Star Dust

Newsletter of National Capital Astronomers, Inc.

capitalastronomers.org

February 2026 ***Volume 84, Issue 6***

Celebrating 89 Years of Astronomy

Next Meeting

When: Sat. Feb. 14th, 2026

Time: 7:30 pm

Speakers: Dr. Frank Summers

Where: In-Person (UMD Obs.) and Online (Zoom)

See instructions for joining the meeting via Zoom on Page 9.

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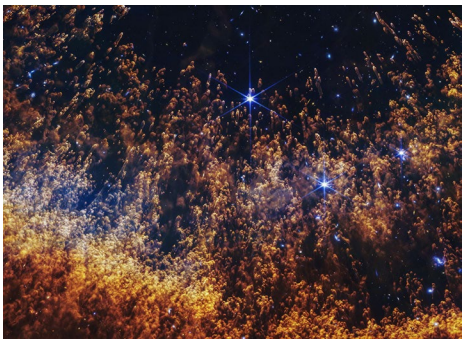
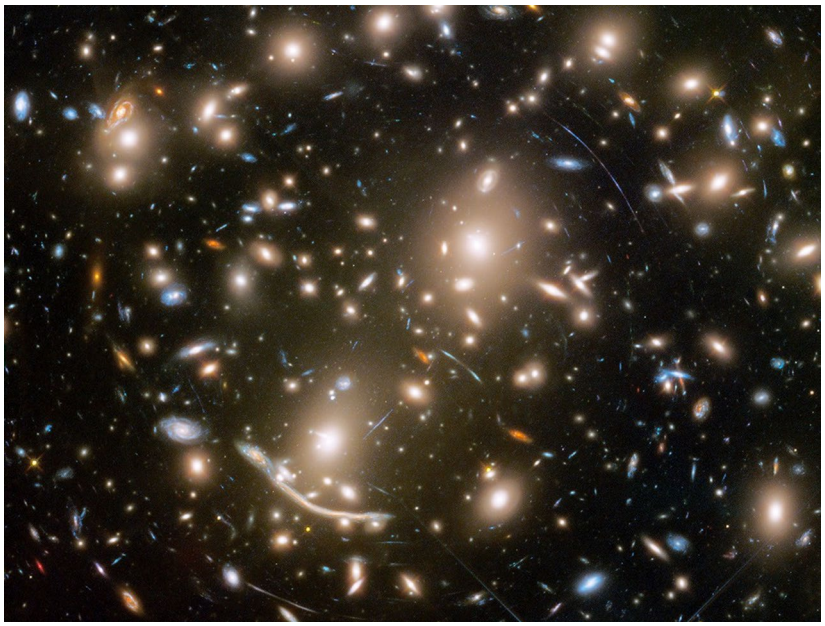


Image Credit – NASA, ESA, CSA, STScI; Image Processing: Alyssa Pagan (STScI)

The recently released near-infrared image from JWST shows the intricate structure of a small portion of the Helix Nebula. More information about the image is available at science.nasa.gov/missions/webb/intricacies-of-helix-nebula-revealed-with-nasas-webb/.

Cinematic Astronomy

Dr. Frank Summers, Astrovizicist – Space Telescope Science Institute in Baltimore



Galaxy cluster Abell 370 with the many arcs throughout the image being background galaxies gravitationally lensed by its mass – certainly a cinematic part of the Universe. Image Credit – NASA, ESA, and J. Lotz and the HFF Team (STScI)

Scientific research generally produces graphs and diagrams that speak volumes to those in the field, but may seem like jumbled jargon to anyone else. Due to a happy accident early in his career, Dr. Summers has become a specialist in translating scientific discoveries for the public. His work on Hubble press releases, major museum exhibits, and IMAX films has given him a keen appreciation for the intellectual, visual, cultural, and emotional methods for expressing complex ideas in a simple and intuitive manner. He will describe several of his favorite projects and how the adaptation of feature film techniques for scientific communication has developed into the creation of cinematic astronomy.

Biography: Dr. Frank Summers is an "astrovizicist" at the Space Telescope Science Institute in Baltimore, MD. For the last 25 years, he has contributed to all aspects of the Hubble and James Webb Space Telescope press, education, and outreach through news media, web sites, educational programs, social media, museums and planetariums. His specialty is creating accurate and aesthetic scientific visualizations by combining research data and computer simulations with Hollywood software and production.

