THE FOCUS

NEWSLETTER OF THE DELAWARE ASTRONOMICAL SOCIETY

VOLUME 66, NUMBER 10 DECEMBER, 2024

ON THE MERIDIAN

- Full Cold Moon—12/15
- Winter Solstice—12/21, 4:20am
- Jupiter in opposition and will be visible all night
- 1/24– Lunar occultation of Spica
- 12/25—When Mercury is in greatest Western elongation, all of the planets will be visible

INSIDE THIS ISSUE:

May the Wonders and Joys that we Know be with You and Yours this Holiday Season!

Clear Skies to All!

December Monthly Meeting

The December meeting will be our annual Holiday Party! There will be no board meeting this month, so the Holiday Festivities will begin at 7:00pm.

As this is a more informal meeting / gathering, feel free to come and go as you please. This will be a potluck gathering, so please bring a covered dish (savory, sweet, or non-alcoholic beverage) to share with your fellow members. And come hungry, as there is always a great array of delicious food! Guests are welcome.

Further, we will be holding our usual Swap Meet. The DAS will set out tables in the lobby of Mt Cuba, so feel free to bring any unwanted astronomy gear - some fellow club member may be interested in it! It is up to you to provide any necessary signage, price tags, or other details for your items. The DAS will have 4 telescopes that we will be offering to members via an in-person silent auction. Details of these 4 scopes can be found elsewhere in this issue.

Hope to see you there!

- Jeff

A Note from the President

As we approach the Winter Solstice, the days get shorter and shorter, the air temperature gets colder and colder, and most of the population heads indoors to hibernate for the season. The holidays can be full of hustle and bustle to help you forget about the frigid conditions outside. But we amateur astronomers find solace in the beauty of the winter sky that is now visible for more extended hours of the night. Some of the most beautiful objects in the night sky are best viewed in the calm cold clear air of the winter, and the Winter Milky Way along with Jupiter, Saturn, and Mars shine in all their glory. I hope that over the holiday season, you get some time to observe the night sky, maybe even with some of your DAS friends. I hope that you also get a chance to rest over the holiday season, so that you can embrace the new year full of hope for more exciting observations of the night sky!

I hope everyone got a chance to attend or watch our November meeting, where Prof. Paul Halpern, the famous author, presented "The Allure of the Multiverse: Beyond the Limits of Direct Observation." The talk was out of this universe! If you missed the meeting, or if you would like to go back and watch it or some of our previous meetings, remember that you can access all of them on our club YouTube Channel. This month we will not be having a board meeting or a speaker at our monthly meeting, since this month we are having the DAS Holiday Party. Please come out to the party and bring a sweet and/or savory dish to share with everyone else. Also be sure to come with an appetite so that you can eat all of the delicious food. In conjunction with this event, we are also having the DAS Swap Meet, where you can sell some of the gear that you might no longer need or want and you can also pick up some new gear from your fellow club members at unbeatable prices!

Remember that, except for December 24th and 31st due to the holidays, we have DAS Astronomy Workshops every Tuesday, working on projects, and doing observations. All of you are welcome to attend and if you have any questions about astronomy, need help with a telescope, need help with an astronomy project, want to observe with club telescopes, or just want to talk with your DAS friends, these meetings are a great place to do all of that. We also have monthly AP-SIG meetings and Book Club meetings, please watch for announcements on Groups.io. I hope to see you at some of our events!

Thank you,
Rob Lancaster
DAS President

2024 Swap Meet

Here are the details of the 4 telescopes the DAS will be auctioning at the December meeting / Holiday Party. They will be individually sold via an in-person silent auction. You will place a bid into an envelope, and the highest bid will win! Please come prepared to pay for the scope (cash, check, or PayPal) and to take the scope home with you that night.

Details of the scopes: All scopes come with 10mm & 20mm eyepieces as well as a neutral density "moon" filter. The first 3 are all 8" f/10 SCT's. All have a motor to drive the RA axis, but none come with the power cords.

