

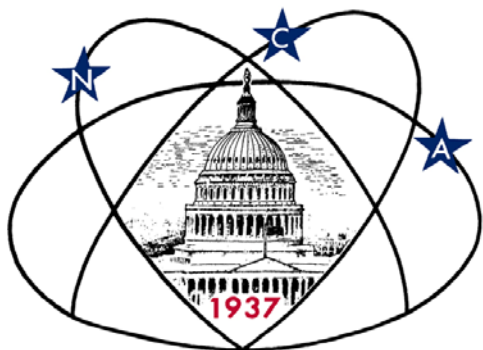
# Star Dust

National Capital Astronomers, Inc.

October 2010

Volume 69, Issue 2

<http://capitlastronomers.org>



## Next Meeting

**When:** Sat. Oct. 9, 2010  
**Time:** 7:30 pm  
**Where:** UM Observatory  
**Speaker:** Joseph Weingartner, GMU

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## Directions to Dinner/Meeting

Members and guests are invited to join us for dinner at the Garden Restaurant located in the UMUC Inn & Conference Center, 3501 University Blvd E. The meeting is held at the UM Astronomy Observatory on Metzert Rd about halfway between Adelphi Rd and University Blvd.

## Need a Ride?

Please contact Jay Miller, 240-401-8693, if you need a ride from the metro to dinner or to the meeting at the observatory. Please try to let him know in advance by e-mail at [rigel1@starpower.net](mailto:rigel1@starpower.net).

## Observing after the Meeting

Following the meeting, members and guests are welcome to tour through the Observatory. Weather-permitting,

October 2010  
Joseph Weingartner  
George Mason University  
**The Dusty Universe**

## Abstract:

Almost everywhere astronomers look, we find microscopic grains of solid material, known as dust. Although dust is usually a trace constituent, it plays several important roles in astrophysics. I'll describe the observations that reveal the existence and nature of dust, some of the physical processes associated with dust, and their consequences for star and planet formation.

## Biography:

Joe Weingartner is an associate professor in the Department of Physics and Astronomy at George Mason University. He does theoretical astrophysics, with an emphasis on the physics of cosmic dust. Prior to his arrival at George Mason, Joe spent 4 years as a postdoc at the Canadian Institute for Theoretical Astrophysics. He received his PhD in physics from Princeton in 1999.



Credit: Hubble Heritage Team (STScI/AURA), NASA

several of the telescopes will also be set up for viewing.

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Thank you!

## Reminder

After the meeting, everyone is invited to join us at Plato's Diner in College Park. Plato's is located at 7150 Baltimore Ave. (US Rt. 1 at Calvert Rd.), just south of the university's campus. What if it's clear and you want to stick around and observe? No problem -- just come over when you're through. This is very informal, and we fully expect people to wander in and out.

## Comet Code: Understanding How Comets are Named October, 2010

*By Tom Koonce, Lancaster, CA*

Two hundred years ago, the discoverer of a prominent comet usually had his or her name incorporated into the official name of the object, but not always. The first named comet was Halley's Comet, named after Sir Edmund Halley who had calculated its orbit and made the discovery that it was a regular visible visitor to the inner solar system. The comet is now officially known as Comet Halley. The name credit for the comet 2P/Encke, discovered in 1786 by Pierre Méchain, was given to the man who calculated its orbit, Johann Franz Encke. If the comet was exceptionally bright and non-periodic, they were known as "The Great Comet of..." followed by the year in which they were observed.

The naming of comets became standardized in the early twentieth century, retaining the names of up to the first three independent discoverers. Comet White-Ortiz-Bolelli (formal designation C/1970 K1) was named for its discoverers amateur astronomer Graeme White, Air France Pilot Emilio Ortiz, and professional astronomer Carlos Bolelli. More recently, comets have been discovered by robotic space-borne instruments, and the instrument's name is included like Comet IRAS-Araki-Alcock (C/1983 H1), discovered by a team of scientists using the Infrared Astronomical Satellite (IRAS), and two amateur astronomers, George Alcock and Genichi Araki.

