

Star Dust

Newsletter of National Capital Astronomers, Inc.

capitalastronomers.org

June 2024

Volume 82, Issue 10

**Celebrating 87 Years
of Astronomy**

Next Meeting

When: Sat. June 8th, 2024

Time: 7:30 pm

Speaker: Cal Powell

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

See instructions for joining the
meeting via Zoom on Page 11.

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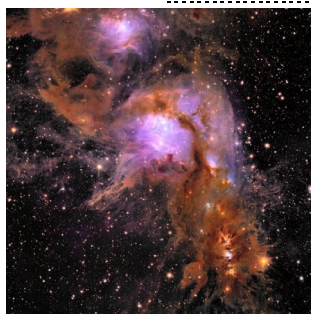


Image Credits – ESA/Euclid/Euclid Consortium/NASA, image processing by J. C. Cuillandre (CEA Paris-Saclay), G. Anselmi

The new Euclid Telescope has provided wide-field images including one of Messier 78. More info is at www.jpl.nasa.gov/news/new-images-from-euclid-mission-reveal-wide-view-of-the-dark-universe#carousel-c208c652-c64a-4118-a79e-e527828a1a91-1.

Meteorites and Astronomy Outreach

Cal Powell



How often do you get a chance to hold a piece of the Moon or Mars? At the June 8th NCA meeting you will have that chance.

Abstract: This talk will present meteorites in the context of public engagement, covering basic meteorite information, acquisition and display recommendations, and answers to frequently asked questions. On-site attendees will be able to examine specimens from the speaker's meteorite collection.

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Just a Reminder – Items purchased through the NCA's recent auction are to be picked up on June 8th between 2-7pm or by arranging an alternative meeting time with Elizabeth Warner ewarner@umd.edu at the University of Maryland Observatory.

Recent Astronomy Highlights

Spin Speed of Supermassive Black Hole Calculated

Even though the mass of a supermassive black hole is hidden by its event horizon, its spin continues to be felt in surrounding space. The spin of the black hole along with its massive gravitational field actually causes that space surrounding the event horizon to spin as well, sort of like a whirlpool. This effect is known as Lense-Thirring Precession and is also known as Frame Dragging. Most of the time with such a supermassive black hole giving off no light, there would be no way to measure the speed of spin. But astronomers theorized that if a star comes too close and is destroyed in a Tidal Disruption Event, TDE, by the supermassive black hole, creating an accretion disk of gas stripped from the doomed star, there would be a brief period during which such a spin speed could indeed be measured. This is the case, they reasoned, because initially the accretion disk would likely orbit the supermassive black hole at an angle to the direction of that black hole's spin. Eventually forces would cause such an accretion disk to come into alignment with the black hole spin, but in the interim, the frame dragging of the space will cause that disk to appear to wobble, becoming brighter in X-rays when the disk is at its most face-on alignment with Earth and fainter when most edge on. The period of this brightening and fading can be used to calculate the rate at which the space around the supermassive black hole is being dragged. This information, along with the observed masses of the supermassive black hole and the star, can be used to calculate the speed of spin. Just such a TDE occurred in February 2020, around a supermassive black hole approximately a billion light years away, an event designated as AT2020ocn. The calculations show that the supermassive black hole, is spinning at a quarter of the speed of light. As fast as that is, it's slower than the speeds expected for such objects. More info it at news.mit.edu/2024/using-wobbling-stellar-material-astronomers-measure-supermassive-black-hole-spin-0522.

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Abstract and Biography – continued from page 1

Biography: Cal Powell discovered his passion for astronomy at the age of eight and he has been looking skyward ever since. He enjoys describing the wonders of the universe to one and all, whether in the planetarium, observatory, classroom, museum, or the great outdoors. A native New Yorker, Cal grew up in Brooklyn, attended New York City public schools, and is a graduate of M.I.T. He is currently a Lead Volunteer in Astronomy Education at the National Air and Space Museum (NASM), as well as an informal educator as a member of the Analemma Society in Great Falls, VA.



