

# Star Dust

Newsletter of National Capital Astronomers, Inc.  
[capitalastronomers.org](http://capitalastronomers.org)

January 2024

Volume 82, Issue 5

**Celebrating 87 Years  
of Astronomy**

## Next Meeting

**When:** Sat. Jan. 13th, 2024

**Time:** 7:30 pm

**Where:** **Online Only (Zoom)**

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

**Speaker:** Dr. Shubham Kanodia

## Table of Contents

Preview of Jan. 2024 Talk.....	1
Recent Astronomy Highlights.....	2
President's Corner.....	2
Exploring the Sky.....	3
NCA and NOVAC.....	3
Sky Watchers.....	4
Occultations.....	5
Calendar of Events.....	8



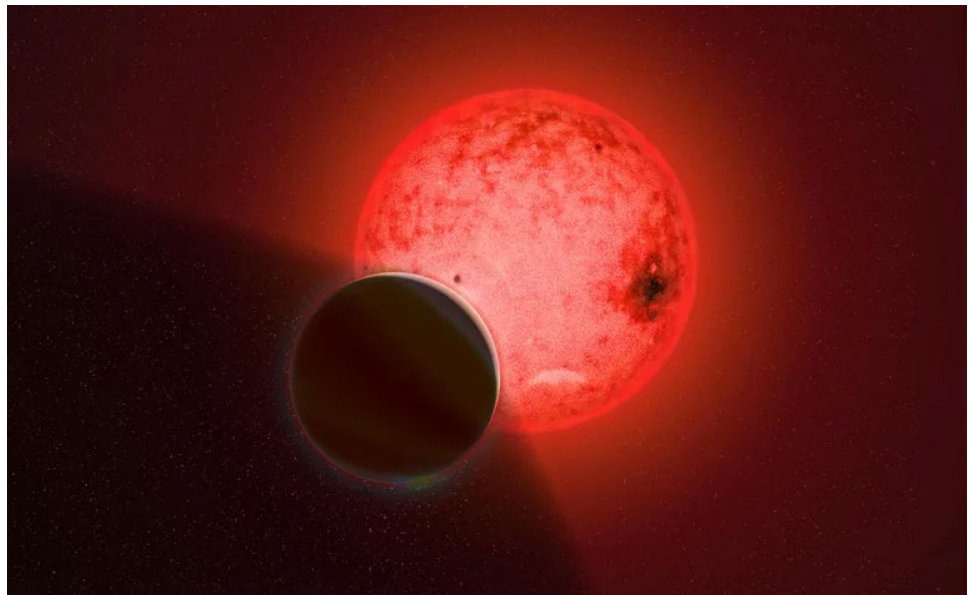
**Image Credits - NASA, ESA, CSA, STScI, D. Milisavljevic (Purdue University), T. Temim (Princeton University), I. De Looze (University of Gent)**

JWST recently provided the above near-infrared image of the supernova remnant Cassiopeia A (Cas A). More information is at

<https://www.nasa.gov/missions/webb/nasas-webb-stuns-with-new-high-definition-look-at-exploded-star/>.

## Big Planets Around Small Stars: The Forbidden Extreme of Planet Formation

*Dr. Shubham Kanodia – Carnegie Institution of Washington*



**Artist's Conception of exoplanet TOI-5205B, a gas giant, transiting its host red dwarf star. Image Credit: Katherine Cain / Carnegie Institution for Science**

**Abstract:** In this talk I will discuss our Giant Exoplanets around M-dwarf Stars (GEMS) survey that is finding and characterizing rare giant planets around the very small and cold M-dwarfs. I will present preliminary results from ground and space-based facilities including astronomer's newest toy - JWST.

**Biography:** Shubham Kanodia is a scientist in the Earth & Planets Laboratory of the Carnegie Institution of Washington. His current research focuses on detecting and characterizing giant exoplanets around M-dwarf stars, and on understanding how these extreme systems form. He also looks for habitable planets. He obtained his PhD at the Penn State Department of Astronomy & Astrophysics. For his research he has been intensively involved with developing and then using new ground-based spectrographs that can measure the component of the velocity of an astronomical object along the line-of-sight to the object. He also uses data from the James Webb Space Telescope. He develops innovative