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Recent Astronomy Highlights

Five-Galaxy Merger in the Early Universe

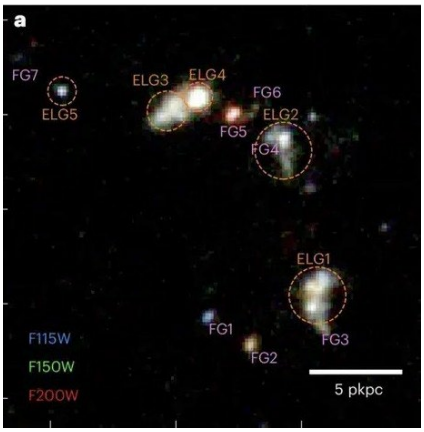

Image Credit - NASA, ESA, CSA, and STScI / Hu et al.

JWST has imaged a five-galaxy merger that was taking place approximately 800 million years after the Big Bang. The galaxies are labelled ELG1 thru ELG5 in the image above. ELG stands for Emission-Line Galaxy, a galaxy with a spectrum containing strong emission lines generated by gas ionized by ultraviolet light from hot stars. The galaxies are also surrounded by gas that is rich in oxygen and other elements that were born via nuclear fusion in stars and subsequently ejected from the galaxies in which they originated long before this ancient merger. This merger, taking place long before such astronomical events were previously thought possible, is yet more proof from JWST that the ,arly Universe was a far more developed place than long theorized. More information on the discovery is available at phys.org/news/2026-01-webb-reveals-galaxy-merger-million.html.

The Universe Acted Like a Liquid Right After the Big Bang

Speaking of the early Universe, scientists at the Large Hadron Collider have discovered that in the first few millionths of a second after the Big Bang, the quark-gluon plasma acted like a liquid, forming wakes, similar to wakes formed when a boat speeds across the sea. More information can be found at www.space.com/science/particle-physics/large-hadron-collider-reveals-primordial-soup-of-the-early-universe-was-surprisingly-soupy.

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Abstract and Biography – continued from page 1

Image Credit - Carolyn Summers

His credits include writer, science advisor, and scientific visualization supervisor on IMAX “Hubble 3D” (2010), and science and script advisor on IMAX “A Beautiful Planet” (2016). He contributed data, science, and visuals to the Academy Award-nominated IMAX "Cosmic Voyage" (1996), and directed the IMAX short “Hubble: Galaxies Across Space and Time” (LFCA Best Short Film 2004). When not attempting to re-imagine the universe, he is likely to be found on a disc golf course.

Schedule of Upcoming NCA Meetings and Speakers

Bryan Vandrovec

Feb. 14, 2026 -- Frank Summers (Space Telescope Science Institute) – *Cinematic Astronomy*

March 14, 2026 -- Christine Hirst Bernhardt (National Earth Science Teachers Association) - *tentative*

April 11, 2026 -- Michael Kirk (NASA’s Goddard Space Flight Center) - *The Heliosphere Revealed: Insights into Space Weather and Beyond*

May 9, 2026 -- Stefanie Milam (NASA’s Goddard Space Flight Center) - *Big Eyes on Small Bodies: Studies of Comets, Asteroids, and Interstellar Objects with JWST and HWO (tentative)*

June 13, 2026 -- Science Fair Winners and Astrophotos

September 12, 2026 -- Saswatee Banerjee (Photonic Wave Solutions LLC) - *Computational Photonics: Finite-Difference and other Computational Methods in Design and Fabrication of Photonic Devices*

Exploring the Sky

Exploring the Sky-2026
78th Year
NCA / National Park Service

18 Apr 8:00 pm M45, Orion, Jupiter
16 May 9:00 pm M44, Leo, Arcturus, M13, Jupiter, Venus (?)
20 Jun 9:00 pm Leo, Bootes, M13, Moon, Venus, Beehive
18 July 9:00 pm Moon, M13, Summer Triangle, Venus
15 Aug 8:30 pm Moon, M13, Summer Triangle, M57, M31, Venus
19 Sep 8:00 pm Moon, Summer Triangle, M31, M13
17 Oct 7:30 pm Summer Triangle, Moon, M31, Saturn
7 Nov 7:00 pm Summer Triangle, Pegasus, M31, Saturn, Moon

Exploring the Sky is a joint program between the National Capital Astronomers and the National Park Service Rock Creek Park Nature Center and has been run since 1948 at this location, the field at the corner of Glover and Military Roads in the District. There is an adjacent parking lot. It is free and all are welcome who have an interest in observing the heavens. It's not an ideal dark sky location but we can still see Solar System objects (even the occasional comet), open and globular clusters and maybe a distant galaxy or two. If it is cloudy or raining observing is, of course, cancelled. As a bonus, come to the Nature Center an hour before the observing starts for a free planetarium show on that night's sky.