As an active member of the Northern Virginia Astronomy Club (NOVAC), Cal has earned an Astronomical League Outreach Award (Master Level). He is a former president and life member of the Westport (CT) Astronomical Society (WAS) where he writes a monthly column for the club's newsletter and presents a brief astronomy segment "Cal's Corner" at each WAS meeting. He has given planetarium lectures at NASM's Einstein Planetarium, the duPont Planetarium at the Discovery Museum in Bridgeport, and the Edgerton Memorial Planetarium at the Stamford Museum and Nature Center.

Cal has been collecting meteorites since the early 2010s. He is a member of the Meteoritical Society, the International Planetarium Society, and the Middle Atlantic Planetarium Society.

President's Corner

Guy Brandenburg

Update on Rock Creek Golf Course

If you have never visited the Rock Creek Park Golf Course (RCPGC) before, then you have been missing out on one of the very greatest and wildest places in the entire city. I visited it for the first time ever, two weeks ago, and found it extremely beautiful.

But it's about to be [seriously damaged by a poorly thought-out plan to cut down over 1200 trees](#) and to install a brightly illuminated driving range with [TopGolf's](#) technology right in the center of the course.

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Exploring the Sky



2024 Exploring the Sky Sessions

- 13 Jul 9:00 P.M. Venus, Mercury, Moon, Hercules, M13, Summer Triangle
- 10 Aug 8:30 P.M. Venus, Moon, Hercules, M13, Summer Triangle, M57
- 07 Sep 8:00 P.M. Venus, Moon, Summer Triangle, Great Square of Pegasus
- 05 Oct 7:30 P.M. Summer Triangle, Great Square of Pegasus, M31, Saturn
- 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.

Planetarium programs can be found at:

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

President's Corner – continued from page 2

Not knowing anything at all about TopGolf or their Toptracer technology, I recently went to their National Harbor venue (near Wilson Bridge and the MGM casino, just south of the DC-MD line), at a half hour before midnight, on a Monday. I am not a golfer. I paid for a half hour of hitting balls (badly) so I could see what it was like. I see from their history that this empire of late-night driving ranges appears to be expanding quickly all across the nation.

I found the whole experience to be a lot like playing a large, brightly illuminated, outdoor pinball machine, with lots of loud music, high above a green AstroTurf field. It's all enclosed by tall poles and large nets. Did I mention it's very brightly lit up? Several illuminated pits, covered with netting in the big, enclosed area serve as targets. Small trucks are driven around the AstroTurf, gathering up the balls.

The major differences between pinball and TopGolf are the overall size, the lighting, the waiters, the drinks, and the loud music – oh, and you are using real golf clubs and special golf balls manufactured with a little RFID chip in them. The similarities between TopGolf and the historic game golf begin and end with the balls and clubs, as far as this non-player can tell.

Each time you hit a ball, TopGolf's technology tracks its trajectory, and you get to view a short, stylized video of your ball's 3-D path, then it bounces and rolls. The screen then goes into video game mode and displays how many "points" you got in whatever game you chose to play. If you really want to improve at golf, the display does give you some stats on the speed and distance of the ball, but no useful information about what mistakes you are making in trying to get the face of your club to whack that little ball properly in the first place. (I can see that I am very bad at that!) I was astonished when my server told me there is no way to replay your shot on the display!

The same company also has smaller, indoor venues – which I've not tried — that track the virtual path of the ball purely electronically, without needing a large field.

I used Google Maps to look at half a dozen TopGolf outdoor venues from the air. They all look identical to me, so I know my experience at TopGolf National Harbor is not unique.

TopGolf ranges, with their loud music, bright lights, alcoholic beverages and carnival atmosphere, belong where the lights are already bright and there is plenty of parking and traffic – like Hains Point or even RFK stadium. They do not belong in the very darkest and wildest place in all of Washington, DC.