Two of the three are Meade LX2080. Both come with a tripod. They use a IEC C13 cord (Google it - it is the standard power cord used in desktop computers and other common devices). One has a front lens cover, the other does not. The 3rd scope is a Celestron C8. It comes with 2 legs for sitting on a tabletop or other structure. It uses a more exotic power cable. The 4th scope is a Tasco 4.5" f/8 reflector on a non-powered equatorial mount on a tripod. It has slow motion knobs to slew

Meade LX2080

Celestron C8

Meade 2080

Tasco 4.5"

SeeStar Gallery

I'm capturing images of all the Messier objects with my Seestar and creating a logbook of each object, including a 4"x6" photo. It's fun and is helping me learn about a large number of objects of different types, their location, etc.

I was considering what objects to observe next and realized that M32 (and M110) is already in an M31 mosaic that I did.

Jeff Miller

"The man who does not read good books has no advantage over the man who can't read them."---Mark Twain

AP-SIG Meeting Report for November 2024

by Bill Hanagan, AP-SIG Founder

Elephant Trunk detail by Mark Mitchell

At 1 PM on Saturday, November 2, the AP-SIG met on-line, via Zoom. We began with the Presentation of Astrophotos. I showed two recent images of "the comet" (Comet C/2023 A3) made using two different techniques, as well as a new image of the Pleiades (M45) which appears elsewhere in this issue of the FOCUS. I also showed two images of galaxy M33, which is currently well positioned for imaging. My second version was an HOO narrowband image that highlights the many H-alpha and OIII emission sources in M33. Rob Lancaster showed two images of the comet as well as a couple of beautiful images of the recent aurora. Ben Frederick showed a version of the Crescent nebula made from data collected during the September AP-SIG Star Party, an image of M33, and a work-in-progress view of the Pacman Nebula (NGC 281). Ben also showed images of the comet, and a video of the recent aurora. Jeff Miller showed multiple Seestar images of the comet and several images of deep-sky objects including the Helix Nebula (NGC 7293), the Iris Nebula (NGC 7023), the Bubble Nebula (NGC 7635), and the Deer Lick Group of galaxies, including NGC 7331. Dana Wright showed a deep image of the Veil nebula complex which included the Witches Broom (NGC 6960) and part of Pickering's Triangle. He also showed us his version of the Fish Head nebula (NGC 896). Thanks for the inspiring images, everyone!

We paused to capture the group photo below before moving on to the Q&A Session on Equipment and Techniques. The next AP-SIG meeting is tentatively scheduled for January 25, 2025.

Astrophotos by AP-SIG & DAS Members

The Pleiades (M45) and its Reflection Nebula —by Bill Hanagan

My latest version of the Pleiades Reflection Nebula appears below. Various parts of the nebula were discovered and named individually, but here I'll refer to them collectively as a single reflection nebula. This nebula is arguably the largest, the brightest, and the bluest of all reflection nebulae and is a perennial favorite of deep-sky imagers. The color

balance of this image was set using PixInsight's Spectrophotometric Color Calibration process and has not been altered to make it appear any bluer than it actually is.

In many reflection nebulae, the dust which reflects the light of bright stars is native to the region, but the reflecting dust in this nebula is not native and is reportedly moving at several miles per second relative to the bright stars that illuminate it.

Data Acquisition for the Pleiades Reflection Nebula of M45

- Data acquisition was done at the Spencer Observatory.
- Scope: 10" Takahashi CCA-250 with 0.72x reducer, at 890 mm and f/3.6 (unobstructed equivalent f/4.63)
- Mount: Astro-Physics 1100GTO with CP4.
- Imaging Camera: QSI-683wsg8, w OAG, @ -20C.
- Guide Cam: SX Ultrastar (monochrome).
- Computer: Self-built Windows 10 Small Form Factor (SFF) desktop optimized for observatory use.
- Windows Software: ASCOM, APCC Pro, Stellarium, Sequence Generator Pro (SGP), and PHD2.
- Sub-exposures: 5 minutes x 61 Red, 49 Green, and 48 Blue, all binned 1x1.
- Total light frame integration time: 13 hours 10 minutes.