*continued on page 2*

## Recent Astronomy Highlights

### JWST Discovers Second Lensed Supernova in Distant Galaxy



**Image Credit - NASA, ESA, CSA, STSCI, Justin Pierel (STSCI) and Andrew Newman (Carnegie Institution For Science)**

A second Type 1A supernova has been observed in a galaxy designated MRG-M0138, approximately 10 billion light years from Earth. Light from the galaxy's first such supernova reached Earth in 2016, however its existence was not discovered until 2019. Both supernovae, being so distant, were only observable because of gravitational lensing of their light by a galactic supercluster between MRG-M0138 and Earth. This lensing also causes light from each of the supernovas to be received multiple times. Another burst of light from the second supernova, designated Encore, is expected in the mid-2030s. These observations will help in calibrating the Hubble constant, which indicates the expansion rate of the Universe. More information about the discovery and its ramifications is available at <https://www.eurekaalert.org/news-releases/1029793>.

### Measuring Distances to Stars Using Stellar Oscillations

Astronomers have used oscillations detected in the plasma of 12,000 red giant stars, to independently verify and even improve the distance measurements accomplished by the GAIA space mission. This field of study is known as asteroseismology. In measuring the frequency of oscillations, astronomers can then determine star sizes and from that the luminosity of those stars. With that luminosity measurement, the distance is then calculated based on the amount of star light reaching Earth. More information is at <https://www.eurekaalert.org/news-releases/1011345>.

*Abstract and Biography – continued from page 1*



statistical techniques for characterizing the population of planets around M-dwarf stars. He has also done an enormous amount of mentoring and outreach at all grade levels, ranging from middle school to graduate school.

## President's Corner

*Guy Brandenburg*

1. Happy New Year! Scientists have proved that folks who celebrate more New Years tend to live longer! If you made it this far, to this arbitrary point on our journey around the G-class star we call the Sun, as it and its planets travel around the super-massive black hole located at Sagittarius A\*, then congratulations! What are your astronomical plans for this new year?
2. Vera Rubin in the News: Vera Rubin, an early member of NCA, and a long-time DC resident, was featured in the December 2023 issue of Astronomy (<https://www.astronomy.com/science/vera-rubin-found-a-lifetime-of-wonder-in-the-dark-skies/>) magazine because (as you probably know) she found through careful research that the speeds of stars like ours, as they orbit around their galaxies, don't make sense if you add up all the known mass and crank out the Newtonian formulas for gravity and their speeds. The stars near the edges of galaxies go just as fast as the ones near the middle, which is NOT true in, say, our Solar System, where Mercury travels at 48 km/s, Earth goes 30 km/s, and Neptune's speed is 5 km/s. So far, nobody has found the missing 'dark matter' that would make these speeds work on galactic scales, and no astrophysicist has (to my knowledge) come up with modifications to Newtonian dynamics that both satisfy all the other laws of physics and also solve the problem. We have a profoundly open question, thanks to this pioneering astronomer's work!
  - a. This interview with Rubin was quite revealing, especially regarding the sexist obstacles she faced: <https://www.historicchevychasedc.org/oral-histories/vera-rubin/>.
  - b. While it is a shame that Vera was never awarded a Nobel prize for her work, NASA and others did rename the Large Synoptic Survey observatory in Chile after her in 2019, and it should be in full operation after we make one more turn around the Sun. (See <https://rubinobservatory.org/> and also the December 2023 monthly talk for Northern Virginia Astronomy Club, <https://www.novac.com/wp/>).

*continued on page 3*

## Exploring the Sky



The Exploring the Sky program will take a hiatus until April of 2024.

**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 fuzzy galaxy or two.

Next year, as an added feature, you can come one hour early and see a planetarium program in the Nature Center and then come to the field to observe. Also, if the sky is cloudy or it's raining there will be a planetarium program at that one-hour-earlier time so Exploring the Sky will no longer be canceled! Planetarium programs can be found at:

[www.nps.gov/rocr/planyourvisit/calendar.htm](http://www.nps.gov/rocr/planyourvisit/calendar.htm). You can also search "astronomy", "dark skies" or call the Nature Center at: (202)-895-6070.

**The article-submission deadline for February's issue of Star Dust, is January 18th.**

**Clear Skies!**

## Should NCA and NOVAC Merge Into One Organization?

*Jeff Norman*

NCA is the oldest astronomical society in the Washington area having been established in 1937. NOVAC is the largest of the local societies with about 800 members. There are some differences. Over the years, NCA has emphasized its scholarly lecture series, while NOVAC has given more emphasis to observing. There are also some astronomical groups in the metropolitan area such as the Goddard club and the Greenbelt club, which cover smaller geographic areas; and they could also be part of some metropolitan astronomical society of the future if their members so desire. All of the programs of all the groups could continue to exist under the umbrella of one organization.