Speaking of which, it's true that the grass on much of the Rock Creek Park Golf Course is poorly maintained and that there are lots of alien, invasive vines and other weeds. The contrast with the National Arboretum, which is beautifully kept up, is amazing. Can anybody explain why the Arboretum, at four times the size of the RCPGC, has the budget and staff to keep that lovely place so well-kept, but Rock Creek Park in general, and this golf course in particular, has many of its big trees

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Sky Watchers

Summer Overview

Mercury will rise higher in the evening sky throughout June and most of July until reaching Greatest eastern elongation on July 22nd (see below) then it will appear to draw closer to the Sun until it transits to the morning sky in mid-August before reaching Greatest western elongation on September 5th (see below). Venus will become visible in the evening sky in late July and rise higher throughout the rest of the year. Mars rises at around 3:00 a.m. at the beginning of summer and 1:00 a.m. at the end. Jupiter will rise earlier in the morning sky as summer progresses as well. Saturn will also continue to appear higher each morning, having a conjunction with the Moon on June 27th (see below) and reaching opposition on September 8th (see below). As of the writing on this column, there is still no sign of the expected nova of T CrB.

June

6/20	Summer Solstice – 4:20 p.m.
6/21	Full Moon – 9:09 p.m.
6/27	The Moon will approach within approximately 5 arcminutes (a sixth of the diameter of the Moon) of Saturn in the predawn hours. Their closest separation of 4.1 arcminutes will occur after sunrise

July

7/21	Full Moon – 6:18 a.m.
7/22	Mercury at Greatest eastern elongation. It will be 26.9° from the Sun in the evening sky.
7/28, 29	Peak of the Delta Aquarids Meteor Shower – Approximately 20 meteors/hour. Unfortunately, a quarter Moon will interfere with viewing this year.

August

8/12, 13	Peak of the Perseids Meteor Shower – 60 meteors/hour. Viewing conditions should be very good for much of the night this year when the quarter Moon sets soon after midnight.
8/19	Full Moon – 2:27 p.m.

Early September

9/5	Mercury at Greatest western elongation. It will be 18.1° from the Sun in the morning sky.
9/8	Saturn at Opposition, closest to Earth and viewable all night long.

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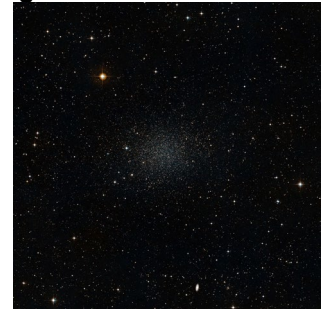
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[Recent Astronomy Highlights – continued from page 2](#)

'Missing' Dwarf Galaxies Discovered



Sculptor Dwarf Galaxy, a satellite of the Milky Way. Image Credit - ESA/Hubble, Digitized Sky Survey 2

Astronomers have long theorized that there should be many more dwarf galaxies, such as the Sculptor Galaxy shown above, surrounding larger galaxies than have so far been observed. The reasoning goes that in the halo of dark matter surrounding large galaxies there should be sub haloes which would have been the locations of formation of numerous dwarf galaxies. This apparent lack has been called the 'missing satellite problem.' However, a new study using the Subaru Telescope in Hawaii has found five additional satellite galaxies of the Milky Way in a small area of the sky. Extrapolation of the result indicates the Milky Way may have about 500 such dwarf galaxies. Ironically, this is more such dwarf galaxies than theory indicates should exist. More information on the results is available at www.science.org/content/article/astronomers-find-long-missing-dwarf-galaxies-too-many-them

All times are in EDT (Eastern Daylight Savings Time)

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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.

