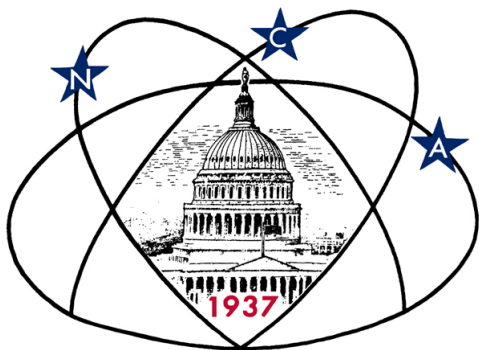




Star Dust

Newsletter of National Capital Astronomers, Inc.

capitalastronomers.org

October 2026

Volume 85, Issue 2

**Celebrating 89 Years
of Astronomy**

Next Meeting

When: Sat. Oct. 10th, 2026

Time: 7:30 pm

Speaker: Dr. Nicholas Kirschner

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, D.
Thilker, the MAUVE-HST Team**

A recent Hubble image of NGC 4698 shows the galaxy in stunning detail. More information about the image is at www.nasa.gov/image-article/hubble-spots-chaotic-secret-in-galaxy/.

Annual Membership Dues are 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!**

The Compton Pair (ComPair) Mission

*Dr. Nicholas Kirschner - NASA's Goddard Space Flight Center,
George Washington University*



Images Credit – Jeanette Kazmierczak, NASA's Goddard Space Flight Center

The "MeV Gap"—the notorious observational sensitivity deficit spanning the ~100 keV to ~100 MeV energy regime—has limited progress in high-energy astrophysics for over two decades. Many astrophysical processes occur within this band, therefore resolving this gap is essential to advancing our understanding of extreme astrophysical phenomena and early Universe formation.

The All-sky Medium Energy Gamma-ray Observatory (AMEGO) is a pioneering mission concept designed to bridge this gap, offering sensitive observations over an order of magnitude better than previous MeV instruments. To validate AMEGO's technology, the Compton Pair (ComPair) telescope was developed as a balloon-borne prototype and

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Recent Astronomy Highlights

Mysterious Soft X-Ray Sources Found by Chandra

A search of an archive of data from the Chandra X-Ray Observatory has turned up 84 objects that radiate strongly in the soft, lower-energy, X-ray regions of the spectrum, but give off very few higher-energy X-rays. The sources also radiate strongly in the most energetic ultraviolet regions. The sources reside in six galaxies, including the Andromeda Galaxy. Currently there is no definitive explanation for these “hypersoft X-ray sources” although there is speculation that they may be binary systems in which a black hole, neutron star, or white dwarf is stripping gas off a companion star. If some of the sources do indeed turn out to involve white dwarfs, there is further speculation that such binary systems might be the origin of Type 1a supernovae, explosions of white dwarfs when they have received a critical amount of gas from their companion star. More information is at dailygalaxy.com/2026/09/nasas-chandra-found-84-mysterious-objects-hiding-in-other-galaxies-scientists-have-never-seen-anything-like-them/.

Newly-Formed Once-A-Century Crater Discovered on the Moon

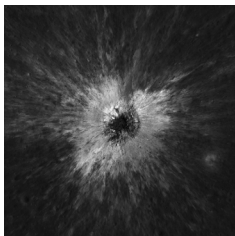


Image Credit - NASA

Discovered in October 2025, McGetchin Crater was likely formed by the impact of an asteroid the size of a three- to six-story building in mid-2024. More information about the new crater is at science.nasa.gov/solar-system/moon/nasas-moon-orbiter-spots-new-once-in-century-moon-crater/.

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The submission deadline for November's Star Dust is October 30th.

Abstract and Biography – continued from page 1

successfully flown in 2023. This presentation details the end-to-end development of the ComPair instrument, encompassing its construction, environmental testing, and flight performance.



Image Credit - Jeanette Kazmierczak, NASA's Goddard Space Flight Center

Biography: Dr. Nicholas Kirschner is a high-energy astrophysicist who recently completed his doctorate at George Washington University. During his time there, he conducted his thesis research at NASA's Goddard Space Flight Center, where he played a key role in the development of the Compton Pair (ComPair) balloon instrument. He is currently a postdoctoral fellow at the U.S. Naval Research Laboratory (NRL), where he contributes to several high-energy gamma-ray missions, including the development of the next-generation iteration, ComPair-2.

Schedule of Upcoming NCA Meetings and Speakers

Bryan Vandrovec

Oct. 10, 2026 -- Nicholas Kirschner (NASA's Goddard Space Flight Center, GWU) *The Compton Pair (ComPair) Mission*

Nov. 14, 2026 -- James Cole (Leidos) *Models of the Universe: What We Can and Cannot Know. How We Know It and When We Knew It.*

Dec. 12, 2026 -- Members' Only Observing Session (no speaker)

Jan. 9, 2027 -- TBD

Feb. 13, 2027 -- 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!

