion. A recording of this webinar will be available on [moon.nasa.gov/observe](https://moon.nasa.gov/observe) and YouTube.

### Webinar Registration Link (Zoom):

NSN Members can register for this webinar using the following link. Once registered, you will receive an automatic reminder shortly before the webinar begins. Please register with your club's full name (preferred) rather than initials or abbreviations.

Link: [Add a little bit of body text](#)

NSN Members, log in to your account and take a look at the [Latest News](#) for the Zoom registration information.



# AURORASAURUS

Reporting Auroras From the Ground Up

Image: Kashmir Wilkinson, via NASA Earth Observatory

## See auroras during the May 10-11 storm?

Report sightings and  
ask questions at the  
online

### Fall 2024 Aurorasaurus Report-A-Thon

Help advance  
aurora science!

Sat. Sept. 21

1:00-4:00 PM EDT

5:00-8:00 PM UTC

10:00 AM-1:00 PM PDT

9:00 AM-12:00 PM AKDT

Register:  
[bit.ly/reportfall24](https://bit.ly/reportfall24)

[aurorasaurus.org](https://aurorasaurus.org)



REGISTER

#### Fall Report-A-Thon

Join us on [Zoom](#) Sat, Sept 21, 1-4 pm EDT for the next Aurorasaurus Report-A-Thon! Help gather data to advance aurora science, ask questions to experts, and hang out with a community of aurora lovers. There will be prizes (including handmade [aurora altitude hats](#).) Be sure to bring your stories, reports, and photos, from the amazing May 10-11 storm! The program is built so that you can drop in and drop out as you are able.

We appreciate celebrating auroras with fellow aurora chasers, scientists, and aurora enthusiasts and plan to continue the tradition of two virtual Report-A-Thons per year! Each will be at a different time to accommodate global time zones. Mark your calendars: after September, the next Report-A-Thon will take place Saturday, March 1, 2025, 7-10pm EST, which is Sunday, March 2, 2025, 11am-2pm AEDT and 1-4pm NZDT.

We hope you will [register](#) to join us as we [#DoNASAScience](#), share stories, and learn more together! Please help us spread the word by sharing our posts on [Facebook](#) and [X \(formerly Twitter.\)](#)



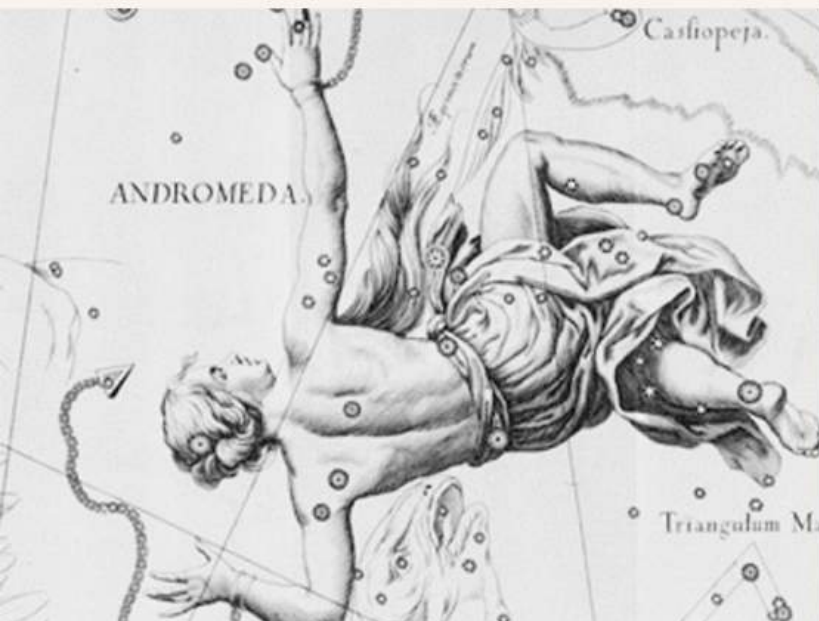
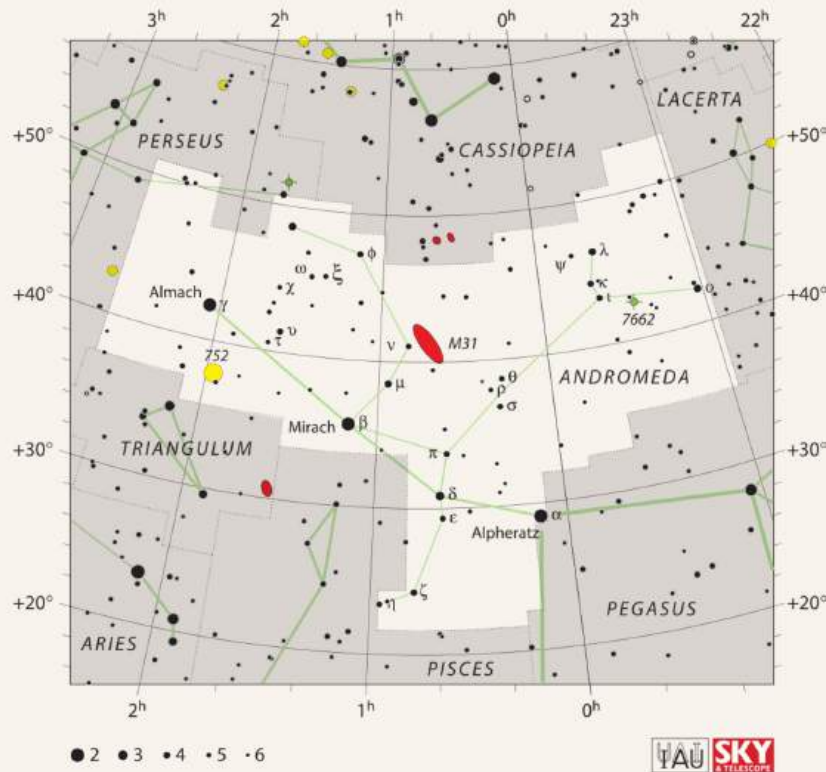
# Constellation CORNER

BY: KRISTA LEMOINE

## Andromeda

### THE CHAINED MAIDEN SEPTEMBER 2024

In Greek mythology, Andromeda was the daughter of King Cepheus of Ethiopia and Queen Cassiopeia. The Queen offended the Nereids (sea nymphs) by claiming she was more beautiful than they were. The nymphs complained to the sea god Poseidon and he sent a sea monster, Cetus, to flood and destroy Cepheus' lands as punishment for his wife's arrogant boastfulness. When King Cepheus sought advice from the Oracle of Ammon on how to prevent complete destruction of his lands, he was told that the only way to appease the gods and nymphs was to sacrifice his daughter to Cetus. Andromeda was chained to a rock and would have been left to the monster if the hero Perseus had not come along and saved her. The two were later married and had six children.



### ASTRONOMICAL LEAGUE OBSERVING TARGETS

Messier	Herschel 400	Double Star	Urban
M31	NGC 205	Gamma	NGC 221
M32	NGC 404	Andromedae	NGC 224
M110	NGC 752		NGC 752
	NGC 891		NGC 7662
	NGC 7662		
	NGC 7686		

Click [here](#) for the list of  
Astronomical League Observing Programs.



## MESSIER 31 ANDROMEDA GALAXY

Magnitude: 3.2

Approximate distance from Earth: 2.5 million light-years

Location: 00h 42m 44.3s (right ascension), +41° 16' 9" (declination)



Messier 31  
PHOTO: MAX BYERLY



Caldwell 22/NGC 7662  
PHOTO: NASA

## CALDWELL 22/NGC 7662 BLUE SNOWBALL NEBULA

Magnitude: 8.3

Approximate distance from Earth: 2,500 light-years

Location: 23h 25m 53.8s (right ascension), +42° 32' 05.84" (declination)

## WHERE IS THE ANDROMEDA CONSTELLATION?

To find constellation Andromeda, first look for the W-shaped constellation Cassiopeia in the northern part of the sky. Andromeda is located directly next to Cassiopeia, and is also connected to a boxy shape of stars that make up the constellation Pegasus. Andromeda is visible to all northern hemisphere viewers and many, but not all, viewers south of the equator. It is best viewed from mid September to early October.