PixInsight Image Processing Summary for M45

- A 2X DrizzleIntegration workflow was used to double the number of pixels in both dimensions of the image. This gives a very slight increase in resolution. More importantly, this prevents pixels from becoming visible after deconvolution with BlurXTerminator.
- Blink, ImageCalibration, CosmeticCorrection, StarAlignment, ImageIntegration, DrizzleIntegration, & Crop were used to produce Red, Green, and Blue Masters in the usual way.
- ChannelCombination was used to produce the initial linear RGB image for further processing.
- SpectrophotometricColorCalibration (SPCC) was applied to produce an accurate color balance. 238 stars were used in SPCC as color references.
- BlurXTerminator was used for deconvolution, which sharpened the striations in the nebula and reduced the size and dominance of the stellar features of the image.
- NoiseXTerminator was used to reduce random noise.
- HistogramTransformation and CurvesTransformation were both used for stetching, but were applied in a color-neutral fashion to preserve the true color of the finished RGB image.

Auroras

by Ryan Gilbert

Photographed in Iceland
September 2024

I'm excited to share a handful of recent aurora photographs, captured over two nights from towns in northern Iceland. The most unexpected experience of viewing auroras was looking straight up and seeing "space rays" beaming down toward me. Maybe this is what an alien abduction looks like? These filled my field of view and lasted just minutes before drifting away.

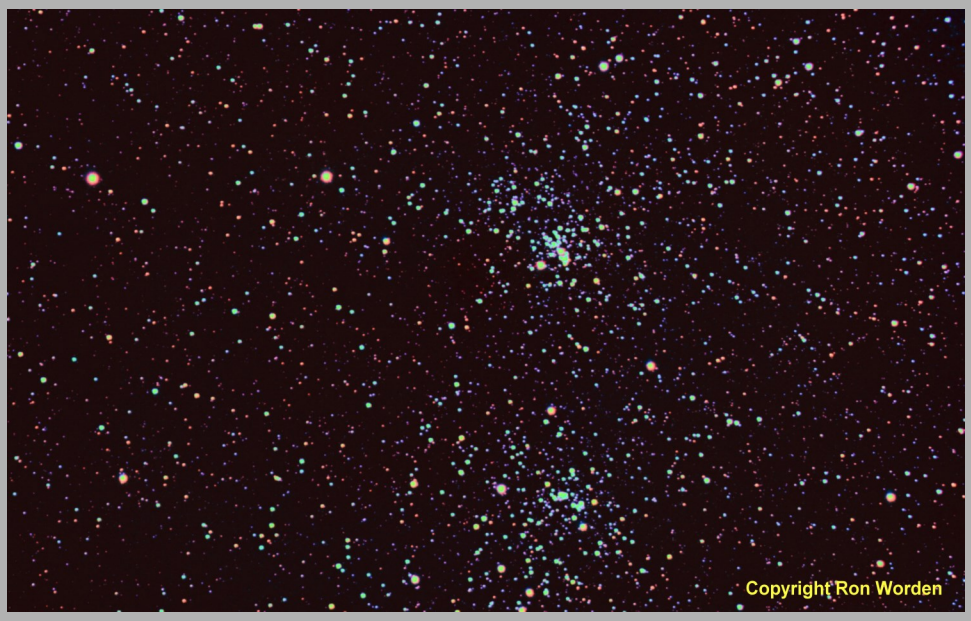
My favorite aspect was the tallness of it - each curtain was made of vertical beams of light dozens of miles tall fading off into space. Everything in astronomy is huge, but you can't determine the real size of stars or galaxies with your eyes. Aurora actually look their true size - unmistakably big for an Earthbound phenomenon.

