HARFORD COUNTY ASTRONOMICAL SOCIETY

AstroViews

Volume 29 Issue 1 January 2003

Minutes of General Meeting, 18 January, 2003

Editor's note: Thanks much to Bill Geertsen for covering the minutes while Carol and I were out of town. Wonderful achievement, Bill, on your Herschel-400 award!

President Lucy called the meeting to order at 7:30 P.M. in Joppa Hall, Room J70.
Treasurer's report: Treasurer was unable to attend. No report was presented.

Old Business:

There was discussion of the Sunfest, Swan Harbor and Earth Day events.

Upon further discussion, it was decided that the HCAS would have a table and observing stations on Astronomy Day, May 10, 2003 at the Harford Mall. This is also a scheduled HCAS Open House date. Additional members will be needed at the Open House site after dark to man telescopes for the visiting general public.

New Business:

Cathy Tingler presented the Herschel-400 observing certificate and pin to Bill Geertsen. We believe this to be the first Herschel-400 award to an HCAS member. There was some discussion of the Astronomical League observing programs in general and a brief description of the rules for some of them.

Cathy Tingler has been the HCAS Astronomical League coordinator for five years. She has passed the baton to Bill Geertsen who will be the new HCAS observing club coordinator.

Meeting Program:

There was a slight delay in program due to a non-functioning projector in Room J70. Another room with a functioning projector was found and we all moved next door into a warmer, larger room.

The program was a well-prepared Power Point presentation of The First Extra-solar Transiting Planet System, HD-209458B. This is a magnitude 7.5 star in Pegasus, easily seen with binoculars and easily found with any of the modern astronomy software containing the Henry Draper catalog or the ability to access it on the Internet.

The speaker was Mark Kochte, a data processing specialist with the Space Telescope Institute. Mark received his Bachelor's Degree from 'The Ohio State University'.

The presentation was quite interesting. Animated sequences of transits were accompanied by the light curves recorded by several instruments including the Hubble Space Telescope. The light curves contain the information used to determine the orbit of the extra-solar planet, its mass, density and size.

Many good questions were asked by the approximately 25 attending members including the type and size of the ground-based telescopes used. Relatively small telescopes in the 12"-16" range were used.

The clubs' 14" and several of the members scopes fall in this range. With modern electronics and digital cameras, photometry of this type is feasible for amateurs. Here is another opportunity for us to contribute to "Real Science".

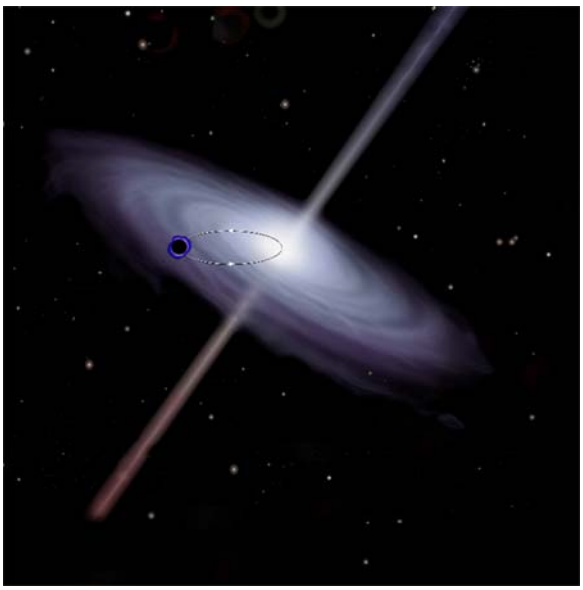
The meeting was, informally, adjourned at 8:45 P.M.

NASA's Space Place

Black Holes: Feeling the Ripples

Astronomers have finally confirmed something they had long suspected: there *is* a super-massive black hole in the center of our Milky Way galaxy. The evidence? A star near the galactic center orbits something unseen at a top speed of 5000 km/s. Only a black hole 2 million times more massive than our Sun could cause the star to move so fast. (See the Oct. 17, 2002, issue of *Nature* for more information.)

Still, a key mystery remains. Where did the black hole come from? For that matter, where do *any* super-massive black holes come from? There is mounting evidence that such "monsters" lurk in the middles of most galaxies, yet their origin is unknown. Do they start out as tiny black holes that grow slowly, attracting material piecemeal from passing stars and clouds? Or are they born big, their mass increasing in large gulps when their host galaxy collides with another galaxy?



A new space telescope called LISA (short for "Laser Interferometer Space Antenna") aims to find out.

Designed by scientists at NASA and the European Space Agency, LISA doesn't detect ordinary forms of electromagnetic radiation such as light or radio waves. It senses ripples in the fabric of space-time itself--gravitational waves.

Albert Einstein first realized in 1916 that gravitational waves might exist. His equations of general relativity, which describe gravity, had solutions that reminded him of ripples on a pond. These "gravity ripples" travel at the speed of light and, ironically, do not interact much with matter. As a result, they can cross the cosmos quickly and intact.

Gravitational waves are created any time big masses spin, collide or explode. Matter crashing into a black hole, for example, would do it. So would two black holes colliding. If astronomers

could monitor gravitational waves coming from a super-massive black hole, they could learn how it grows and evolves.

