

# Star Dust

Newsletter of National Capital Astronomers, Inc.

[capitalastronomers.org](http://capitalastronomers.org)

October 2024

Volume 83, Issue 2

**Celebrating 87 Years  
of Astronomy**

## Next Meeting

**When:** Sat. Oct. 12th, 2024

**Time:** 7:30 pm

**Speaker:** Dr. Benedikt Diemer

**Where:** In-Person (UMD  
Observatory) and Online  
(Zoom)

See instructions for joining the  
meeting via Zoom on Page 9.

## Table of Contents

Preview of Oct. 2024 Talk.....	1
Recent Astronomy Highlights.....	2
Upcoming NCA Speakers.....	2
President's Corner.....	2
Exploring the Sky.....	3
Sky Watchers.....	4
Occultations.....	5
Hopewell Obs. Open House.....	7
Calendar of Events.....	8



**Image Credits – NASA/Chris Gunn**

NASA reports that construction has been completed on the 'bus' or spacecraft that will take the Nancy Grace Roman Telescope into orbit. The launch of the telescope is scheduled for May of 2027. More information is at [www.eurekalert.org/news-releases/1058285](http://www.eurekalert.org/news-releases/1058285).

## Annual Membership Dues are Due

Instructions to join NCA or renew your membership, are available at [capitalastronomers.org/](http://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!**

## Where to Look for Dark Matter

*Dr. Benedikt Diemer– University of Maryland*



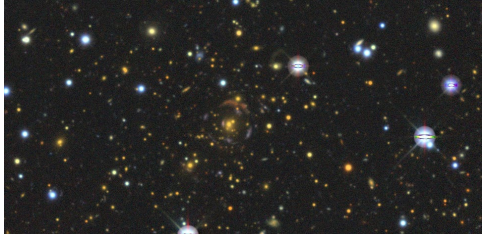
**Coma Berenices Cluster, Image Credit - NASA/ ESA/ J. Mack (STScI)/ J. Madrid (Australian Telescope National Facility)**

As far as we can tell, most of the matter in the Universe is in the form of a mysterious substance called dark matter. While we perceive the effects of its gravity almost everywhere in the Universe, determining its nature has been a slow and indirect process. I argue that one of the most promising places to look is so-called galaxy clusters, large agglomerations of dark matter and orbiting galaxies. After discussing the origin of these structures, I will show how we can derive insights into their shape (and thus the nature of dark matter) from novel observations.

**Biography:** Benedikt is originally from Germany, but life took him on a bit of a journey. His path included studying in Manchester, Santa Barbara, and Chicago, which eventually led him to astronomy, and especially dark matter. After a postdoctoral position at Harvard, Benedikt joined UMD in

## Recent Astronomy Highlights

### 'Carousel of Galaxies' Provides Data on Dark Matter and Dark Energy



A gravitational lens, at the center of the Hubble image shown above, includes multiple distorted images of a number of galaxies and includes the largest Einstein Cross detected so far. Image Credit - DESI Collaboration/KPNO/NOIRLab/NSF/AURA/P. Horálek/R. Proctor)

A fortuitous alignment of seven galaxies, at distances between 7.6 billion light years and 12 billion light years from Earth, with a galactic cluster located 5 billion light years away has been designated the Carousel of Galaxies. Recently surveyed by the Dark Energy Spectroscopic Instrument on Kitt Peak in Arizona and imaged by the Hubble Telescope, the Carousel gives astronomers a chance to study the behaviors of Dark Energy and Dark Matter on galaxies as they were throughout half of the age of the Universe. More information is available at [www.space.com/einstein-cross-largest-ever-seen](http://www.space.com/einstein-cross-largest-ever-seen). Also, a short film about the DESI instrument, entitled '5000 Eyes' is available at [www.youtube.com/watch?v=bYKUj05mnPk](http://www.youtube.com/watch?v=bYKUj05mnPk). (The online film is modified from its original planetarium format.)

