

Celebrating 88 Years of Astronomy

# Next Meeting

When: Sat. June 14th, 2025

**Time:** 7:30 pm

Speakers: Science Fair Winners

Where: In-Person (UMD Obs.) and Online (Zoom) See instructions for joining the meeting via Zoom on Page 8.

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Image Credits – ESA/Hubble & NASA, C. Murray

The Hubble Telescope captured the image above of a region of gas and dust in the Large Magellanic Cloud. More information is available at phys.org/news/2025-05-hubble-captures-large-magellanic-cloud.html.

# Star Dust

Newsletter of National Capital Astronomers, Inc. capitalastronomers.org

June 2025

Volume 83, Issue 10

# **Science Fair Winners**

This year's NCA Science Fair Winners are:

- Sabrina Goertz Montgomery County, MD
- Rushil Kukreja Fairfax County, VA
- Aditya Patil Montgomery County, MD
- Avi Prakash Fairfax County, VA
- Tanvi Saha Prince George's County, MD
- Julia Sites Fairfax County, VA (Julia spoke at the May NCA Meeting)
- Sophia Wang Montgomery County, MD

# Congratulations to each of this year's winners!

They will each receive:

- A certificate commemorating their accomplishment.
- A 1-year subscription to Sky and Telescope.
- A 1-year membership in National Capital Astronomers.
- A 1-year subscription to Star Dust.
- Choice of NCA swag (Choice between either a hat or a hoodie.).
- The opportunity to present their project at an NCA meeting.
- A pizza dinner, hosted by the NCA, before the June Meeting (Ledo Restaurant – 4509 Knox Road, College Park at 5:30 pm.).

# Astrophotos

NCA members are encouraged to submit **astro-photos** to be shown after the science fair presentations at the June meeting. You can bring them to the meeting on a memory stick or submit them to Elizabeth Warner at <u>warnerem@astro.umd.edu</u> ahead of time.

# Recent Astronomy Highlights

#### Local Observations Lead to Discovery of a Double Star Previously Thought to Be a Single Star

University of Maryland student, Raquel Smith and NCA's own Elizabeth Warner recenly observed the occultation of UCAC4 487-057733 (TYC 346-728-1), thought previously to be a single star, by the asteroid (747) Winchester using equipment at the UMD Observatory. Another team made similar observations at the University of Virginia. The observations gave clear evidence that UCAC4 487-057733 is actually a double star. A report of the effort and results was published in The Journal of Double Star Observations and can be found at doublestarsjournal.org/index.php/jdso/ar ticle/view/74/14.

#### New Trans-Neptunian Object Discovered Through Archived Survey Data

Approximately 700 kilometers in diameter, 2017 OF201, was recently discovered not through the latest spacetelescope observations, but through publically archived data from previous astronomical surveys. And its discovery hints at the possibility that there are many more such objects out there. 22017 OF201's orbit never brings it closer than approximately 45 astronomical units (AUs) to the Sun, where 1 AU is the average distance from the Sun to the Earth. However, the object's extremely elliptical orbit takes it out as far as about 1600 AUs.Therefore, only about one percent of the time would it be visible to current survey telescopes. While this could be the only object with such an extreme orbit, the other possibility is that there might be a hundred or more of such objects in similar orbits that are simply too far away to be visible. If other such objects in similar orbits are indeed discovered, it may mean trouble for the Planet Nine Hypothesis in that 2017 OF201's orbital profile does not follow what would be expected if its orbit were gravitationally perturbed by such a planet. More information can be found at dailygalaxy.com/2025/05/scientists-newsolar-system-member/.

# **President's Corner**

## Guy Brandenburg

Six extraordinary high school and middle school science fair contestants from the DC vicinity will be our speakers this month. Please come join them for pizza and informal conversation at Ledo Pizza in College Park before the meeting!

Winners Sabrina Goertz, Aditya Patil, and Sophia Wang will be coming to us from schools in Montgomery County, MD. Winners Rushil Kukreja and Avi Prakash attend schools in Fairfax County, VA. (Avi will be presenting remotely.) Winner Tanvi Saha is from Prince George's County, MD. Winner Julia Stiles of Fairfax spoke to us last month about her very impressive project measuring the contribution of municipalities to the problem of light pollution.

Please join them, their parents, and other NCA members at Ledo Pizza at 4509 Knox Rd in College Park MD at 5:45 PM, before the meeting on June 14th. Your club is treating these young folks to dinner, but we NCA members will pay our own way.

We NCA judges (Martinus Alcantara, Veronica Simpson Castillo, Gil Funk, Jay Miller, and myself) were quite impressed with the outstanding astronomy-related work they are doing at such a young age. I am sure you will enjoy their presentations!

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As a 501(c)(3) charitable and educational non-profit organization devoted to astronomy and related sciences, NCA is not allowed to make lobbying for or against bills our \*main focus\*. However, we should not remain silent in the face of the massive attacks on all of the sciences by the current federal government. The proposed budget cuts for NASA, the National Institutes of Health, the National Science Foundation, and much more, are beyond catastrophic.

