Star Dust

Newsletter of National Capital Astronomers, Inc.

capitalastronomers.org

December 2025 ***Volume 84, Issue 4***

Celebrating 88 Years of Astronomy

Next Meeting

When: Sat. Dec. 13th, 2025

Time: 7:30 pm

Speakers: Dr. Kristin S. Sotzen

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 – ESA/Webb, NASA & CSA, J. H. Kastner (Rochester Institute of Technology)

With its Near-InfraRed Camera (NIRCam), the James Webb Space Telescope captured the stunning image shown above of the Red Spider Nebula, located in the constellation of Sagittarius. More information about the image can be found at phys.org/news/2025-11-red-spider-nebula-photo-webb.html.

Annual Membership Dues are Past Due

Instructions to join NCA or renew your membership, are available at capitalastronomers.org/ (top right corner). Please fill out the electronic form! Dues payment is electronic (preferred!) or by check (see information for doing so on Page 8). Please support NCA by applying for or renewing your membership at this time to continue receiving Star Dust. ***Thank you!***

Dragonfly: Flights Across an Alien Frontier

Dr. Kristin S. Sotzen – JHU Applied Physics Laboratory

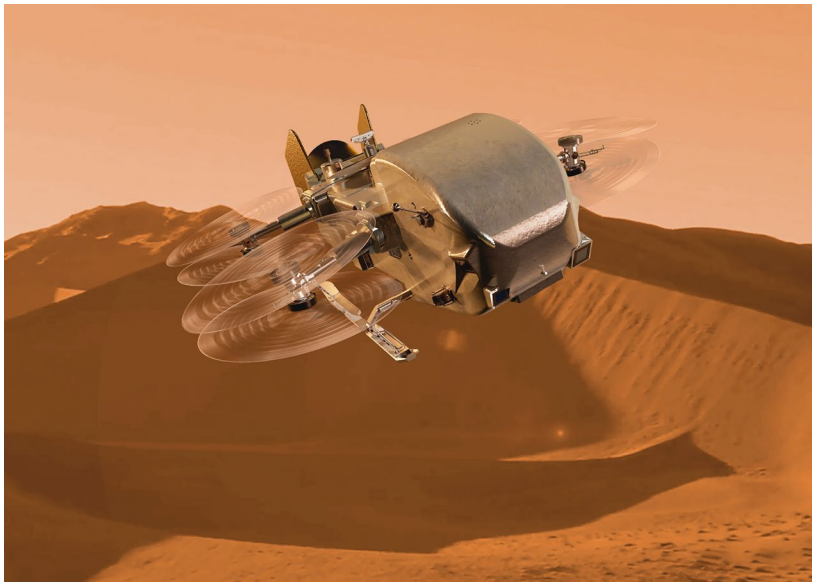

Image Credit – NASA/Johns Hopkins APL/Steve Gribben

The fourth mission in NASA's New Frontiers program, Dragonfly, will land a robotic octocopter on Saturn's largest moon, Titan, in the mid-2030s. Dragonfly is designed to take advantage of Titan's low gravity and thick atmosphere to sample materials and characterize Titan's geology and surface composition at multiple landing sites over the course of the 3.3-year mission. Titan is an ocean world and the only moon in our solar system with a dense atmosphere, which supports an Earth-like hydrological cycle of methane clouds, rain, and liquid flowing across the surface to fill lakes and seas. The abundant complex organic material accessible on Titan's surface makes it an ideal destination for studying the conditions necessary for the habitability of an extraterrestrial environment and the kinds of chemical interactions that occurred before life developed on Earth.

Recent Astronomy Highlights

Brightest Supermassive Black Hole Flare Ever Discovered

A flare from a supermassive black hole ten billion light years away is one for the record books. Giving off the equivalent of the light from ten trillion stars at its peak, the flare, which happened when a star ventured too close to the supermassive black hole, was tidally disrupted and has been feeding into that black hole. Recorded by the Zwicky Transient Facility and designated J2245+3743, the black hole is part of an active galactic nucleus, already feeding on a disk of gas and dust. Observations show that starting in 2018, the AGN flared up to forty times its previous brightness. The flare being so far away, it is actually being seen in 'slow motion' with the light seen over the past seven years actually having been generated by the AGN over a two-year period, the expansion of the Universe in the ten billion years since having caused a slowdown in reception of that light. The doomed star is estimated to have been thirty times the mass of the Sun, with nearly the mass of the Sun itself having been converted from matter into radiated energy due to the TDE. More information on the discovery is at www.space.com/astronomy/black-holes/scientists-detect-biggest-black-hole-flare-ever-seen-with-the-power-of-10-trillion-suns.