Mid-Atlantic Occultations

David Dunham

Asteroidal Occultations									
2024 Date	Day	EDT	Star Cat.	Mag.	Asteroid #	Name	dmag	dur. s	Ap. Location
Jun 12	Wed	3:44	HIP	10.3	12155	Hyginus	8	0.3	5 At-Hb,PA;Gv,MD
Jun 14	Fri	22:35	SAO	7.6	36090	1999 RN100	11	0.8	2 c-nNJ,nePA,CNY,eON
Jun 15	Sat	1:15	TYC	11.7	623	Chimaera	3	3.6	6 e-ncNC,scVA,WV,COH
Jun 21	Fri	0:27	SAO	8.9	39458	4198 T-3	10	0.9	3 neOH,nw-ecPA,nNJ
Jun 24	Mon	5:01	4UC	11.8	243	Ida	4	2.4	8 WNC,sw-nVA,DC,CMD
Jun 24	Mon	23:03	TYC	9.2	6912	Grimm	8	1.0	3 OBX,ncNC,swVA,eKY
Jun 25	Tue	1:20	TYC	11.9	47644	2000 C036	6	1.3	5 SNJ,sPA,nMD,WV,SOH
Jun 26	Wed	2:56	4UC	10.9	22249	D. Pionero	6	0.9	5 SMC,c+nVA,DC,CMD,swV
Jun 26	Wed	1:29	4UC	11.4	45357	2000 AC102	7	0.4	5 SMD,c-swVA,ne-swTN
Jun 29	Sat	2:16	SAO	8.9	2655	Guangxi	8	1.6	4 A1,PA;IS,MD;Fb,VA
Jul 3	Wed	2:26	4UC	11.5	28851	Londonbols.	6	0.6	5 SNC,c+nVA,nWMD,cPA
Jul 3	Wed	2:40	4UC	13.6	623	Chimaera	1.4	3.5	8 sVA,nNC,neTN,s+wKY
Jul 5	Fri	1:10	TYC	10.4	32687	3166 T-1	8	0.4	4 Es-Wd,MD;Tr-Scp,VA
Jul 5	Fri	5:05	TYC	8.9	29818	Aryosorayya	10	0.4	4 SRM-wz-nAb,VA;TN
Jul 6	Sat	1:49	4UC	11.6	11336	Piranesi	6	0.4	5 SNJ;sBt-APL,MD;IAD
Jul 6	Sat	2:18	4UC	13.4	130	Elektra	0.3	13	8 SNJ,SMD,SDC,cVA,NC
Jul 7	Sun	1:53	4UC	13.0	844	Leontina	2.1	12	8 CH-QA,MD;Wb-Cp,VA
Jul 7	Sun	2:54	4UC	13.5	623	Chimaera	1.5	3.6	8 e-nVA,MD,DC,c-nwPA
Jul 9	Tue	23:54	TYC	10.6	789	Lena	4	5	4 ec-nVA,nWV,se-nWOH
Jul 12	Fri	2:21	TYC	11.2	65803	Didymos	7	0.1	8 HH-SC,svGA,sTfL
Jul 15	Mon	3:51	SAO	9.2	5361	Goncharov	8	2.3	3 nNJ,sePA,CMD,cVA
Jul 17	Wed	1:06	SAO	9.4	91361	1999 JW68	9	0.4	3 WM-UM,MD;Nw-sHb,VA
Jul 18	Thu	2:43	4UC	13.4	189	Phthia	1.4	1.5	8 sw-nVA,DC,CMD,SNJ
Jul 18	Thu	3:51	4UC	11.0	1188	Gothlandia	4	0.9	5 sc-neVA,SMD,SNJ,LI
Jul 19	Fri	1:50	4UC	11.3	35775	1999 JW9	7	0.4	5 WM-sUM,MD;Wb-Cp,VA
Jul 19	Fri	4:25	SAO	9.4	2173	Maresjev	7	4	3 neOH,nPA,nNJ,seNY
Jul 20	Sat	2:41	TYC	11.6	1036	Ganymed	0.3	5	7 eNC,eVA,eMD,ePA
Jul 21	Sun	0:13	4UC	11.0	132943	2002 TC42	9	1.0	5 NJ;Bt-Gt,MD;An,VA
Jul 22	Mon	0:39	SAO	7.8	101815	1999 JB12	11	0.3	2 Sh-sLx,MD;wf-Zi,VA
Aug 6	Tue	23:45	4UC	12.9	1213	Algeria	3	3.2	7 SMD,DC,nVA,nWV,SOH
Aug 10	Sat	5:02	G	12.8	120	Lachesis	0.5	5	8 VA,DC,c+sMD,sePA
Aug 12	Mon	22:15	TYC	10.1	1849	Kresak	6	2.8	4 cVA,nWMD,swPA,neOH
Aug 13	Tue	2:12	TYC	8.7	16279	2000 KJ23	11	0.5	3 sw-nVA,CMD,ePA,CNJ
Aug 16	Fri	1:19	4UC	11.1	2319	Aristides	5	1.0	5 sw-nVA,nDC,CMD,CNJ
Aug 16	Fri	3:23	TYC	11.1	1086	Nata	4	2.2	5 KY,seOH,nWMD,swNY
Aug 22	Thu	5:22	TYC	9.9	233	Asterope	4	2.6	4 seTN,w+nNC,sc+seVA
Aug 22	Thu	20:53	4UC	12.5	43	Ariadne	0.3	5	8 sPA,n+CMD,nDE,SNJ
Aug 23	Fri	5:05	4UC	11.0	1057	wanda	4	2.3	5 cWV,nWMD,sePA,nNJ
Aug 23	Fri	21:56	TYC	9.7	2741	Valdivia	7	0.6	4 w-seNY,nePA,wCT,LI
Aug 26	Mon	3:03	TYC	10.7	270	Anahita	1.8	5	4 swOH,sw-ncPA,s+eNY
Aug 27	Tue	23:41	4UC	11.9	3049	Kuzbass	5	9	5 seVA,ne-scNC,nSC
Aug 29	Thu	1:15	TYC	11.3	194	Prokne	0.2	16	4 wPA,nWMD,n-scVA,NC
Aug 31	Sat	2:56	4UC	12.5	109	Felicitas	0.5	30	8 e+nVA,s+wMD,PA;DC?
Sep 8	Sun	0:50	TYC	11.6	1203	Nanna	3	5	4 scNY,nc-swPA,seOH
Sep 13	Fri	21:11	TYC	11.4	3122	Florence	3	0.3	8 eVA;Cm,MD;sw-neNJ