### More Supermassive Black Holes in Early Universe Than Predicted

By using the Hubble Space Telescope to take multiple images of faraway and early regions of the Universe over a period of years, astronomers have been able to look at changes in the luminosity of many early galaxies. The changes are theorized to have been caused by intermittent feeding of gas into their supermassive black holes. The luminosity changes seem to point to more supermassive black holes than expected. More information is available at [www.eurekalert.org/news-releases/1058273](http://www.eurekalert.org/news-releases/1058273).

*continued on page 4*

*Abstract and Biography – continued from page 1*



2019. (see his CV for more info, [http://www.benediktdiemer.com/wp-content/uploads/Diemer\\_CV\\_Long\\_240302.pdf](http://www.benediktdiemer.com/wp-content/uploads/Diemer_CV_Long_240302.pdf).)

## Schedule of Upcoming NCA Meetings and Speakers

*Carl Biagetti*

October 12, 2024 -- Benedikt Diemer (UMD) **Where to Look for Dark Matter**

November 9, 2024 -- Brian J Williams (GSFC) **A New X-ray Eye on the Sky: XRISM**

December 14, 2024 -- Geoff Chester (USNO) **Sky With Ocean Joined: Scaling the Stars at the U.S. Naval Observatory, 1830 to the Present**

January 11, 2025 -- Thomas Brown (STScI) **The Andromeda Galaxy**

## President's Corner

*Guy Brandenburg*

Is it my eyes, or my memory, or is light pollution really getting much worse here in DC?

A third of a century ago, I built my first telescope at the NCA telescope-making workshop just inside the DC-MD line. The late Jerry Schall helped me grind, polish, and figure a 6" mirror at the Chevy Chase Community Center. One of the first times I used my home-made Dob was at the field between Military and Glover Roads in DC, north of Picnic Area 13. This is where NCA has been holding Exploring the Sky sessions since 1948 - shortly before I was born. While I was born in Georgetown, from age 2 through 11 my family lived on a small farm on the border of Montgomery and Frederick counties in Maryland. I didn't know much about the constellations, and never owned a telescope, but was fascinated on the two or three occasions that other folks let me look through theirs back in the 1950s and 1960s. I saw, with my naked eye, the very first artificial satellite, Sputnik, from my front yard in 1957. Today, with almost any

*continued on page 3*

## Exploring the Sky



### 2024 Exploring the Sky Sessions

02 Nov 7:00 P.M. Venus, Summer  
Triangle, Pegasus, M31,  
Saturn

**Exploring the Sky** is a joint program between the National Capital Astronomers and the National Park Service Rock Creek Park Nature Center and has been run since 1948 at this location, the field at the corner of Glover and Military Roads in the District. There is an adjacent parking lot. It is free and all are welcome who have an interest in observing the heavens. It's not an ideal dark-sky location but we can see Solar System objects, open and globular clusters and maybe a fuzzy galaxy or two.

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

**The submission deadline  
for November's Star Dust,  
is October 25th.**

**Clear Skies**

*President's Corner – continued from page 2*

eyepiece looking at almost any target in any telescope, it is not unusual at all to see a satellite zip through the field of view if you look long enough.

Fast forward to 1991. I think that with my ordinary glasses on, I could see the major constellations like Ursa Major, Cygnus, Pegasus, Orion and so on quite clearly, and one could employ their stars to find targets like the great Hercules globular cluster, the Andromeda galaxy, and much more, from that field in Northwest DC.

However, this year, from that same field, I have barely been able to count more than six or seven visible stars at any time: Arcturus, Altair, Deneb, Spica, and Vega, and maybe a planet. Not a single constellation have I been able to discern in any of the EtS sessions this year. Even with my glasses on. So, star-hopping there, for me, has become impossible. (I have made analog setting circles on my scopes in both altitude and azimuth, and those help quite a bit, but finding things is still hard.)

Question: Is it light pollution, or is it my memory, or is it my eyes?

Jay Miller, who's been running Exploring the Sky for some years, tells me that he can still see constellations from that field. Not I. (And we've both had cataract surgery.)

