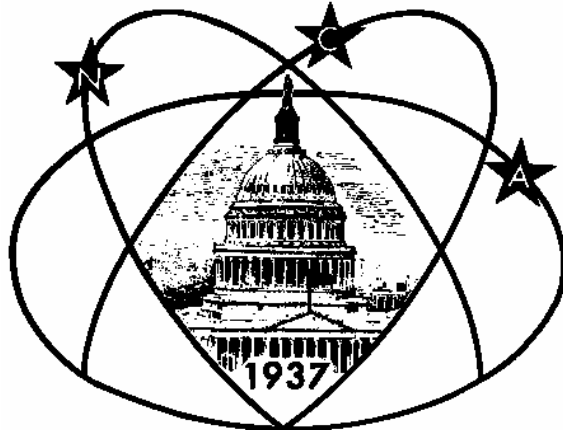


# Star



# Dust

National Capital Astronomers, Inc.

<http://capitalastronomers.org>

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## April Speaker: Dr. Frank Summers: "From Simulation to Visualization: Astrophysics Goes Hollywood"

Dr. Frank Summers, astrophysicist at the Space Telescope Science Institute, will present the talk "From Simulation to Visualization: Astrophysics Goes Hollywood" at the at the April 14 meeting of the National Capital Astronomers, 7:30 P.M., at the University of Maryland Observatory in College Park, Maryland.

### Abstract

The advent of supercomputing brought about large scale scientific simulations that explored astronomical problems on larger and larger ranges of scales and with more and more detail and accuracy. The growth of cluster computing using commodity hardware and open source software made supercomputing capabilities available to researchers with even a modest budget. Astronomers anywhere can produce terabytes upon terabytes of simulation results.

A similar exponential growth of data has occurred at observatories worldwide. CCD instruments with tens to hundreds of megapixels exist on computer-controlled telescopes that enable astronomers to do research over the Internet. Vast archives of public data from ground and space-based observatories have necessitated the creation of virtual observatories just to manage the identification and access to a myriad of resources.

Accompanying all this growth in astronomical data has been a similar, but often untapped, growth in scientific visualization. Driven by the megabucks of the Hollywood special effects industry, the creation of computer graphics has followed the same trajectory as supercomputing from the realm of the privileged few to the mass market. Astronomy, as the most visually inspiring of the sciences, is especially suited to take advantage of these developments.

In my talk, I'll describe how to transform the raw numbers of a scientific simulation into visual imagery that not only provides keen insight to the researchers, but also provides awe and wonder to the public. I'll discuss specific techniques that retain the integrity and accuracy of the physical processes, but yet develop the aesthetics and artistry. To demonstrate the ubiquitous nature of these tools, I'll show how we produced a three minute IMAX film from Hubble data using ten people for ten weeks at a cost of ten thousand dollars.

### Biography

Dr. Frank Summers is an astrophysicist working in the Office of Public Outreach at the Space Telescope Science Institute. His expertise spans a diverse range from research cosmology and high performance

computing to scientific visualization and general astronomy outreach. At Space Telescope, he contributes to all aspects of outreach through news media, web sites, educational programs, museums and planetariums. His specialty is creating accurate and aesthetic scientific visualizations by combining research computer simulations and Hollywood rendering techniques. He is probably the only astrophysicist to have directed an IMAX short film. Previously, Dr. Summers was the lead astronomer in creating the exhibits for the new Hayden Planetarium in New York City.

His work can also be seen in the Academy Award nominated IMAX film "Cosmic Voyage."

He has lectured widely and consulted on numerous books and television documentaries.

Frank Summers received a B.S. in Physics from Virginia Tech in 1988, an M.A. in Astronomy from the University of California at Berkeley in 1990, and a Ph.D. in Astronomy from the University of California at Berkeley in 1993.

Dr. Summers' home page is at <http://terpsichore.stsci.edu/~summers/>

## Nominating Committee for NCA Officers *Jeffrey Norman*

NCA President Harold Williams appointed Jay Miller to be Chair of the Nominating Committee. President Williams said that we do have candidates for some offices,

noting that any NCA member may run for any office. But we are still looking for a Secretary (because Nancy Roman is retiring this year), an Assistant Secretary and

an Assistant Vice President. Please contact Jay Miller at (301) 530-7942 if you are interested in running for any office.

## NCA Events This Month

The Public is Welcome!

NCA Home Page: <http://capitalastronomers.org>

**NCA Mirror- and Telescope-making Classes:** Fridays, April 6, 13, 20, and 27, 6:30 to 9:30 P.M. 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).