However, I think the first step would be to create an organization of astronomy groups of the metropolitan Washington area; but each group would maintain its own separate independent status. Representatives of each group could meet periodically to help all of the groups enhance their programs and avoid duplication. Perhaps we could encourage all of the groups to allow volunteers from any astronomy group to serve in any capacity in any other astronomy group.

*President's Corner – continued from page 2*

3. The NCA website (<https://capitlastronomers.org/>) had some problems recently but is back on-line.

4. If you are not a member of the NCA email list-serve, and would like to join it, just send an email to [capitlastronomers+subscribe@groups.io](mailto:capitlastronomers+subscribe@groups.io). It makes no difference what you put in the subject line or body of the email.

5. Reminder that January's meeting will be strictly virtual. The URL to log in can be found on Page 9 and just below. Please note that if the Zoom link URL gets word wrapped, a space or other break might get introduced. The current link is:

<https://umd.zoom.us/j/95154535739?pwd=cERBUE9XM3AvNE40TXYrNUptVEtzUT09>

6. You already know that on April 8, a total solar eclipse will make its way across the Pacific Ocean to Mexico, a highly-populated area of the central USA, and eastern Canada.

a. If you have never seen a total eclipse, then I highly recommend you make plans to do so at least once in your lifetime. It's the only time you can see the sun's chromosphere and corona with your naked eyes. It inspires awe in me every time I see it, and I have seen no photo or video that does it justice. Partial eclipses are nice, but nothing beats totality for making you realize that we are only 8 light-minutes away from the incredibly massive thermonuclear reactor that is responsible for our very existence.

b. If you are planning to go, but don't already have lodging along the path of totality, a very brief online search suggests that hotels and motels in the zone of totality (e.g. Dallas) seem to have doubled or tripled their rates for the event (understandably). However, there are plenty of other motels that are located within 100 miles of that strip, at much lower prices. Given the great US interstate highway system, it should not be too hard to drive from such a motel to somewhere inside the zone of totality on the morning of the event, even if traffic is heavy.

*continued on page 4*

# Sky Watchers

January/February

Mercury remains low in the morning sky throughout the period, along with Mars, although the latter will remain largely unobservable. Venus will also be in the morning sky, albeit higher than Mercury and Mars. Jupiter will be high above in the evening sky, setting soon after midnight. Saturn will appear lower in the sky at sunset as the days progress.

1/25

Full Moon – 12:55 p.m.

Time is in EST (Eastern Standard Time).

*President's Corner – continued from page 3*

- c. The lowest probability of clouds along the entire path is at Mazatlán, but the crime situation today in Mexico is just too scary for me.
  - d. My wife and I have arranged for an Airbnb somewhere in Austin and driving from DC to that location. On the day of the event, we will probably be staying put for the event unless a forecast for clouds impels us to drive somewhere else.
  - e. I plan to bring my own Coronado PST solar-alpha scope, and the 6" Newtonian scope that I made and have re-made as a travel scope for the 1994 and 2017 eclipses.
7. We are putting in an order for hundreds of NCA-branded, safe, solar eyeglasses for NCA members to give away at this and other events. The board has discussed the issue, and my decision as president is that these should be given away, not sold. Why?
- a. Jeff Norman, our assistant secretary-treasurer investigated, and found that while NCA is a non-profit, we would still be required to calculate and collect sales tax and give receipts for each one that we sold; we would need to then pay those funds to the District of Columbia. This is way too much trouble and work for Jim Simpson (our secretary-treasurer) and Jeff, for a relatively small amount of money.
  - b. Fewer and fewer people carry dollar bills or quarters in their pockets or purses, and we definitely don't want to go through the hassle of doing electronic payments for a dollar or less.
  - c. Cash donations from the public might need documentation.
  - d. I think the best thing is to use any interaction with the public to recruit any interested person to sign up as a new NCA member at our website and to help out at similar events.
  - e. No other astronomy club that I know of is charging the public for these, and we would appear to be less than generous.