What do others think?

As you probably heard, on September 5<sup>th</sup> National Links Trust received the go-ahead to remake Rock Creek Golf Course by removing over a thousand trees and installing a lighted restaurant and golf driving range. This was over the strong objections of a lot of environmentalists, including the board and officers of NCA, but NLT mobilized a lot of golfers.

Shortly after that decision, some local Dark-Sky members, including me, took some measurements of sky brightness at night at a variety of locations inside the golf course; at our EtS field; the area around the Carter Barron tennis center; and surrounding neighborhoods. This data has been posted on Google Earth as a GIS with the number of foot-candles detected for each location. The darkest spots in the golf course gave us readings of about 0.004 foot-candles, and a very bright streetlight at 16th and Military read 9.54 foot-candles, over two thousand times brighter.

Perhaps our data can be used as a baseline to objectively detect any large changes in brightness as a result of the NLT's construction. Perhaps it will help us to convince them to use 'warmer', i.e. redder, lights at the driving range and to shield or turn off a number of other lights in the park. But I don't think there is any way to stop them from felling all those trees. So please go visit the lovely place and enjoy a beautiful walk through meadows and between lanes of vine-covered trees before the chainsaws and bulldozers move in. Do stay out of the way of the golfers, and don't walk on the putting greens, where the most beautiful grass is located. But, enjoy it while it lasts!

Recently, two students at School Without Walls (SWW) Senior High School here in DC came and asked me if I could recommend for them some sort of an internship dealing with astronomy and related sciences.

*continued on page 4*



# Sky Watchers

October/November

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

**ISSN: 0898-7548**

Editor: Todd Supple

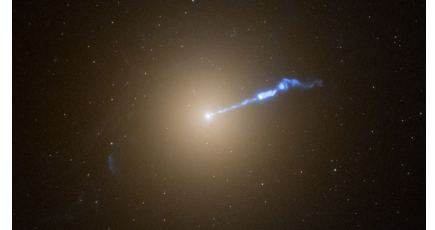
Editorial Advisors:

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

Electronic Distributor: Elizabeth Warner

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

**Supermassive Black Hole Jet Seems to Be Involved in Triggering Novae**



**3000 Light-Year Long Jet from M87's Supermassive Black Hole, Image Credit - NASA, ESA, STScI, Alec Lessing (Stanford University), Mike Shara (AMNH); Acknowledgment: Edward Baltz (Stanford University); Image Processing: Joseph DePasquale (STScI)**

M87's supermassive black hole, which happens to have been imaged by the Event Horizon Telescope back in 2019, is back in the news. Astronomers recently discovered that there are approximately twice as many novae in the region surrounding the jet of plasma which comes from near the supermassive black hole as there are in other regions of the galaxy. Novae occur when hydrogen, siphoned from a red-giant companion, builds up on a white dwarf, then explodes. The mechanism causing this increase in novae is currently unknown. Perhaps the region is more conducive to the creation of such binary systems or perhaps the jet fields help funnel gas onto the white dwarfs more quickly. More info is at [science.nasa.gov/missions/hubble/nasa-s-hubble-finds-that-a-black-hole-beam-promotes-stellar-eruptions/](https://science.nasa.gov/missions/hubble/nasa-s-hubble-finds-that-a-black-hole-beam-promotes-stellar-eruptions/).

Mercury will be difficult to view, appearing very low in the sky after sunset. Venus will be higher than Mercury in the evening sky. Mars rises before midnight. Jupiter will rise a couple hours ahead of Mars. Saturn will be in the eastern sky at sunset, having a conjunction with the Moon on 10/14 (see below). C/2023 A3 (Tsuchinshan-ATLAS) may be visible with small telescopes, and perhaps even naked-eye, low in the western sky after sunset starting in late October. As of the writing of this column, there is still no sign of the expected nova of T CrB.	
10/14	Moon – Saturn Conjunction – The Moon and the ringed planet will appear approximately 6 arcminutes apart, one fifth of the diameter of the full Moon, at their closest approach.
10/17	Full Moon and Supermoon – 7:28 a.m.
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. Unfortunately, a waning gibbous Moon will cause less than ideal viewing conditions.
11/4-5	The Taurids meteor shower peaks on the evening of 11/4, usually producing 5-10 meteors per hour. A first quarter Moon will interfere with viewing all but the brightest meteors. Viewing will be best right after midnight.