Possibly Habitable Super-Earth Discovered Nearby

Only eighteen light years from Earth, GJ 251 c is a rocky planet several times the mass of Earth that lies within the habitable zone of its host star, an M-dwarf star. In theory, such an exoplanet should be capable of having water on its surface. Astronomers are excited about the find because with it being so relatively close to Earth, it might be possible to use the proposed Thirty Meter Telescope, or other future telescopes of similar size, to directly image the exoplanet. More information on the discovery and its potential for study can be found at scitechdaily.com/astronomers-discover-potentially-habitable-super-earth-just-18-light-years-away/.

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Abstract – continued from page 1

Dragonfly's relocatable lander concept will provide the capability to explore diverse locations across Titan's dunes, interdunes, and icy crater terrains. The science payload includes four instruments: a mass spectrometer (DraMS), a gamma-ray/neutron spectrometer (DraGNS), seven cameras (DragonCam), and a suite of geophysical and meteorological sensors (DraGMet). On the ground, Dragonfly will collect and analyze surface samples, take measurements of local bulk surface composition as well as atmospheric and seismic conditions, and image the surrounding geology. In flight, the rotorcraft will collect additional atmospheric data and aerial images to provide broader context for the surface measurements. The data from these instruments will allow us to assess the habitablity of Titan's environment, to investigate the potential progression of prebiotic chemistry, and to search for evidence of past or extant water - or hydrocarbon-based life. Dragonfly passed its Critical Design Review earlier this year, and we are fabricating flight hardware ahead of the launch period that opens in July, 2028.

Image Credit – JHU/APL

Biography: Kristin Sotzen is a space systems engineer and planetary scientist at the Johns Hopkins University Applied Physics Laboratory (APL). She is currently serving as the Instrument Scientist and Systems Engineer for the Dragonfly Geophysics and Meteorology Package for NASA's Dragonfly mission to Saturn's moon Titan. As a space systems engineer, she has worked in concept development, architecture evaluation, and interface definition for a variety of space systems and missions. Dr. Sotzen is also the Science PI for NASA's "Estimating Exoplanet Population Demographics with Planetary Infrared Excess" XRP program, a co-investigator/collaborator on several JWST exoplanet observing programs, and a co-investigator on NASA's "Strange New Worlds: Characterizing Nearby M-dwarf Habitable Zone Planets" ICAR program. Her research focuses on the characterization of exoplanet atmospheres using transmission and emission spectroscopy.

Dr. Sotzen holds a BS in Engineering Physics from Embry-Riddle Aeronautical University and an MS in Applied Physics from Johns Hopkins University. She earned her Ph.D. in Earth and Planetary Sciences from Johns Hopkins University in Baltimore.

Exploring the Sky

The Exploring the Sky program will take a hiatus until April of 2026.

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 see Solar System objects, open and globular clusters and maybe a fuzzy galaxy or two.

More information can be found at NCA's web site, www.capitalastronomers.org or the Rock Creek Park web site, www.nps.gov/rocr/planyourvisit/expsky .htm. You can also call the Nature Center at (202) 895-6070. For general information on local astronomical events visit www.astronomyindc.org.

The submission deadline for January's Star Dust is December 26th.

Clear Skies!

Schedule of Upcoming NCA Meetings and Speakers

Bryan Vandrovec and Carl Biagetti

Dec. 13, 2025-- Kristin S. Sotzen (Johns Hopkins APL)
Dragonfly: Flights Across an Alien Frontier

Jan. 10, 2026 -- Christine Hirst Bernhardt (National Earth Science Teachers Association)

Feb. 14, 2026 -- Frank Summers (Space Telescope Science Institute)

President's Corner

Guy Brandenburg

Thankful – and Yet

I am amazed and grateful to be alive right now, but also alarmed at some of the current trends.