*continued on page 6*

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

**ISSN: 0898-7548**

Editor: Todd Supple

Editorial Advisors:

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

Electronic Distributor: Jay Miller

*Recent Astronomy Highlights – continued from page 2*

## First Stellar Accretion Disk Discovered in Another Galaxy



**Image Credit - ESO/ ALMA (ESO/ NAOJ/ NRAO)/ A. McLeod et al.**

The image above may look like little more than a mottled smudge, but it is actually an image, in the radio frequency range, of a disk of dust and gas surrounding a star in the Large Magellanic Cloud approximately 163,000 light years away from Earth. Recently observed by the Atacama Large Millimeter/submillimeter Array, ALMA, it is the first such disk outside of our Milky Way Galaxy ever imaged. Circumstellar disks are also called protoplanetary disks because they contain the material from which planets ultimately form around stars. The discovery is the first proof of such planet-forming processes taking place in galaxies other than our own. More information can be found at <https://earthsky.org/space/planet-forming-disk-circumstellar-disk-hh-1177-large-magellanic-cloud-alma/>.

*continued on page 7*

# 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

2024 Date	Day	EST	Star	Mag.	Asteroid	dmag	dur. s	Ap. " Location
Jan 12	Fri	20:16	4U430121092	13.2	Aglaia	1.0	5 9	COH,PA,nwMD,nNJ
Jan 17	wed	19:05	4UC57528571	12.9	Bougeois	4.1	0.8 8	CNJ,CMD,n-SWVA
Jan 17	wed	22:37	4UC47846387	10.8	1998 VY29	6.4	2.2 5	SMD,nVA,CWV,SOH
Jan 17	wed	23:06	TYC07510456	11.9	Alfaterna	3.2	3 5	e-nVA,wMD,swPA
Jan 18	Thu	20:28	4UC54301088	11.8	Lucifer	5.0	1.4 5	CCO,SOH,nVA,SMD
Jan 18	Thu	22:16	TYC28961882	9.7	Newcombia	6.5	1.4 4	seNY,cPA,SOH,nAR
Jan 21	Sun	4:27	TYC29251783	11.4	Takehiro	6.4	1.5 5	se-wMD,swPA,neOH
Jan 22	Mon	20:46	4UC49504243	13.9	Jacqueline	2.4	4 10	sw-nVA,ncMD,sePA
Jan 22	Mon	20:50	TYC01763035	11.3	Langevin	5.4	1.4 5	cVA,swV,neKY,nMO
Jan 24	wed	1:06	4UC58341638	12.3	Centenaria	2.4	4 6	CNJ,SPA,nOH,nIL
Jan 25	Thu	3:15	4UC58341638	13.3	Edisona	2.5	3 8	CMD,DC,nVA,COH
Jan 25	Thu	3:38	4UC50849305	14.2	Lameia	0.5	4 10	MD,DC,nVA,WPA,OH
Jan 25	Thu	20:11	4UC54206429	11.8	Ferguson	5.0	1.5 5	seKY,nVA,CMD,SNJ
Jan 26	Fri	19:31	TYC12390557	10.2	Elsa	2.6	4 4	SOH,sw-nePA,ecNY
Jan 29	Mon	3:33	SAO 79006	9.1	Hosamu	8.5	1.3 3	e-nCNC,swVA,eKY
Jan 29	Mon	4:52	4UC38958605	13.3	Posnania	3.5	4 8	CPA,CMD,DC,seVA
Jan 30	Tue	19:00	4UC59840205	13.7	1999 UF	4.3	1.1 9	SNJ,CMD,nVA;DC?
Jan 30	Tue	21:14	TYC54004302	11.5	Olympia	1.0	3 5	eVA,CMD,CPA;DC?
Jan 31	wed	19:44	4UC54701483	11.5	Marianna	2.3	4 5	SOH,swV,cVA,SMD
Feb 1	Thu	23:04	4UC49108763	12.9	Froeschle	4.0	15 7	w-nVA,DC,CMD,nNJ
Feb 5	Mon	0:15	4UC57226181	12.8	Bourgeois	4.6	1.3 7	SMD,nVA,neKY,sCA
Feb 7	wed	20:37	4UC56544879	12.9	Durrell	4.0	1.1 7	SDE,swMD,c-swVA
Feb 9	Fri	4:12	SAO 158660	9.3	1999 RW208	9.4	1.8 3	SMI,COH,nwV,cVA
Feb 13	Tue	20:18	4UC55409994	14.0	Tokio	0.7	9 10	sw-nVA,DC,CMD,NJ
Feb 15	Thu	20:51	SAO 76525	7.7	Oizumi	9.7	0.8 2	CMO,COH,SPA,nNJ
Feb 19	Mon	20:28	TYC18730489	11.0	Metis	0.4	28 5	c+nVA,DC,MD,SNJ

## Lunar Grazing Occultations

2024 Date	Day	EST	Star	Mag	% alt	CA	Location, Notes
Feb 13	Tue	18:36	zeta Psc A	5.2	22+	40	13S sClpepr,DaleCit,VA;sClintn,MD
Feb 13	Tue	18:37	zeta Psc B	6.3	22+	40	13S path is 5 km north of above.