**Open house talks and observing** at the University of Maryland Observatory in College Park on the 5th and 20th of every month at 9 P.M. The talks are non-technical. There is telescope viewing afterward if the sky is clear.

**Upcoming NCA Meetings—Saturdays**  
April 14, Dr. Frank Summers, Space Telescope Science Institute, will speak

about “From Simulation to Visualization: Astrophysics Goes Hollywood” He directed the IMAX short feature “Hubble: Galaxies Across Space and Time.”

May 12, Mercedes Lopez-Morales, Department of Terrestrial Magnetism, Carnegie Institute of Washington, “Amateur Telescopes Can Do Real Science.”

June 9, Dr. Nancy Grace Roman, NASA, retired, will speak about the Hertzprung-Russell Diagram.

## Observing with the NCA C-14 Mike McNeal

Schedule is open, generally, Saturdays at 7:30 P.M. Call to set up a time.

In Mike McNeal’s backyard, 5410 Grove St, Chevy Chase, MD, (Friendship Heights Metro).

Please make reservations by 10 p.m. the Friday before. Call Mike at 301-526-2648 or email him at [mcealmi@verizon.net](mailto:mcealmi@verizon.net).

We need a new volunteer to house NCA’s C-14, make it available for weekly viewing, and transport it to other sites, e.g., Exploring the Sky and star parties.

## Come See the Stars! Exploring the Sky by Joe Morris

### 2007 Schedule

Date	Time	Things of interest
4/21	8:30 PM	Astronomy day; Lyrid meteors
5/19	9:00 PM	Venus and Moon close; Beehive Cluster
6/16	9:00 PM	Venus, Saturn, and Regulus in a line
7/14	9:00 PM	Venus bright but low; new Moon
8/18	8:30 PM	Perseid meteors; Moon at apogee
9/29	8:00 PM	Rock Creek Park day; Moon just past full
10/20	7:30 PM	Orionid meteors; Moon past first quarter
11/3	7:00 PM	Pleiades; Andromeda near zenith

*Exploring the Sky* is an informal program that for over fifty years has offered monthly opportunities for anyone in the Washington area to see the stars and planets through telescopes from a location within the District of Columbia.

Sessions are held in Rock Creek Park once each month on a Saturday night from April through November, starting shortly after sunset. We meet in the field just south of the intersection of Military and Glover Roads NW, near the Nature Center. A

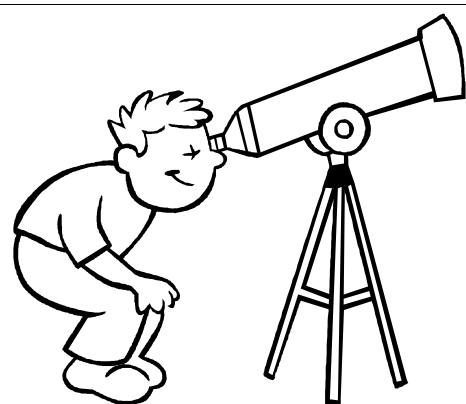
parking lot is located next to the field.

Beginners (including children) and experienced stargazers are all welcome — and it’s free!

Questions? Call the Nature Center at (202) 895-6070 or check the Internet sites: [www.nps.gov/rocr/planyourvisit/expsky.htm](http://www.nps.gov/rocr/planyourvisit/expsky.htm) or [www.capitalastronomers.org](http://www.capitalastronomers.org)

A presentation of the National Park Service and National Capital Astronomers.

*The deadline for the May Star Dust is April 25. Please send your material to Elliott Fein by that date to ensure inclusion. Send submissions to Elliott Fein at [elliott.fein@verizon.net](mailto:elliott.fein@verizon.net). Articles submitted may be edited to fit the space available.*



# Mid-Atlantic Occultations and Expeditions to Mid-May

## by Dr. David Dunham

### Asteroidal Occultations

Date	Day	EDT	Star	Mag	Asteroid	dmag	s	in.	Location
Apr 13	Fri	1:05	TYC02720940	11.0	Fortuna	0.9	22	6	nNC, VA, WV, OH
Apr 17	Tue	20:56	iota Cancri	4.2	Xanthe	10.5	8	0	ne Florida
Apr 26	Thu	21:20	ZC 1305	6.9	Raphaela	8.6	1	1	PA, MD?, nDE, sNJ
Apr 26	Thu	22:49	ZC 753	7.4	Venus		339	4	alt.5 dg.at DC
Apr 28	Sat	4:38	TYC67381085	11.2	Melusina	4.5	6	8	wMD-alt7; WV, TN
May 12	Sat	3:17	2UC24378882	13.4	2001 KA77	8.9	13	10	TNO - e.USA?