**NEXT MONTH:**

*Cepheus*

THE KING  
OCTOBER 2024

## 10 BRIGHTEST STARS IN ANDROMEDA

- α Andromedae - Alpheratz - 2.06
- β Andromedae - Mirach - 2.06
- γ1 Andromedae - Almach - 2.26
- δ Andromedae - 3.27
- 51 Andromedae - Nembus - 3.57
- ο Andromedae - 3.62
- λ Andromedae - 3.82
- μ Andromedae - 3.86
- ζ Andromedae - 4.06
- υ Andromedae - Titawin - 4.09

## OTHER DEEP SKY OBJECTS IN ANDROMEDA

- NGC 68 Group - Galaxy Cluster
- NGC 90 - Spiral Galaxy
- NGC 93 - Spiral Galaxy
- NGC 956 - Open Cluster
- NGC 7640 - Galaxy

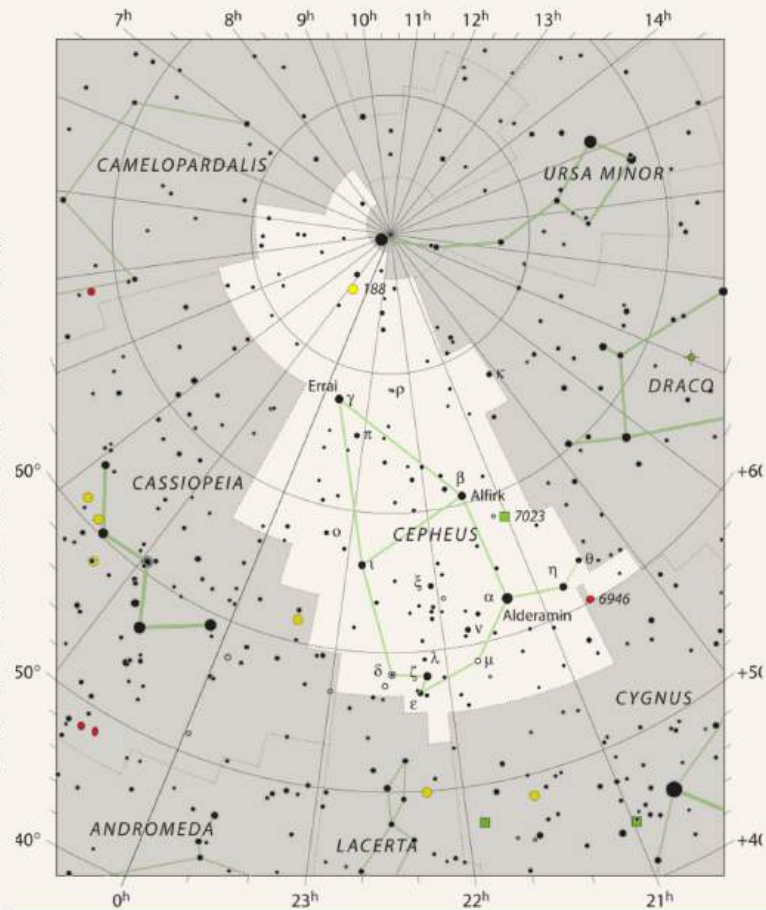


# Constellation CORNER

BY: KRISTA LEMOINE

## Cepheus THE KING OCTOBER 2024

Cepheus was the mythological king of Ethiopia. Zeus placed him in the sky after his tragic end because he was descended from one of Zeus' loves, the nymph Io. Cepheus' land was not the Ethiopia we know today, but stretched from the southeastern shore of the Mediterranean southward to the Red Sea, an area that contains part of the modern Israel, Jordan, and Egypt. Cepheus was married to Cassiopeia, an unbearably vain woman whose boastfulness caused Poseidon to send a sea monster, Cetus, to ravage the shores of Cepheus's kingdom. Cepheus was instructed by the Oracle of Ammon to chain his daughter Andromeda to a rock in sacrifice to the monster. She was saved by the hero Perseus, who killed the monster and claimed Andromeda for his bride.



### ASTRONOMICAL LEAGUE OBSERVING TARGETS

<u>Messier</u>	<u>Herschel 400</u>	<u>Double Star</u>	<u>Urban</u>
None	NGC 40	Beta Cephei	NGC 7160
	NGC 6939	Struve 2816	Delta Cephei
	NGC 6946	Xi Cephei	Cephei
	NGC 7142	Delta Cephei	
	NGC 7160		
	NGC 7380		
	NGC 7510		

Click [here](#) for the list of  
Astronomical League Observing Programs.



## NGC 7023 IRIS NEBULA

Magnitude: 6.8

Approximate distance from Earth: 1,300 light-years

Location: 21h 01m 35.60s (right ascension), +68° 10' 10.0" (declination)



NGC 7023  
PHOTO: SCOTT CADWALLADER



IC 1396  
PHOTO: SCOTT CADWALLADER

## IC 1396 ELEPHANT TRUNK NEBULA

Magnitude: 3.5

Approximate distance from Earth: 2,400 light-years

Location: 21h 41m 07.7s (right ascension), +57° 40' 36" (declination)

## WHERE IS THE CEPHEUS CONSTELLATION?

When seasoned stargazers look for the constellation Cepheus the King, they search for a five-sided pattern of stars that resembles a child's drawing of a house. Cepheus may be found by drawing a triangle between the familiar Little Dipper asterism, the W-shaped constellation Cassiopeia, and the cross-shaped constellation Cygnus the Swan (aka the Northern Cross). Inside that triangle, you'll find a pentagon (five-sided figure) of stars. This pentagon is Cepheus.

**NEXT MONTH:**

*Pisces*

THE FISH  
NOVEMBER 2024

## 10 BRIGHTEST STARS IN CEPHEUS

- α Cephei - Alderamin - 2.44
- γ Cephei - Errai - 3.21
- β Cephei - Alfirk - 3.23
- ζ Cephei - 3.35
- η Cephei - 3.43
- ι Cephei - 3.52
- δ Cephei - 3.75
- μ Cephei - 4.08
- ε Cephei - 4.19
- θ Cephei - 4.22

## OTHER DEEP SKY OBJECTS IN CEPHEUS

- IC 1396 - Emission Nebula
- NGC 188 - Open Cluster
- NGC 7023 - Nebula
- NGC 7261 - Open Cluster
- NGC 7226 - Open Cluster





# Astronomical Events

## September and October 2024

Source: [Sea and Sky](#).