For more information about Rock Creek Park, please visit www.nps.gov/rocr/planyourvisit/naturecenter-and-planetarium.htm. To learn about their planetarium programs and scheduling, visit www.nps.gov/rocr/planyourvisit/calendar.htm. You can also use keywords like "astronomy" or "dark skies," or simply reach out to the Nature Center directly at 202.895.6070.

Information on joining the National Capital Astronomers, which is 86 years old, can be found at capitalastronomers.org.

Join us for an evening of celestial wonder!

The submission deadline for March's Star Dust is February 27th.

Clear Skies!

President's Corner

Guy Brandenburg
President, National Capital Astronomers

A New Feature!

Please read Bryan Vandrovec's wonderful article in this issue, about the upcoming month: "Under a Parade of Planets, We Look Back to the Moon and a Pale Blue Dot." I hope he will agree to keep it up and become a regular contributor!

Cinematic Astronomy

This week's meeting will be on Valentine's Day, and the topic chosen by Dr Frank Summers of the Space Telescope Science Institute is "Cinematic Astronomy." One website describes Dr. Summers' efforts in the following manner - "*In work spanning more than two decades, hundreds of Hubble press releases, dozens of cosmic sequences, and five IMAX films, Dr. Summers has balanced the accuracy of astronomical research with the aesthetics of cinematic arts in order to create grand scenes of astronomical splendor.*"* This sounds really good. Hybrid meeting as usual.

* ecolloq.gsfc.nasa.gov/archive/2018-Fall/announce.summers.html

Occultations and David Dunham

I would like to thank David Dunham for his indefatigable efforts at measuring the sizes and shapes of asteroids and other solar system objects with just an ordinary SCT, a camera, and a timing device - and a team of other folks, including his wife, Joan, doing the same thing. For years he has created a list of occultations visible anywhere near the DMV in every issue of Star Dust, as well as writing up detailed articles about specific occultation efforts, again along with his wife. In fact, he founded the IOTA. The rings of both Uranus and Neptune, and their atmospheres were all discovered by occultation observations. If an occultation is observed at several distributed sites, the size and shape of the occulting body can be determined more accurately than by other any other Earth-based technique, and for far less money than it would take to send a space probe to get a close-up look. David has now retired from compiling those lists of occultations for Star Dust, although he may contribute articles on future occultation efforts from time to time. If anybody would like to take on the job of compiling the occultation list, please let him know. Thank you, David.

AAS Election

Did you vote in the recent American Astronomical Society election? I voted for Eric Isaacs, past president of DC's own Carnegie Institution for Science.

A Personal First Light

A 42cm, f/5 truss-tube Dobsonian telescope, which I've been working on

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Sky Watchers

February/March

Having transitioned to the evening sky in late January, Mercury will be low after sunset, reaching greatest eastern elongation on 2/19 (see below) and will transition back to the morning sky starting in early March. Venus will be low in the evening sky, setting approximately an hour after sunset. Mars rises shortly before sunrise and will probably be unviewable throughout the period. Jupiter will be in the eastern sky after sunset, viewable for much of the night. Saturn will appear lower in the evening sky as the period progresses.	
2/19	Greatest eastern elongation of Mercury. The planet will be 18.1 degrees from the Sun in the evening sky.
3/3	Total Lunar Eclipse beginning at 6:05 a.m. and ending at 7:03 a.m., after the Moon has set in the DC area. The Full Moon will take place at 6:39 a.m.