The "Old Style" of naming comets gave them a provisional designation of the year of their discovery followed by a lower case letter indicating its order of discovery in that year. Comet Bennett is designated Comet 1969i, the 9th comet discovered in 1969. This worked well until 1987 when more than 26 comets were discovered in a single year. The alphabet was used again with a "1" subscript (Comet Skorichenko-George, 1989e1). In 1989, the count got as high as 1989h1 with 34 comets discovered that year. Once the orbit had been established, the comet was given a permanent designation in order of time of closest approach to the Sun, consisting of the year followed by a Roman numeral. For example, Comet Bennett (1969i) became 1970 II.

More and more comets began to be discovered and the naming procedure became unwieldy, so in 1994 the International Astronomical Union (IAU) approved a new naming system called the "New Style". Using the New Style, comets are designated by the year of their discovery followed by a letter indicating the half-month of the discovery. "A" denotes the first half of January, "B" denotes the second half of January, "C" denotes the first half of February, "D" denotes the second half of February, etc., and a number indicating the order of discovery. As an example, the third comet discovered in the second half of October 2010 would be designated 2010 U3. "I" and "Z" are not used when describing the half of a particular month the comet was discovered because they can be easily confused as the numbers 1 and 2 respectively.

Prefixes are also added to indicate the nature of the comet, with "P/" indicating a periodic comet, "C/" indicating a non-periodic comet, "X/" indicating a comet for which no reliable orbit could be calculated (typically comets described in historical chronicles), "D/" indicating a comet which has broken up or been lost, and "A/" indicating an object at first thought to be a comet but later reclassified as an asteroid. Periodic comets also have a number indicating the order of their discovery.

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Thus Halley's Comet, the first comet to be identified as periodic, has the systematic name 1P/1682 Q1. Comet Shoemaker-Levy 9 was the ninth periodic comet jointly discovered by Carolyn and Eugene Shoemaker, and David Levy but its systematic name is D/1993 F2. It was discovered in 1993 and the prefix "D/" is applied, since it was observed to break up and crash into Jupiter.

Now you can decode the name designations of comets. Stars are another story altogether... For example, Betelgeuse = Alpha Orionis = HR 2061 = BD +7 1055 = HD 39801 = SAO 113271 = PPM 149643, whose coordinates in the sky are RA 05:55:10.306, Dec +07:24:25.35 (2000.0), the bright red supergiant in Orion. There is a system determined by the IAU for naming all astronomical objects. It just takes some time and study to make sense of it.

## Open House & Star Party at Hopewell Observatory Haymarket, VA Saturday Evening, October 30 *Jeff Guerber*

You, your family, and friends, are invited to join us for an Open House and Star Party at Hopewell Astronomical Observatory on SATURDAY EVENING, OCT. 30, 2010. Hopewell Observatory is a private, independent observatory association, located on about 4 acres atop a ridge in the Bull Run Mountains, about 6 miles northwest of Haymarket, Virginia.

Weather permitting, we'll be able to see the planets Jupiter and Uranus, fall constellations, galaxies (including Andromeda), star clusters, nebulae, and some of the summer Milky Way. If the weather is bad, we'll just have a tour of the observatory.

We'll open the observatory around sunset, and remain open until everyone leaves; come whenever you like, and stay as late as you want. Telescopes permanently installed in Hopewell's roll-off-roof observatory building include a 12" homemade Wright-Newtonian, a 14" Celestron Schmidt-Cassegrain, and a 6" refractor. If you have a scope, too, by all means bring it along! There is a grassy field with plenty of room to set up, and electricity is available (bring your own extension cord). You are welcome to bring a picnic dinner or snacks (but bring your own water); we will provide hot water, coffee, tea and cocoa. The sanitary facilities are primitive. Dress warmly, since it can get significantly chillier than in town, but we do have a warm hut. The site is a clearing in the woods, so sturdy shoes are recommended.

We hope to see you there! Feel free to pass this invitation along. For directions and a map, contact Bob Bolster [RBolster@erols.com](mailto:RBolster@erols.com), Guy Brandenburg [gbrandenburg@yahoo.com](mailto:gbrandenburg@yahoo.com), or Jeff Guerber [jeff.guerber@nasa.gov](mailto:jeff.guerber@nasa.gov). Clear skies!