**03: New Moon**

**05: Mercury at Greatest Western Elongation**

**08: Saturn at Opposition**

**18: Full Super Moon/Partial Lunar Eclipse**

**20: Neptune at Opposition**

**22: Autumnal Equinox**

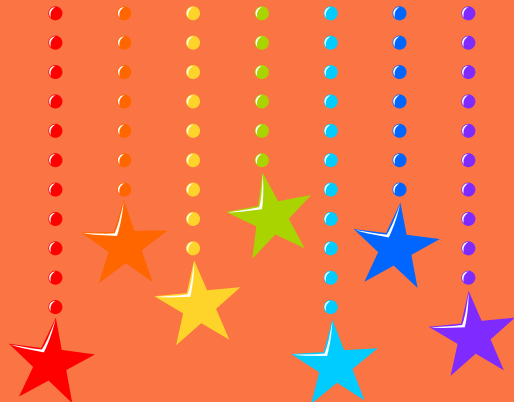


**02: New Moon/ Annular Solar Eclipse (South America)**

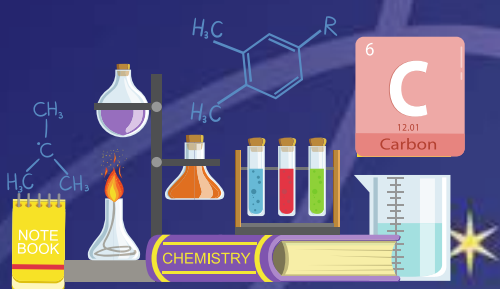
**07: Draconids Meteor Shower**

**17: Full Super Moon**

**21/22: Orionids Meteor Shower**



# The Astronomer's Periodic Table of Elements



## Carbon

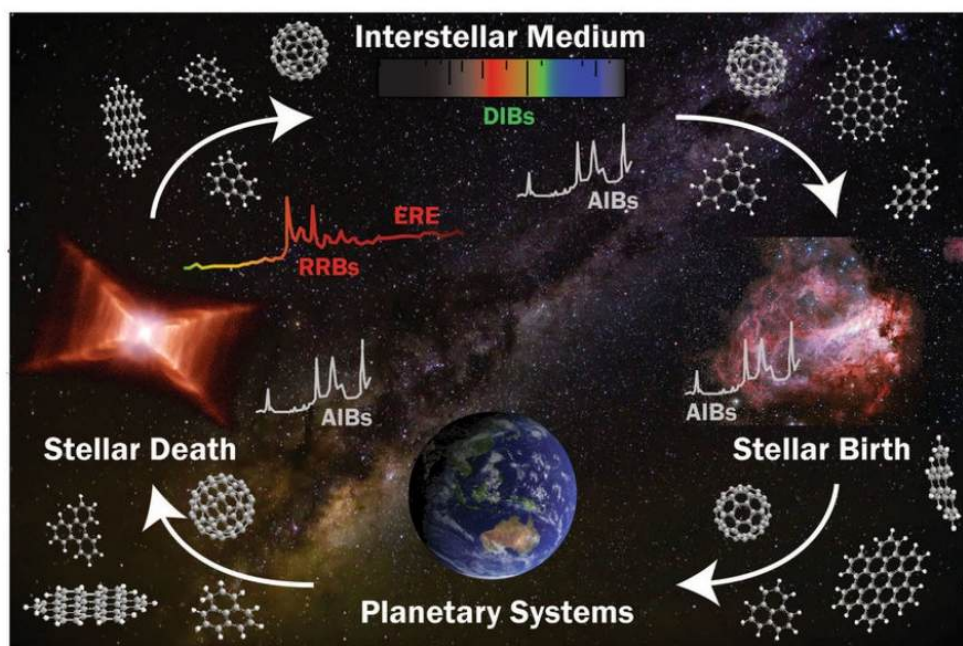
Source: rsc.org

### Carbon Star Color Chart

red	cherry	rose	jam
merlot	garnet	crimson	ruby
scarlet	wine	brick	apple
mahogany	blood	sangria	berry
currant	blush	candy	lipstick

Need some help describing the great variety of carbon star hues? Use the "red block" from Ingrid Sundberg's color thesaurus.

Ingrid Sundberg *Sky&Telescope* 12/03/2014



The life-cycle of carbon and associated spectroscopic features. Carbon is cycled between planetary systems and the interstellar medium as stars die and are reborn. Along the way carbon-based molecules exhibit many spectroscopic phenomena posing unanswered questions. AIBs aromatic infrared bands, RRBs Red Rectangle bands, ERE extended red emission, DIBs diffuse interstellar bands. [Red Rectangle Image (left): NASA; ESA; Hans Van Winckel (Catholic University of Leuven, Belgium); and Martin Cohen (University of California, Berkeley). Messier 17 Image (right): European Southern Observatory. Image of Earth (bottom): NASA. Image of Milky Way (dark emu, background): Rowen McRae].

“Carbon is found in the sun and other stars, formed from the debris of a previous supernova. It is built up by nuclear fusion in bigger stars.

It is present in the atmospheres of many planets, usually as carbon dioxide. On Earth, the concentration of carbon dioxide in the atmosphere is currently 390 ppm and rising.

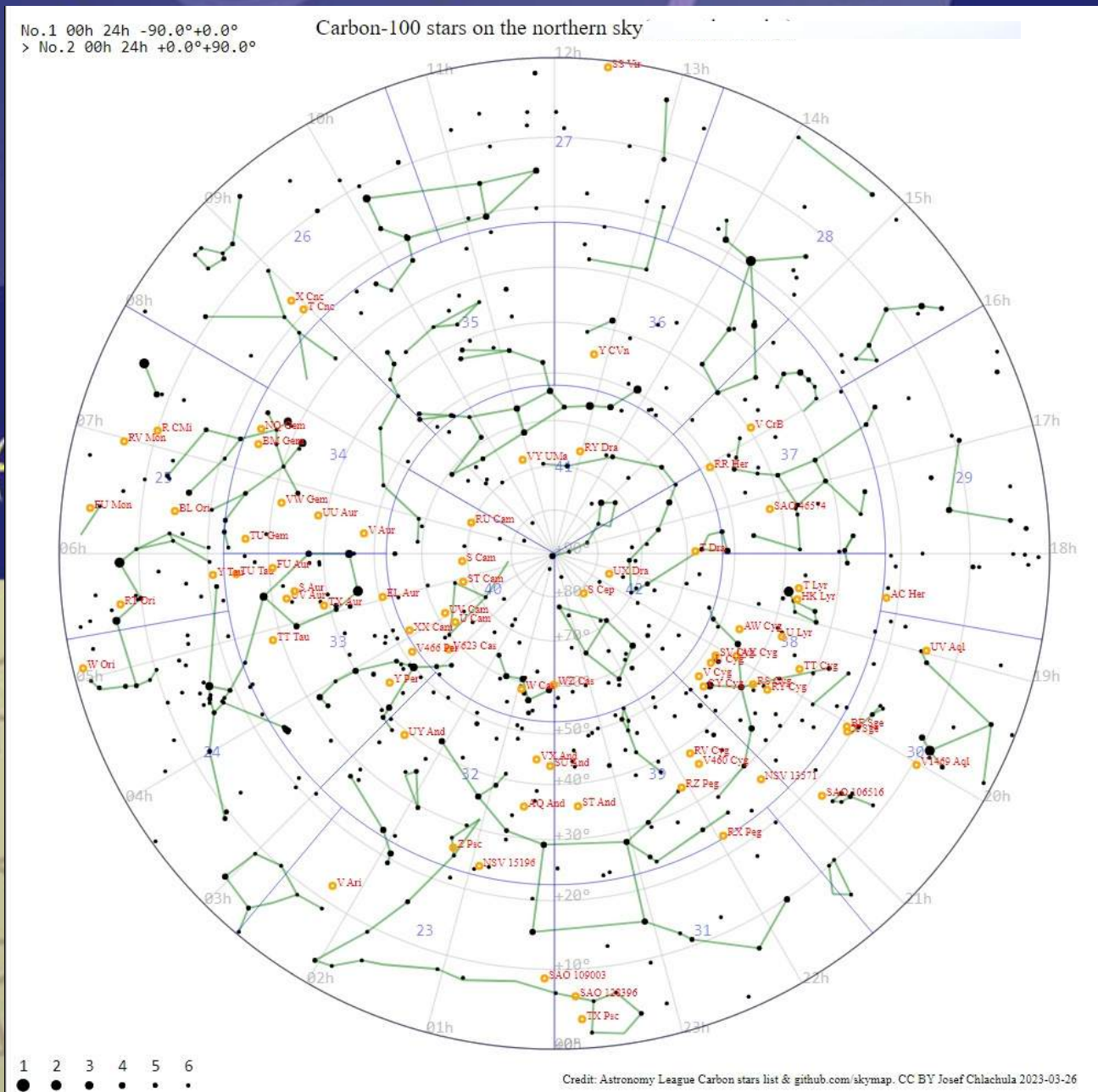
Graphite is found naturally in many locations. Diamond is found in the form of microscopic crystals in some meteorites. Natural diamonds are found in the mineral kimberlite, sources of which are in Russia, Botswana, DR Congo, Canada and South Africa.

In combination, carbon is found in all living things. It is also found in fossilized remains in the form of hydrocarbons (natural gas, crude oil, oil shales, coal etc.) and carbonates (chalk, limestone, dolomite etc.).” (<https://www.rsc.org/periodic-table/element/6/carbon>)



“Stars generate light and heat by nuclear reactions, converting hydrogen into helium in their cores. As a Sun-like star ages, its core compresses and heats up until it can cook helium nuclei into carbon. Most carbon stars are red giants, one of the reasons for their ruddy hue. Much of the star's red complexion comes from carbon in its atmosphere. Convective currents dredge carbon from the core and deliver it to the star's outer layers where it forms a fine soot that scatters away blue and green light. Only oranges and reds penetrate the dusty barrier to reach our eyes” (*Carbon Stars Will Make You See Red*; <https://skyllandtelescope.org/astronomy-blogs/carbon-stars-will-make-see-red1203201401/>).