All times are in EDT (Eastern Daylight Savings Time)

[President's Corner – continued from page 3](#)

I was about to pass their names onto some folks I know at Carnegie Broad Branch, when yet another HS student from Fairfax came to me with some very, very interesting ideas for astronomy-related projects. In addition, I had become friends with another recent DC Public Schools grad who has been doing sidewalk astronomy on his own, with great enthusiasm, and found he could use an internship because he lacked the needed documents to work legally and really, really does not want to return home (Venezuela). He is also passionate about public astronomy and how that actually connects to ourselves, here on Earth.

So, I figured that this year, I'd volunteer to put such an internship together for these kids and also use their eyes and hands to pack up the eclipse glasses we have collected and send them off to Algeria. We would also try some experiments on those ideas. Two of us really, really enjoy doing sidewalk astronomy by day or by night, and we are pretty sure we can convince the others as well.

*continued on page 6*

# 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

2024		EDT/		Star		Asteroidal Occultations		dur.		Ap.	
Date	Day	EST	Cat.	Mag.	Asteroid #	Name	dmag	s	"	Location	
Oct 12	Sat	3:48	HIP	8.2	1957	Angara	8	1.4	2	BA, Fd, MD; Mb, WV; SOH	
Oct 12	Sat	21:33	TYC	12.0	44511	1998 XC51	7	0.8	6	1Lb, Fb, VA; LP, wd, MD	
Oct 12	Sat	22:26	UC4	13.0	4974	Elford	5	0.4	9	Ff, Ar, VA; DC; UM, MD	
Oct 15	Tue	4:04	UC4	13.0	29793	1999 CH65	5	1.2	9	Bw, Bt, MD; DC; IAD, VA	
Oct 15	Tue	21:21	SAO	8.4	3310	Patsy	8	1.3	3	Cc, OH; nWPA; RO, NY	
Oct 19	Sat	21:56	UC4	10.7	3122	Florence*	4	0.3	6	BW, Sx, SCV, PA; Bh, NY	
Oct 20	Sun	6:46	TYC	11.3	247	Eukrate	1.1	9	6	SNJ, e+SMD, CVA, WNC*	
Oct 21	Mon	2:55	TYC	12.2	1366	Piccolo	2.3	3	6	wd, MD; SDC; nVA; CWV	
Oct 21	Mon	20:57	UC4	12.1	4179	Toutatis*	6	0.1	8	TT, GA; GC, SC; BH, NC	
Oct 22	Tue	6:21	UC4	12.7	1663	van den Bos	4	0.6	7	LX, KY; SWV; CVA; SMD	
Oct 23	Wed	23:44	TYC	11.4	1267	Geertruida	4	1.9	5	nLX, MD; SFB+CV, VA	
Oct 24	Thu	21:53	UC4	9.9	23143	2000 AZ177	7	0.8	4	Sn, Qn, VA; wd, MD	
Oct 26	Sat	20:47	SAO	9.6	3612	Peale	6	1.4	4	AC, NJ; UM, MD; Wb, VA	
Oct 28	Mon	23:19	UC4	10.0	4886	Kojima	8	3	4	OC, MD; SRm, VA; PM, NC	
Nov 2	Sat	0:15	UC4	12.2	135187	2001 RH10	6	0.7	6	Ph, PA; Gb, MD; DC; CVA	
*** Dates and times above are EDT, those below are EST ***											
Nov 3	Sun	3:22	UC4	13.1	679	Pax	0.5	33	8	NC, CVA, DC, S+CMD, PA	
Nov 3	Sun	5:33	UC4	12.6	6364	Casarini	4	1.3	7	UM, Gb, Fd, MD; Mb, PA	
Nov 4	Mon	4:50	TYC	9.1	1446	Sillanpaa	7	0.8	3	Bn, RG, RV, VA; ndT, OH	
Nov 10	Sun	3:16	TYC	9.4	76813	2000 QC164	11	0.5	4	FF, Ax, VA; SDC; UM, MD	
Nov 11	Mon	21:42	UC4	12.7	165682	2001 OY65	6	0.8	7	Ph, PA; Bw, MD; DC; nVA	