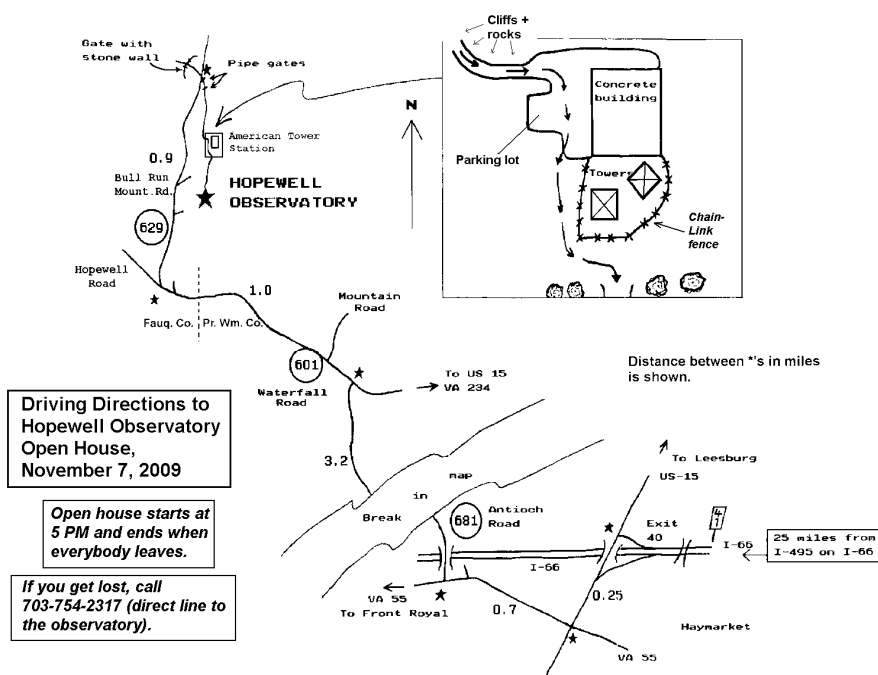
Directions on Page 4

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## *Directions and Parking*

Let's assume you are on Interstate-66 in Virginia, heading west, away from DC. If you are heading east on I-66, the only difference is that you turn right (south) onto US route 15 almost immediately, rather than after 0.25 miles.

1. Consider car-pooling, as parking is very limited.
2. Exit at exit 40, Haymarket, go to end of ramp.
3. Turn left (south) at the end of the ramp (traffic light) and go about 0.2 miles on US route 15.
4. Turn right (at a light) onto US route 55, heading west.
5. Go about 0.8 miles to Antioch Road (VA 681; no light, no stop sign) and turn right (north).
6. Go about 3.2 miles on Antioch Road until it dead-ends on Waterfall Road (VA 601). Turn left (west).
7. Go about 1.0 of a mile; you will cross into Fauquier County, whereupon it changes its name to Hopewell Road. Do NOT turn on Mountain Road; wait until you see Bull Run Mountain Road (VA 629).
8. Make a diagonal right (north) onto Bull Run Mountain Road. This soon becomes a gravel road that gains elevation. Proceed about 0.9 miles until you see a large, well-made, locked stone-and-metal gate on the left and a much simpler, open metal gate (rusty orange) on the right, that consists of a single long bar, followed by another, similar, open gate.
9. Make a very sharp right turn, uphill, through this gate. You will be heading south. This will be an unmarked and somewhat poorly-paved road, but your car should be able to handle it unless you have a very low suspension. If you are afraid of your undercarriage dragging on the road, then try to navigate so that your tires stay on the high spots and don't go down into the potholes. You will be gaining more elevation.
10. After about 0.3 miles the road ascends and turns left around a small but massive rocky cliff. You will see a concrete building attached to a radio tower, and a small parking lot. THIS IS NOT THE OBSERVATORY, but you can park in the lot here if the closer parking spots are all full, or if you don't want to drive on an unimproved dirt road.
11. Take a sharp RIGHT in front of the concrete building and follow a not-very-clearly-marked dirt road that goes about 1/3 of the way around the radio tower.
12. Then make a right onto a dirt road through some trees and brush, bypassing a white closed metal gate that doesn't open any more. Do NOT drive down the power-line right-of-way.
13. About 250 meters/yards (~0.15 mi) further on (south) you will come to a few rough parking spots to the left and to the right of the road that have been made by clearing and cutting down the brush and trees; if these spaces are still available, park there. If they are all full, you will need to turn around carefully, drive back to the radio tower, and walk from there.
14. Please do not park in the space around the observatory itself unless you are bringing your own telescope to set up near the observatory.
15. The first building you will see is the Operations Building, which is an A-frame building made of concrete block and roofed with gray shingles. Feel free to 'check in' there and get some red tape for your flashlight, if needed, and some self-serve hot cocoa or tea if you like.
16. The observatory itself is about 40 meters (or yards) to the south of the Operations Building. It is made of white-painted concrete block with a metal roll-off roof, and has a single door in the north side. The roll-off roof gives the impression of being a big porch roof, but it's not.