Lunar Grazing Occultations - none viable in region before mid Sept.

- 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.

Lunar Total Occultations									
2024 Date	Day	EDT	Ph Star	Mag	% alt	CA	Sp.	Notes	
Jun 9	Sun	20:04	D lambda Cnc	5.9	13+ 39	68N	B9	Sun alt. +4, ZC 1251	
Jun 18	Tue	22:21	D ZC 2183	5.5	91+ 29	60S	K2		
Jul 13	Sat	23:26	D Spica	1.0	52+ 11	88N	B1	Az.246,ZC1925,closeDb1?	
Jul 14	Sun	23:56	D ET Vir	4.9	61+ 9	55N	M1	Az240,ZC2029,VarToMag10	
Jul 17	Wed	20:52	D ZC 2397	6.5	86+ 21	13S	K1	Sun alt. -5,TermDist19"	
Jul 21	Sun	1:36	D omega Sgr	4.7	100+ 25	87N	G3	TermDist 5",close dbl??	
Jul 21	Sun	2:58	D 60 Sgr	4.8	100+ 20	46S	G8	ZC2914,SpecBin,TrmDst2"	
Jul 29	Mon	3:23	R zeta Ari	4.9	36- 30	83N	A1	ZC 472,close double??	
Aug 16	Fri	23:06	D ZC 2831	6.0	90+ 23	65N	B2		
Aug 20	Tue	22:34	R chi Agr	4.9	97- 19	40S	M3	AA226,ZC3421,closeDb1??	
Aug 26	Mon	3:09	R ZC 587	6.2	51- 42	62N	K0		
Aug 28	Wed	4:40	R SAO 77818	6.7	29- 40	56S	K5		
Sep 6	Fri	11:33	D Spica =	1.0	11+ 16	40S	B1	Sun+51,ZC1925,closeDb1?	
Sep 6	Fri	12:31	R alpha Vir	1.0	12+ 25	-67S	B1	Sun+56, Axis Angle 251	
Sep 9	Mon	20:06	D pi Scorpii	2.9	37+ 18	28S	B1	Sun -9,mg2 12 dT +4m03s	
Sep 9	Mon	20:44	R = ZC 2287	2.9	38+ 13	-26S	B1	Azimuth 220,AxisAng 209	
Sep 13	Fri	23:16	D 60 Sgr	4.8	79+ 21	25N	G8	ZC2914,SpectroscopicBin	

