

Star Dust

Newsletter of National Capital Astronomers, Inc.
capitalastronomers.org

April 2026

Volume 84, Issue 8

**Celebrating 89 Years
of Astronomy**

Next Meeting

When: Sat. Apr. 11th, 2026

Time: 7:30 pm

Speaker: Dr. Michael Kirk

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

See instructions for joining the
meeting via Zoom on Page 8.

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Image Credit – ESA/Hubble & NASA, M. J. Koss, A. J. Barth

Hubble recently captured an image of IC 486, a barred spiral galaxy approximately 380 million light years from Earth. More information about the image and galaxy is available at dailygalaxy.com/2026/03/hubble-image-reveals-birthplace-of-stars/.

Imaging the Invisible: How PUNCH and Eclipses Reveal the Solar Wind in 3D

Dr. Michael Kirk – NASA's Goddard Space Flight Center

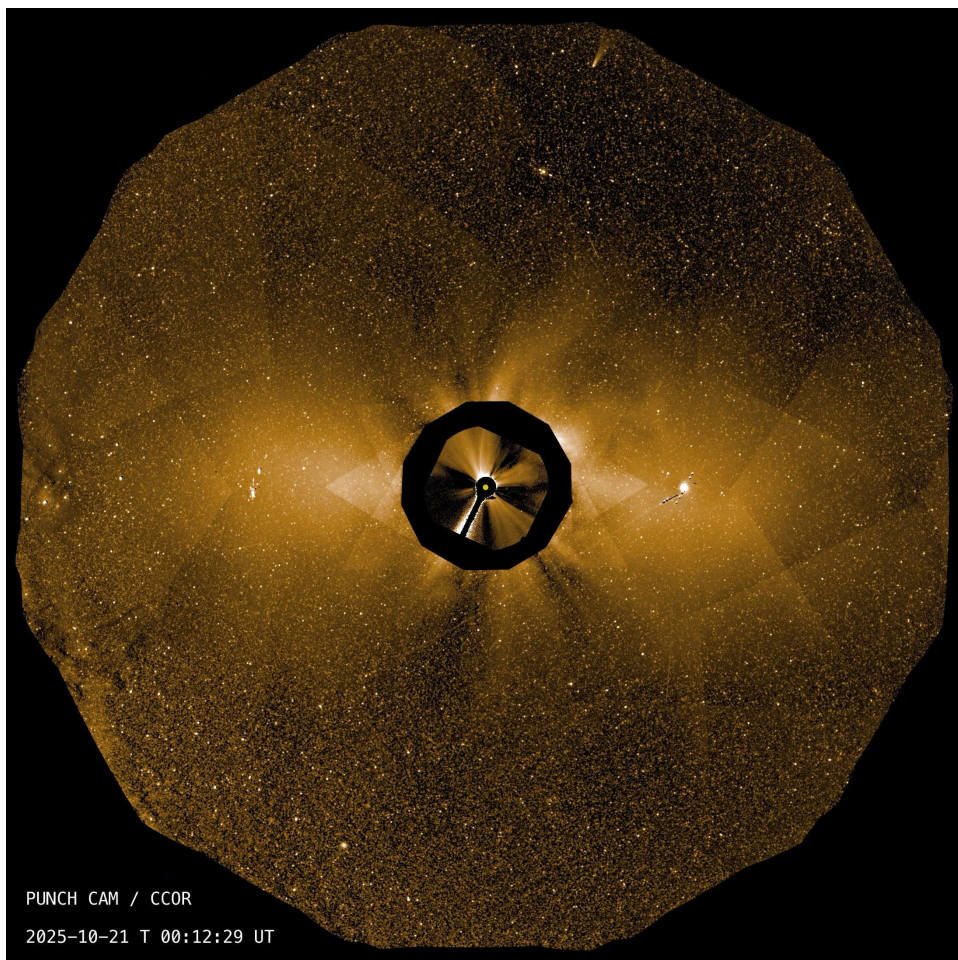


Image Credit – PUNCH NASA/Southwest Research Institute (SwRI)

During a total solar eclipse, the hidden solar corona becomes visible, but only for a few fleeting minutes. NASA's PUNCH mission builds on this natural experiment, using polarized imaging to reconstruct the 3D structure of the solar wind as it expands from the Sun to Earth and beyond. Join us to see how we are learning to “image the invisible” and better understand the space environment that surrounds our planet.