## Aug. 21st Psyche Occultation

David Dunham

Early Saturday morning, August 21st, the large asteroid (16) Psyche occulted the 8.5-mag. star SAO 94100 a few degrees from Aldebaran in Taurus. This is now the best-observed asteroidal occultation of 2010 in North America, with timings of the occultation made from at least 14 stations spread rather well across the path.

Although thin clouds and bright twilight foiled especially visual attempts in the greater Washington, DC region, Andy Scheck and Steve Conard both recorded short occultations from central Maryland. John Brooks recorded an occultation lasting only 1.7 second from his home in Winchester, VA, the northernmost chord on the asteroid, showing that the path shifted only about 0.2 path-width north, vindicating the PPMX catalog data that S. Preston used for his prediction. Also in Virginia, Harry Abramson in Mechanicsville and Randy Tatum in Richmond recorded the occultation. Dan Caton was lucky, with the clouds breaking only a minute before the event at Dark Sky Observatory near Boone, NC; he had only a 2-second occultation close to the actual southern limit.

I travelled to Lubbock, TX, and then had to drive 160 miles east from there to get out of clouds. I ran 6 stations extending for about 40 miles south of Wichita Falls; one of the remote stations failed to record, but the other 5 all recorded the occultation from the locations in the northern part of the path, my most successful asteroidal occultation expedition. Paul Maley recorded the occultation from two stations in the southern part of the path south of Dallas. The star is HIP 22112, spectral type B9; there was no sign of duplicity from the observations.

Chart Views on Page 6

## Mid-Atlantic Occultations and Expeditions

David Dunham

### Asteroidal Occultations

Date	Day	EDT	Star	Mag.	Asteroid	dmag	s "	dur.	Ap. Location
Oct 7	Thu	4:27	TYC23870186	9.7	Brunhild	3.4	8 4	eVA,DC,eMD,DE,NJ	
Oct 15	Fri	5:51	2UC43055404	11.9C	Celuta	0.4	7 10	neNC,eVA,wMD,wPA	
Oct 16	Sat	21:31	2UC21636698	12.6	Klio	1.1	3 10	wNC,wVA,DC-alt11	
Oct 19	Tue	6:30	2UC39964383	11.8	Seraphina	2.2	7 7	VA-Sun-10;sWV	
Oct 21	Thu	6:12	TYC13690979	10.5	Adorea	3.5	10 6	sSC,cenGA,cenAL	
Oct 29	Fri	2:56	SAO 55896	9.7	Aegle	3.0	13 4	s&wTX,sNM,AZ,sCA	
Oct 31	Sun	3:57	2UC38968838	11.9	Pales	1.3	12 7	sAZ,OK,sKY,sVA	
Nov 2	Tue	1:19	TYC18131333	11.4C	Hansa	0.6	5 8	cNY,cPA,WV,eTN	
Nov 2	Tue	3:55	TYC53190054	11.4	Vassar	3.3	4 7	nNJ,sePA,MD,nwVA	
Nov 6	Sat	3:41	2UC36049471	12.1	2004 VT75	9.6	9 8	TNO; Americas	