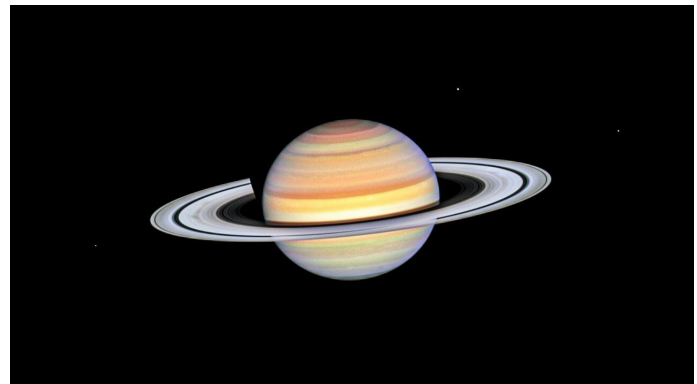
President's Corner

Guy Brandenburg

President, National Capital Astronomers

News items:

- The hastily-put-together 2026 **Astronomy Festival** on the **National Mall** got canceled on September 26 by a storm easily seen from space. A rescheduled AFNM is being planned for a date close to the 2027 vernal equinox with more participating organizations, tables, port-a-potties, and an alternative indoor venue in case of bad weather. George Mason University is taking the lead on this with much assistance from local astronomy clubs such as NCA and the Northern Virginia Astronomy Club.
- The Rock Creek National Park Nature Center and Planetarium is, unfortunately, still closed for repairs, so there will not be any special evening planetarium show right before our monthly Exploring the Sky events until the repairs are funded and completed. Feel free to contact any of your elected representatives to complain about this and the billions of other dollars of unfunded and deferred maintenance and repairs in our national parks.
- NCA has some wonderful high school astronomy interns again this year, all from School Without Walls SHS. I am their supervisor. They have been learning about solar astrophysics and will be assisting with daytime solar sidewalk astronomy events in various parts of the city using white-light and hydrogen-alpha wavelengths, two afternoons a week. During bad weather, they do other projects.
- Halloween (October 31) is one of the few times a year that kids are actually outside at night, and I find that trick-or-treaters love looking through telescopes! Try treating your local ghouls, goblins, and princesses (and their parents) to a view of Saturn, which will be up all night!



Credit: NASA, ESA, STScI, A. Simon (NASA-GSFC)

Sky Watchers

October/November

Mercury reaches greatest eastern elongation on October 12 (see below) then will drop lower in succeeding evening skies until it transitions to the morning sky in early November. Venus will likely be difficult to view as it transitions to the morning sky in late October. Mars rises about an hour after midnight and will be high in the morning sky. Jupiter will also be high in the morning sky. Saturn rises before sunset and will be up most of the night.

10/12	Greatest eastern elongation of Mercury – the planet will be 19.6 degrees from the Sun.
10/21-22	The Orionids meteor shower peaks on the evening of the 21st into the morning of the 22nd with approximately 20 meteors/hour. Viewing conditions will be ideal in the early morning hours after the setting of the waxing gibbous Moon.
10/26	Full Moon – 12:13 a.m.
11/4-5	The Taurids meteor shower peaks on the evening of 11/4, usually producing 5-10 meteors per hour. Conditions should be ideal with the rise of a waning crescent Moon not coming until approximately two hours after midnight.

Time is in EDT (Eastern Daylight Saving Time).

From Nomads to NASA: Yogurt's Journey to Space

Deniz Orhun

www.denizorhun.com

Most of us don't think of yogurt when we think of spaceflight. But in January 2023, NASA astronauts on the International Space Station hydrated a set of small bags, shook them, put them in an incubator, and made yogurt and kefir in orbit. In late 2025 - early 2026, they tested continuous growth cycles of yogurt in orbit and a way to drink it safely. The experiments, BioNutrients-2 and 3, were built around a practical question for a Mars mission: how do you keep a crew well fed when the food you packed loses its nutritional value month after month?

The problem is vitamins. Pre-packaged meals lose them over months and years of storage. NASA's BioNutrients project, developed at Ames Research Center, stores dried microbes in small bioreactors. Astronauts add water and grow fresh nutrients when they need them, from ingredients that keep for years.