## Lunar Total Occultations

2024 Date	Day	EST	Ph Star	Mag	% alt	CA	Sp. Notes
Jan 9	Tue	6:34	R 43 Oph	5.3	5-	5	51N K4 Sun-10, Az. 133, ZC2505
Jan 14	Sun	18:48	D ZC 3365	8.2	16+	23	40N A0
Jan 15	Mon	19:44	D SAO 146936	7.9	26+	27	85S K5
Jan 15	Mon	19:44	D SAO 146938	8.3	26+	27	68S F8
Jan 15	Mon	20:35	D 24 Piscium	5.9	26+	18	85S G9 ZC 3514, close = double
Jan 16	Tue	18:05	D SAO 109348	7.3	36+	52	36N G2 Sun altitude -11 deg.
Jan 17	wed	19:21	D SAO 109947	7.8	48+	55	49N K0
Jan 18	Thu	17:56	D SAO 92900	7.9	59+	65	64N A0 Sun -9, spec. binary
Jan 19	Fri	18:34	D SAO 75820	8.1	69+	68	60N A0
Jan 19	Fri	22:00	D tau Ari	5.3	70+	54	86S B5 ZC 486,mag2 8,dT -2sec
Jan 20	Sat	17:34	D SAO 76480	7.4	78+	52	49S A3 Sun alt. -4 deg.
Jan 21	Sun	17:56	D SAO 76965	7.6	86+	48	44N G Sun alt. -8, close dbl?
Jan 24	wed	0:19	D ZC 1093	6.6	98+	71	69N F8 close double?
Jan 24	wed	3:08	D ZC 1105	6.5	98+	40	58S G7 close double
Jan 24	wed	4:10	D ZC 1108	7.0	98+	29	49N G8 close double?
Jan 24	wed	19:54	D omega Cnc	5.9	99+	38	50N G8 ZC1206,TerminatorDist6"
Jan 27	Sat	21:41	R SAO 99149	7.1	95-	26	40N A2 Axis Angle 315 degrees
Jan 28	Sun	4:07	R SAO 99198	7.3	94-	53	38S K2 Axis Angle 214
Jan 29	Mon	5:42	R sigma Leo	4.1	88-	40	76S B9 ZC 1644 = Shang Tseang
Jan 31	wed	4:44	R SAO 138955	7.2	74-	46	26N K2
Feb 2	Fri	6:30	R ZC 2040	8.0	55-	34	54N K0 Sun -9, close double??
Feb 4	Sun	4:09	R ZC 2269	5.4	35-	14	89S B5 Azimuth 139 degrees
Feb 4	Sun	6:50	R ZC 2286	5.4	35-	26	42N B5 Sun alt. -5 deg.
Feb 5	Mon	6:06	R SAO 184783	7.9	25-	18	88S G6
Feb 12	Mon	20:10	D SAO 109182	7.8	13+	11	56N G0 Azimuth 263 deg.
Feb 13	Tue	18:29	D zeta Psc A	5.2	22+	42	22S A7 Sun alt. -10, ZC 180
Feb 13	Tue	18:30	D zeta Psc B	6.3	22+	42	21S F7 Sun alt. -10, ZC 181
Feb 13	Tue	18:42	R zeta Psc A	5.2	22+	40	1S A7 ZC 180, VA,MD,NJ graze
Feb 13	Tue	18:43	R zeta Psc B	6.3	22+	40	2S F7 ZC 181, VA,MD,NJ graze
Feb 13	Tue	21:35	D ZC 193	7.9	23+	9	34S K0 Azimuth 274,close dbl?

More information at <http://iota.jhuapl.edu/exped.htm>.