### Lunar Grazing Occultations

DATE	Day	EDT	Star	Mag	% alt	CA	Location
Apr 21	Sat	22:22	SAO 78206	8.0	27+ 31	14N	Roanoke, VA; RockyMt&Greenvl, NC
Apr 22	Sun	23:21	SAO 79316	7.5	37+ 28	14N	Berea, OH; Ladysmith, VA
Apr 24	Tue	20:27	ZC 1352	7.9	57+ 71	16N	Bowling Green, VA Sun -7
May 10	Thu	9:10	delta Cap	2.9	47- 31-18S		Arlngtn, VA; DC; Beltsv1, MD; Sn36

Detailed interactive path maps & other details are at  
<http://www.fingerlakessythetic.com/occultations/GrazeMaps.html> .

### Total Lunar Occultations

DATE	Day	EDT	Ph Star	Mag	% alt	CA	Sp.	Notes
Apr 13	Fri	5:18	R ZC 3217	7.4	22- 8	72N	A2	mg2 10.9, 18", PA 323dg
Apr 19	Thu	21:15	D SAO 76472	7.2	9+ 18	67N	G8	spectroscopic binary
Apr 20	Fri	19:54	D ZC 771	6.1	17+ 45	41N	A5	Sun -2; graze, n.NJ
Apr 20	Fri	20:04	D ZC 773	7.0	17+ 43	20S	F8	Sun-4; mg2 14", PA 352
Apr 21	Sat	21:44	D SAO 78191	7.7	27+ 36	49N	A0	Graze, NY & CT
Apr 22	Sun	20:45	D SAO 79243	7.3	37+ 58	80N	K1	Sun -11
Apr 22	Sun	21:07	D SAO 79253	7.6	37+ 53	74N	K1	spectroscopic binary
Apr 22	Sun	23:04	D SAO 79319	7.9	38+ 31	77S	K2	
Apr 23	Mon	20:40	D ZC 1239	6.6	47+ 66	62S	A4	Sun alt. -10
Apr 25	Wed	0:46	D 80 Cancri	6.9	59+ 27	62S	A0	ZC1370; mg2 9.5 130", 253
Apr 26	Thu	20:44	D SAO 118418	7.6	76+ 58	74N	F5	Sun-10; mg2 8.9 ".6, 151
Apr 26	Thu	22:20	D EU Leonis	7.7	77+ 58	54N	M	ZC 1560
Apr 27	Fri	1:47	D SAO 118479	7.6	77+ 25	80S	K0	
Apr 28	Sat	22:28	D ZC 1744	6.4	91+ 48	23S	G8	
Apr 29	Sun	2:27	D ZC 1754	7.0	91+ 25	64N	F5	
Apr 30	Mon	2:56	D psi Vir	4.8	96+ 22	87S	M3	ZC 1853; close double?
Apr 30	Mon	21:01	D ZC 1940	6.9	98+ 22	81N	F0	
May 3	Thu	23:00	D pi Scorpii	2.9	97- 10	-59N	B1	ZC2287; Az136deg.; dbl?
May 4	Fri	0:08	R pi Scorpii	2.9	97- 18	63N	B1	ZC 2287; close double?
May 4	Fri	3:34	R ZC 2297	7.0	96- 22	66S	F7	
May 5	Sat	5:13	R ZC 2444	7.6	92- 17	85S	A0	Sun alt. -10
May 9	Wed	4:39	R SAO 189680	7.4	59- 22	28S	K2	
May 9	Wed	4:55	R SAO 189666	7.9	59- 24	47N	K1	mg2 10.9 ".9, PA 115dg
May 10	Thu	3:56	R SAO 164534	7.3	48- 14	72S	K3	Azimuth 127 deg.
May 10	Thu	4:24	R SAO 164541	8.3	48- 19	49N	K1	
May 10	Thu	4:37	D gamma Cap	3.7	48- 20	-28N	A7	ZC 3171; close dbl?
May 10	Thu	5:22	R gamma Cap	3.7	48- 26	45N	A7	Nashira; MI graze
May 11	Fri	5:19	R 58 Aquarii	6.4	37- 24	81N	A8	ZC 3310; close dbl?
May 12	Sat	4:23	R ZC 3437	6.8	26- 11	73S	A0	Azimuth 105 deg.