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

Ten-Sided Pattern Discovered at Saturn's South Pole

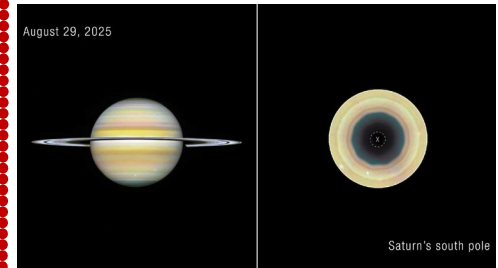


Image Credit - NASA, ESA, STScI, Agustin Sánchez-Lavega (UPV), Amy Simon (NASA-GSFC), Michael Wong (UC Berkeley); Image Processing - Alyssa Pagan

Astronomers have known for decades about the six-sided feature at Saturn's north pole. However, it is only recently, based on images from the Hubble Space Telescope, as well as ground-based telescopes, that a ten-sided pattern, a decagon, has formed at the ringed planet's south pole. Study indicates that the pattern is an atmospheric wave that goes deep below the top of Saturn's atmosphere. Archival images show that this new feature has been developing at least since 2023. NASA's Cassini spacecraft, which studied Saturn up until 2017, showed no sign of such a structure at the south pole. The exact atmospheric dynamics involved in creating such a shape remain a mystery. Astronomers will continue to study the decagon in order to understand those dynamics and to see if it is as stable as the hexagonal atmospheric wave at Saturn's north pole. Additional information is at

www.sciencedaily.com/releases/2026/09/260903064229.htm.

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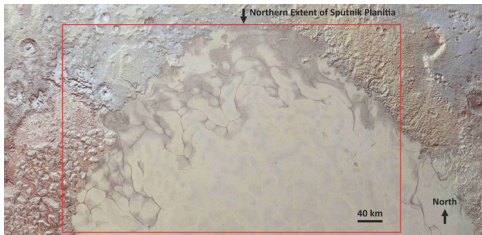
Recent Astronomy Highlights – continued from page 4

The Fastest Known Star in the Milky Way Galaxy May Reveal the Spin of Sagittarius A*

The star labeled S301 has been determined to reach a speed of 25,000 kilometers per second during its closest approach to Sagittarius A*, the supermassive black hole at the center of our galaxy. That is approximately 8% of the speed of light. At that speed, an object could circle the entire Earth in 1.6 seconds. At its closest approach, S301 is estimated to come within 12 astronomical units, the average distance between Earth and the Sun, of the black hole. At such a close distance, the star's orbital behavior may actually reveal the speed of spin of Sagittarius A*. This is because the spin of massive objects actually drags the space around them, an effect known as frame dragging that is predicted by General Relativity.

More information can be found at scitechdaily.com/fastest-star-ever-found-in-the-milky-way-is-racing-around-our-galaxys-black-hole/.

Study of New Horizons Images Shows Recent Liquid Upwelling on Pluto



Pluto's Sputnik Planitia. Image Credit - NASA/Johns Hopkins APL/SwRI

Recent study of images taken in 2015 during the New Horizons spacecraft's flyby of Pluto has shown something unexpected – relatively recent liquid flow on the surface of the dwarf planet. Many scientists believed that Pluto would be geologically dead. However, evidence seen in images of the Sputnik Planitia, a vast nitrogen glacier, appears to show that liquid, most likely nitrogen, may periodically come to the surface. More information is available at science.nasa.gov/blogs/science-news/2026/08/05/nasas-new-horizons-finds-evidence-of-recent-liquid-on-plutos-surface/.

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From Nomads to NASA: Yogurt's Journey to Space – continued from page 4



Astronaut and Expedition 73 Flight Engineer Kimiya Yui of JAXA, Japan Aerospace Exploration Agency, displays production bags containing probiotic yogurt cultures for the BioNutrients-3 investigation on Oct. 2, 2025, aboard the International Space Station. Caption and Image Credit – NASA

What strikes me as a food scientist is that none of this is new. Fermentation is one of the oldest food technologies we have. Yogurt was probably first made by Neolithic herders in Central Asia and Mesopotamia around 5000 BC, when people first domesticated milk-producing animals. It traveled well and lasted longer than fresh milk. In fact, the word yogurt comes from Turkish: *yoğurmak*, to thicken or curdle.

Science finally explained the cause of this thickening in 1905. Stamen Grigorov, a 27-year-old Bulgarian microbiologist working in Professor Léon Massol's laboratory in Geneva, Switzerland, identified a key bacterium behind yogurt. It was later named *Lactobacillus bulgaricus*. So, in a sense NASA is rediscovering yogurt, an ancient herders' food, and preparing it for the longest trip people have ever planned.

Yogurt also connects to a problem Star Dust readers know well. In microgravity, bones don't carry weight, and the body starts to break them down. According to NASA, astronauts on long missions lose about 1 to 1.5 percent of the density in their weight-bearing bones every month. A 6-month mission can cost as much bone as an older adult loses in about 10 years on Earth. Exercise is the main defense, but calcium is still essential to bone.