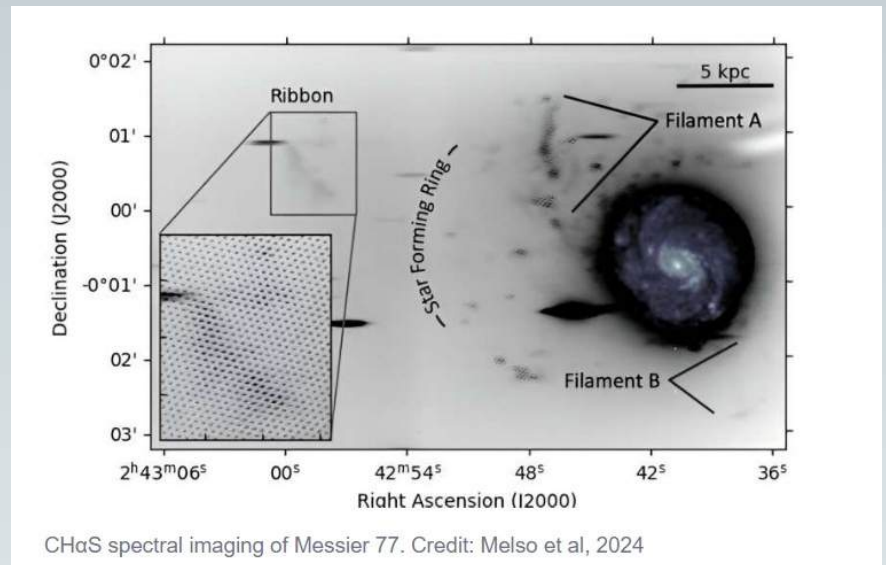
Carbon-12 is an essential building block for life to exist. To learn more about how scientists have figured out how it is formed in stars, follow this link to the “Universe Today” news article: <https://www.universetoday.com/155940/carbon-12-is-an-essential-building-block-for-life-and-scientists-have-finally-figured-out-how-it-forms-in-stars/>




# Circumgalactic H-alpha Spectrograph (CHaS) Finds Extended Ionized Gas Around Messier 77



Messier 77 Credit  
NASA/EarthSky.org




CHaS is “the Circumgalactic H $\alpha$  Spectrograph which is a ground-based optical integral field spectrograph designed to detect ultrafaint extended emission from diffuse ionized gas. CHaS is particularly well suited for making direct detections of tenuous H $\alpha$  emissions from the circumgalactic medium (CGM) surrounding low-redshift galaxies. It efficiently maps large regions of the CGM in a single exposure, targeting nearby galaxies ( $d < 35$  Mpc) where the CGM is expected to fill the field of view.”

(<https://ui.adsabs.harvard.edu/abs/2022ApJ...941..185M/abstract>) 

This is exactly what it was used for at the MDM Observatory in Tucson, Arizona. A team of astronomical researchers headed by astronomer Nicole Melso used CHaS on the Hiltner 2.4-m telescope and aimed it at M77, also known as NGC 1068 or the Squid Galaxy. The main purpose of using the Circumgalactic H-alpha Spectrograph was to track how ionized gases are distributed throughout the galaxy. However, the team was surprised when they discovered that at the edge of the field of view, there was ionized gas extended outside the galaxy in the surrounding area.



The findings of the ionized gas extension outside the galaxy were posted to the astrophysics preprint server arXiv on August 22, 2024. In that preprint submission, the team explains that “We have performed wide-field, ultra-low surface brightness H $\alpha$  emission line mapping around NGC 1068 with the newly commissioned Circumgalactic H $\alpha$  Spectrograph ( $\chi$ chas). NGC 1068 is notable for its active galactic nucleus, which globally ionizes gas in the disk and halo. Line-emitting diffuse ionized gas is distributed throughout the galactic disk and large-scale ionized filaments are found well beyond the disk, aligned with the cone angle of the central jet. We report the discovery of a new Ribbon of ionized gas around NGC 1068 beyond even the known outer filamentary structure, located 20 kpc from the galaxy. The H $\alpha$  surface brightness of this Ribbon is on the order of the bright Telluric lines, ranging from [4–16] R with fainter regions on the order of the sky background continuum. Unlike previously extended emissions, the Ribbon is not as well aligned with the current axis of the central jet. It is not associated with any galactic structure or known tidal features in the halo of NGC 1068, though it may originate from a larger distribution of unmapped neutral atomic or molecular gas in the halo. The morphology of the Ribbon emission in H $\alpha$  is correlated with extended UV emission around NGC 1068. H $\alpha$  to UV flux ratios in the Ribbon are comparable to extended emission line ratios in the halos of NGC 5128, NGC 253, and M82. The H $\alpha$  excess in the Ribbon gas suggests ionization by slow-shocks or a mixture of in-situ star formation and photoionization and collisional ionization processes.” (<https://arxiv.org/abs/2408.12597>) 

In essence, the galaxy is leaking, and what can this leak teach us about our universe and the workings of our own galaxy?

A team led by astronomer Sanchayeeta Borthakur at Johns Hopkins University pointed Hubble at J0921+4509 and found that “the galaxy floods the surrounding space with ionizing light through holes punched in the enveloping hydrogen clouds.”

(<https://www.sciencenews.org/article/nearby-galaxy-might-explain-what-tore-apart-universes-hydrogen>)


Borthakur explains that these findings, “demonstrate that if you put a lot of stars in a very compact region, then they can be powerful enough to carve tunnels in the surrounding gas and leak radiation...This shows how galaxies...can influence the entire universe...The next step is to figure out if there were enough compact galaxies a few hundred million years after the Big Bang to ionize the universe.”

(<https://www.sciencenews.org/article/nearby-galaxy-might-explain-what-tore-apart-universes-hydrogen>)

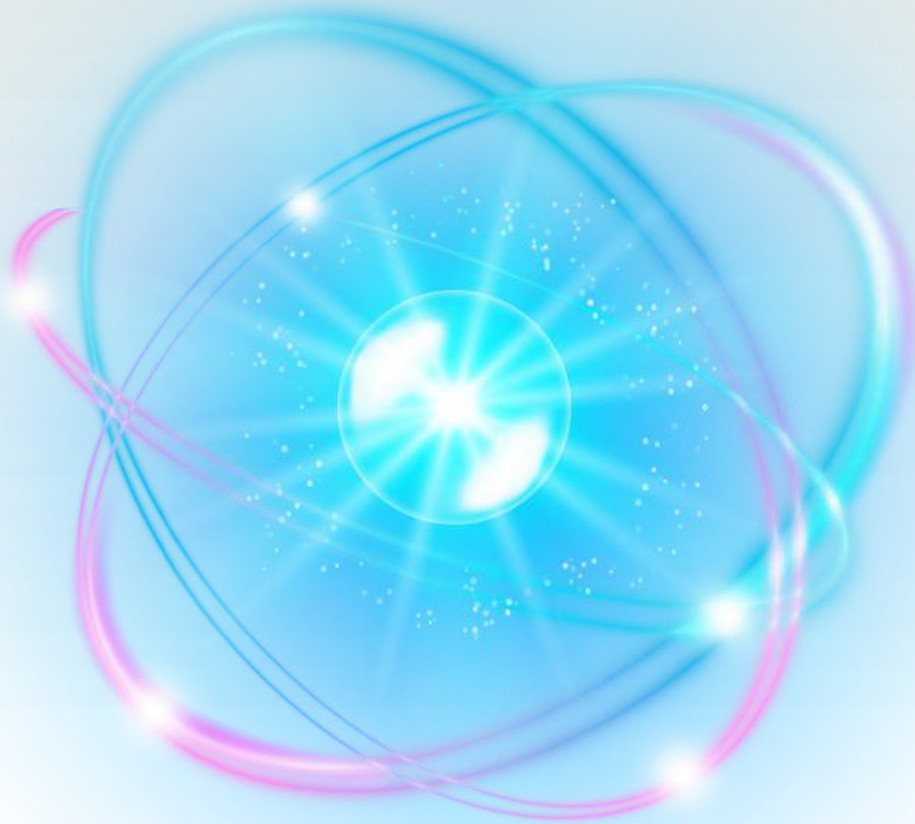
Meanwhile, Melso and her team are doing more research on the extended ionized H $\alpha$  that they have deemed, “The Ribbon” and have hypothesized about how this might be affecting star formation. In their report, they conclude that “results also suggest that the Ribbon gas is most likely composed of young stars embedded in warm line-emitting gas ionized by a mix of processes. However, further investigation of this gas should be conducted to shed more light on its origin and composition.