Time is in EST (Eastern Standard Time)

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for an embarrassing number of years, finally saw its first light on January 28, in my tiny back yard in the Brookland section of Northeast Washington DC. That was the bitterly cold night right after the snow-sleet-ice storm that shut down half the USA. Setting that big 16.5" scope up on the ice in my back yard took all my strength, even with some help from my wife. I only slipped on the ice once – fortunately not while I was gently placing the mirror into its cell! The scope does indeed work as intended, and the Moon looked great, but the sky was hazy, and the nearby streetlights drowned out even Betelgeuse (my only naked-eye star at the time). Now I need to find someone to sew a shroud for it.

NCA Telescope Making, Modification, and Maintenance Workshop

The DC government has chosen the construction group that will demolish and rebuild both the Chevy Chase Public Library and the Chevy Chase Community Center where NCA volunteers have been running telescope-making classes ever since 1954 (before the current structures were even built).

I would like to thank the government and people of Washington DC for allowing us to perform this public service, rent free. If we had to pay rent, this workshop would simply have to dissolve and get rid of all the tools, supplies, equipment and whatever expertise that we have built up over the decades.

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Star Dust is published ten times yearly September through June, by the National Capital Astronomers, Inc. (NCA).

ISSN: 0898-7548

Editor: Todd Supple

Editorial Advisors:

- James Kaiser
- Brian Tomich
- Elizabeth Warner
- Marjorie Weissberg

Electronic Distributor: Elizabeth Warner

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Vera Rubin Observatory Discovers Enormous, Fast-Spinning Asteroid

Even before the start of its multi-year survey, the Vera Rubin Observatory is making incredible observations and discoveries. Those include the discovery of approximately 1900 never-before-seen asteroids within our Solar System. Among them is 2025 MN45, an asteroid approximately 0.71 kilometers in diameter that spins once every 1.88 minutes, a record rate of rotation for an asteroid over half a kilometer in diameter. The discovery came in April and May of 2025 when the observatory's LSST camera, (Legacy Survey of Space and Time), the biggest digital camera in the world, took a large number of images in the direction of the Virgo Cluster. The numerous images allowed astronomers to create a graph of the luminosity of the asteroid over time, a graph known as a light curve. The regular brightening and dimming of the asteroid's reflected sunlight in turn shows the rotational period. Most asteroids are assumed to be rubble piles, but the fact that 2025 MN45 is spinning so rapidly, without having been torn apart, means that it must have a strength comparable to that of solid rock. With the Rubin Observatory's ability to take near continuous images of large portions of the sky, it is sure to make numerous discoveries in the Universe, near and far, when it officially begins its survey. More information about 2025 MN45 is available at rubinobservatory.org/news/rubin-record-breaking-asteroid-pre-survey.

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Solar Magnetic "Avalanche" Imaged by Solar Orbiter

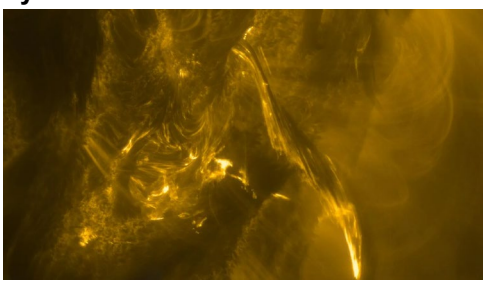

Image Credit - ESA & NASA/Solar Orbiter/EUI Team

In 2024, Solar Orbiter, a mission led by the European Space Agency, managed to record the buildup of a solar flare, during a 40-minute period when the spacecraft was closest to the Sun in its orbit. The spacecraft's Extreme Ultraviolet Imager, IEU, took images allowing for changes over two-second periods to be recorded. At the start of the period, Solar Orbiter imaged a region with a solar filament containing many strands of plasma and twisted magnetic fields. As the period progressed, numerous additional magnetic strands formed, making the filament more unstable until the magnetic fields in some strands began to break in a process known as magnetic reconnection where magnetic field lines disconnect and reconnect in new configurations, releasing enormous amounts of energy and heating solar plasma up by as much as millions of degrees. As time passed, more and more strand field lines broke and reconnected, like an avalanche, releasing more energy, brightening the region suddenly, after which the entire filament itself broke at one end, unravelling and reconnecting, causing the solar flare. More information about this event can be found at www.sciencedaily.com/releases/2026/01/260121034114.htm. A sped-up video of the event can be seen at www.youtube.com/shorts/2Pk6AOsYhTI

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The proposed rebuild will have underground parking and about 175 apartments (some subsidized) on upper floors. The drawings look great to me, especially compared to how the complex looks right now. No floor plans have been released. My only concern for the proposal is that I see no mention of a woodshop or maker space in the list of goals for the new community center. Was this a mere oversight? We will bring that up when public comments are accepted.