David Dunham, [dunham@starpower.net](mailto:dunham@starpower.net)

## 2023-2024 Officers

### President:

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

### Vice-President:

John Hornstein  
[jshgwave@yahoo.com](mailto:jshgwave@yahoo.com)  
 301-593-1095 (h)

### Secretary-Treasurer:

Jim Simpson  
[simpsonj@verizon.net](mailto:simpsonj@verizon.net)  
 240-232-2820

### Asst. Secretary-Treasurer:

Jeffrey B. Norman  
[jeffreynorman@comcast.net](mailto:jeffreynorman@comcast.net)

### Trustees:

- Tom Crone (2024)
- Benson Simon (2025)
- Michael Brabanski (2026)
- Bernard Kaufman (2027)

### Appointed Officers and Committee Heads:

#### Exploring the Sky

Jay Miller  
[jhmiller@me.com](mailto:jhmiller@me.com)

#### Telescope Making

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

#### NCA Webmaster

Elizabeth Warner  
[warnerem@astro.umd.edu](mailto:warnerem@astro.umd.edu)  
 301-405-6555

#### Star Dust Editor

Todd Supple  
[NCAStardust@gmail.com](mailto:NCAStardust@gmail.com)  
 240-687-8193

#### Social Media

Twitter: [@NatCapAstro](https://twitter.com/NatCapAstro)

*President's Corner— continued from page 4*

f. If a current NCA member would like to reimburse the club, at approximately the final cost to NCA, for a large quantity of such solar viewing glasses, that you would like to give out at some event, that would be great, but not required.

8. If you decide to stay in the DMV area for the April 8 eclipse, we encourage members to help out with either the public events at the **National Air and Space Museum** or the activities at the **University of Maryland** (please contact Elizabeth Warner for details). The NCA Hydrogen-alpha double-stack Solar Max telescope will be available for use in the DC area for this event, by any NCA member who commits to doing so. Alternatively, there are several different designs for inexpensive, safe DIY solar viewers:

a. Here is a fairly original one:

[https://richardsont.people.cofc.edu/safe\\_solar\\_folder/the\\_2-lens\\_SSV.html](https://richardsont.people.cofc.edu/safe_solar_folder/the_2-lens_SSV.html). I have made one of these with leftover floorboards, and I have purchased some extra lens sets from Surplus Shed so you can make your own out of wood or cardboard, either at the Chevy Chase Community Center or anywhere you like.

b. However, it appears that the safe solar viewer in 8a works much better with an achromatic doublet than with the singlet lens in the original design, because the sunspots are not obscured by bluish tinges. I will try that soon.

c. Sun funnels and solar projection (<https://eclipse2017.nasa.gov/make-sun-funnel> or <https://eclipse.aas.org/eye-safety/projection>) can work, but not all eyepieces can stand the heat.

d. Please warn people not to look through any scope at the sun without proper solar filters at the front end of the scope!

e. The sun is putting on quite a show so far this cycle; who knows what will happen in 2024?

9. John Hornstein reminds us that we still need an NCA member (that is, one of you reading this) to volunteer to be our next vice-president. (**Please Note - In recent years, the elections have taken place in June. However, NCA bylaws state that elections are to take place in May. As President I believe we should follow the bylaws, therefore I move that we have this year's elections in May with nominations taking place in April**). In addition to the duties listed in the NCA by-laws, our VP will be in charge of finding speakers for our monthly meetings, introducing those speakers, and finding candidates for our elected board for the following year. We have a wealth of top-notch astronomical entities in the area (Goddard, Carnegie, STSI, and the Naval Research Lab, to name just four), and many of their staff are more than happy to share their research with us if we ask them nicely. Plus, we can have remote speakers from all over the world!

10. Annual dues for regular members are increasing to \$15 as of September 2024.

a. Student dues will stay put for now at \$5/year.

*continued on page 7*

President's Corner— continued from page 6

b. In the fall of 2025, regular dues will go up again, to \$20/year, and student dues will rise to \$10/year.

c. If you want to sign up for a three-year membership, that will also increase next year, to \$35, but life memberships will stay at \$200.

11. Exploring the Sky will start up again on April 6, but with a new contact person and planetarium operator, since Ranger Renée Maher is moving to a new position in the NPS.

a. Renée will be sorely missed. She was the person who came up with the idea of holding planetarium shows and telescope observing on the same evening, which worked out extremely well. She is a great planetarium operator and storyteller, and has been great fun to work with as well. She emailed me that she has done many of the steps needed to make sure the joint NCA-NPS-EtS program continues as we did last year, but she doesn't know who the new contact person will be, or even the new supervisor. Her last day at the Rock Creek Nature Center is January 13.

b. Here is the tentative schedule for these events, as proposed by Jay Miller and me. All dates are on Saturdays, and all times are PM, local time for the DMV region. They are designed so as to not interfere with monthly NCA meetings or national holidays, and to begin somewhere between the end of civil and nautical twilights.