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

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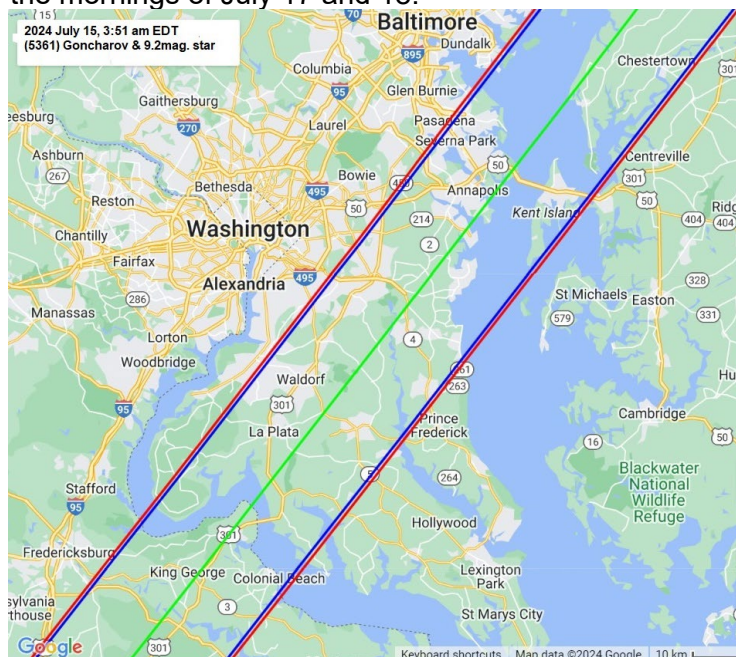
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IOTA Campaign for Asteroidal Occultation of 9.2-mag. Star Across DMV July 15 am

David and Joan Dunham

On Monday morning, July 15, at 3:51 am EDT, the shadow of 9.2-mag. SAO 190545 cast by the 24-km asteroid (5361) Goncharov will rapidly sweep from northeast to southwest over the DMV, passing east of Baltimore and DC, as shown on the map. The star will suddenly disappear for up to 2.3 seconds as Goncharov passes over it, fading rapidly by over 7 magnitudes with only the 17th-mag. asteroid remaining visible. Since you only need to see the star to record the event, telescopes with apertures as small as 3 inches can be used. We want to use this great occultation to train interested observers how to record and precisely time the occultation, so they might record future similar events at home or with mobile equipment, as will be needed by most for this event. If the weather is poor on July 15, we have backup events that can be used the mornings of July 17 and 18.



Path of the occultation of SAO 190545 by (5361) Goncharov across the DMV; the central line is green while the limits are marked by blue and red lines. Image Credit - D. Dunham, IOTA, and Google Maps

The target star is an orange spectral type K0 giant, also called TYC 6374-00593-1. The occultation path crosses other populous parts of the eastern US, from Maine to the Florida panhandle, so we hope that those in other areas will conduct similar expeditions to help us map the profile of this asteroid. If you can't join our expedition to observe the event, you can try to observe the star, which is in Capricornus at J2000 RA 21h 40m 52.1s, Dec -22°10' 17", at home, to get practice with your equipment, and to try to catch a brief occultation by a possible satellite of Goncharov, although the chances of that are extremely small. We will conduct a Zoom session with prospective observers for the event a few days before. More information about the occultation is posted on the IOTA occultations campaign page at occultations.org/citizen-science-with-iota/campaigns/ and on the mid-Atlantic occultations site at <http://iota.jhuapl.edu/exped.htm>, and will be announced in messages to the capitalastronomers and other club email list servers.

President's Corner – continued from page 3

overrun with porcelain berry, English ivy, and other nasty vines, and some of the roughs are almost pure '[Asiatic tear-thumb](#)'? It is a national disgrace that there is so much [deferred maintenance in so many of our National Parks](#), and that it's getting worse!

The RCPGC was originally created in the 1920s, for Whites only, but the clientele today is more integrated. Most of its trees are at least a century old and give very pleasant, dappled shade on many of the various golf fairways, especially the very wild and rough 'back nine'. During all of my slow stroll around the place, I saw exactly two trees that needed removing or trimming for safety.