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Recent Astronomy Highlights

Direct Confirmation of Exoplanets Forming in a Young Star System

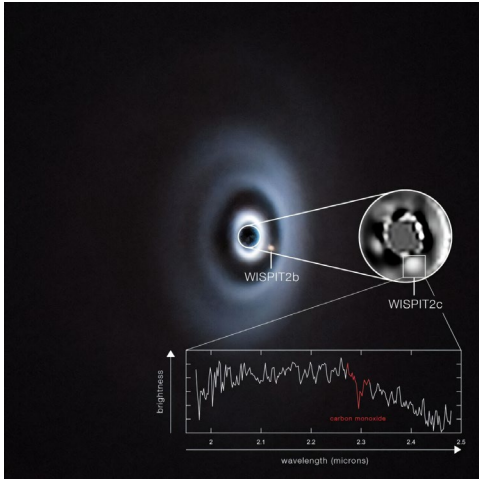


Image Credit - ESO/C. Lawlor, R. F. van Capelleveen et al.

Approximately 437 light years away lies the star WISPIT 2. At 1.08 solar masses, it can be considered a very young version of our Sun. Last year, astronomers, using the Spectro-Polarimetric High-contrast Exoplanet REsearch instrument, SPHERE, of the Very Large Telescope, VLT, directly imaged an exoplanet, designated WISPIT 2b, in the young system. WISPIT 2b is approximately 4.9 times the mass of Jupiter and orbits about 57 astronomical units, one AU is the average distance between the Sun and Earth, from its host star. Now astronomers have confirmed the existence of a second exoplanet, designated WISPIT 2c, using spectroscopic data. Estimated to be twice as massive as WISPIT 2b, it orbits only 14 astronomical units from its host star. Astronomers also suspect there is a third exoplanet in the system. More information on these discoveries in the young star system is available at www.eso.org/public/news/eso2604/ and phys.org/news/2026-03-baby-planets-young-sun-star.html.

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The submission deadline for May's Star Dust is April 24th.

Clear Skies!

Abstract and Biography – continued from page 1



Image Credit - Tom A. Freelove Photography

Biography: Dr. Michael S. Kirk is a Research Scientist in the Heliophysics Science Division at NASA's Goddard Space Flight Center, where he studies the Sun's outer atmosphere and the origins of the solar wind using observations, data analysis, and emerging computational approaches. He serves as Deputy Mission Scientist for NASA's PUNCH mission and is a Co-Investigator on the SunCET CubeSat, helping to connect structures in the solar corona to the broader heliosphere. Dr. Kirk is also the Principal Investigator of NASA's Heliophysics Education Activation Team (HEAT), leading national efforts to connect NASA science with educators, students, and communities through coordinated resources, partnerships, and workforce development initiatives.

Schedule of Upcoming NCA Meetings and Speakers

Bryan Vandrovec

April 11, 2026 -- Michael Kirk (NASA's Goddard Space Flight Center) - *Imaging the Invisible: How PUNCH and Eclipses Reveal the Solar Wind in 3D*

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

National Capital Astronomers / 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/nature-center-and-planetarium.htm. To learn about their planetarium programs and scheduling, visit www.nps.gov/rocr/planyourvisit/calendar.htm. You can also explore 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!

DC Proclamation of International Dark Sky Week – April 13th – 20th, 2026



President's Corner

Guy Brandenburg
President, National Capital Astronomers

Science Fairs

Jay Miller, Subashri Rao, and I attended the local science fairs in DC and Fairfax, Montgomery and Prince George's counties. We found a grand total of twelve good projects this year, which is the most I can ever recall. (Fairfax had the most (7), followed by Prince George's with 4, Montgomery with 2 and DC with just 1.) The students who created these projects will receive prizes from us: A year's subscription to Sky & Telescope, a year's membership in NCA, their choice of NCA swag, an invitation to present at our June 13 meeting, and a pizza dinner for the student and family members beforehand.

Why should we judge local science fairs? Because we are giving deserved recognition to students who have done very creditable work on some aspect of astronomy. If we don't do it, who will?

If you volunteer to be a judge next year, it only takes a single morning of your time. You will get to meet bright young students who are just waiting to explain their project to you, and I guarantee that you will learn something! By the way, the DC science fair was better organized this year than during the last two. We will have a lot of speakers at our regular meeting in June!