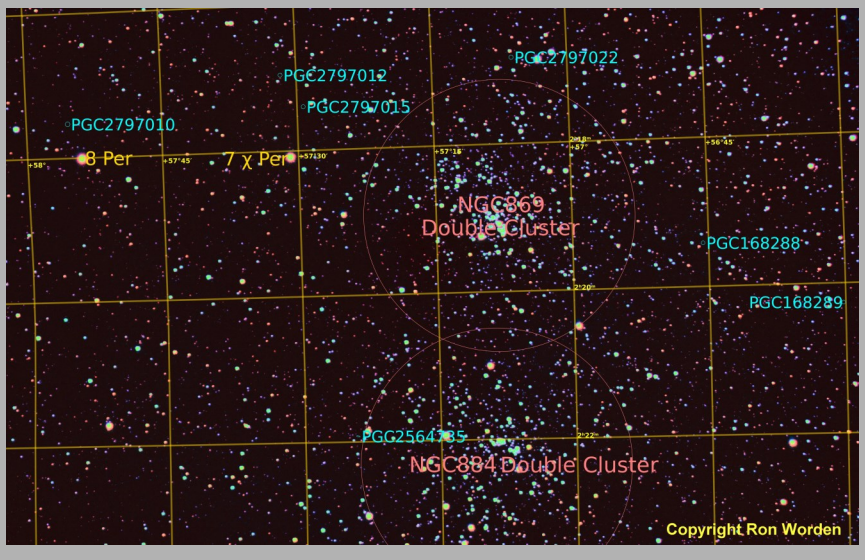
Aurora activity was high. Green (even sometimes pink) coloration was vibrant to the eye, but I can appreciate the shapes better in black and white. Patience paid off, with activity peaking for a few unpredictable minutes, then fading for 15 - 30 minutes. This might be one of the few astronomical events that rival a total solar eclipse. Worth the travel.

Double Cluster NGC 869 and NGC 884 in Perseus

By Ron Worden

Technical Information:
Target: NGC 869 and NGC 884
Constellation: Perseus
Right Ascension: 02h 19.1m
Declination: +57° 09”
Distance: ~7,500 ly
Apparent Magnitude: 3.7
Apparent size: 66.30 ly
Date: 10/11/2024
Location: Snobie Observatory/Lincoln Control Center.
Bear, Delaware W75* 40' 43.04" N39* 34' 39.7"
Telescope: ED102 Scientific Explorer Refractor F7 714mm
Mount: Losmandy G11 Guided w Dithering
Camera: ZWO ASI 2600MM
Guider: 60mm PrimeLuce Lab F4 240mm FL & ZWO174 as autoguider(+-1arcsec)
Temperature: 65*F Ambient cooled to 0*F
Filters: Sii, Ha, Oiii 3nm narrow band
Exposure: 53(300sec subs)(4.42hrs) 24Sii in R channel, 17 Ha in G channel,, 12 Oiii in B channel (Sii, H, O) pallet
Software: PixInsight, PaintshopPro
Frame: 75.5’ x 113’ arcmin
Calibration with: Master Dark
Observer: Ron Worden



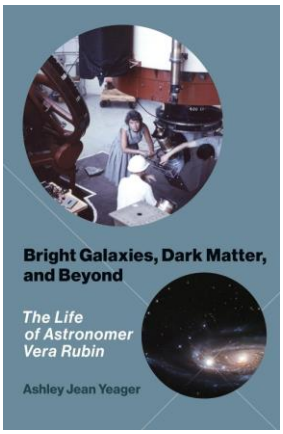


2025 Book Club Calendar

We are pleased to share the Delaware Astronomical Society(DAS) Book Club Calendar for 2025. All Astronomical League members and their guests are invited to attend DAS Book Club meetings. We meet via Zoom. Questions? Please email librarian@delastro.org

Thursday, January 30, 2025

7 PM Eastern Time
Via Zoom



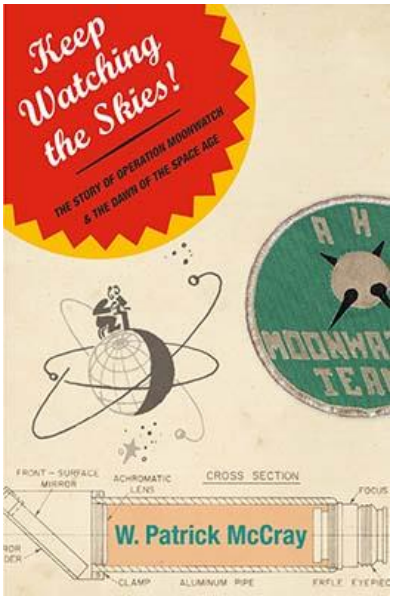
Bright Galaxies, Dark Matter, and Beyond: The Life of Astronomer Vera Rubin
By Ashley J. Yeager

Ashley Yeager will join us for our discussion about Vera Rubin and help us celebrate the long awaited first light at the Vera Rubin Observatory expected in 2025.