\* at the end of the Location column is for a Gaiamoon event; observers throughout all States crossed by the path might find a new asteroid moon  
 \* after the asteroid name is for a valuable near-Earth asteroid

## Lunar Grazing Occultations

Date	Day	EDT/	Star	Mag	% alt	CA	Place or Dist. from Greenbelt
Oct 27	Sun	5:09	SAO 99279	8.9	21-	27	4S 165km in az. 184 -Richmond, VA
*** Dates and times above are EDT, those below are EST ***							
Nov 5	Tue	18:25	SAO 186554	9.2	18+	8	15S nFrntRo1, VA; sLwstn, MD; nYrk, PA

## Lunar Total Occultations

2024	Date	Day	EDT	Ph	Star	Mag	% alt	CA	Sp.	Notes
Oct 12	Sat	19:33	D	ZC	3143	7.8	73+	27	62S	K1
Oct 12	Sat	22:40	D	SAO	164449	7.2	74+	28	42N	F0 mg2 11 sep 2" dTime -6s
Oct 13	Sun	1:29	D	SAO	164516	6.9	75+	8	67S	K3 Azimuth 239 degrees
Oct 14	Mon	0:31	D	ZC	3303	6.4	84+	28	87N	F2
Oct 14	Mon	19:39	D	chi	Aqr	4.9	91+	26	42S	M3 ZC3421, closeDb1?NeedObs
Oct 14	Mon	20:20	D	ZC	3422	6.7	91+	33	31N	F0
Oct 20	Sun	23:32	R	ZC	773	7.0	81-	31	69N	F8 mg2 9 sep 315" dT -226s
Oct 21	Mon	5:08	R	ZC	797	6.4	80-	76	72S	B9 spectroscopic binary
Oct 22	Tue	2:48	R	SAO	78233	7.5	71-	56	77N	A3 close triple?
Oct 22	Tue	4:12	R	SAO	78294	7.6	70-	72	34N	A0
Oct 22	Tue	22:44	R	47	Gem	5.8	62-	1	33S	A4 Az. 56, ZC1088, too low
Oct 22	Tue	23:20	R	ZC	1093	6.6	62-	7	58N	F8 Az. 61, close double?
Oct 23	Wed	1:36	R	SAO	79256	7.8	61-	31	83N	K0
Oct 23	Wed	1:42	R	SAO	79264	8.0	61-	32	55N	G2
Oct 23	Wed	1:54	R	ZC	1108	7.0	61-	34	6S	G8 close double?
Oct 24	Thu	4:09	R	SAO	80089	7.2	49-	48	66S	G5
Oct 24	Thu	4:56	R	lambda	Cnc	5.9	49-	57	46S	B9 ZC 1251
Oct 25	Fri	1:51	R	ZC	1357	7.7	40-	11	55S	G0 Azimuth 73
Oct 26	Sat	5:19	R	SAO	98897	7.6	30-	39	39N	K0
Oct 27	Sun	4:40	R	SAO	99272	7.5	21-	20	80S	K2
*** Dates and times above are EDT, those below are EST ***										
Nov 8	Fri	18:17	D	SAO	190052	7.9	47+	30	56S	F8
Nov 8	Fri	18:59	D	chi	Cap	5.3	47+	29	18N	A0 ZC 3089, close double??
Nov 8	Fri	20:54	D	SAO	190125	7.9	48+	19	75S	K0
Nov 8	Fri	22:37	D	phi	Cap	5.2	48+	4	57S	K0 Azimuth 240, ZC 3106
Nov 9	Sat	19:22	D	ZC	3232	8.1	58+	35	57S	K0
Nov 10	Sun	17:46	D	SAO	165373	7.7	69+	34	69S	K0 Sun altitude -10 deg.
Nov 10	Sun	22:14	D	ZC	3375	6.8	70+	31	67N	F2
Nov 11	Mon	19:27	D	20	Piscium	5.5	80+	46	43N	G8 ZC 3505, mg2 10, dT -69s
Nov 11	Mon	21:11	D	Neptune		7.8	80+	48	88S	duration about 6s
Nov 11	Mon	21:17	D	SAO	146935	7.9	80+	48	59S	K0