We should have a roundup of news from the Telescope Making, Modification and Maintenance Workshop in next month's Star Dust. Let me or editor Todd Supple know if you have photos you would like to add.

Science Fairs

Local county and city science (or STEM or STEAM) fairs are coming up in early spring. Anybody interested in being a judge for Northern Virginia, Montgomery County, Prince George's County, or the District of Columbia, please contact our coordinator, Milt Roney at mjroney@starpower.net.

College Park Stargazing - March 27

The City of College Park and the National Air and Space Museum are sponsoring a pop-up stargazing event, airandspace.si.edu/whats-on/events/pop-stargazing-college-park, in College Park, MD, not far from where NCA holds its monthly meetings at the University of Maryland Observatory. The event is March 27, 2026, from 8 – 10 pm at the Calvert Hills Athletic Field. Shauna Edson of NASM has specifically asked NCA to bring up to six telescopes. This is NOT a dark-sky location!

Go Dark: International Dark Sky Week - April 13-20

For more details, go to idsw.darksky.org/.

Under a Parade of Planets, We Look Back to the Moon and a Pale Blue Dot

Bryan Vandrovec
Vice-President, National Capital Astronomers

Happy February to all my fellow skywatchers. This month promises to be a busy one for our community, highlighted by a "Planetary Parade" on February 28, where Mercury, Venus, Neptune, Saturn, Uranus, and Jupiter will all appear in the evening sky shortly after sunset. While the outer giants will require optical assistance, seeing four planets with the unaided eye is always a treat, weather permitting.

However, the real "parade" on everyone's mind is the upcoming Artemis II mission. For the first time in over half a century, NASA is preparing to send four astronauts—Reid Wiseman, Victor Glover, Christina Koch, and Jeremy Hansen—on a 10-day journey around the Moon. This is a pivotal moment intended to build the foundation for a permanent human presence

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2025-2026 Officers

President:
Guy Brandenburg
gfbrandenburg@yahoo.com
202-635-1860 (leave message)

Vice-President:
Bryan Vandrovec
bvandrovec@gmail.com
301-247-7452

Secretary-Treasurer:
Jim Simpson
simpsonj@verizon.net
240-232-2820

Asst. Secretary-Treasurer:
Brian Tomich
brian.tomich@gmail.com
(214) 536-9080

Trustees:
- Michael Brabanski (2026)
- Elizabeth Warner (2027)
- Chong Wang (2028)
- Zachary Gleiberman (2029)

Appointed Officers and Committee Heads:

Exploring the Sky
Jay Miller
jhmiller@me.com

Telescope Making
Guy Brandenburg
gfbrandenburg@yahoo.com
202-635-1860 (leave message)

Star Dust Editor
Todd Supple
NCAStardust@gmail.com
240-687-8193

NCA Webmaster
Elizabeth Warner
warnerem1303@gmail.com
301-405-6555

Science Fair Coordinator
Milt Roney

Social Media
Facebook: NatCapAstro

Under a Parade of Planets… – continued from page 5

on the lunar surface and eventually crewed missions to Mars.

Image Credit - NASA/Joel Kowsky

For decades, many of us have felt that the public imagination regarding space exploration has been somewhat dormant, perhaps lacking the unified wonder of the Apollo era. Artemis II has the potential to change that. NASA is actively encouraging the public to participate through its "Artemis II Watch Party Planning Guide," which offers a wealth of resources including downloadable posters, mission patches, and even the ability to sign up for an "Artemis II Boarding Pass" to send your name around the Moon. For those of you involved in outreach or looking to engage the younger generation, there are fantastic hands-on activities like "Observe the Moon Like an Astronaut," which uses real NASA imagery to help participants identify lunar features.

A Symbiotic Balance: Exploration and Science

While the thrill of human spaceflight is undeniable, we must also consider the necessary balance between these high-profile exploration missions and the equally vital space-science missions. NASA's strategy is increasingly one of "symbiotic mission architecture," where human spaceflight provides an operational platform for scientific infrastructure. For instance, astronauts can serve as technicians to build or service deep-space observatories, similar to the Hubble missions.