Month	Day	Sunset	Civil Twilight	Nautical Twilight	Astro-nomical Twilight	Planetarium Show Starts	Exploring the Sky Starts
April	6	7:37	8:04	8:36	9:09	7:30	8:30
May	4	8:15	8:44	9:20	9:58	8:00	9:00
June	1	8:28	8:59	9:38	10:23	8:00	9:00
July	13	8:33	9:04	9:43	10:27	8:00	9:00
August	10	8:08	8:37	9:12	9:49	7:30	8:30
September	7	7:28	7:55	8:27	8:59	7:00	8:00
October	5	6:43	7:10	7:41	8:12	6:30	7:30
November	2	6:05	6:33	7:05	7:36	6:00	7:00

c. Anyone bringing a telescope is advised to begin setting up earlier than the official starting times, if at all possible.

d. We always need folks who either have scopes or who have information they can share with the public. While Rock Creek Park no longer has the dark skies it did two centuries ago, this event may be the only chance that members of the public will have of seeing the Moon, the planets, and other bright objects with their own eyes, in real-time, rather than in a photo.

e. The planetarium shows occur rain or shine in the Nature Center. The telescope observing part of the event will depend on the weather.

f. I want to thank all of the folks who have brought their scopes to these events this year and during past years. I especially want to thank Jay Miller for organizing the NCA side of this for many years.

12. In the next few months, local counties and cities in the DMV area will host **science/STEM fairs**. We appear to have sufficient NCA volunteers (Thanks!) but we could always use some more. As a reminder, NCA awards a certificate and a one-year subscription to Sky & Telescope, as well as the opportunity to discuss their projects at our June meeting, to all NCA Science Fair winners.

Recent Astronomy Highlights – continued from page 4

**Exoplanets Discovered That Might Have Oceans Beneath Their Crusts of Ice**

Astronomers recently released a study indicating that 17 exoplanets that have been discovered may have the right materials and conditions to maintain oceans beneath icy surfaces, oceans in which the development of life might be possible. The study concentrated on exoplanets that are colder and less dense than Earth. Although the actual makeup of the exoplanets is so far unknown, if they do have large amounts of water, they may be like Europa, one of Jupiter’s moons, which is internally heated by tidal deformation caused by the gas giant to the point at which water can become liquid. In the case of the exoplanets, such tidal deformation comes from the gravitational fields of their host stars. More information on the study is available at <https://www.sciencedaily.com/releases/2023/12/231213111935.htm>.

**Calendar of Events**

**NCA Telescope Making, Maintenance, and Modification Workshop (TM3W) (previously the NCA Mirror- or Telescope-making Classes):** The Chevy Chase Community Center has reopened and classes have resumed. Classes will be Tuesdays and Fridays, from 6:00-9:00 pm at the Chevy Chase Community Center (intersection of McKinley Street and Connecticut Avenue, N.W.) Please contact instructor Guy Brandenburg at 202-635-1860 (leave message) or at [gfbrandenburg@yahoo.com](mailto:gfbrandenburg@yahoo.com) if you plan to attend. Info is at [guysmathastro.com](http://guysmathastro.com).

**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](http://www.astro.umd.edu/openhouse).

**Next NCA Meeting: 10 February 7:30 p.m.** David Bennett (UMD and GSFC), **Gravitational Lensing and the Nancy Grace Roman Telescope**

**The APS Mid-Atlantic Senior Physicists Group: (Zoom Meeting)** The December 20<sup>th</sup> meeting was canceled, so it expected that on January 17<sup>th</sup> at 1:00 p.m., Dr. Igor Andreoni, University of Maryland and NASA’s GSFC, will give a talk entitled “Seize the night: Catching rare astronomical transients with optical telescopes”. More information may be made available in upcoming days on the APS website at <https://www.aps.org/units/maspg/meetings/>.