Much more on mid-Atlantic occ's page at <http://iota.jhuapl.edu/exped.htm>.  
 David Dunham, [dunham@starpower.net](mailto:dunham@starpower.net)

## 2024-2025 Officers

### President:

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

### Vice-President:

Carl Biagetti  
[carlbiagetti@gmail.com](mailto:carlbiagetti@gmail.com)  
 301-655-2762 (message or text)

### 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:

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

### Appointed Officers and Committee Heads:

#### Exploring the Sky

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

#### Telescope Making

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

#### Star Dust Editor

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

#### NCA Webmaster

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

#### Social Media

Facebook: [NatCapAstro](#)  
 Twitter: [@NatCapAstro](#)

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

So, I am in the process of formalizing an NCA internship in astronomy and related sciences with two DCPS high school students and a recent HS grad, all of whom are quite interested in astronomy, and need something formal for their high school requirements and for their own pleasure in learning new things in this general field. It occurs to me that these projects might be worthy science (or STEM) fair entries as well for them to do.

The general idea is to do a combination of the following things, at varied times and locations:

If the weather is good, we go outside and do public sidewalk astronomy in the daytime (using the NCA H-alpha scope, among others) or at night (using my or other people's scopes). We have posters, literature, and QR codes in addition to the scopes. This is by far the most fun part.

If the weather is bad, then we do one or more of the following:

- Public service – checking and packaging many thousands of solar eclipse glasses, to be shipped to the amateur astronomy groups in Algeria as soon as possible in preparation for their 2027 total eclipse (By the way, we have now packed up over 7,000 glasses that we are shipping to the coordinator for Algerian amateur astronomy clubs at a cost of about 5 or 6 cents per pair.)
- Arranging for special or general tours of various local museums and exhibits (e.g. National Air and Space Museum, NASA-Goddard, NSA's crypto museum, College Park Air Museum)
- Experimenting on a number of astronomical projects suggested to me by yet another HS student, which include but are not limited to: constructing and using a radio telescope with off-the-shelf components (and free 2-meter dishes) or experimenting with different apps that turn a fixed, non-moving cell phone into an astro camera or experimenting with a foolproof targeting app for any Dob

Obviously, I'm committing myself (and nobody else in NCA) to a fixed number of hours per week in-person attendance, as are the students. I have passed the tuberculosis test and given my fingerprints to renew my volunteer eligibility document for DCPS. I'm going to talk to the SWW counselor in person today to finalize the details.

Thanks again to Dr. Raman Sundrum for coming to talk to us last month at the University of Maryland Observatory's lecture hall about the attempts to reconcile theory and measurements regarding the various types of dimensional systems – ordinary Euclidean 3D, or general relativistic (3D + time), or string (10 or 11 or 16 dimensions). Very original and entertaining talk. (By the time you read this, it may be uploaded to our website [capitalastronomers.org/Videos.html](http://capitalastronomers.org/Videos.html).)

After the talk, we looked through the telescopes at the University of Maryland. Thanks, as usual, to Elizabeth Warner for setting everything up, without assistance. Afterwards, a handful of us NCA members treated Dr. Raman to a late dinner at a Mexican restaurant on Baltimore Avenue. His HS-age daughter came as well. The food and company were great, but we probably all forgot that Saturday nights at cantinas tend to be so loud that it's hard to hear what people are saying!