The meeting will be led by DAS Members, Beatrice Schwarz and Andy Finkel.

Thursday, February 27, 2025

7 PM ET
Via ZOOM



Keep Watching the Skies! The Story of Operation Moonwatch & The Dawn Of The Space Age
by W. Patrick McCray PhD

UCSB History of Technology and Science Professor W. Patrick McCray will join us for our discussion.

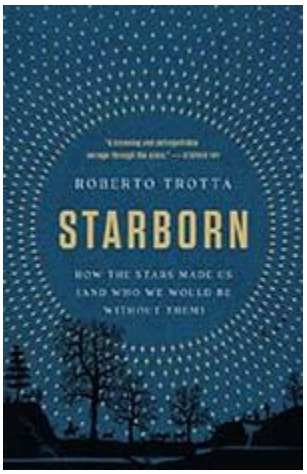
David Ives Brown, DAS Book Club and Rittenhouse Society member, will discuss his Moonwatch telescope-made by the US Navy for the Smithsonian's program.

The Moonwatch Program was the catalyst for the founding of the Delaware Astronomical Society.

The meeting will be led by Dave Groski, DAS At Large Board Member and Chairman of the Board of the MT Cuba Observatory.

Sunday, March 30, 2025

3 PM ET
Via ZOOM



Starborn: How the Stars Made Us (and Who We Would Be Without Them)
by Roberto Trotta

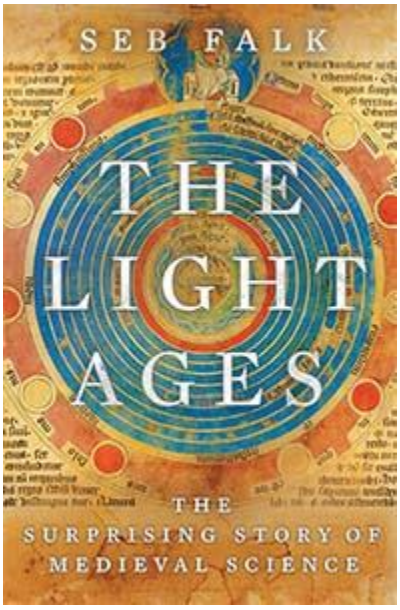
Dr. Robert Trotta will join us from Italy for our meeting.

Greg McNiff, DAS and AAS member, will lead our discussion.

Members of the Amateur Astronomers of New York will be joining us for our discussion.

Thursday, April 24, 2025

5 PM ET
Via ZOOM



The Light Ages: The Surprising Story of Medieval Science
by Seb Falk

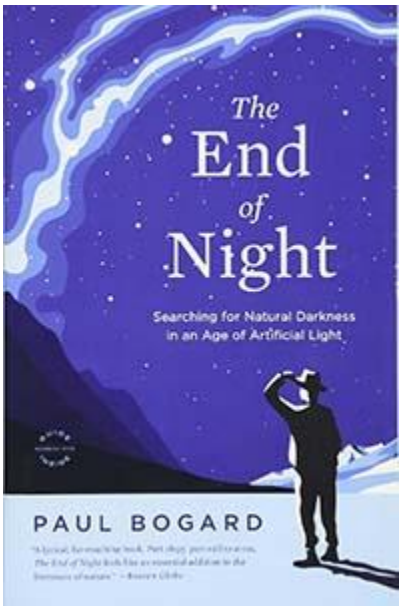
Winner of the American Astronomical Society's Donald E. Osterbrock Book Award for 2025

Seb Falk will join us via Zoom from England for the meeting.

Greg McNiff, DAS and AAS-NY board member, will lead the meeting.

Thursday, May 29, 2025

7PM Et
Via Zoom



The End of Night: Searching for Natural Darkness in an Age of Artificial Light
by Paul Bogard

Paul Bogard will join us for our meeting.