This is where my own research comes in. Not all yogurt gives you the same calcium. When yogurt is strained to make it thick, much of its calcium drains out with the whey. One study measured the loss at about two-thirds. Unstrained yogurt keeps it. In North America, strained yogurt is sold as "Greek yogurt," but that is a marketing name. It describes a process, not a place. For a crew trying to hold on to every gram of bone, unstrained yogurt is the better source of calcium.

Food in space is also about morale. For many people, a bowl of yogurt tastes like home. If we send astronauts away from Earth for years, we have to feed more than their bodies.

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From Nomads to NASA: Yogurt's Journey to Space – continued from page 5

I am a chef, an agricultural engineer, and a member of the National Capital Astronomers, so this story sits right where my interests meet. When the first crew sits down to eat on the way to Mars, I expect yogurt will be on the menu.

Listed below are references for anyone interested in learning more about the topics in this article.

- Photo: www.nasa.gov/general/nasa-study-to-analyze-fermented-food-samples-from-space/
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*Recent Astronomy Highlights – continued
from page 5*

Expansion of the Universe is Still Accelerating After All According to New Study

Last year a study came out claiming that the expansion of the Universe, while continuing on, had slowed in the last several billion years. Such a slowing would have serious implications for the nature of Dark Energy. However a subsequent study calls into question some of the assumptions of last year's study. Both studies relied on measuring the light of Type 1a supernovae, explosions of white dwarfs that have accumulated a critical amount of mass from a companion star. But in the latter study the claim is made that in the former one incorrect assumptions about the progenitors of those Type 1a supernovae were made, such as assuming they were the same age as the galaxies that hosted them. Additional information about the latter study can be found at

www.sciencedaily.com/releases/2026/08/260828082325.htm.

Calendar of Events

The NCA Telescope Making, Maintenance, and Modification Workshop (TMMMW) 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 TMMMW, 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. 21st at **1:30 p.m.**, Dr Bhagirath Joshi will give a talk entitled **The Excess Neutron Shell Model: A Geometric and Deterministic Quantum Gravitational Framework for Nuclear Structure, New Materials, and the Origin of the Universe.** 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 is apsphysics.zoom.us/j/88364867347?pwd=GJCH3AlfLLy61OMEVh1K0aFWSpvKA9.1.

Next NCA Meeting – Nov. 14, 2026 -- James Cole (Leidos) *Models of the Universe: What We Can and Cannot Know. How We Know It and When We Knew It.*

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

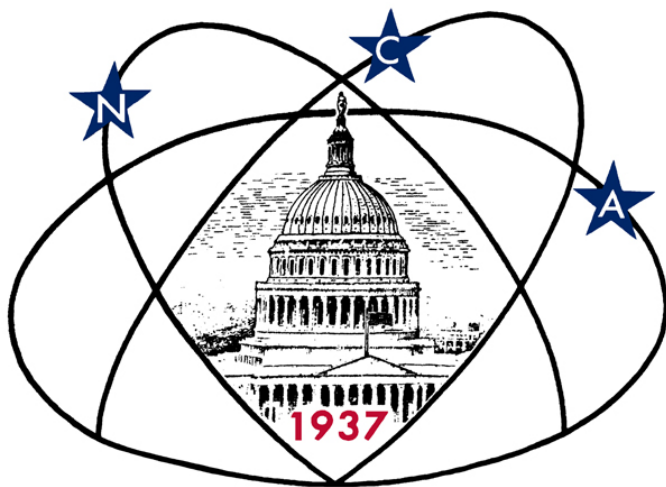
(Please note that membership dues will go up in coming years, so consider joining/renewing with the 3-year option in order to save money.)

If you prefer to pay membership dues by check,

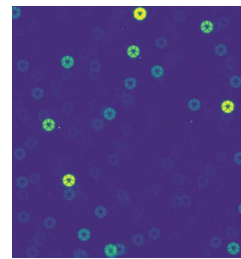
- make check payable to **National Capital Astronomers** then
- mail to: **Jim Simpson, NCA Treasurer; 3845 Wayson Road, Davidsonville, MD 21035.**
- Don't forget to also fill out the [membership Google form](#), even if renewing!

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's Goddard Space Flight Center,
Tyler Desjardins/STScI**

The first image from the Nancy Grace Roman Space Telescope may not look like much, showing out-of-focus stars. But the team running the telescope is happy with the image, and focusing of the telescope will take place later in the mission. More information is at tech.yahoo.com/science/articles/nasa-nancy-grace-roman-telescope-144500779.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:

2026 Oct. 10th

7:30 pm

Dr. Nicholas Kirschner

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

umd.zoom.us/j/95292476448?pwd=6ktXhegElSP7Wc1W5o8D31yI2Gv8za.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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