However, we must also protect our "core science"—the strong, independent program of robotic, orbital, and suborbital missions that advance astrophysics and planetary science without a human crew. These missions are often the ones that provide the long-term data needed to understand climate change, natural disasters, and the protection of Earth from near-Earth objects. By viewing human

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exploration and robotic science as interdependent rather than competitive, we ensure the greatest return for humanity.

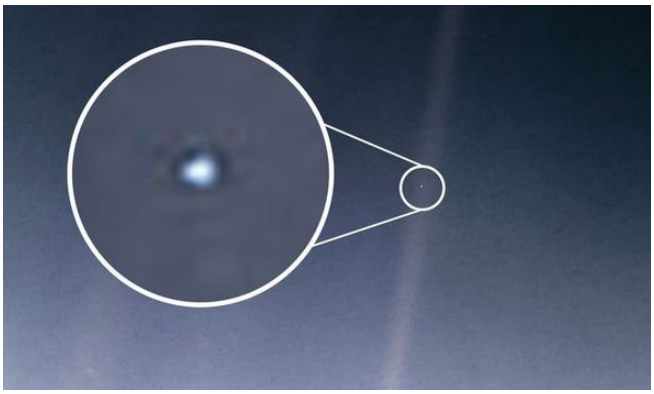
Facing Challenges with Optimism

We are currently navigating a landscape of grave challenges, including renewed attacks on the validity and funding of science. It is no secret that recent federal leanings have threatened to prioritize tax cuts for the wealthiest over real scientific progress. However, there is reason for a subtle optimism: the Senate, in a bi-partisan move, has recently voted to reject the majority of the administration's proposed cuts to science agencies and programs. This is a critical win for our field, ensuring that missions like the Nancy Grace Roman Space Telescope—which passed key tests recently—remain on track.

Perspective from a Tiny Point of Light

This February 14th marks the anniversary of the "Pale Blue Dot" image, taken in 1990 by Voyager 1 from 4 billion miles away. Carl Sagan's philosophy remains a vital tether for us as we look toward the Moon. He famously noted that astronomy is a humbling experience, and there is perhaps no better reminder of the folly of human conceits than that tiny point of light, an image of our little world from afar.

As we push the boundaries of exploration with Artemis, we must remember that Earth is the only world known so far to harbor life, and for the moment, it is where we make our stand. Our technological ambitions, while inspiring, should never distract us from our responsibility to deal more kindly with one another and to preserve and cherish the only home we've ever known. Whether we are training to observe craters like astronauts or fighting to protect science funding, our goal remains the same: to know the Cosmos and our place within it.



NASA's Pale Blue Dot – Image Credit - NASA/JPL-CALTECH

Green Bank Star Quest XXI

The upcoming annual four-day Green Bank Star Quest XXI, held by the Central Appalachian Astronomy Club, will take place on July 15 through July 18, 2026, in Green Bank, West Virginia.

The infrastructure at Green Bank allows events and lectures to continue during inclement weather. Large campsites are available in the observing field with nearby hot showers. For anyone who is interested in attending, a registration form is available on our website. Anyone registering before February 28, 2026, will qualify for an Early Bird Discount off of the registration fee. Bunkhouse fees cannot be discounted. The option to use PayPal is also available at the following website - greenbankstarquest.org/Registration.html.

More information is available at www.caacwv.com/contact.htm, or you can contact the coordinator of the event, the club's vice president, John Taylor, at (304) 265-5514.

Recent Astronomy Highlights – continued from page 5

The Origin of Blue Stragglers

The origin of blue stragglers, stars that appear to be young in ancient clusters that have long since stopped producing stars, has been an astronomical mystery for many years. One theory was that such stars actually formed from the rare collisions of two older stars. However recent studies have shown that these youthful-appearing stars are actually more prevalent in clusters with lower densities of stars, places where any such collisions are less likely. Astronomers now theorize that it is these lower-density environments that promote the creation of blue stragglers, because binary-star systems are less likely to be torn apart there, so that in such stable systems one star has a long time to siphon gas off the other, providing new fuel and giving the star receiving the gas a rejuvenation. More information is available at phys.org/news/2026-01-hubble-uncovers-secret-blue-straggler.html.