Positive stuff, compared to a century ago, when my parents were little:

- We have irregular sidewalk astronomy events here in DC, both by day and by night.
- Barely a century after the first primitive radios and airplanes, all of you readers of this article have in your pocket or purse a device that can tune into any frequency, play almost any song ever recorded, carry on two-way video communications with anybody owning a similar device, let you play a million different games, and display the sum of all human knowledge on almost any subject.
- We now know what stars are made of (hint: mostly hydrogen) and how they function (hint: multi-step nuclear fusion). However, the mysteries of dark matter and dark energy (among others) remain unsolved.
- Telescopes are much easier to obtain and use than ever before, many of them of extremely high quality. Despite recent price hikes from Trump's tariffs, they are still cheaper than they were 60 years ago. Even the amateur telescope-making techniques of today are much better than those of 40 years ago.
- Astro-imaging devices available today allow anybody (who is willing to spend anywhere from two to fifty thousand dollars on equipment and software and armed with enough patience) to create jaw-dropping images of all sorts of deep-space objects. Those images are better than any taken at Mount Wilson or Palomar in their heyday, and rival those taken by the Hubble Space Telescope. Modern CMOS cameras are unbelievably more sensitive than the silver-nitrate films of 50 years ago.
- Almost exactly a century ago, Edwin Hubble settled the Great Debate, showing that our solar system is located on the outskirts of a large galaxy containing hundreds of billions of stars. We now know that there are billions or perhaps trillions of other galaxies, millions or billions of light-years away.
- Astronomers can now study the universe over the entire electromagnetic spectrum, not just the tiny visible portion.

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Sky Watchers

December/January

Mercury remains in the morning sky, appearing lower each day as the period passes. Venus will be very low in the predawn sky, very difficult to see, and beginning to transition the evening sky as the new year begins. Mars will be extremely low in the evening sky beginning its transition to the morning sky in the new year. Jupiter rises after sunset and will reach opposition on January 10th (see below). Saturn will be high in the evening sky, setting around midnight, at the beginning of the period and well before midnight in January.	
12/13 - 14	The Geminids Meteor Shower peaks on the evening of the 13th into the morning of the 14th with approximately 120 meteors/hour. Unfortunately, a second quarter Moon will make viewing conditions less than ideal. Best viewing will be in the early morning hours.
12/21	Winter Solstice - At 10:02 a.m. EST, the Sun will shine directly over the Tropic of Capricorn.
1/3	Full Moon and Supermoon at 5:04 a.m.
1/10	Jupiter at opposition – The gas giant will be at its closest point to Earth and will rise at sunset, being visible throughout the night.

Time is in EST (Eastern Standard Time)

President's Corner – continued from page 3

- We know that black holes are real.
- For most of the people in much of the world (US, China, Japan, Europe) life is in general physically much easier than it was a century ago.
- The skies and waters of this country and Europe (but not in China or India) are incomparably cleaner than they used to be.
- Legal segregation in the USA is long gone.
- The US, Canada, and Europe have amazing highway systems. Many countries (but not the US) have high-speed rail.
- Solar photovoltaic and onshore wind energy are now much cheaper than oil, gas, or coal per kilowatt-hour.
- Our civil servants generally do not take bribes – unlike those in certain other countries.
- We can order almost any item online and have it delivered to our homes in a matter of days.
- Thanks to the Space Race of the 1950s and 1960s, we have learned that travel to any other celestial body is extremely difficult, dangerous, and expensive. The Apollo lunar program cost about $257 billion in today's dollars, for 12 people to walk on the moon, which works out to roughly $20 billion per passenger. (We cannot rule out the possibility of life elsewhere, but if it does exist, it is so far away that there is no way for any human being to visit.)

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Recent Astronomy Highlights – continued from page 2

First 3-D Map of Exoplanet Atmosphere

Using a technique known as 3D Eclipse Mapping, astronomers at the University of Maryland and Cornell University have used JWST spectroscopic observations of a gas giant located approximately 400 light years away to map out properties of various regions throughout the exoplanet's atmosphere. Classified as an ultra-hot Jupiter, WASP-18b, is approximately ten times the mass of Jupiter and is tidally locked in orbit around its host star meaning that it always presents the same face to that star throughout its 23-hour orbit. 3D Eclipse Mapping involves recording the minute changes in the intensity of multiple wavelengths of light as the planet is being eclipsed by its star as well as when it is coming out from behind that star. Using this technique, the astronomers were able to obtain the atmospheric temperatures at various longitudes, latitudes and even at different altitudes. The hottest region of the atmosphere, facing the star most directly reach temperatures of approximately 5000° F, temperatures at which water molecules break down, while water is seen to still exist in regions facing the star less directly. More information can be found at cmns.umd.edu/news-events/news/megan-weiner-mansfield-co-leads-creation-first-3d-temperature-map-distant-exoplanet and the paper in Nature Astronomy is available at www.nature.com/articles/s41550-025-02666-9.