More information is at <http://iota.jhuapl.edu/exped.htm> .  
 David Dunham, [dunham@starpower.net](mailto:dunham@starpower.net), phone 301-474-4722

## Getting to the NCA Monthly Meeting and the Dinner Before the Meeting

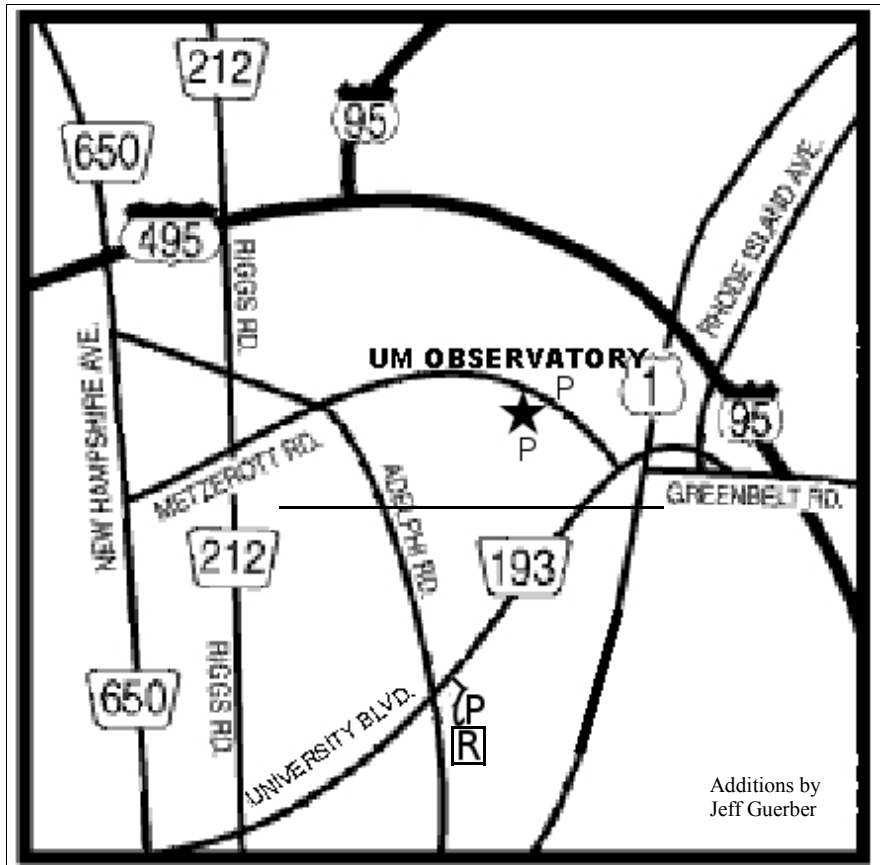
Jeff Guerber

NCA meetings are now held at 7:30 p.m. at the University of Maryland Observatory, in College Park on Metzerott Rd. between University Blvd. (MD-193) and Adelphi Rd. To get there from the Capital Beltway (I-495), either take US Rt. 1 south about a mile, turning right onto MD-193 West, then at the first light turn right onto Metzerott; or, take New Hampshire Ave. (MD-650) south, turn left at the second light onto Adelphi Rd., two more lights, turn left onto Metzerott, and proceed about a mile to the observatory. The observatory is on the south side of Metzerott Rd., directly opposite the UM System Administration building; you can park there if the observatory lot is full, but be careful crossing Metzerott Rd.

At 5:30 p.m., before the meeting, please join us for dinner at the Garden Restaurant in the UMD University College Inn and Conference Center, 3501 University Blvd. East at Adelphi Rd. From the Beltway, either take New Hampshire Ave. south, turn left onto Adelphi, and at the third light (passing Metzerott) turn left onto University then immediately right into the garage; or, take US-1 south, turn right onto University Blvd. west, and take it to the intersection with Adelphi Rd. Park either in the garage (costs), or in Lot 1 nearby (free). To get to the Observatory, exit to the right onto University Blvd. (MD-193) east, and at the second light turn left onto Metzerott Rd.

### Do You Want to Get *Star Dust* Electronically?

Any member wishing to receive *Star Dust*, the newsletter of the National Capital Astronomers, via e-mail as a PDF file attachment, instead of hardcopy via U.S. Mail, should contact Nancy Grace Roman, the NCA Secretary, at nancy.roman6@verizon.net or 301-656-6092 (home).



Getting to the NCA Meeting  
Star=Observatory R=Restaurant P=Parking

## Observing after the Meeting

Elizabeth Warner

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

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

### Are You Coming to Dinner?

If you are planning to come to the dinner before the meeting, please tell Benson J. Simon, telephone: 301-776-6721, e-mail bjs32@cornell.edu so that we can make reservations for the right number of people.