Calendar of Events

The NCA Telescope Making, Maintenance, and Modification Workshop (TMMW) is held on Tuesdays & Fridays, from 6:00 to 9:00 PM, in the basement wood shop of the Chevy Chase Community Center. The CCCC is located at the intersection of McKinley Street and Connecticut Avenue, NW, a few blocks inside the DC boundary, on the northeast corner of the intersection. There is no cost to attend. At the TMMW, you can make a telescope from scratch, or else get assistance with collimating or modifying a scope you already own. We can also re-aluminize mirrors up to 12.5" in diameter for much less money than you would pay anywhere else. For additional information visit Guy Brandenburg's Website. To contact Guy, call 202-262-4374 or Email Guy.

Open House talks and observing at the University of Maryland Observatory in College Park are temporarily suspended. When they resume, they will be on the 5th and 20th of every month at 8:00 pm (Nov.-Apr.) or 9:00 pm (May-Oct.). Updates are posted at www.astro.umd.edu/openhouse.

The APS Senior Physicists Group: Wednesday, Feb. 18th at **1:30 p.m**., Dr. Marcus A. Maloof, National Institute of Standards and Technology, will give a talk entitled **Artificial Intelligence and Neural Networks**. Participants can attend at the American Center for Physics at One Physics Ellipse, College Park, MD 20740 in Room 2148 or via Zoom. The Zoom link to register will be provided to NCA members via email after it becomes available.

March 14, 2026 -- Christine Hirst Bernhardt (National Earth Science Teachers Association) - tentative

National Capital Astronomers

Online Membership Application and Renewal

To submit or renew a membership to the National Capital Astronomers, and pay dues, please visit capitalastronomers.org/. There is a Google form for membership on the upper right. Please fill out the Google form, including your email address, in order to continue receiving issues of Star Dust.

Membership Rates

$ 20 – 1 year Individual/Family
$ 45 – 3 years Individual/Family
$ 5 – 1 year Student
$200 -- Life Member

(Please note that membership dues will go up in coming years, so consider joining/renewing with the 3-year option in order to save money.)

If you prefer to pay membership dues by check,

- make check payable to ***National Capital Astronomers*** then
- mail to: **Jim Simpson, NCA Treasurer; 3845 Wayson Road, Davidsonville, MD 21035.**
- Don't forget to also fill out the membership Google form, even if renewing!

NCA can use your help! Please indicate on the membership Google form which astronomy activities are of interest to you. In addition, we are also looking for volunteers! We need new officers, help with our website and social media, and help with outreach and science fair events.

Thank you!

Celebrating 89 Years of Astronomy

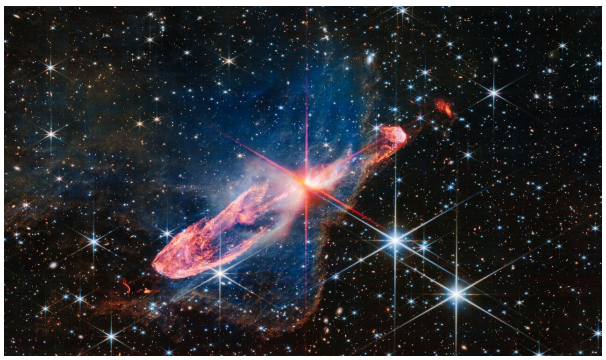


Image Credit - NASA, ESA, CSA; Image Processing: Joseph DePasquale (STScI), Anton Koekemoer (STScI)
Released in 2023, the false-color image shows Herbig-Haro 46/47, a binary system containing two incredibly young evolving stars. More informaton about the image is available at esawebb.org/images/weic2319a/.

To join or renew online, visit capitalastronomers.org and look in the right column for the Membership Form and PayPal links.

Next NCA Meeting:

2026 Feb. 14th
7:30 pm
Dr. Frank Summers

- *Virtual attendees:* To join the meeting via Zoom, use the following link:

umd.zoom.us/j/95619565617?pwd=uqwxzZ39zgVfgOypmcp8cy6xFaCcRb.1

- *In-person attendees*: The UMD Astronomy Observatory is at 3255 Metzerott Road, College Park, MD 20740. Directions: www.astro.umd.edu/openhouse/1visiting/directions.html

Please note that NCA Zoom meetings are often recorded.

Inside This Issue