Professor Diane Turnshek, DAS Book Club Member and Special Lecturer from Carnegie Mellon University, will lead our discussion

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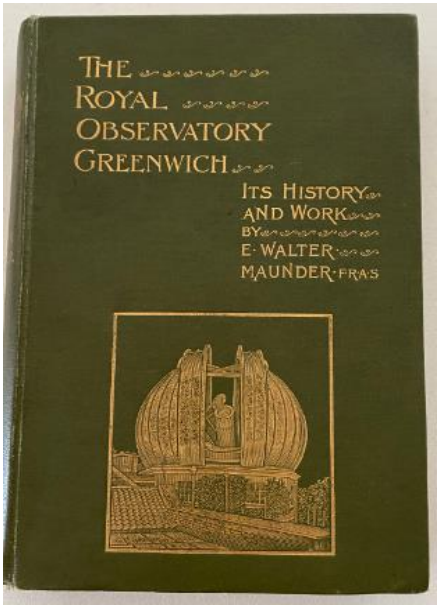
Thursday, June 26, 2025

Time TBA
Via Zoom

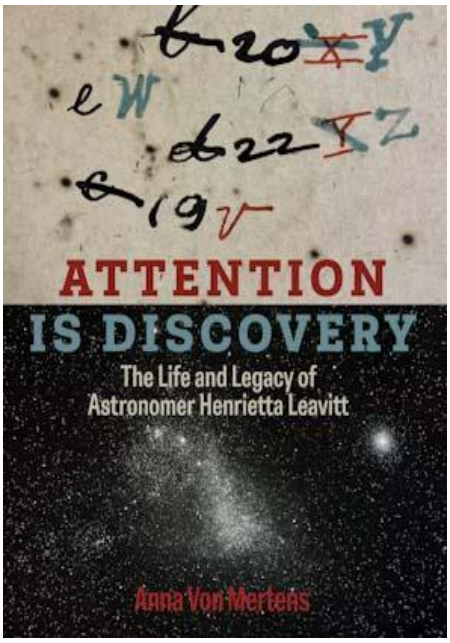


The Royal Observatory, Greenwich: A Glance At Its History And Work
by E. Walter Maunder

Celebration of the 350th anniversary of the founding of Greenwich Observatory with the members of the Flamsteed Astronomy Society in Greenwich is being planned.

Thursday, July 31, 2025

7 PM ET
Via ZOOM



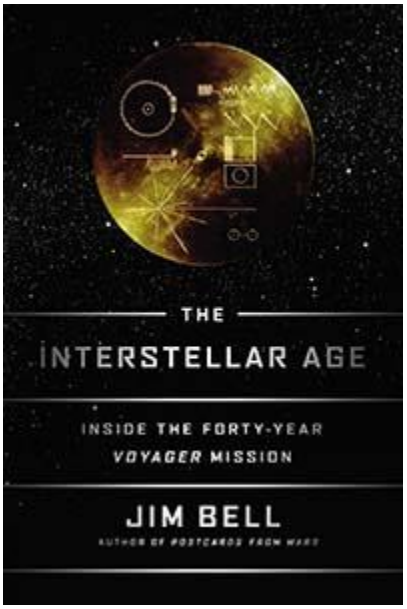
Attention Is Discovery:The Life and Legacy of Astronomer Henrietta Leavitt
by Anna Von Mertens

A portrait of trailblazing astronomer Henrietta Leavitt and an illustrated exploration of the power of attention in scientific observation, artistic creation, and the making of meaning.

Anna Van Mertens will be joining us for our discussion.

Thursday, August 28, 2025

7 PM ET
Via ZOOM



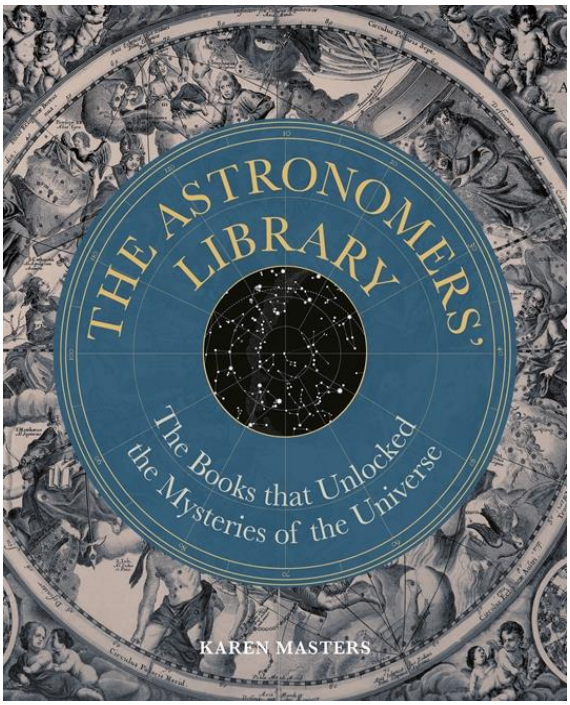
The Interstellar Age: Inside the Forty-Year Voyager Mission
by Jim Bell