We now know that when confronted with opposition, President Trump simply backs down and declares victory. If enough of us march, lobby, make phone calls, and write letters, I think we can be successful in stopping these cuts.

For details on the cuts, see <u>www.science.org/content/article/trump-s-</u>proposed-budget-would-mean-disastrous-cuts-science and

www.npr.org/2025/05/08/nx-s1-5383918/economists-trump-research-science-cuts-gdp-recession.

Among those proposed cuts are the following:

**NSF** - The President's budget request proposed a 56% decrease in funding.

**NASA** - NASA's Science Mission Directorate (SMD) was proposed to be cut by almost 50%.

**NASA's Earth Science** - NASA's Earth Science division was also facing a significant cut, with a decrease of \$1.161 billion, a 53% decrease from FY2025.

**Defunding of STEM Engagement** - The President's budget request proposed completely defunding NASA's Office of STEM Engagement, an office responsible for building the US STEM workforce.

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Exploring the Sky



## 2025 Exploring the Sky Sessions

5	Apr	8:00	PM	
3	May	9:00	PM	
7	Jun	9:00	PM	
5	Jul	9:00	PM	
2	Aug	8:30	PM	
20	Sep	8:00	PM	
18	Oct	7:30	PM	
15	Nov	7:00	PM	

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

The submission deadline for September's Star Dust is August 29th.

**Clear Skies** 

#### President's Corner – continued from page 2

**Other Impacts** - The proposed budget also included cuts to other agencies, including the **Department of Energy's Office of Science** and the **National Institute of Standards and Technology**.

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On Saturday, May 24, NCA held a daytime public solar observing event for park goers at the Great Falls Tavern in the C&O Canal National Park near Great Falls, MD, in conjunction with the rangers there. We had quite an assortment of solar telescopes, including several H-alpha scopes made by Coronado or Lunt, a homemade Sun Funnel, and a homemade College of Charleston Safe Solar Viewer. At least 5 NCA members, including Jay Miller, Chong Wang, Bryan Vandrovec, Paul Arverson, myself, and our intern Nabek Ababiya were there. The 200 or so folks who stopped and looked were amazed at all of it. Many thanks to Chong for organizing this! Here are two photos of the event, taken by Bryan:



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# Sky Watchers

# Summer Overview

Having transitioned to the evening sky, Mercury will reach greatest eastern elongation on 7/4 (see below) before transitioning once again to the morning sky in late July/early August and then reaching greatest western elongation on 8/19 (see below). Venus will be high and bright in the predawn sky throughout the summer. Meanwhile Mars will remain in the evening sky throughout the summer. Jupiter will be lower in the evening sky, transitioning to the morning sky at the end of June. Saturn will rise after midnight at the beginning of the summer and generally earlier throughout the summer until it rises soon after sunset in early September. T CrB continues to bely the predictions, not going nova yet.

6/20	Summer Solstice – 10:40 p.m.
7/4	Mercury will reach greatest eastern elongation, being 25.9 degrees from the Sun in the evening sky.
7/10	Full Moon – 4:38 p.m.
7/28,29	Peak of the Delta Aquarids Meteor Shower- Approximately 20 meteors per hour. An early-setting crescent Moon will make for ideal viewing conditions during the predawn hours.
8/9	Full Moon – 3:56 a.m.
8/12, 13	Peak of the Perseids Meteor Shower – 60 meteors/hour. Unfortunately, a waning gibbous Moon will interfere with viewing.
8/19	Mercury will reach greatest western elongation, being 18.6 degrees from the Sun in the morning sky.
9/7	Full Moon – 2:10 p.m. (There will also be a total lunar eclipse at this time, but it will not be visible in North America.)
i ime is in	EDT (Eastern Daylight Savings Time)

Time is in EDT (Eastern Daylight Savings Time)

## President's Corner – continued from page 3

Later on that night, I attended a NOVAC public event at Sky Meadows State Park called "Astronomy for Everyone" with Gael Gomez. We were both struck by the fact that the vast majority of the amateur astronomers there were doing astro-imaging with rather expensive rigs, rather than letting the public look at stars and galaxies through an eyepiece. My home-made 12.5" truss-tube Dobsonian was the only truss-tube Dob on the entire field! Gael had a 10" SCT on a very unusual alt-az mount. We both had long lines of people waiting to get a look. But meanwhile, Gael also had a Nikon DSLR and a wide-angle lens on a basic tracking mount - all second-hand equipment - and produced the image on page 6 of Rho Ophiuchi. Total exposure time was a mere 36 minutes! **Star Dust** is published ten times yearly September through June, by the National Capital Astronomers, Inc. (NCA).