### Lunar Grazing Occultations (\*, Dunham plans no expedition)

Date	Day	EDT	Star	Mag.	% alt	CA	Location
Oct 28	Thu	3:39	ZC 997	7.0	73- 66	4S	*Greensboro & Duck, NC
Oct 29	Fri	5:08	ZC 1138	7.1	62- 69	9S	*S.Boston,VA & OregonInlet,NC
Oct 31	Sun	2:53	ZC 1381	6.4	41- 20	3S	*n. N. Carolina; poor profile
Nov 1	Mon	6:15	SAO 118199	8.7	28- 43	12S	Bethesda & Greenbelt, MD
Nov 3	Wed	5:16	SAO 138549	8.8	10- 7	11S	Potomac,n.DC,& Bowie, MD

\*\*\* Dates and times above are EDT, those below are EST \*\*\*

Nov 10	Wed	17:34	ZC 2806	7.0	24+ 28	17S	Fayettevil,NC & Chesapeake,VA
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### Total Lunar Occultations

DATE	Day	EDT	Ph	Star	Mag.	% alt	CA	Sp.	Notes
Oct 4	Mon	5:05	D	omicron	3.5	16- 19	-54N	A5	spectroscopic binary
Oct 4	Mon	5:51	R	Leonis	3.5	16- 28	40N	A5	ZC 1428
Oct 10	Sun	18:53	D	ZC 2257	6.7	13+ 12	72N	A2	Sun alt. -4, Az. 225
Oct 11	Mon	19:38	D	SAO 184678	7.6	22+ 13	70N	K0	Az. 222
Oct 11	Mon	19:38	D	SAO 184678	7.6	22+ 13	70N	K0	Az. 222
Oct 13	Wed	19:12	D	SAO 187156	7.6	41+ 27	21N	K5	Sun alt. -9
Oct 14	Thu	19:21	D	ZC 2859	6.7	51+ 30	47N	G1	Sun alt. -11
Oct 14	Thu	22:17	D	SAO 188421	7.7	51+ 17	76S	M1	
Oct 15	Fri	20:02	D	ZC 2979	7.3	60+ 34	81N	G0	
Oct 19	Tue	20:51	D	9 Piscium	6.3	91+ 45	82N	G7	ZC 3455, spec. binary
Oct 19	Tue	20:57	D	kappa Psc	5.0	91+ 46	46N	A0	ZC 3453, close double?
Oct 27	Wed	6:23	R	121 Tauri	5.4	82- 60	50N	B2	ZC 839
Oct 28	Thu	4:04	R	ZC 997	7.0	73- 68	39S	A0	
Oct 29	Fri	0:55	R	56 Gem	5.1	64- 23	86N	M0	ZC 1113
Oct 29	Fri	2:29	R	SAO 79376	8.1	63- 41	44N	A5	companion of ZC 1123
Oct 29	Fri	2:29	R	ZC 1123	7.3	63- 41	44N	A5	SAO 79376 sep. 6",PA 45
Oct 29	Fri	3:30	R	61 Gem	5.9	63- 52	85N	F2	ZC 1127, close double?
Oct 29	Fri	5:31	R	ZC 1381	7.1	62- 69	44S	G0	
Oct 31	Sun	3:11	R	ZC 1138	6.4	41- 23	35S	A2	mg2 12.8 sep 20",PA 276
Nov 1	Mon	3:11	R	SAO 118151	7.7	30- 10	68S	K0	Az. 91
Nov 1	Mon	5:02	R	ZC 1500	7.8	29- 31	66S	K0	close double?
Nov 2	Tue	4:08	R	SAO 118661	7.9	19- 8	34S	F0	Az. 96