Jim Bell will join us for our meeting.

DAS Member, Dave Hunter, will lead the discussion.

Thursday, September 25, 2025

7PM
Via Zoom



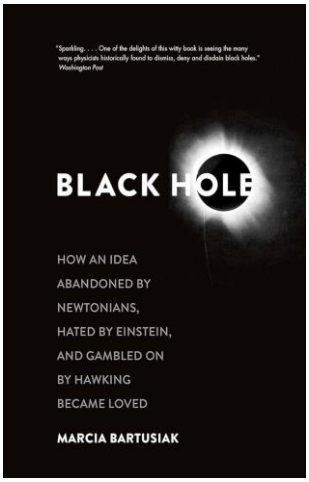
The Astronomers' Library
by Karen Masters PhD of Haverford College

Professor Masters will join us for our meeting.
Sarah Horowitz, Rare Book Curator at Haverford College, will join us to discuss the college's collection of rare astronomy books

Astronomy students from Haverford, Bryn Mawr, and Swarthmore Colleges will be invited to join us.

.Thursday, October 30, 2025

7 PM ET
Via Zoom



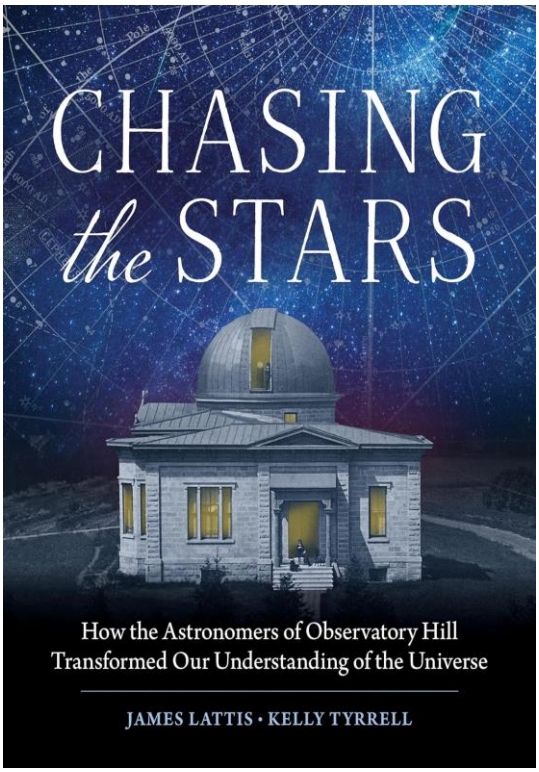
Black Hole: How an Idea Abandoned by Newtonians, Hated by Einstein, and Gambled On by Hawking Became Loved
By Marcia Bartusiak

Marcia Bartusiak will join us for our meeting.

David Ives Brown, Rittenhouse Astronomical Society member, will lead our meeting.

Thursday, November 20, 2025

7 PM ET
Via ZOOM



Chasing the Stars: How the Astronomers of Observatory Hill Transformed Our Understanding of the Universe
by James Lattis and Kelly Tyrrell

Dr. Lattis will be joining us for our meeting.

Thursday, December 18, 2025

7 PM ET
Via ZOOM

Rayed Arcs and the 'Rory Bory Aylis': Primary World Aurorae and Tolkien's 'Father Christmas Letters
By Kristine Larsen

Dr. Kristine Larsen, an astronomer who teaches at Central Connecticut State University, serves as the editor of the Astronomical League's *Reflector.* She regularly presents and writes about the works of J.R.R. Tolkien.

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