Right now, every single bit of Rock Creek Park is dark at night, because the Park Service made the bold decision in 1980 to turn off all the streetlights on each one of its roads. This darkness at night is good both for humans and for wildlife in this city. Building a TopGolf driving range there would be sacrilegious.

The golf course is especially dark and quiet at night, even though it's in the heart of DC.

How dark, you ask? If you go at night, you will need to go on foot. If you walk to the center of the course, not a single direct light is visible, from any direction! You cannot tell that you are in the middle of a major city, because not a single streetlight, headlight, or window light is visible, just the occasional aircraft. Thanks to this absence of light, I saw wondrous displays of thousands of flashing fireflies, this very week, right on the course!

And it's quiet! There is no nearby train line, and neither 16th Street nor Military Road make a lot of noise, compared to the railroads and highways surrounding the Arboretum.

Dark nights are also good for anybody who wants to see anything of the universe we belong to and then realize that [there is no planet B](#) out there that we can go to if we mess up this one by paving over and lighting up its remaining wild places.

For over 75 years, local amateurs in [National Capital Astronomers](#) (of which I am now the president) have been working together with National Park Service rangers stationed at the Rock Creek Park Nature Center and Planetarium, one Saturday evening each month, to let members of the public [explore as much of the sky](#) as our telescopes can reach, for free, at a location that is only 4200 feet away from this proposed driving range. Nobody in the Dark-Sky group here in DC knew anything about these planned lights until well after the period for comments had closed, even though the National Links Trust, NLT, claims that their plan *will* be dark sky compliant.

[Dark-Sky advocates](#) here in DC say that the NLT planners are not telling the truth about the levels of illumination that would be required at the proposed driving range. Looking at publicity shots of the [Clermont National golf driving range](#), which was offered to me by NPS's Tammy Stidham as an example, and looking at a random sample of TopGolf installations, it is clear to me that this illuminated driving range will be an utter disaster.

We had better get on the ball and do what we can to oppose those two parts of the plan: No nighttime illuminated golf driving range! And leave almost all of the trees alone! If the rehabilitation plan that gets approved does involve a new clubhouse, better greens and fairways, a new putting area, and a new driving range, that's fine – as long as they only use natural light.

Instead, we should advocate removing the invasive alien vegetation by pushing for a large enough National Park Service budget to complete a huge number of deferred maintenance jobs, and to pay a competent gardening outfit (or hire a permanent NPS staff) to do what's needed to improve the lawns and brushy areas without tons of pesticides.

Introducing Black and Latino kids to golf on well-maintained, inexpensive, public, municipal or National Park golf courses is of course a fine idea. Doing a bit of research, I found that the vast majority of golf courses in DC, including Rock Creek and East Potomac Park, were off-limits to Black customers a century ago. At one point, the only one open to Black patrons was a tiny, poorly maintained one located at what is now a set of volleyball fields just north of the Lincoln Memorial!

The end of racial segregation on DC links only began in June of 1941, when [a number of Black golfers engaged in civil disobedience](#) and went ahead and played an 18-hole game at Hains Point, despite harassment and threats by racist Whites. The police just stood by. The bravery of those golfers prompted the Roosevelt administration to begin desegregating all federal parks and facilities, but Black golfers continued to be sporadically insulted and even attacked for many years thereafter.

Right now, the NLT expects to start up their chain saws and bulldozers this fall (2024), but there are probably a few more steps where they can be stopped. If we don't want the crazy parts of this plan to happen, we had better get organized, because the NPS and NLT have decided to ignore the thousands of citizens who wrote and spoke out against it — but those citizens were not properly organized.

If the Park Service heads decide to ignore all the opposition and continue with this plan, then perhaps folks will need to do some civil disobedience again, just like those brave, Black DC golfers did back in 1941.