Follow-up observations of the neutral atomic and molecular gas in the filament and Ribbon structures will be important for understanding the origin of the Ribbon gas located in the circumgalactic medium of NGC 1068, the amount of gas available for star-formation, and the level of AGN-induced star formation occurring in these regions,"

(<https://phys.org/news/2024-08-astronomers-ionized-gas-messier.html>) 

As these studies continue the findings may be the breakthrough to explaining the processes at work that ionized our universe.



## Solar Apex

In which direction is the sun headed – with us in tow?

The Solar Apex is the point in the sky where the sun is headed.

18h 28m, 30°N

Where is the Solar Apex?

- Find Vega, the brightest member of the Summer Triangle.
- Drop about 10° south of Vega. (10° is about equal to the width of your fist on your fully extended arm.)
- There is no notable "solar apex star."

In 1783, William Herschel knew the semi-reliable values of the right ascension (i.e., the east/west) component of the proper motions of seven bright stars. He plotted them on an equatorial plane allowing him to estimate the point in the sky where the sun is headed. It was near 4.4 magnitude Lambda Herculis, just 10° WSW of the currently accepted location.

Herschel's Seven Stars:

Altair, Sirius, Procyon, Castor, Pollux, Regulus, and Arcturus


**Proper Motion:** the change in sky position of a star over time. It is often expressed in arcseconds per year and has declination and right ascension components. It is the result of both the sun's and the star's motion in 3 dimensional space.

As the sun moves through space, it passes stars. From the sun's point of view, the ones that it approaches appear to move slightly off to one side. As they are passed, they move quickly in the opposite direction. The point from where all the star motion radiates is the solar apex.

Solar Antapex, from whence we came:


6 h 28m, 30°S; about 10° ssw of Sirius and near Zeta Canis Majoris.

**Source:** [Astronomical League](https://www.astroleague.org) 

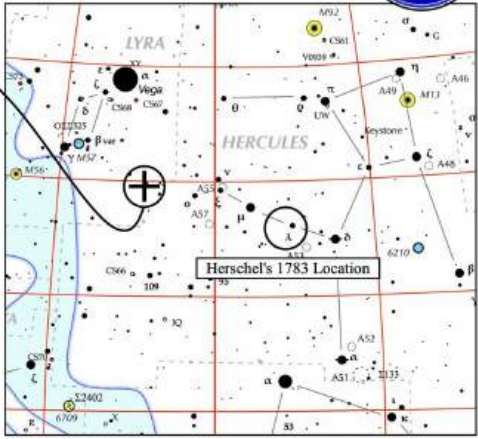


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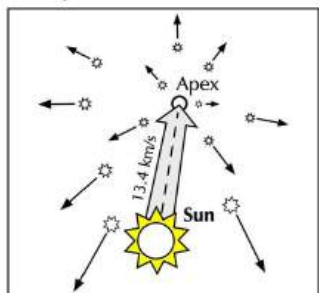
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**Further reading:** <https://articles.adsabs.harvard.edu/full/1980JHA....11..153H/0000154.000.html>

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# Learn Radio Astronomy!

## Membership Information

Annual SARA dues Individual \$20, Classroom \$20, Student \$5 (US funds) anywhere in the world. Membership includes a subscription to Radio Astronomy, the bimonthly Journal of The Society of Amateur Radio Astronomers, delivered electronically (via a secure web link, emailed to you as each new issue is posted). We regret that printing and postage costs prevent SARA from providing hardcopy subscriptions to our Journal.

We would appreciate the following information included with your check or money order, made payable to SARA:

Name: \_\_\_\_\_  
Email Address: \_\_\_\_\_  
(required for electronic Journal delivery)  
Ham call sign: \_\_\_\_\_ (if applicable)  
Address: \_\_\_\_\_  
City: \_\_\_\_\_  
State: \_\_\_\_\_  
Zip: \_\_\_\_\_  
Country: \_\_\_\_\_  
Phone: \_\_\_\_\_

Please include a note of your interests. Send your application for membership, along with your remittance, to our Treasurer.

For further information, see our website at:

<http://radio-astronomy.org/membership>



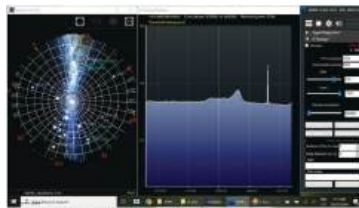
Society of Amateur Radio Astronomers, Inc.  
Founded 1981

Membership supported, nonprofit [501(c)(3)]  
Educational and Radio Astronomy Organization

**Knowledge through Common Research,  
Education and Mentoring**

## How to get started?

SARA has made a kit of software and parts to detect the Hydrogen line signal from space. This is an excellent method to get started in radio astronomy. It teaches the principles of antenna design, signal detection, and signal processing. Read more about this and other projects on our web site.



SARA members have been privileged to use this forty foot diameter drift-scan hydrogen line radio telescope every year at their annual meeting in Green Bank.

<http://radio-astronomy.org>

## Why Radio Astronomy?

Because about sixty five percent of our current knowledge of the universe has stemmed from radio astronomy alone. The discovery of quasars, pulsar, black holes, and the 3k background from the "Big Bang" and the discovery of biochemical hydrogen/carbon molecules are all the result of professional radio astronomy.

## The Society of Amateur Radio Astronomers

SARA was founded in 1981, with the purpose of educating those interested in pursuing amateur radio astronomy.

The society is open to all, wishing to participate with others, worldwide.

SARA members have many interests, some are as follows:

### SARA Areas of Study and Research:

Solar Radio Astronomy Galactic Radio Astronomy  
Meteor Detection Jupiter SETI Gamma Ray/High Energy Pulse Detection Antennas Design of Hardware / Software

The members of the society offer a friendly mentor atmosphere. All questions and inquiries are answered in a constructive manner. No question is silly! SARA

offers its members an electronic bi-monthly journal entitled Radio Astronomy. Within the journal, members report on their research and observations.

In addition, professional members receive updates on the radio astronomy community and, society news.

Once a year SARA meets for a three-day conference at the Green Bank Observatory in Green Bank West Va. There is also a spring conference held at various cities in the Western USA. Previous meetings have been at the VLA in Socorro, NM and at Stanford University.



## How do I get started?

Just as a long journey begins with the first step, the project you elect must start with a clear idea of your objectives. Do you wish to study the sun? Jupiter? Make meteor counts? Do you wish to engage in imaging radio astronomy? What you decide will not only determine the type of equipment you will need, but also the local radio spectrum.

## How do amateurs do radio astronomy?

Radio astronomy by amateurs is conducted using antennas of various shapes and sizes, from smaller parabolic dishes to simple wire antennas. These antennas are connected to receivers and most of these receivers are software defined radios these days. Data from the receivers are collected by computers, and the received signals will be displayed as charts, graphs or maybe even sky maps. As diverse as the observed objects, so is are the instruments and tools used. SARA members will always be supportive to find good solutions for what one wishes to observe.

## Is amateur radio astronomy instrumentation expensive?

Technical information freely circulated in our monthly journal helps amateurs to obtain good low noise equipment from off the shelf assemblies, or

to build their own units.

Investment in radio astronomy equipment need not exceed that of any other hobby.

## What are amateurs actually looking for in the received data?

The aim of the radio amateur is to find something

just as an amateur optical observer hopes to notice a supernova or a new comet, so does an amateur radio observer hope to notice a new radio source, or one whose radiation has changed appreciably.



The Reber Telescope at NRAO. Constructed by Grote Reber in 1937 in his back yard in Wheaton, Illinois



SARA Members discussing the IBT (Itty Bitzy Telescope)





# 2024 Nightscaper Photo Conference

September 26 to 29 - Kanab, Utah

The Nightscape Photo Conference is an in-person event devoted to astro-landscape photographers, scientists, artists, and activists who wish to enjoy and preserve the night skies.

This fourth conference brings together some of the most impactful community members to share ideas, work with peers to craft images, and hone techniques for responsibly studying and documenting the quiet beauty of dark skies.

For more information and to register please click the link here:

<https://www.nightscaper.com/>

A Note from the Astronomical League's Reflector Magazine

## Eyes on the Skies: T CrB

By the time this issue reaches your hands, the famous "Blaze Star," the recurrent nova T CrB, may have erupted. If so, we hope you are submitting your observations to the American Association of Variable Star Observers (AAVSO). Even if it is past peak, observations of the decline are needed all the way back to quiescence. If the outburst has not occurred, please keep an eye on this star (and your eye to the Internet for word of the outburst)—it is a once-in-a-lifetime experience!