# Invitation to Hopewell Observatory Open House

*Guy Brandenburg*

Come to Bull Run Mountain for a night under the stars, looking at a variety of targets, using the telescopes at the Hopewell Observatory!

The event will be the evening of Saturday, October 26. If Saturday is cloudy, then we will try again on Sunday the 27th. If it's still cloudy, then we will try again in the Spring.

You are invited, but will need to RSVP and, in this litigious age, must agree to a waiver of liability for anything that might happen out there in the woods - and the hazards do exist! Plus, while we do have electricity and a warming cabin, we don't have running water -- so, we use bottled water and an outhouse. We will have a hot-water carafe and plenty of hot cocoa, tea, and coffee.

But if you take the risk, you can view Saturn, Jupiter and its moons, and quite a few galaxies, open clusters, and nebulae.

Hopewell Observatory is located on the first ridge one sees in the distance when heading west on I-66 from DC. It is not far from Haymarket, VA. The structures at the observatory were built by the hands of its founders and members, starting about 50 years ago. Some of the Hopewell founders, like Bob McCracken, were also prominent members of NCA, but the two organizations have always been completely separate. Guy Brandenburg (who is *not* a founder of either group) happens to be president of both NCA and of the Hopewell Astronomical Society. (Guy is more than willing to give up both posts if someone else would like to take them on!)

Hopewell has a variety of permanently-mounted and portable telescopes: Dobsonian-Newtonians, Schmidt-Cassegrains, and both achromatic and apochromatic refractors. Some of the scopes and mounts are commercial, but some were made or modified by us. Our scopes are currently optimized for visual (eyeball) viewing, but we also dabble (poorly) in imaging and measuring variable star light curves.

A good time to arrive will be near sundown on 10/26 which will happen near 6:15 pm. It will get truly dark by 7:45 (90 minutes later). If it's cloudy on the 26th, we will try again the following night. You can stay until midnight if you like. We suggest bringing a flashlight and dressing for cooler weather than you expect.

You can find complete driving and walking directions to the observatory, and the link to the required RSVP, at this URL: [hopewellobservatory.rsvpify.com/](https://hopewellobservatory.rsvpify.com/) .



Recent Astronomy Highlights – continued  
from page 4

### Dwarf Planet Ceres May Have Once Been an Ocean World



Image Credit - NASA / JPL-Caltech /  
UCLA / MPS / DLR / IDA / Justin  
Coward

Long thought to be a rocky, dry object, the dwarf planet Ceres may actually have once hosted a muddy ocean and may be covered in a crust that is up to 90% frozen water according to a recent study using data from NASA's Dawn mission. More information is at [www.sciencedaily.com/releases/2024/09/240927173206.htm](http://www.sciencedaily.com/releases/2024/09/240927173206.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 [gbrandenburg@yahoo.com](mailto:gbrandenburg@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: 9 November** at 7:30 p.m. Brian J Williams (GSFC) **A New X-ray Eye on the Sky: XRISM**

**The APS Mid-Atlantic Senior Physicists Group:** Wednesday, Oct. 16<sup>th</sup> at 3:50 p.m., SPG, APS (and guests) will take a tour of Montgomery College's new planetarium, hosted by Dr. Harold Williams. The planetarium is in the Leggett Building, Room 103, at 7600 Takoma Avenue, Takoma Park, MD 20912. A campus map and directions are at [www.montgomerycollege.edu/about-mc/campuses-and-locations/takoma-park-silver-spring-campus/index.html](http://www.montgomerycollege.edu/about-mc/campuses-and-locations/takoma-park-silver-spring-campus/index.html).

**Please RSVP by Oct 15 to [Dnovotny2@verizon.net](mailto:Dnovotny2@verizon.net) if you plan to attend the tour and put "Planetarium" in the subject line.** Please also let us know if you will join us for dinner at Busboy and Poets at 235 Carroll St. NW, Washington DC 20012.

## 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/](http://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

\$ 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.)