Recent Astronomy Highlights – continued from page 4

Exo-Venus Discovered

Approximately 40 light years away, the exoplanet Gliese 12 b orbits a relatively cool red dwarf once every 12.8 days. The exoplanet is approximately the size of Venus, however it has a nearly Earth-like surface temperature of approximately 42° C (107° F), far lower than the temperatures of most exoplanets so far discovered, meaning it is potentially habitable. It is not known yet if Gliese 12 b has an atmosphere. But because the exoplanet transits its host star, if it does have an atmosphere, it could be detected due to affects of that atmosphere’s gases on the starlight passing through it. If such an atmosphere is detected by future studies, it could revolutionize our understanding of exoplanets orbiting stars such as Gliese 12, stars which are thought to be so active that they tend to strip any exoplanets of their atmospheres. More information is at www.eurekalert.org/news-releases/1045701.

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 if you plan to attend. Info is at 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.

Next NCA Meeting: 14 September at 7:30 p.m.

The APS Mid-Atlantic Senior Physicists Group: (at the American Center for Physics and on Zoom) Thursday, June 27th at 1:00 p.m., Kate Sturge and Noah Hoppis, UMD, will give a talk entitled “The Nature of Dielectric Breakdown in Space-charged Polymethyl Methacrylate as Observed Through Gigahertz Frame Rate Imaging Technique”. A link to register and attend the meeting via Zoom is apsphysics.zoom.us/meeting/register/tZwvduGurjlvH9YrOKojRXlYuaajcYnlenbY.

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.....\$__

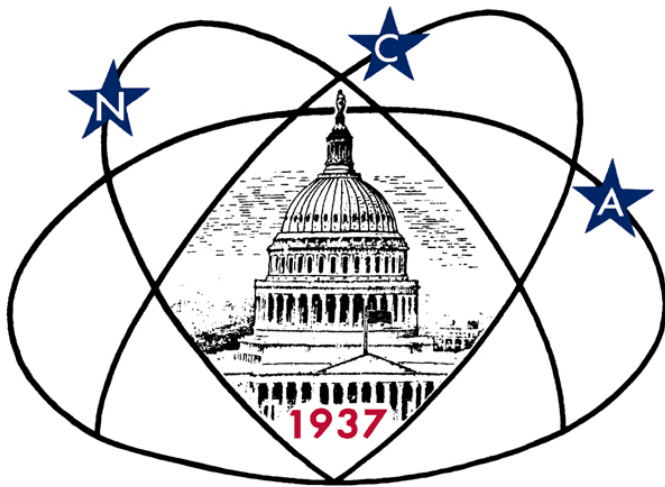
Please indicate which activities interest you:

- 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

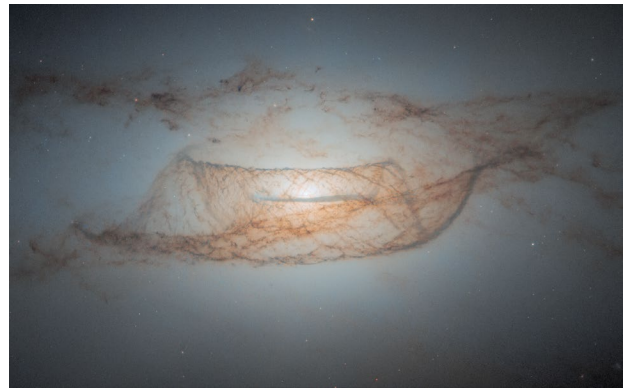


Image Credit – ESA/Hubble & NASA, L. Kelsey
 The Hubble Space Telescope captured the image of dust lanes of lenticular galaxy NGC 4753. More information about the image is available at science.nasa.gov/missions/hubble/hubble-views-cosmic-dust-lanes/.

To join or renew online, visit capitalastronomers.org and look in the right column for the Membership Form and PayPal links.

Next NCA Meeting:
2024 June 8th
7:30 pm
Cal Powell

- *Virtual attendees:* To join the meeting via Zoom, use the following link:
umd.zoom.us/j/95154535739?pwd=cERBUE9XM3AvNE40TXYrNUptVEtzUT09
- *In-person attendees:* The UMD Astronomy Observatory is at 3255 Metzert Road, College Park, MD 20740
 Directions:
www.astro.umd.edu/openhouse/1visiting/directions.html

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Please note that NCA Zoom meetings are often recorded.