**National Capital Astronomers Membership Form**

**Name:** \_\_\_\_\_ **Date:** \_\_\_/\_\_\_/\_\_\_

**Address:** \_\_\_\_\_ **ZIP Code:** \_\_\_\_\_

**Home Phone:** \_\_\_ - \_\_\_ - \_\_\_ **E-mail:** \_\_\_\_\_ (necessary for delivery of Star Dust)

**Membership (circle one):** Student..... \$ 5; Individual / Family.....\$10; Optional Contribution.....\$\_\_

**Please indicate which activities interest you:**

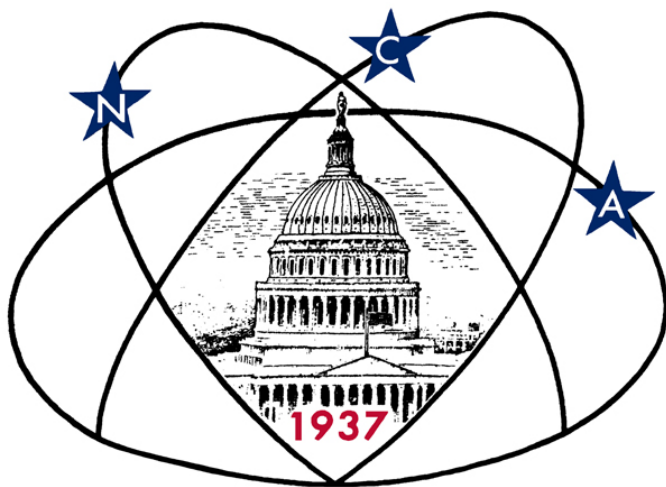
- Attending monthly scientific lectures on some aspect of astronomy \_\_\_\_\_
- Making scientific astronomical observations \_\_\_\_\_
- Observing astronomical objects for personal pleasure at relatively dark sites \_\_\_\_\_
- Attending large regional star parties \_\_\_\_\_
- Doing outreach events to educate the public, such as Exploring the Sky \_\_\_\_\_
- Building or modifying telescopes \_\_\_\_\_
- Participating in travel/expeditions to view eclipses or occultations \_\_\_\_\_
- Combating light pollution \_\_\_\_\_

Do you have any special skills, such as videography, graphic arts, science education, electronics, machining, etc.?

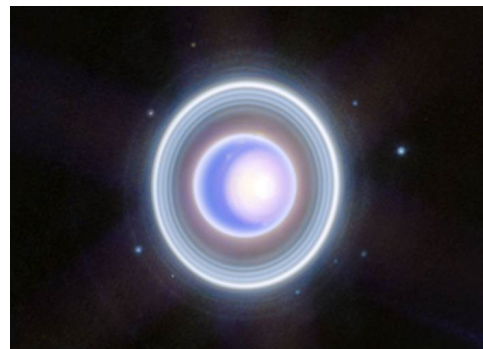
Are you interested in volunteering for: Telescope making, Exploring the Sky, Star Dust, NCA Officer, etc.?

Please mail this form with check payable to **National Capital Astronomers** to:  
Jim Simpson, NCA Treasurer; 3845 Wayson Road, Davidsonville, MD 21035





*Celebrating 87 Years of Astronomy*



**Image Credit - NASA, ESA, CSA, STSCI**

NASA recently released the image above, taken using NIRCam (Near Infrared Camera), of Uranus showing its north pole, its intricate ring system and nine of its twenty-seven moons. More information is at <https://www.eurekaalert.org/news-releases/1029371>.

*To join or renew online, visit [capitalastronomers.org](http://capitalastronomers.org) and look in the right column for the Membership Form and PayPal links.*

**Next NCA Meeting:**  
**2024 January 13<sup>th</sup>**  
**7:30 pm**  
**(Zoom Only)**  
**Dr. Shubham Kanodia**

To join the meeting via Zoom, use the following link:  
<https://umd.zoom.us/j/95154535739?pwd=cERBUE9XM3AvNE40TXYrNUptVETzUT09>

Please download and import the following iCalendar (.ics) files to your calendar system:

[https://umd.zoom.us/meeting/tJEscu2trT4tGd1QOonrqcTNP3fs8VY-InJt/ics?icsToken=98tyKuCtrz4uH9eQtxqORowMBY\\_4LOztiVajacMrTDqDTJCYTfYBrFElepJKZX5](https://umd.zoom.us/meeting/tJEscu2trT4tGd1QOonrqcTNP3fs8VY-InJt/ics?icsToken=98tyKuCtrz4uH9eQtxqORowMBY_4LOztiVajacMrTDqDTJCYTfYBrFElepJKZX5)

*Please note that NCA Zoom meetings are often recorded.*

## Inside This Issue

Preview of Jan. 2024 Talk.....	1
Recent Astronomy Highlights.....	2
President's Corner.....	2
Exploring the Sky.....	3
NCA and NOVAC.....	3
Sky Watchers.....	4
Occultations.....	5
Calendar of Events.....	8