More information on observing this star (including finder charts and comparison stars for photometry) can be found at

[www.aavso.org/t-crb-finder-charts](http://www.aavso.org/t-crb-finder-charts).



**Pre-Registration Ends September 16!**

# ASTROBLAST Star Party

**October 1 - 6 | [www.oras.org](http://www.oras.org)**

ASTROBLAST takes place annually in dark sky country at the Oil Region Astronomy Learning Center in NW Pennsylvania. The event is open to all who look up in wonder at the night sky.

- ★ **Dark Sky Observing** - The 12-acre field, dark sky, plenty of room to set up campers, tents, and your equipment for observing
- ★ **Internationally Recognized Speakers** - Learn about the latest astronomical discoveries, observing equipment and much more
- ★ **Astrophotography Workshops** - Learn to capture and process images/photographs of the night sky like a pro
- ★ **Astronomy Flea Market** - Bring equipment/resources you no longer use and leave with some extra cash in your pocket
- ★ **Sharathons** - Share astro tips and tricks and learn from others

**REGISTER TODAY** at [www.oras.org](http://www.oras.org) | **Pre-registration Ends Sept. 16<sup>th</sup>**



**Scan QR Code to find out more about ORAS  
and register for ASTROBLAST**

**ORAS**   
Oil Region Astronomical Society

**We Educate and Inspire**

# Registration Now Open!!



**ASTROCON 2025 will be held June 25-28, 2025, under the spectacularly dark skies of Bryce Canyon National Park in southern Utah.**

The venue will be at Ruby's Inn and Convention Center a few miles from the park entrance. A special area a few miles east of the convention center will be available for evening viewing plus astrophotography/digital imaging workshops.

The convention's goal is to teach how to enhance one's personal viewing experiences through workshops and evening viewing plus opportunities to learn astrophotographic skills. As we are still in the planning stage, we welcome your input as to how daytime and/or evening presentations and workshops can best achieve these goals. Ideas that our committee is considering include:

- Setting up your own personal observing program (including Astronomical League Observing Programs to consider)
- Observing tips including clothing to wear, how best to use your own eyes, equipment ideas
- Using star charts (digital and paper)
- Creation of observing lists for difference types of objects
- Understanding eyepiece selection
- Using filters for visual and photographic work
- Sketching workshop
- Observing log workshop – starting and keeping your own journal
- Astrophotography/Digital Imaging workshops (novice and advanced)

Please feel free to contact me if you wish to assist with a presentation and/or a workshop. We are starting our planning early, as we learned from ASTROCON 2017 at Casper Wyoming, held during the total solar eclipse, that advance planning is particularly important for this type of event. We look forward to hearing from you.

Lowell Lyon  
ASTROCON 2025 Chair  
801-699-7283  
[bolide@sisna.com](mailto:bolide@sisna.com)



Please visit our website at  
<https://astrocon2025.org/>  
or Scan the QR code below to  
register for ASTROCON 2025!



## Volunteers Still Needed!

*We are still in need of people who can provide the following services to please volunteer.*

**\*IT Specialist/AV Coordinator \*Food Service Coordinator**

**\*Coordinator of the Workshops \* MC to Introduce Guest Speakers**

**Please contact Lowell Lyon (Information above) to volunteer!**

**ATTENTION  
PLEASE!**





# HELP!



**Need Some Help with Your  
Telescope? Get Friendly, Expert  
Help with  
SLAS Member, Max Byerly!**

**Telescope Repairs and Maintenance:**

Do you ever find yourself needing help with your telescope? Maybe something isn't working, right? Maybe you can't figure out how to get it properly collimated or aligned with the sky. Has it broken down and needs a fix? I'm here to help!

I'm Max and I've been helping people get back under the night sky for over a decade. I moved to SLC a few years ago, and have tried to be active when my work schedule lets me come to events and star parties.

I enjoy helping people with the night sky and their equipment. I know a lot from the basics all the way to imaging faint targets with a telescope. I'm quite experienced in particular with Meade, Celestron, iOptron, and Orion/Skywatcher equipment, but that doesn't mean I can't help if you have something outside of that. I've repaired and fixed many mounts cleaned many telescopes and mirrors, and regreased and tuned several Goto systems. Just know that when something happens or if you're not comfortable tackling something, reach out to me and let's see what I can do for you!

Contact: [maxbyerly@icloud.com](mailto:maxbyerly@icloud.com)



# Pssst! Need a Telescope?



Do you want to use a telescope, but don't have the space for one, or the money for one? There are a couple of options for borrowing a telescope. One is from our Salt Lake County Libraries and the other is if you join SLAS, you can borrow a telescope as part of membership benefits.



To reserve Telescopes, please call Customer Service 801.943.4636 or stop by your local branch and talk with a librarian.



## Telescopes THE SALT LAKE COUNTY LIBRARY SYSTEM

The County Library is lending a limited number of Orion StarBlast Telescopes at each branch. The County Library's telescope lending program is made possible through a partnership with the Salt Lake Astronomical Society. Follow the safety rules and don't look at the sun! Enjoy this STEM experience.

- Telescopes are located at all libraries for check out, subject to availability
- Only 1 telescope per library card
- The Telescope and all peripheral materials (fanny pack, eyepiece, rubber eye guard, lens covers, view finder, books, head gear, brush pen, instructions, batteries, and base) must be returned together in the condition in which they were checked out and on the same day in which the Telescope is returned

To see all participating libraries in the telescope loaner program in Utah, click on this link: Utah ([librarytelescope.org](http://librarytelescope.org))

These are the telescopes available to borrow through SLAS. This program is for members only and can be obtained through [slasloanequipment@gmail.com](mailto:slasloanequipment@gmail.com)



- (4) 8" Dobsonian telescopes
- (2) 6" Dobsonian telescopes
- (4) C-8 telescopes
- (1) 4" Criterion SCT
- H-Alpha Solar Telescope, tripod, mount and misc. accessories.



# Making a Sun Clock



Before there were clocks, people used shadows to tell time.

## What do I need?

A sunny day

A pencil

- A compass
- A print-out of the [Sun Clock Diagram](#)



## What do I do?

**1** Ask a grown-up to help you with this experiment. On a sunny day, go outside with a compass, pencil, and print-out of the [Sun Clock Diagram](#). Put your compass on the ground and turn it so that the arrow and the "N" (for "North") line up.

### Tips for Home Scientists

If none of the cities on the list are close to you, you can still use your Sun Clock. See the "[What's Going On?](#)" section below to find out how.

**2**

Follow the directions on the Sun Clock Diagram to find out how to line up the Sun Clock with your compass. Once you have the Sun Clock pointed in the right direction, you can figure out what time it is.



## What's Going On?

### Why does it matter what city I'm in?

What time it is depends upon where you are on the planet. That's why you use a compass to orient yourself in this activity.

A compass needle (which is attracted to the magnetic field of the earth) points in a direction called *magnetic north*. That isn't exactly the same as *true north*, or *geographic north*, which is the direction of the earth's North Pole. We've set up our Sun Clock so that it uses geographic north as a reference point. If you don't line up the diagram print-out with geographic north, the Sun Clock won't give you the right time of day.

The difference between magnetic north and geographic north is called *magnetic declination*, and it's different in different locations. When you position the Sun Clock according to the directions on the diagram, you are compensating for the magnetic declination of where you live. After you do this, the "Geographic North" arrow at the top of the diagram will be pointing to geographic north and your Sun clock will work just fine.



### What if my city is not on the list? Can I still use my Sun Clock?

If you aren't near any of the cities on the list, you can still use the Sun Clock. Go out at night and look for the North Star. (You may need a book of constellations to help you find it.) Mark an arrow on the ground that points toward the North Star. That's geographic north. The next day, position your print-out of the Sun Clock diagram with the Geographic North arrow (in the top right-hand corner of the diagram) pointing in the same direction that you marked on the ground (toward geographic north). Now follow the rest of the instructions on the diagram.



### **How does a shadow tell time?**

Shadows change direction, depending upon the time of day. A Sun Clock like this one uses a shadow's position to tell the time.

### **Why doesn't the time on my Sun Clock exactly match the time on my watch?**

The time you get from your Sun Clock is solar time, not standard time. The two aren't exactly the same.