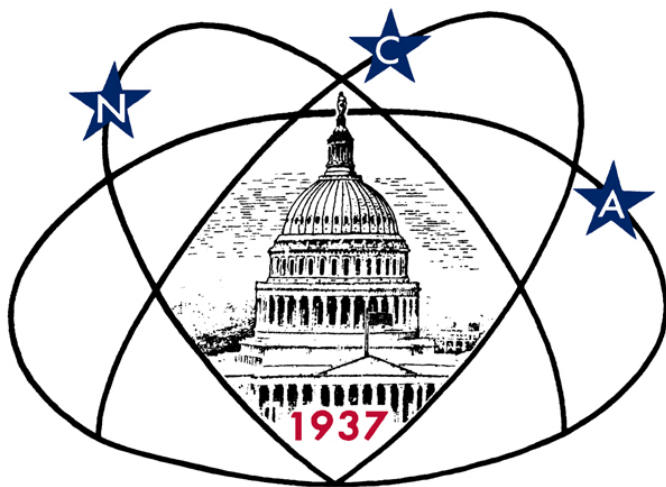
If you prefer to pay membership dues by check,

- 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!

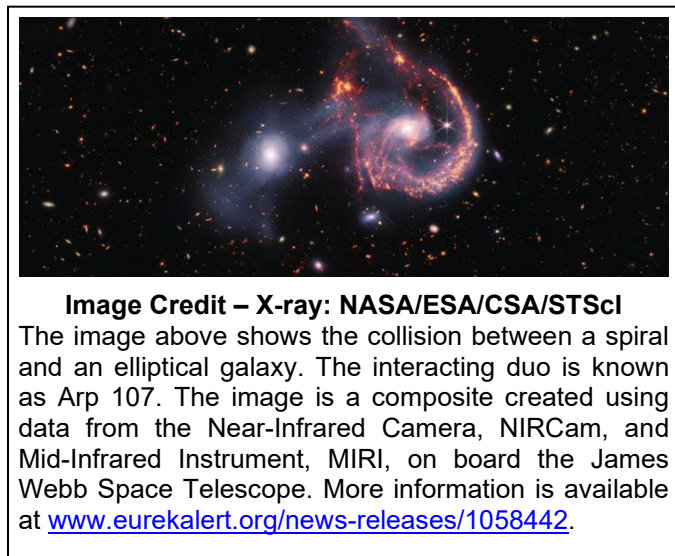
**NCA can use your help!** Please indicate on the [membership Google form](#) which astronomy activities are of interest to you. In addition, we are also looking for volunteers! We need new officers, help with our website and social media, and help with outreach and science fair events.

**Thank you!**





*Celebrating 87 Years of Astronomy*



**Image Credit – X-ray: NASA/ESA/CSA/STScI**

The image above shows the collision between a spiral and an elliptical galaxy. The interacting duo is known as Arp 107. The image is a composite created using data from the Near-Infrared Camera, NIRCam, and Mid-Infrared Instrument, MIRI, on board the James Webb Space Telescope. More information is available at [www.eurekaalert.org/news-releases/1058442](http://www.eurekaalert.org/news-releases/1058442).

*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 Oct. 12<sup>th</sup>**  
**7:30 pm**  
**Dr. Benedikt Diemer**

- *Virtual attendees:* To join the meeting via Zoom, use the following link:  
[umd.zoom.us/j/91273752763?pwd=XKZL9V94XIDzwWg7FYDKLbVUQb5YRP.1](https://umd.zoom.us/j/91273752763?pwd=XKZL9V94XIDzwWg7FYDKLbVUQb5YRP.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](http://www.astro.umd.edu/openhouse/1visiting/directions.html)

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

## Inside This Issue

Preview of October 2024 Talk.....	1
Recent Astronomy Highlights.....	2
Upcoming NCA Speakers.....	2
President’s Corner.....	2
Exploring the Sky.....	3
Sky Watchers.....	4
Occultations.....	5
Hopewell Observatory Open House.....	7
Calendar of Events.....	8