

★ STAR DUST



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HARDING SHOWS MILLISECOND PULSAR TESTS THEORIES



DR. HARDING

Dr. Alice K. Harding, Laboratory for High-Energy Astrophysics, NASA Goddard, will discuss the 1.6-ms pulsar as a test for neutron star and polar cap models at the 4 June meeting of National Capital Astronomers.

The pulsar, PSR 1937+214, discovered in November, has the highest spin rate and lowest spin-down rate yet observed of any star — near the maximum possible spin rate for a neutron star. It could therefore be as old as 400 million years. Several evolutionary scenarios will be discussed, including spin-up in a binary system and an isolated birth in a supernova event.

The discovery stretches existing theories to their limits. The fast spin rate can test neutron-star models. The radio pulses can test current models for radio emission from the magnetic poles of neutron stars. The extremely slow

spin-down, 10^{-19} s/s, may be used to improve the accuracy of ephemeris time and thus facilitate more accurate determination of the masses of Neptune and Pluto.

Alice K. Harding received her B.A. in physics Magna Cum Laude from Bryn Mawr College in 1973, attended the University of Edinburgh, Scotland, in 1974, received the M.S. in astronomy in 1977 and the Ph.D. in astronomy in 1979 from the University of Massachusetts, Amherst. She is a member of the American Astronomical Society and the American Physical Society.

JUNE CALENDAR — *The public is welcome.*

Friday, June 3, 10, 17, 24, 7:30 pm — Telescope-making classes at American University, McKinley Hall basement. Information: Jerry Schnall, 362-8872.

Friday, June 3, 10, 17, 9:30 pm — NCA 14-inch telescope open nights with Bob Bolster, 6007 Ridgeview Drive, south of Alexandria off Franconia Road between Telegraph Road and Rose Hill Drive. Call Bob at 960-9126.

Saturday, June 4, 6:15 pm — Dinner with the speaker at the Thai Room II, 527 13th Street, NW. Reservations unnecessary.

Saturday, June 4, 8:15 pm — NCA monthly meeting at the Department of Commerce Auditorium, 14th and E Streets, NW. Dr. Harding will speak.

Saturday, June 11, 9:00 pm — *Exploring the Sky*, presented jointly by NCA and the National Park Service. Glover Road south of Military Road, NW, near Rock Creek Nature Center. Planetarium if cloudy. Information: John Lohman, 820-4194.