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Sky Watchers

April/May

Mercury rises shortly before the Sun, appearing lower in the predawn sky as the period progresses. Venus remains in the evening sky, setting well after sunset. Mars rises shortly before the Sun in the morning sky. Jupiter will be high in the sky after sunset, setting after midnight. Saturn will be low in the morning sky.	
4/22, 23	The peak of the Lyrids meteor shower, which produces about 20 meteors/hour. A quarter Moon setting soon after midnight will allow for ideal viewing conditions thereafter.
5/1	Full Moon – 1:24 p.m.
5/6, 7	The peak of the Eta Aquarids meteor shower which produces about 30 meteors/hour in the Northern Hemisphere. Unfortunately, a waning gibbous Moon will lead to less than ideal viewing conditions.

Time is in EDT (Eastern Daylight Saving Time)

President's Corner – continued from page 3

Donating Telescopes to Local Youth?

NCA continues to receive donations of all kinds of telescopes - Dobs, SCTs, Maks, refractors.

These instruments need to be put into the hands of people who would like to use them, particularly folks under-represented in the sciences. They also need to have the opportunity to go out into the countryside, safely, far from bright lights, so they can actually see stars!

We could sell them, but I'd rather we had a sort of raffle or contest to give them away. It would be open to any local middle or high school student whose family is willing to store the scope when it's not in use, to help learn how to use the device, and to agree to drive the student out to an observing site at least occasionally.

While NCA as a club does not have permanent arrangements with any state or regional park or landowner for telescopic observing privileges at any dark-sky site, we are surrounded by clubs that do have that sort of thing. So, why not make part of the gift a one- or two-year membership in whichever local club they would like? To make sure this was OK, I communicated with the leaders of the Northern Virginia Astronomy Club, the Westminster Astronomical Society, and the Southern Maryland Astronomy Society, and none of them had any problems with the idea of NCA donating a membership or two in their club. (Obviously they all have their own rules on memberships and for the use of their facilities.)

These are not going to be premium astrographs, nor would they be computer-controlled. However, they would come with several eyepieces and finders, and a cell phone holder, so that the user can strap in any old cell phone and employ AstroHopper to find any object in the sky.

We will ensure that the scopes are in good optical and mechanical operation, and will give demonstrations of how to use them both in the city and suburbs and also out at one of those dark-sky sites.

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Editor: Todd Supple

Editorial Advisors:

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

Electronic Distributor: Elizabeth Warner

[Recent Astronomy Highlights – continued from page 2](#)

Dwarf Galaxies With Supermassive Black Holes

Most supermassive black holes, while indeed massive, contain only about 0.1 – 0.5% of the mass of the galaxies which they inhabit. However, the James Webb Space Telescope has found two SMBHs that weigh in at up to 60% of the total mass of the dwarf galaxies in which they dwell. Those galaxies, designated Pelias and Neleus, are billions of light years away. The masses of the SMBHs, as compared to the masses of their host galaxies, call into question current theories about the growth of such objects. Perhaps the 'overmassive' SMBHs grew more quickly than previously believed possible, in a process known as Super-Eddington accretion. Early 20th century astronomer Sir Arthur Eddington proposed that the amount of radiation produced in massive stars would reach a limit beyond which its pressure would cause outer layers of the star to be blown off. Such a limit was once believed to also apply to the accretion disks of black holes, with the amount of radiation produced as disk material falls toward an event horizon only being able to go so high before additional potential accretion material would be pushed away, limiting the rate of growth of the black hole. But astronomers are finding that such radiation may be trapped by infalling material and drawn into the black hole, or possibly it is beamed away in jets, allowing much faster growth of SMBHs. Additional info is at phys.org/news/2026-03-jwst-overmassive-black-holes-dwarf.html.

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Recent Astronomy Highlights – continued from page 4

Comet Observed Reversing Its Spin



Image Credit - Knight Observatory, Tomar, Creative Commons CC0 1.0 Universal Public Domain

Comet 41P/Tuttle–Giacobini–Kresák orbits the Sun approximately every 5.4 years. Its nucleus is about a kilometer in diameter. Known as a Jupiter family comet, it likely entered the Solar System from the Kuiper Belt and was slowed into that current orbit through gravitational interactions with the gas giant. While the nucleus is too small to be imaged, even by the Hubble Telescope, its rotation period can be inferred from light-curve data, sequences of light-intensity measurements with the reflected amount of light increasing and decreasing as the side facing the telescope changes by rotation. Archived 2017 data from the Hubble Space Telescope and other telescopes shows the comet spinning rapidly in March, slowly to a third of its rate by May, then gaining considerable spin speed by December, having reversed its direction of spin. Likely this was due to jets of gas released by the comet. If such increases in spin continue, it is likely the comet nucleus will eventually be torn apart. More information can be found at www.space.com/astronomy/comets/hitting-the-brakes-hubble-space-telescope-watches-doomed-comet-reverse-its-spin.