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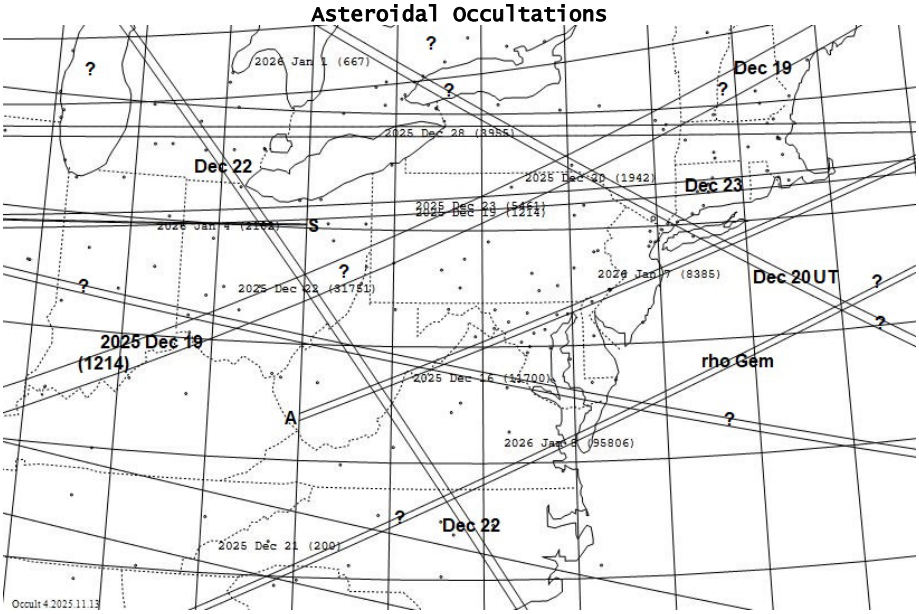
Occultation Notes

- D following the time denotes a disappearance, while R indicates that the event is a reappearance.
- The times are for Greenbelt, MD, and will be good to within +/-1 min. for other locations in the Washington-Baltimore metropolitan areas unless the cusp angle (CA) is less than 30 deg., in which case, it might be as much as 5 minutes different for other locations across the region.
- Some stars in Flamsteed's catalog are in the wrong constellation, according to the official IAU constellation boundaries that were established well after Flamsteed's catalog was published. In these cases, Flamsteed's constellation is in parentheses and the actual constellation is given in the notes following a /.
- Mag is the star's magnitude.
- % is the percent of the Moon's visible disk that is sunlit, followed by a + indicating that the Moon is waxing and - showing that it is waning. So 0 is new moon, 50+ is first quarter, 100+ or - is full moon, and 50- is last quarter. The Moon is crescent if % is less than 50 and is gibbous if it is more than 50. E indicates a lunar eclipse is in progress, and the value is the percent of the Moon's disk that is NOT in the umbra. So 0E means during the total phase.
- Cusp Angle is described more fully at the main IOTA Web site.
- Sp. is the star's spectral type (color), O,B,blue; A,F,white; G,yellow; K,orange; M,N,S,C red.
- Also in the notes, information about double stars is often given. "Close double" with no other information usually means nearly equal components with a separation less than 0.2". "mg2" or "m2" means the magnitude of the secondary component, followed by its separation in arc seconds ("), and sometimes its PA from the primary. If there is a 3rd component (for a triple star), it might be indicated with "mg3" or "m3". Double is sometime abbreviated "dbl". Often, rather than the separation, I give “dTime” or “dT”, the time difference of the secondary star occultation relative to the primary star’s occultation.
- Sometimes the Axis angle (AA) is given. It is the angle measured around the Moon's disk, from the Moon's axis of rotation. It can be used with a lunar map to tell where a star will reappear relative to lunar features.