\*\*\* Dates and times above are EDT, those below are EST \*\*\*

Nov 8	Mon	18:36	D	ZC 2499	6.4	9+ 11	68N	K3	Sun alt. -8, Az.225
Nov 8	Mon	17:45	D	theta Oph	3.3	9+ 10	89S	B2	Sun-9,Az226,ZC2500,dbl?
Nov 10	Wed	17:16	D	ZC 2806	7.0	24+ 27	40S	A0	Sun alt. -4
Nov 13	Sat	22:09	D	AG Cap	6.0	53+ 19	39N	M3	ZC 3187

Explanations & more information are at <http://iota.jhuapl.edu/exped.htm>.  
 David Dunham, [dunham@starpower.net](mailto:dunham@starpower.net)  
 Phones: home 301-220-0415; cell 301-526-5590

Timing equipment and even telescopes can be loaned for most expeditions that we actually undertake; we are always shortest of observers who can fit these events into their schedules, so we hope that you might be able to.

Information on timing occultations is at: <http://iota.jhuapl.edu/timng920.htm>.

Good luck with your observations.

## No More Extra Charge for Hardcopy Star Dust

*Benson Simon*

For the convenience of NCA members who receive USPS-mailed copies of Stardust, there will no longer be an extra membership charge for that service. We encourage members to get their copies by e-mail, but we recognize that busy families may need a copy to stick on their refrigerator or wherever to help coordinate family activities. If you wish to make an additional donation to NCA for hardcopy service, it will be appreciated, but it will be entirely optional.

## NCA Treasurer's Report

*Michael Brabanski*

1 JULY 2009 - 30 JUNE 2010

### INCOME

Dues	1245.00
Gifts	910.00
Star Dust	230.00
Sky & Telescope	231.00
<b>TOTAL INCOME</b>	<b>2616.00</b>

### EXPENSES

Star Dust	781.66
Astronomical League	695.00
Liability Insurance	320.00
Speaker's Dinners	299.22
Administration	134.91
Sky & Telescope	362.45
IDA	100.00
DC Corporation Fee	75.00
<b>TOTAL EXPENSES</b>	<b>2768.24</b>

BALANCE 10219.18  
1 July 2009

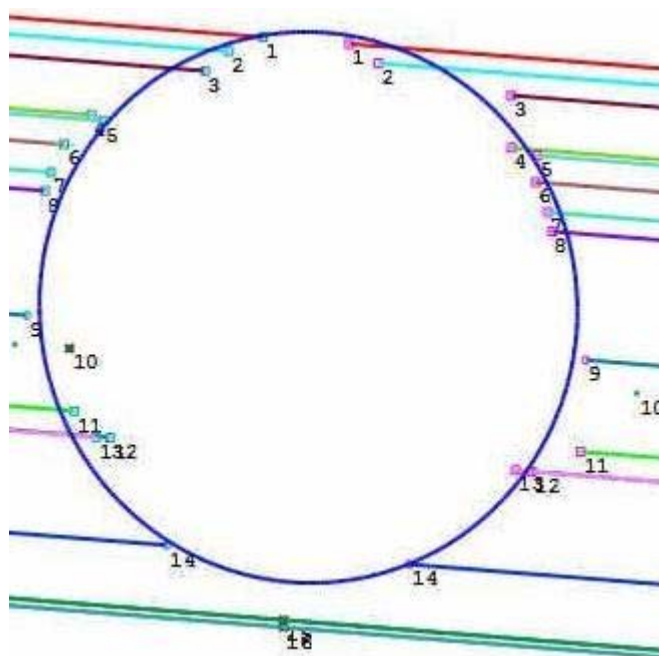
NET CHANGE -152.24

BALANCE 10066.94  
30 June 2010

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Close-up views of chart from "Occult" software. The first shows an ellipse fitted to observers' observations. North is up and East is on the left in this color-inverted (white background) diagram. By timing the disappearance and reappearance of an asteroid during an occultation, members of the International Occultation Timing Association (IOTA) can determine the size and shape of an asteroid by measuring its shadow. During this occultation, the asteroid Psyche cast a shadow about 200km in diameter over the United States. The wide geographic spread of some of the observers is visible in the second view below.

Chart courtesy of David Dunham.