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President’s Corner – continued from page 4

The student would need to write a short application letter that...

1. Describes what they like about astronomy in general;
2. Explains why they would like to own a telescope;
3. Lists what they would hope to observe with one;
4. Has a short statement from a parent or guardian that states that:
 - a. The family has enough space to store the device;
 - b. The family has access to a vehicle that can carry the scope and a passenger or two out to a dark-sky site;
 - c. They agree to be present for a lesson or two from a NCA member, with the student, either at their home or out at a dark-sky location, on how to set up and use the scope.

I think that there should be an interview, either remotely or in person. Ideally, the NCA instructor would accompany the family to a dark-sky site.

Assuming this is a go, then how do we publicize this?

Thanks

A big thank you to David Devorkin for a large recent donation to NCA!

Web Presence Meeting

I am happy to report that a small group of people got together remotely on April 1 with NCA webmaster and UMD Observatory director Elizabeth Warner to plan improvements to NCA's web presence. It was a very productive meeting! They will meet again in 2 weeks.

A Cosmic Plot Twist: Is the Universe’s Expansion Finally Slowing Down?

Bryan Vandrovec

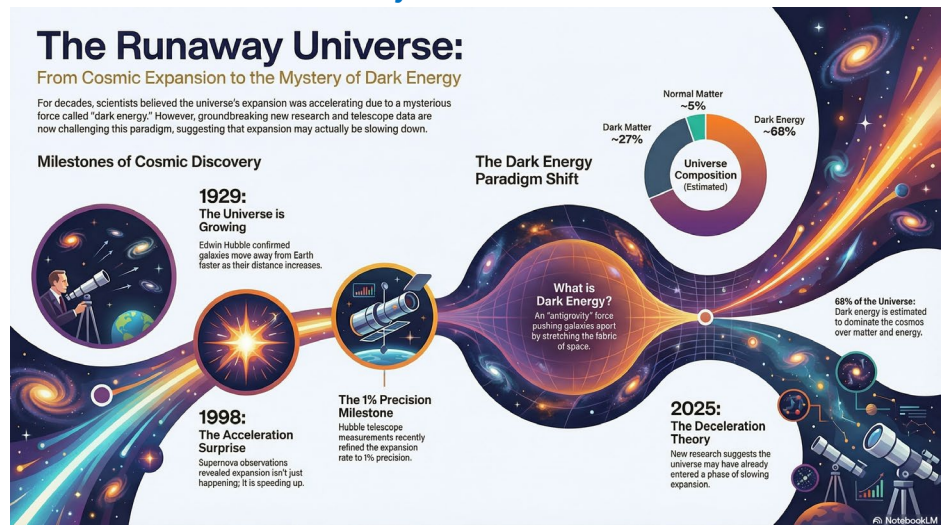


Image Credit - Google's NotebookLM

For nearly a century, our understanding of the cosmos has been built on the revelation that we live in an expanding universe. This concept was first confirmed in 1929 by astronomer Edwin Hubble, who built upon Vesto Slipher’s observations of galactic "redshift"—the stretching of light to longer wavelengths as objects move away (or recede) from us—and

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2025-2026 Officers

President:

Guy Brandenburg
gbrandenburg@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
gbrandenburg@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](#)

A Cosmic Plot Twist... – continued from page 4

Henrietta Swan Leavitt's discovery of how to use Cepheid variable stars as cosmic distance markers. By comparing the distances of galaxies to their speeds, Hubble proved that the farther away a galaxy is, the faster it recedes from us, a principle now known as Hubble's Law. This discovery fundamentally changed our view of the cosmos, showing it was not a static environment but one that has been growing since the Big Bang—then a purely theoretical concept independently proposed from Einstein's equations of General Relativity by Russian scientist Alexander Friedmann in 1922, and Belgian astronomer and Catholic priest, Georges Lemaître in 1927. ¹

The mystery deepened in 1998 when two teams of astronomers observed distant Type Ia supernovae and discovered that these "standard candles" were dimmer than expected. This led to the Nobel Prize-winning conclusion that the expansion of the Universe is not slowing down under gravity, but is actually accelerating. To explain this, scientists introduced the concept of dark energy, a mysterious force that makes up approximately 68% of the universe and acts as a kind of "antigravity" pushing galaxies apart. ²