Mid-Atlantic Occultations

David Dunham

Asteroidal Occultations



2025 Date	EST	Star Name	Mag.	RUWE <1.4	Type	Asteroid #	Name	dmag	dur. s	Alt	DC-Dst km
Dec 16	2:45	SAO 78468	8.2	2.05*		11700	1998 FT115	9.7	1.0	65	62
Dec 19	0:41	SAO 98232	7.6	2.60*		1214	Richilde	8.5	5.3	49	285
Dec 19	23:31	TYC22580936	10.2	2.60*		1942	Jablunka	6.7	1.3	25	359
Dec 21	2:51	TYC24360575	9.6	0.90		200	Dynamene	2.1	13.	67	458
Dec 22	2:14	4UC56048947	10.4	0.80		31751	1999 JF85	8.3	1.8	61	278
Dec 22	21:09	SAO 95172	9.4	1.05		5461	Autumn	7.6	1.5	46	289
Dec 27	23:29	TYC29091603	10.0	1.10		3955	Bruckner	5.6	1.7	85	421
*** Dates above are for 2025, those below are for 2026 ***											
Jan 1	5:51	TYC03290407	10.5	2.25*		667	Denise	5.0	3.0	43	621
Jan 4	6:53	4UC52566359	10.8	1.00	PHA	2102	Tantalus	7	0.05	34	99
Jan 7	18:58	TYC13741642	9.9	1.10		8385	1993 AN	7.2	1.2	15	41
Jan 7	21:25	rho Gem	4.1	3.80*		95806	2003 FV51	15	0.7	52	190

With this new format, the new columns need some explanation:
RUWE is the ESA-Gaia Re-normalized Unit Weight Error; if greater than 1.3, the actual path may be even 50km from the prediction, hence, the * that serves as a warning; ? is added on their paths on the map.
Type: blank, Main Belt Ast.; PHA, potentially hazardous near-Earth asteroid. The last two columns are for DC: Alt. of the star and path distance in km from DC. Map dates are UT, so for UT on the map, add 1 to the table date if EST is 19 or more.

Lunar Grazing Occultation

2026 Date	Day	EST	Star	Mag	%	alt	CA	Location
Jan 7	Wed	0:06	49 Leonis	5.6	82+	33	9S	nPA,nNJ,LI #3 of 2026 grazes site

Lunar Total Occultations

2025/26 Date	Day	EST	Ph	Star	Mag	%	alt	CA	Sp.	Notes
Dec 11	Thu	4:19	R	59 Leonis	5.0	54-	51	19N	A5	ZC 1600
Dec 16	Tue	6:51	R	ZC 2109	6.1	11-	21	67N	K4	Sun altitude -6 deg.
Dec 25	Thu	19:01	D	lambda Aqr	3.7	31+	34	84S	M2	ZC3353,mg2 8 dTime-1.3s
Dec 25	Thu	20:24	D	78 Aquarii	6.2	31+	22	84S	K3	ZC 3360
*** Dates above are for 2025, those below are for 2026 ***										
Jan 6	Tue	22:55	R	rho Leonis	3.8	82-	21	82N	B1	ZC1547,mg2 5 dTime-.04s
Jan 10	Sat	2:09	R	psi Vir	4.8	53-	20	74S	M3	ZC 1853, mg2 8 sep .04"
Jan 11	Sun	7:00	R	85 Vir	6.2	42-	35	57N	A0	Sun -5,ZC1970,close dbl

So far, noone has volunteered to continue supplying occultation information for the DC and NE-US region for Stardust, so for the January Stardust, I plan to write only a paragraph or two giving links to occultation lists for all of 2026, and information on how to compute your own local or regional occultation predictions.
David Dunham; More is on the northeast US occultations pages at groups.io/g/OccultNEUS and iota.jhuapl.edu/exped.htm.

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President's Corner – continued from page 4

- Up until 30 years ago, the very idea of exoplanets was mere speculation. Astronomers have now found many thousands of them, and we know that just about all stars are born along with a planetary disk. Orbiting satellites and ground-based telescopes both large (belonging to institutions like Carnegie, ESA, NASA, etc.) and small (backyard scopes belonging to amateurs) have detected and confirmed many thousands of such exoplanets. Soon we may be able to tease out enough details from exoplanetary atmospheres to detect or rule out some recognizable signs of life.
- Most of us now understand how special, fragile, and small our lovely planet is: Scientists have shown that if we were not protected by the Earth's magnetic field and atmosphere from cosmic rays, X-rays, gamma rays, and UV radiation, we would certainly not be here to talk about it. We also realize the incredible vastness of space, and geologists and astrobiologists now have worked out many of the details of the history and evolution of life on Earth. We know that for the vast majority of the 4.5 billion years of existence of this planet, its surface was either lifeless, anoxic, and/or solely the realm of single-celled organisms. Only during about 10% of Earth's existence have there been multi-cellular animals, and our 300-thousand-year existence as Homo sapiens is just a tiny speck of that time line.