### Do You 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 rigell@starpower.net.)

# Support the IDA

Join the International Dark-Sky Association  
3225 N. First Avenue Tucson, AZ  
85719-2103  
[www.darksky.org](http://www.darksky.org)

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## National Capital Astronomers, Inc.

<http://capitalastronomers.org>

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NCA Webmaster, Dr. Harold Williams, see info in top line above.  
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### SERVING SCIENCE & SOCIETY SINCE 1937

NCA is a nonprofit, membership-supported, volunteer-run, public-service corporation dedicated to advancing astronomy, space technology, and related sciences through information, participation, and inspiration, via research, lectures, presentations, publications, expeditions, tours, public interpretation, and education. NCA is the astronomy affiliate of the Washington Academy of Sciences. NCA is an IRS Section 501(c)(3) tax-deductible organization. All are welcome to join NCA.

#### SERVICES & ACTIVITIES:

**Monthly Meetings** feature presentations of current work by researchers at the horizons of their fields. All are welcome; there is no charge. See monthly *Star Dust* for time and location.

**NCA Volunteers** serve in a number of capacities. Many members serve as teachers, clinicians, and science fair judges. Some members observe total or graze occultations of stars occulted by the Moon or asteroids.

**Publications** received by members include the

monthly newsletter of NCA, *Star Dust*, and an optional discount subscription to *Sky & Telescope* magazine.

**Consumer Clinics:** Some members serve as clinicians and provide advice for the selection, use, and care of binoculars and telescopes and their accessories. One such clinic is the semi-annual event held at the Smithsonian Institution National Air and Space Museum.

**Fighting Light Pollution:** NCA is concerned about light pollution and is interested in the technology for reducing or eliminating it. To that purpose, NCA is an Organization Member of the International Dark Sky Association (IDA).

**Classes:** Some NCA members are available for educational programs for schools and other organizations. The instruction settings include star parties, classroom instruction, and school-teacher training programs that provide techniques for teaching astronomy. NCA sponsors a telescope-making class, which is described in the *Star Dust* "Calendar of Monthly

Events."

**Tours:** On several occasions, NCA has sponsored tours of astronomical interest, mainly to observatories (such as the National Radio Astronomy Observatory) and to the solar eclipses of 1998 and 1999.

**Discounts** are available to members on many publications, products, and services, including *Sky & Telescope* magazine.

**Public Sky Viewing Programs** are offered jointly with the National Park Service, and others. Contact: Joe Morris, [joemorris@erols.com](mailto:joemorris@erols.com) or (703) 620-0996.

**Members-Only Viewing Programs** periodically, at a dark-sky site.

**NCA Juniors Program** fosters children's and young adults' interest in astronomy, space technology, and related sciences through discounted memberships, mentoring from dedicated members, and NCA's annual Science Fair Awards.

**Fine Quality Telescope**, 14-inch aperture, see "Calendar of Monthly Events."

## Yes, I'd like to join NATIONAL CAPITAL ASTRONOMERS!

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

Street address: \_\_\_\_\_

City/State/ZIP: \_\_\_\_\_

Telephone: \_\_\_\_-\_\_\_\_-\_\_\_\_ E-mail: \_\_\_\_\_

Other family members who should receive a membership card: \_\_\_\_\_

Would you prefer to get *Star Dust* by e-mail? \_\_\_\_

### MEMBERSHIP CATEGORIES AND ANNUAL DUES RATES

All members receive *Star Dust*, the monthly newsletter announcing NCA activities. As an added optional benefit to extend your knowledge of astronomy, you may also choose *Sky and Telescope* magazine at the discounted rate of \$33.

Student Membership: ..... \$5 .....with *Sky and Telescope*...\$38

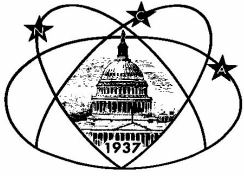
Standard Individual or Family Membership: ..... \$10 .....with *Sky and Telescope*...\$43

You are welcome to make contributions in any amount in addition to the dues shown above.

Contribution amount: \_\_\_\_\_

Please mail this form with your check payable to National Capital Astronomers, to:

Mr. Michael L. Brabanski, NCA Treasurer; 10610 Bucknell Drive, Silver Spring, MD 20902-4254



## **National Capital Astronomers, Inc.**

If undeliverable, return to  
NCA c/o Nancy Roman  
4620 N. Park Ave., #306W  
Chevy Chase, MD 20815-4551

**FIRST CLASS  
DATED MATERIAL**

***NCA Will  
Meet on  
April 14!***

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