According to *solar time*, it's noon when the sun reaches its highest point in the sky. But the sun is always moving across the sky--which means that noon where you are is at a slightly different time than noon at a place a few miles to the east or west.

Back before 1883, people used solar time. Each community kept its own time, basing that time on the sun's position in the sky. Back then, noon in one town would be four minutes later than noon in a town fifty miles to the east.

In 1883, to regulate time for the sake of railroad schedules, the United States adopted what is called *standard time*, designating time zones and requiring all communities within a time zone to keep the same time--even though that standard time didn't quite match solar time.

If you are in the middle of your time zone, your Sun Clock will be fairly accurate. If you are at one edge of your time zone, the time on your Sun Clock (solar time) may differ from the time on your watch (standard time) by as much as forty minutes.

### **Why do I have to put the pencil on different spots for different times of the year?**

The position and length of a shadow depends on the time of day--but it also depends on the season of the year. That's because the sun's position at a certain time of day is different in different seasons.

Return to **The Science Explorer**  
Exploratorium-At-Home Book



This and dozens of other cool activities are included in the Exploratorium's Science Explorer books, available for purchase from our [online store](#).



Published by Owl Books,  
Henry Holt & Company, New York,  
1996 & 1997

ISBN 0-8050-4536 & ISBN 0-8050-4537-6,  
\$12.95 each

exploratorium

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## SLAS Board Meeting Minutes

July 11, 2024

7:00PM

Denny's – Redwood Rd & North Temple

**Board Members in Attendance:** Don Abernathy, Aleta Cox, Krista Lemoine, and Trevor Hebditch

**Other Members in Attendance:** Alpine Stringham, Joan Carman, Patrick Wiggins, and Tony Sarra

**Excused:** Jim Keane and Marlene Egger

President, Don Abernathy, called the meeting to order at 7:00PM.

Don welcomed everyone and asked that the meeting stay on topic tonight.

Aleta Cox, ALCor and Vice President, updated everyone that the ASTROCON 2025 meeting in August has been moved to the Whitmore Library. She also noted that Lowell Lyon and Marlene Egger are attending this year's ALCon in person. Krista Lemoine said she will be attending virtually.

Joan Carman, LLTC, gave Krista the grant check from Rocky Mountain Power Foundation in the amount of \$2,500. This grant money is for the purchase of more Library Telescopes. Joan spoke to Tooele City Library, and they plan to set their budget in August. Joan asked that SLAS front \$750 for Tooele City to have 2 telescopes since there is a 60 to 90 day wait with the telescope manufacturer. She said if Tooele City does not add this into their budget that the 2 telescopes can be sold to another library system. Trevor Hebditch made a motion to approve the allocation of \$750 for the purchase of 2 telescopes for Tooele City. Krista seconded the motion, and motion was passed. This will be presented at the general meeting for approval. Joan also noted that Salt Lake County got an extra grant for a telescope. If approved there will be 13 telescopes to modify in the next session. A date has not been set due to the long lead time of the telescopes. Historian, Patrick Wiggins, had nothing new to report.

SPOC Director, Jim Keane, was absent and no SPOC report was given.

Tony Sarra had no update on the website. Patrick asked what the holdup was. Don said that there are good reasons for the delay.

Don asked Aleta to be the point of contact with Max Byerly for the SLAS Star Party Proposal since this task falls under the purview of the Vice President. Aleta will send a SLAS Blast calling attention to the proposal in the Nova Newsletter for members to review before the general meeting next week.

The BYU Astronomical Society requested a SPOC Star Party. A date of July 27th has been scheduled if weather permits.



Don asked Trevor to draft a formal proposal to present at the general meeting regarding the SLAS Education Fund. Trevor will provide this to Krista ahead of time for review. This will be presented to the general membership next week for approval.

Marlene Egger sent Don an outreach report in her absence. He reviewed this with everyone. Krista will create an invoice for Camp HOPE in the amount of \$80.10 to reimburse Marlene for the cost of the planispheres she purchased for their star party.

Joan has agreed to assist Trevor with the Little Warriors Star Party.

Don asked that going forward reimbursement requests happen prior to any funds being spent.

Don asked each officer to please send in a headshot for the website to Ken Warner. He also asked Aleta to have Ken add Louis Maez as the Solar Party Coordinator to the website.

Don went over the next few month's guest speakers, and each month through January is filled. The upcoming talks are:

July – Richard Wolff-Jackson (via ZOOM) “PiFinder ...”

August – Dr. Rob ZelleM (via ZOOM) “Roman Space Telescope”

September – Dr. Joseph Jensen (subject based upon current sabbatical research on JWST)

October – Dr. Rob ZelleM (to be confirmed for date) “Exoplanet Research”

November – Louis Maez “Outreach at Clark Planetarium”

January – Dr. Jumana Alshaikh, U of U, (to be confirmed for date) “The Neurology of Space Travel”

Joan asked for this list to be added to the website and Aleta said that was done today.

Patrick said there were no responses to the t-shirt request. Several people mentioned not seeing the email. He will resend a SLAS Blast asking if there is interest in another t-shirt run.

Don brought up the upcoming elections. Only 2 current board members (Aleta and Trevor) are eligible for reelection. Don, Krista, and Marlene will no longer be eligible. Nominations are due by August 31st and must be filed with Krista. Elections will be held in September during the general meeting. Don will announce this at the meeting next week.

Meeting adourned at 7:39PM.

**Minutes submitted by:**

**Krista Lemoine, SLAS Secretary/Treasurer**

## **SLAS General Meeting Minutes**

July 17, 2024

7:30PM

Salt Lake Community College – Redwood Road Campus

Members in attendance 35

President, Don Abernathy, calls the meeting to order at 7:30PM.

Don introduces himself and asks if anyone is new is in attendance. Boyd Bellows, a new SLAS member, stood up and introduced himself.

Don acknowledged our appreciation to Professor Jonathan Barnes and Dr. Samuel Jones for continuing to host the meeting at Salt Lake Community College.

Don introduced the evening's guest speaker as Mr. Richard Wolff-Jacobson. He is a software engineer and has a passion for vintage electronics and unusual form factor computers. For over thirty years he has been observing the night skies, using various commercial and home-built telescopes. Richard had a dream for a simple to use all-in-one device that fit his observing style. He will introduce and explain his development of PiFinder, the result of his labors. Our Observatory Director, Jim Keane, has installed this unique feature on our newest telescope at SPOC and is delighted with the results.

Don gives the floor to Mr. Richard Wolff-Jacobson.

Mr. Richard Wolff-Jacobson introduces himself and gives his presentation on PiFinder. He explains the development process and how it works. He also went into detail on the early engagement with the public. Plans to build your own PiFinder are available online and prebuilt ones are also available.

Don thanks Mr. Wolff-Jacobson for his presentation. Don moved on to the business portion of the meeting. There were 3 proposals that needed to be voted on and are as follows:

A proposal to the Salt Lake Astronomical Society for the creation of an Educational Fund has been submitted by Trevor Hebditch, Board Member-at-Large, and approved by the vote of the Board.

It is proposed to establish an educational fund aimed initially at providing one-year memberships to individuals unable to afford club fees. As the fund grows over time with SLAS approval, it could



expand to support additional astronomical educational initiatives, such as funding school visits, trips, or scholarships for children demonstrating a strong interest and dedication to astronomy. To kickstart the fund, Trevor will donate \$500, with an additional \$500 every six months, or if the fund drops below \$100. Contributions from other members are welcome to further support this fund. It will be managed as a separate line-item code within the SLAS account. SLAS members in good standing will have the opportunity to nominate candidates for one-year memberships or propose donations to support other educational programs. Applications will be reviewed and approved on merit and circumstances by the SLAS Board or an appointed sub-committee.

**The general membership passed this proposal unanimously.** A proposal to the Salt Lake

Astronomical Society for the creation of an Annual Star Party submitted

by Max Byerly. This proposal has been online and in the NOVA. The proposal is to create a SLAS annual dark-sky star party. It is to be an innovative event designed to support SLAS both fiscally

and

structurally, benefit members, increase membership, and serve the amateur astronomy community at large. This initiative also aims to ensure the society's sustainability for the foreseeable future.

**The general membership passed this proposal with one member opposed.** A proposal to the Salt

Lake Astronomical Society for an advance of \$750 to purchase an additional

two (2) telescopes, to supplement the number of telescopes to be prepared for libraries in our expanding system by LTTC, Joan Carman. The money will be reimbursed to SLAS upon receipt of

the

sale of these two extra scopes to the designated library/libraries.