If this acceleration continues or intensifies, it points toward a lonely future where galaxies eventually fly away so fast that they slip beyond our visible horizon, leaving the night sky dark. Some theorists have even proposed a "Big Rip" scenario, driven by a hypothetical "phantom energy" that grows stronger over time. In this frightening future, the acceleration would become so violent that it would tear apart galaxy clusters, stars, planets, and eventually atoms themselves, essentially dissolving the fabric of space-time. ³

However, this dark fate is now being called into question by groundbreaking new research. Recent findings from the Dark Energy Spectroscopic Instrument (DESI) and studies by researchers at Yonsei University suggest that dark energy may be weakening and the expansion of the universe might already be slowing down. This potential paradigm shift is based on evidence that the brightness of supernovae may be affected by the age of their parent stars, and that our previous measurements of acceleration might have been biased³. If the expansion is indeed decelerating, the universe might not end in a "rip" but could eventually contract in a "Big Crunch," effectively the Big Bang in reverse.

These competing theories remind us that the Universe remains far more mysterious than we once thought. As we stand on the threshold of a new golden age of cosmology with powerful new tools like the James Webb Space Telescope and the Vera C. Rubin Observatory, we are reminded of how much we have yet to discover. The shifting theories of our cosmic end suggest that our current knowledge is merely a snapshot, and the true nature of space, time, and the forces that govern them may yet hold surprises that will inspire generations of astronomers to come.

[1] Gohd, Chelsea. "What is Dark Energy? Inside Our Accelerating, Expanding Universe." NASA Science. Edited by Jeanette Kazmierczak. Last updated March 11, 2026.

[2] Lea, Robert. "The expansion of our universe may be slowing down. What does that mean for dark energy?" Space.com. Published November 5, 2025.

[3] Sutter, Paul. "What is the big rip, and can we stop it?" Space.com. Published February 26, 2024.

Recent Astronomy Highlights – continued
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Jupiter's Lightning Far Stronger Than Earth's



Image Credit - NASA/JPL-Caltech/SwRI/JunoCam

Using the Juno spacecraft, which has been in orbit around Jupiter for approximately a decade, astronomers have recorded radio emissions from lightning in the gas giant's storms and determined that those lightning strikes can be up to a million times stronger than lightning strikes on Earth. More information is available at dailygalaxy.com/2026/03/jupiters-lightning-stronger-than-earths/.

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 CCC 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, Oct. 15th at **2:00 p.m.**, Dr. Scott Pace, (Space Policy Institute and George Washington University), will give a talk entitled **Space Exploration – History, Politics, and Alternative Tomorrows**. While Dr. Pace will speak remotely, participants can attend in person 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/xzXfwa4kSqybjV3j_cg1w.

Next NCA Meeting – 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).

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

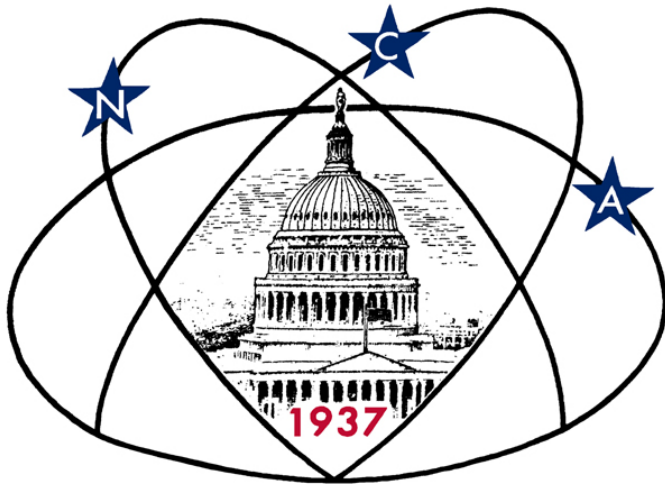
(Please note that membership dues will go up in coming years, so consider joining/renewing with the 3-year option in order to save money.)

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/Jolearra Tshiteya

A media event highlighting the Nancy Grace Roman Telescope will air on NASA's Youtube channel, www.youtube.com/@NASA/streams, on April 21st at 4:00 p.m. EDT. More info is at www.nasa.gov/news-release/nasa-to-unveil-complete-roman-telescope-host-media-briefing/.

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 Apr. 11th
7:30 pm
Dr. Michael Kirk

- *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

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Please note that NCA Zoom meetings are often recorded.