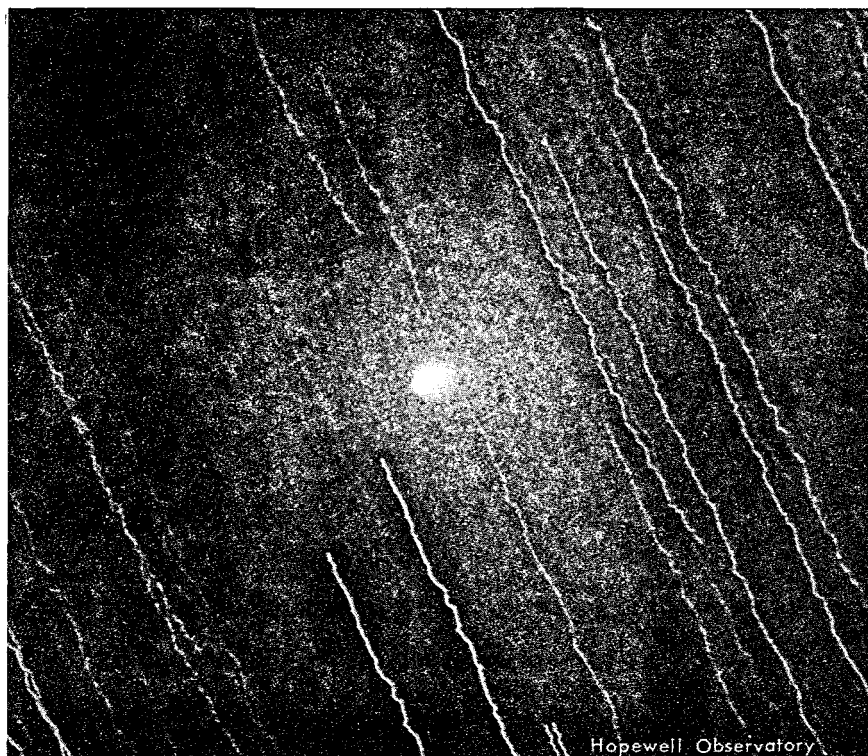
MAY MEETING: ELECTION, AWARDS

The annual corporative meeting of National Capital Astronomers was held on 7 May 1983. Officers were elected for fiscal 1984, and awards were presented to six winners in astronomy in area high school science fairs. Films followed.

Elected were: President, Robert H. McCracken; Vice President, Geoffrey R. Chester; Secretary, Stanley G. Cawelti; Treasurer, Ruth S. Freitag; Sergeant at Arms, Francis R. Baffa, Jr.; Trustee, William P. Pala, Jr.

Following the election, an award ceremony for the science fair winners welcomed them to a gift membership in National Capital Astronomers. The students described their projects, which were displayed on the stage, and were presented with certificates attesting to their awards. They were: Karlton Johnson, (presented in absentia), Friendly High School, Oxon Hill, Maryland, for his work on the distance to binary stars; James McAdoo, McLean, Virginia High School, who won the Grand Prize in the Fairfax County science fair for his photoelectric occultation project; Miss Shibani Pati, Robert Goddard Middle School, Lanham, Maryland, for her study of eclipses; Corey S. Powell, Walt Whitman High School, Bethesda, Maryland, for his study of colliding galaxies; and Patrick Wamsley, Hammond High School, Alexandria, Virginia, for his work on celestial navigation.

The annual NCA Science Fair Awards were established in 1958 by Robert McCracken for winners in astronomy and related sciences in the District of Columbia and the contiguous counties. We thank our NCA judges: James M. Gilfillan, Jr., Dr. John B. Lohman, Dr. Gary C. Thom, and James H. Trexler.



OCCULTATION EXPEDITIONS PLANNED

Dr. David Dunham is organizing observers for the following grazing lunar and asteroidal occultations. During Dr. Dunham's absence for the 11 June solar eclipse expedition to Java, Dr. Wayne Warren will lead the occultation expeditions. For more information call Wayne at (301) 474-0814.

UT	Place	Vis	Pcnt	Cusp	Min	
Date	Time	Mag	Sunlit	Angle	Aper	
06-17-83	02:23	Potomac, MD	9.9	42	8N	20 cm
06-19-83	01:56	Manassas Park, VA	9.0	64	11N	20 cm
06-23-83	03:43	Rose Tree, PA	6.4	95	10N	8 cm
ASTEROIDAL:		Star	Delta	Name of		
		Mag	Mag	Asteroid		
06-15-83	05:14	Midwest US ?	8.1	4.0	(83) Beatrix	20 cm

SUMMER PARK PROGRAMS SCHEDULED

The program, *Exploring the Sky*, presented jointly by National Capital Astronomers and the National Park Service, is scheduled for the summer: July 16, 9:00 pm; August 6, 9:00 pm; September 3, 8:30 pm; October 8, 7:30 pm.

All of the programs are held on Saturday evenings on Glover Road south of Military Road near Rock Creek Nature Center. The Nature Center planetarium is used in cloudy weather.