RMS fit 0.0 ± 7.1 km		
1	J Brooks, Winchester,	
2	S Conard, Gamber, MD	
3	D Dunham, Seymour, TX	
4	A Scheck, Scaggsville	
5	D Dunham, Seymour, TX	
6	D Dunham, Throckmorte	
7	D Dunham, Throckmorte	
8	D Dunham, Throckmorte	
9	C Ellington, Highland	
10 (P)	Predicted Centerline	
11	P Maley, Annetta Sout	
12	P Maley, Godley, TX	
13	H/K Abramson, Mechani	
14	D Caton, Boone, NC	
15 (M)	E Iverson, Athens, TX	
16 (M)	R Suggs/B Cooke, Hunt	
17 (M)	J Faircloth, Kinston,	

## Sky and Telescope Subscriptions

*Benson Simon*

S&T formerly provided significant subscription and renewal discounts when ordered through organizations such as NCA. However, they now require subscribers to renew directly with them, and there is little or no advantage to the subscriber for starting subscriptions through NCA.

## Star Dust Speaker Reviews

*Michael Chesnes*

I warmly encourage NCA members to write reviews for the talks at our meetings, so that they can be published in Star Dust. We have an excellent lineup of speakers every year, and our reviews are both a valuable historical record of our activities and a way to recognize our speakers.

## Calendar of Events

**NCA Mirror- and Telescope-making Classes:** Tuesdays Oct. 5, 12, 19, 26 and Fridays, Oct. 1, 8, 15, 22, 29, 6:30 to 9:30 pm at the Chevy Chase Community Center, at the northeast corner of the intersection of McKinley Street and Connecticut Avenue, N.W. Contact instructor Guy Brandenburg at 202-635-1860 or email him at [gbrandenburg@yahoo.com](mailto:gbrandenburg@yahoo.com). In case there is snow, call 202-282-2204 to see if the CCCC is open.

**Open house talks and observing** at the University of Maryland Observatory in College Park on the 5th and 20th of every month at 8:00 pm (Nov-Apr) or 9:00 pm (May-Oct). There is telescope viewing afterward if the sky is clear.

**Dinner:** Saturday, Oct. 9 at 5:30 pm, preceding the meeting, at the [Garden Restaurant](#) in the University of Maryland University College Inn and Conference Center.

**Volunteers needed for Arlington Planetarium on October 2<sup>nd</sup>:** The Friends of Arlington's David M. Brown Planetarium needs volunteers from 5:00 to 9:00 pm on Saturday, Oct. 2. Contact Ryan Hanna [hanna.ryan@gmail.com](mailto:hanna.ryan@gmail.com).

**Upcoming NCA Meetings** at the University of Maryland Observatory

Oct 9, 2010 **Joseph Weingartner** (GMU) - *The Dusty Universe*

Nov 13, 2010 **Tamara Bogadanović** (UMd) - *Black Holes: Alignment of Spins, and Light from Mergers*

Dec 11, 2010 **Scott Sheppard** (DTM) - *Satellites of the Giant Planets*

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All members receive Star Dust, the monthly newsletter announcing NCA activities. The basic dues cover an electronic copy of Star Dust; paper copies are \$10 extra. You may also choose to get Sky & Telescope magazine at the discounted rate of \$33.

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Sky & Telescope .....	\$33
Total .....	_____

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Sky & Telescope .....	\$33
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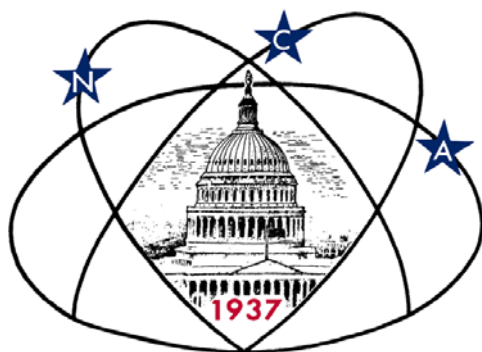
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Silver Spring, MD 20902-4254

**First Class**

**Dated Material**



Next NCA Mtg:

**Oct. 9**

**7:30 pm**

**@ UM Obs**

**Dr. Joseph Weingartner**

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