On the not-so-great part of the ledger:

- The more we have learned about the universe over the past century, the fewer the people who can see the Milky Way Galaxy with their own eyes. (If you compare a world light pollution map to a world population density map, they match almost perfectly, with outliers like mass oil-pump gas flares or failed nation-states with no functioning electrical grid.) Light pollution is getting worse at a rate of about 10% per year.
- Certain billionaires think that since the Earth is doomed (in part from their own depredations), the solution is to send a handful of people to Mars, and terraform it. The sheer stupidity, selfishness, and impracticality of this idea are breath-taking.
- Most of the small, mom-and-pop retail stores of yesteryear have gone out of business, because they cannot possibly compete with online retail. Many, if not most, storefronts in most downtowns appear to be empty.
- Lots of wars around the globe continue killing people, often with outside governments or corporations sponsoring private armies. Criminal gangs and corrupt governments rob, oppress, torture, and kill people with apparent impunity in quite a few parts of Africa, Latin America, and Asia.
- We continue burning hydrocarbons at an ever-increasing rate.
- Global warming, increased CO_2 and CH_4 in the atmosphere, melting of glaciers, tropical rainforest devastation, overfishing, and the declines in both insect and bird population all are extremely worrying.

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President's Corner – continued from page 4

- Our government sends masked, armed, uniformed, and plainclothes agents out to arrest and deport people for the crime of appearing not to be US citizens.
- Our government destroys boats and their occupants on the high seas while providing absolutely no evidence that the people killed were doing anything illegal.

What can be done?

If you would like to help the extremely enthusiastic and skilled sidewalk astronomer Gael Gomez and his family stay here in the US rather than get expelled right into a possible war zone — a country in which they could be jailed and tortured for having lived here in the US for six years — there are a couple of ways of doing so.

The details of the visa they are applying for are too complex for me to understand or describe. The application fees due to the byzantine US court and immigration system, as well as private lawyer's fees, might well exceed $30,000; they need about 1/3 of that now.

You may recall that Gael was recruited to be a presenter at last summer's Smithsonian Folk Life Festival:

www.smithsonianmag.com/blogs/smithsonian-center-folklife-cultural-heritage/2025/08/21/sidewalk-astronomy/

and was also recently featured on the 51st news site:

51st.news/mount-pleasant-sidewalk-astronomy-dc-tps-trump/

and National Public Radio:

www.npr.org/2025/11/20/nx-s1-5608431/a-venezuelan-stargazer-is-sharing-his-passion-while-trying-to-stay-in-the-u-s.

He has certainly improved the lives of thousands of people who have looked through his home-made telescopes!

One way to help is to purchase prints from the large outdoor display that was put on by Lost Origins Gallery in an alley just off of Mount Pleasant Street NW this fall:

lostorigins.gallery/shop/.

Another way is to send cash donations directly to him via Venmo:

venmo.com/code?user_id=4129560564074032303&created=1763069681.

Recent Astronomy Highlights – continued from page 4

Nancy Grace Roman Telescope Passes Critical Series of Tests

Image Credit – NASA/Jolearra Tshiteya

Portions of the Nancy Grace Roman Space Telescope have now undergone punishing trials, including shake and acoustic tests, as well as thermal vacuum tests. Having passed those tests the telescope is still on schedule for launch as early as next summer. More information on this milestone in the development of the telescope is available at phys.org/news/2025-11-nasa-roman-observatory-spate-key.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, Dec. 17th at **1:30 p.m.**, Dr. Andrew D. Iams, National Institute of Standards and Technology, will give a talk entitled **Leveraging Quasicrystals in Additive Manufacturing: Structure, Properties, and Potential**. 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 for the talk and attend is apsphysics.zoom.us/meeting/register/KLIzEQGJSY6AjhMegP-1Cg#/registration.

Next NCA Meeting - Jan. 10, 2026 -- Christine Hirst Bernhardt (National Earth Science Teachers Association)

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 88 Years of Astronomy

Image Credit – NSF NOIRLab via AP

The NOIRLab in Chile recently released this image of the Butterfly Nebula, a planetary nebula. More information on the image is available at phys.org/news/2025-11-telescope-chile-captures-stunning-picture.html.

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

Next NCA Meeting:

2025 Dec. 13th
7:30 pm
Dr. Kristin S. Sotzen

- *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