NATIONAL CAPITAL ASTRONOMERS WELCOMES NEW MEMBERS

G. C. Gilbreath-Frandsen
3447 Oakwood Terrace, NW
Washington, DC 20016

Karlton Johnson
13108 Rhame Drive
Fort Washington, MD 20744

James McAdoo
6519 Byrnes Drive
McLean, VA 22101

Shibani Pati
8604 Saffron Drive
Lanham, MD 20706

Devin B. Pelot
4215 37th Street
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Corey S. Powell
4630 Hunt Avenue
Chevy Chase, MD 20815

Michael R. Raymond
8212 Ashwood Drive
Alexandria, VA 22308

Patrick Wamsley
922 Kemper Street
Alexandria, VA 22304

MERAL TO MEET IN JULY

The Middle East Region of the Astronomical League will meet July 15-17 at Messiah College, Grantham, Pennsylvania. The Harrisburg Astronomical Society will host the meeting, which will feature talks and exhibits. For further information, call Bob Wright (301) 384-6748.

COMET 1983d BRIGHT, FAST-MOVING

Comet IRAS-Araki-Alcock (1983d) is the first comet to be named for a satellite, the Infrared Astronomical Satellite (IRAS), with which it was discovered. An account of its discovery is given in the current IAU Circular Excerpts in this issue.

At left is one of a series of color separations made by Bolster, Cawelti, and McCracken at Hopewell Observatory.

In this one-hour yellow-light exposure made by Bob Bolster with the 12-inch Wright telescope, the comet's unusually rapid motion — nearly 2 degrees per hour — made guidance difficult. The exposure ended at UT 0313 11 May 1983. North is up, west to the right, reproduced at 5.2 minutes per centimeter.

EXCERPTS FROM THE IAU CIRCULARS

1. April 21 — Manchester, Peterson, and Wallace observed the candidate star for PSR 1937+214 suggested by Djorsovski with the 4-m Anglo-Australian Telescope and found optical pulses with the same 1.6-ms period. The object is a red star of R magnitude 19.4, varying 1 percent in brightness. No strong emission lines were seen in the spectrum.

2. April — Frogel and Graham, Cerro Tololo Interamerican Observatory, observed the new stellar object in HH 57 in infrared with the 4-m telescope, and found it to be a strong infrared source, with most of its power radiated at wavelengths above 5 micrometers.

3. April — Lamb, Ling, Mahoney, Riesler, Wheaton, and Jacobson, Jet Propulsion Laboratory, reported evidence of gamma-ray-line emission from the region near V1343 Aquilae (SS 433). This observation, made with the high resolution gamma-ray spectrometer on HEAO-3, is compatible with the pre-cessing gas jet model.

4. April 25 — John Davies, Leicester University, discovered a fast-moving object in Draco with the Infrared Astronomy Satellite (IRAS). First thought to be an asteroid, the object was confirmed by T. Oja, Kvistaberg, Sweden, on April 27. He suggested it might be a comet. J. Gibson took plates of the object on May 2 at Palomar. On May 3, before these plates had been examined, G. Araki in Japan and G. E. D. Alcock in England observed and reported the object independently. Comet IRAS-Araki-Alcock (1983d) has a parabolic orbit. Having passed close to the Earth on May 11, it will reach perihelion on May 21.24, 0.9913 AU from the Sun.

Robert N. Bolster

NASM TO PRESENT MORRISON

Dr. Phillip Morrison, Institute Professor at MIT, will lecture on the significance of the summer solstice in archaeoastronomy on Wednesday, June 22, at 7:30 pm in the planetarium of the National Air and Space Museum. Further information can be obtained from Stanley Cawelti, (703) 250-5154.

ANOTHER COMET — SUGANO-SAIGUSA-FUJIKAWA

Walter Nissen has derived a preliminary ephemeris for comet 1983e and has estimated magnitudes to be expected. The following excerpts are given near maximum brightness. (Universal Time)

11 June 08:29, RA 21h 7m, Dec 19° 7', M 4.5; 12 June 08:00, RA 19h 56m, Dec 4° 26', M 4.3; 13 June 07:00, RA 18h 39m, Dec -12° 30', M 4.4; 14 June 06:00, RA 17h 30m, Dec -25° 12', M 4.8.

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WASHINGTON, D. C.



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