**The general membership passed this proposal unanimously.**

Don thanked the Rocky Mountain Power Foundation for their recent grant approval to our Library Loaner Telescope Program, and thanked Joan for her continued support in the role as LTTC.

The Board is now accepting nominations for elected positions within the Board of Directors of the Salt Lake Astronomical Society, beginning in August 2024. Members wishing to run for office shall file their candidacy with the Board Secretary, Krista Lemoine, during the month of August. Three current Board members (Don Abernathy, Marlene Egger and Krista Lemoine) will be ineligible to hold office for the coming year, leaving vacancies to be filled.

The next scheduled Sun Party is this coming Saturday, weather permitting. The location is Winchester Park in West Murray, 9:00 AM to Noon.

Don the thanked everyone for attending and reminded everyone of Advanced Training at Dee's Restaurant following the meeting.

Meeting adjourned at 8:39PM.

**Minutes submitted by:**

**Krista Lemoine, SLAS Secretary/Treasurer**

## SLAS Board Meeting Minutes

August 14, 2024

7:00PM

Denny's – Redwood Rd & North Temple

**Board Members in Attendance:** Don Abernathy, Aleta Cox, Krista Lemoine, Trevor Hebditch, and Marlene Egger

**Other Members in Attendance:** Alpine Stringham, Joan Carman, Patrick Wiggins, and Ken Warner

President, Don Abernathy, calls the meeting to order at 7:00PM.

Don thanked everyone for coming this evening.

Don asked Aleta Cox, Vice President and ALCor, to give an update to the board from the recent ASTROCON meeting. She said Lowell Lyon emailed everyone that paper registrations are already coming in and online registration should be available soon. Don asked Aleta to send out an update to the general membership about the meeting.

Don asked Joan Carman, LTTC, about the latest updates on the LLTP. Orion and Meade have filed for bankruptcy and the StarBlast will no longer be available. Highpoint Scientific has offered to produce telescopes to fill the gap. We have all the telescopes we need for the next modification session. The Tooele City Library has decided to go forward with the 2 telescopes. Davis County has expressed interest in more telescopes, and Weber County has not gotten back to Joan with their logo. Historian, Patrick Wiggins, had no updates.

Don asked SPOC Director, Jim Keane, if an Advisory Committee Meeting is needed. Jim said yes

and

he intended to have one, but due to the heat this summer he did not schedule it. Don asked about Stansbury Days. Jim said he got no response to the email he sent the board 2 months ago. The date was changed, and now he is unsure if we can pull together an event. Jim said he was contacted by Astronomers Without Borders, and they were willing to send SLAS eclipse glasses. There was a misunderstanding and it's 60 pallets of glasses. Jim said he will keep some of them but send back the rest. It's possible they're used and if they are we will dispose of them. Jim also listed several



things in the Clements building that need to be removed.

Don asked Aleta if she heard back from the BYU Astronomical Society. She said she has not. He asked her to send a SLAS Blast one more time for candidates to file with the Secretary if they wish to run for office. The deadline is August 31st. Aleta expressed she will not run a second term as Vice President.

Secretary/Treasurer, Krista Lemoine, has deposited the first donation of \$500.00 for the Educational Fund. It is now a line item on the books as EDFD.

Max Byerly, Jenette Scott, and Trevor Hebditch have submitted their names for Board Member Elections.

Marlene Egger, Board Member-at-Large, provided an update on upcoming school star parties. Jim noted he will not be able to attend the star party on 8/23 for the Tooele Division of Aging.

Don thanked Webmaster, Ken Warner, for getting the board member headshots uploaded to the website. Ken noted there has been some progress on the website redesign. Trevor Hebditch, Board Member-at-Large, will draft a formal set of requirements for the Education Fund. Don has asked he please head this project. Trevor asked for a subcommittee to be created to assist in the approval process for potential candidates.

Jim was advised by the Fire Marshal to keep disposable fire extinguishers in lieu of having the current ones refurbished. Jim also requested the planned vs actuals budget to become a monthly review. Krista will update the books and send those to the board for review. Jim said the cost for the SIG telescope did not exceed budgeted amount and there are still funds left available.

Don requested the board expand the responsibility descriptions of each office in the SLAS Constitution.

Meeting adjourned at 8:12PM.

**Minutes submitted by:**

**Krista Lemoine, SLAS Secretary/Treasurer**

## **SLAS General Meeting Minutes**

August 21, 2024

7:30PM

Salt Lake Community College – Redwood Road Campus

Members in attendance 32. President, Don Abernathy, calls the meeting to order at 7:29PM.

Don welcomed everyone and asked if there were any new members in attendance. Tyler Stephenson introduced himself as a first-time attendee. Don acknowledged our appreciation to Professor Jonathan Barnes and Dr. Samuel Jones for continuing to host the meeting at Salt Lake Community College.

Don introduced the guest speaker for the evening as Dr. Robert Zellem. Dr. Zellem is an astrophysicist at NASA's Goddard Space Flight Center. He is the Deputy Project Scientist for Communications for NASA's Nancy Grace Roman Space Telescope, which includes the position of primary liaison between the Roman Project Science Team and Goddard's Office of Communications. He is also a member of the Roman Coronagraph Project Science Team where he led the development of the science calibration plan.

Don turns over the floor to Dr. Zellem.

Dr. Zellem introduces himself and gives a little insight into what the Nancy Grace Roman Space Telescope is and what its mission entails. His presentation is called "The Nancy Grace Roman Space Telescope: NASA's Next Flagship Mission". He noted Nancy Grace Roman was NASA's first woman Chief Astronomer. The telescope will have a widefield 300-megapixel camera and one advanced coronagraph. It will have a field of view at least 100 times larger than Hubble's, potentially measuring light from a billion galaxies in its lifetime. This observatory will also be able to block starlight to directly see exoplanets and planet-forming disks, complete a statistical census of planetary systems in our galaxy, and settle essential questions in the areas of dark energy, exoplanets, and infrared astrophysics. The mission is planned for a minimum of 5 years and has an estimated launch date of May 2027.

After his presentation, Dr. Zellem took questions from those in attendance.

Don thanked Tony Sarra for introducing him to Dr. Zellem. Tony said Dr. Zellem mailed free stickers and bookmarks from the Roman Mission, and they are available at the podium for those who are interested.

Don moves on to the business portion of the meeting.

Don asked Aleta Cox, Vice President and ALCor, to please come to the podium. Aleta asked Krista Lemoine to come forward. Aleta presented Krista with the Astronomical League's Parker Solar Probe Special Observing Award and the Universe Sampler Observing Award. Aleta encouraged



everyone to check out the programs the Astronomical League has to offer and congratulated Krista for her awards.

Aleta gave the floor back to Don.

Don noted that elections are coming up. The SLAS constitution requires the Board to announce that we are accepting nominations for elected positions within the Board of Directors of the Salt Lake Astronomical Society. "Members wishing to run for office shall file their candidacy with the Board Secretary during the month of August." All positions are open: President, Vice-President, Secretary/Treasurer, and two Board Members-at-Large. Deadline for candidacy filing is August 31st.

Further details may be found within the Constitution of the Salt Lake Astronomical Society, which is available online, on our website, to all current members of the Society. Three of our current Board members (Don Abernathy, Marlene Egger, and Krista Lemoine) will be ineligible to hold office for the coming year.

Tooele City has moved forward with the Library Loaner Telescope Program. They will get 2 telescopes for public use. Don thanked Joan Carman, LTTC, and her team for the continued success of growing the program. SLAS is third largest participating club in the program.

Don updated the membership on the status of ASTROCON 2025. Lowell Lyon and his team can always use more volunteers. The website is up and running, and the Astronomical League is accepting registrations now. If you plan to attend, you can register, and receive confirmation entailing a discount for lodging at Ruby's Inn during the event. This discount is available only to registered members for the conference, and availability at Ruby's Inn will probably fill up quickly.

Don reminded everyone about Advanced Training at Dee's Restaurant following the meeting and noted everyone needed to come up and get some freebies from Dr. Zellem.

Don thanked everyone for their attendance. Meeting adjourned at 8:31PM.

**Minutes submitted by:**

**Krista Lemoine, SLAS Secretary/Treasurer**