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# Recent Astronomy Highlights – continued from page 2

# Near-Perfectly Spherical Bubble Detected

Astronomers at the Australian Square Kilometre Array Pathfinder (ASKAP), have detected a near perfectly spherical bubble of gas. Named Teleios, a Greek word for perfection, the bubble is likely the remnant gas and dust ejected by a Type 1a supernova, when a white dwarf that has captured too much material from a companion star explodes. But normally such remnants are not nearly so symmetrical, tending to fragment guickly as they expand outward. Another mystery about Teleios is that Type 1a supernovae normally emit Xrays as well as radio waves. Teleios does not appear to be following that behavior. Speculation is that the bubble might have formed from a Type 1ax supernova, a supernova in which the white dwarf is not completely destroyed. One challenge to discovering the exact nature of the bubble and its origin is the extreme uncertainty about how far away it is. Estimates are that it could be between 7,000 and 25,000 light years away, and perhaps even far less than 7,000 light years if it is indeed a remnant of a Type 1ax supernova. This means that the size and age of the remnant is not known with any degree of certainty either. Estimates are that it could be between 47 and 150 light years across and have first formed between 1,000 and 10,000 years ago. More information is at

www.sciencealert.com/mysteriouslyperfect-sphere-spotted-in-space-byastronomers.

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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; More is on the northeast US occultations pages at groups.io/g/OccultNEUS and iota.jhuapl.edu/exped.htm.

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# 2024-2025 Officers

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## Trustees:

- Benson Simon (2025)
- Michael Brabanski (2026)
- Bernard Kaufman (2027)
- Chong Wang (2028)

Incoming 2025-2029 Trustee Zachary Gleiberman

# Appointed Officers and Committee Heads:

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#### President's Corner – continued from page 4



Rho Ophiuchi Credit: Gael Gomez

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On the night of the solstice, June 21, the Smithsonian Institution will once again keep many of their museums, in particular the National Air and Space Museum (NASM), open very late. Gael Gomez and I, along with other local amateur astronomers, have been invited to do public "outreach" observing on the Mall that evening, starting around 6 pm, and going as late as we feel like continuing. This event is NOT going to be the same as the past Astronomy Festival on the Mall events sponsored by Hofstra College; that event has been rescheduled for the fall equinox. But there will undoubtedly be lots of members of the public interested in looking up, so please come out with us!

In July, we will also have a solar and stellar observation session during the annual Smithsonian Folklife Festival, which this year is focused on the contributions of youth. On Saturday, July 5 we will be next to the "Streetwise" display in the center of the Mall, between the Castle and the Natural History Museum, from 1 pm to 9:30 pm with some breaks inbetween. On Sunday, July 6, we will do much of the same from 12 noon to 9:30 pm with a panel discussion from 1 to 2 pm. Once again, additional solar or nighttime telescopes from other volunteers will be most welcome!

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Schedule of Upcoming NCA Meetings and Speakers Carl Biagetti

# Sept. 13, 2025 -- Kristin Sotzen (JHU/APL) The Dragonfly Mission

**Oct. 11, 2025 -- David DeVorkin (NASM)** George R. Carruthers: The Quiet Genius Who Was the First to Send an Astronomical Telescope to the Moon

#### Oldest Confirmed Galaxy Existed 280 Million Years After Big Bang

The James Webb Space Telescope has confirmed the existence of a galaxy that existed a mere 280 million years after the Big Bang, long before astronomers previously believed such galaxies could have formed. Designated MoM-z14, the find is part of the Mirage or Miracle survey, which set out to determine if earlier evidence was indeed showing such galaxies existed so shortly after the beginning of the Universe, or if that evidence was due to other phenomena, such as closer galaxies that were obscured by dust. Study of the light from MoM-z14 also indicates that most of it comes from stars and not from an active galactic nucleus. Some of that light might have come from theorized Population III stars, supermassive stars hundreds to tens of thousands of times the mass of the Sun. More info on these findings is available at

phys.org/news/2025-05-farthest-galaxyjwst-million-years.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 <u>Guy Brandenburg's Website</u>. To contact Guy, call 202-262-4374 or <u>Email Guy</u>.

**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 <u>www.astro.umd.edu/openhouse</u>.

**June 18, 2025 -- The APS Senior Physicists Group:** Wednesday, June 18th at 1:00 p.m., Michael Brabanski, (APS Senior Physicists' Group), will give a talk in Room 2204, of the Physical Sciences Complex, Physics Dept., University of MD, College Park entitled "*Michelson, Einstein and the Telegrafenberg Science Park.*" The Zoom link to register and attend the meeting online is apsphysics.zoom.us/meeting/register/Fp5XOrOoR KYIE2dYxXCxg.

**Sept. 13, 2025 -- Kristin Sotzen (JHU/APL) The Dragonfly Mission –** 7:30 p.m. at the University of Maryland Observatory and on Zoom.

# National Capital Astronomers

# **Online Membership Application and Renewal**

To submit or renew a membership to the National Capital Astronomers, and pay dues, please visit <u>capitalastronomers.org/</u>. 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

- \$ 15 1 year Individual/Family
- \$ 35 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 <u>membership Google form</u> 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 - ESA/Webb, NASA & CSA, G. Gozaliasl, A. Koekemoer, M. Franco, and the COSMOS-Web team The image above features stars in the Milky Way and galaxies billions of light years away. A larger copy of the image and more information about it is available at esawebb.org/images/potm2504b/.

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 June 14<sup>th</sup> 7:30 pm

# Science Fair Presentations and Astrophotos

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

umd.zoom.us/j/91273752763?pwd=XKZL9 V94XIDzwWg7FYDKLbVUQb5YRP.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.

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