Unfortunately, these waves are hard to measure. If a gravitational wave traveled from the black hole at the center of our galaxy and passed through your body, it would stretch and compress you by an amount far less than the width of an atom. LISA, however, will be able to detect such tiny compressions.

LISA consists of three spacecraft flying in formation-a giant triangle 5 million km on each side. One of the spacecraft will shoot laser beams at the other two. Those two will echo the laser signal right back. By comparing the echoes to the original signal, onboard instruments can sense changes in the size of the triangle as small as 0.0000000002 meters (20 picometers).

With such sensitivity, astronomers might detect gravitational waves from all kinds of cosmic sources. The first, however, will probably be the weightiest: super-massive black holes. Will "feeling" the ripples from such objects finally solve their mystery, or lead to more questions? Only time will tell! Scientists hope to launch the LISA mission in 2011.

Harford County Messier Club

February Messier Objects — Between R.A. 05h 00m and 06h 59m

M79 R.A. 05 24 Dec. -24 31 Size 8' Mag. 6.0 Globular Cluster
A small and condensed, but bright, globular in Lepus.

M38 R.A. 05 29 Dec. +35 50 Size 18' Mag. 6.0 Open Cluster
A large and rich open cluster. One of three M-object open clusters in Auriga. More than 75 stars.

M1 R.A. 05 35 Dec. +22 01 Size 6' x 4' Mag. 11.3 Supernova Remnant
The remains of the great supernova of 1054 A.D. The "Crab Nebula" in Taurus. Use a UHC filter.

M42 R.A. 05 35 Dec. -05 23 Size 66' x 60' Mag. 4.0 Emission Nebula
The spectacular "Orion Nebula." A breath-taking star-forming region in Orion's sword.

M36 R.A. 05 36 Dec. +34 00 Size 16' Mag. 6.0 Open Cluster
A very large and rich cluster in Auriga. More than 60 stars.

M43 R.A. 05 36 Dec. -05 16 Size 20' x 15' Mag. 9.0 Emission Nebula
The other part of the "Orion Nebula" just northeast of the main part.

M78 R.A. 05 47 Dec. +00 04 Size 8' x 6' Mag. 8.0 Nebula
A bright reflection nebula just up from Orion's belt.

M37 R.A. 05 53 Dec. +32 33 Size 24' Mag. 6.0 Open Cluster
This cluster in Auriga is one of the richest in the sky, with over 150 stars.

M35 R.A. 06 09 Dec. +24 20 Size 29' Mag. 6.0 Open Cluster
This rich cluster in Gemini has over 100 stars. See if you can locate the compact 12th-mag. cluster NGC 2158 in the same low power field.

M41 R.A. 06 47 Dec. -20 44 Size 32' Mag. 6.0 Open Cluster
Another large and bright open cluster. This one makes its home in Canis Major.

Members will remember our commitment to help Dr. Thompson with his Astronomy Class students. Several members are necessary to set up scopes (some of the club scopes are available) on the evenings indicated in the following. Please help us provide this valuable service to the students. It helps to build good will with the college and community!

Astronomy Class Schedule For 2003 - Dr. George Thompson

February

Feb. 3, 2003 (no moon)

Feb 10 (1st quarter)

Feb 17 (Full moon - no session)

Feb 24 (no moon)

March

Mar 3 (no moon)

Mar 10 (1st quarter)

Mar 17 (no session - College Closed for Spring Break)

Mar 24 (no moon)

April

Apr 7. (1st quarter - optional -will hold only if prior 1stquarter sessions are clouded out)

Apr 14 (full moon - no session)

Apr 21 (no moon)

Apr 28 (no moon)

May

May 3 (Sat) (no moon - session to be held at 4:00 am)

May 4 (Sun) (no moon - session to be held at 4:00 am ONLY if May 3 session clouded out)

May 5 (1st quarter - session will be held only in event majority of prior sessions are clouded)

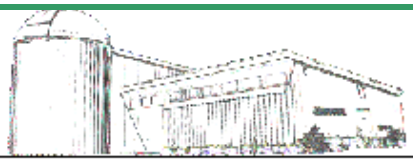
We try to stress deep sky objects during the no moon sessions and the planets, moon and double stars during the 1st quarter sessions. Jupiter and Saturn will be well placed this spring.

Our students are asked to make notes on what they see. They turn in detailed observation reports for credit at semester's end. Attendance is usually very full near the beginning of the semester (up to thirty). As the semester wears on we usually get down to about 15 or so. The students are not compelled to attend each and every session. They are asked to attend a majority and do some sessions on their own. The latter are usually devoted to constellation and asterism identification following some orientation during observatory sessions. I give them star charts from Sky & Telescope.

If you or any of the members have any questions feel free to call me at home at (410) 879-5871 or (410) 734-6085. My work number is (410) 278-4905.

If any last minute problems come up on class night - my class meets from 7:30 until we leave for the observatory. It is in Rm 113 of Aberdeen Hall (the Science Bldg.) Feel free to interrupt in the event of last minute cancellation due to weather or whatever.

February 2003



Sun	Mon	Tue	Wed	Thu	Fri	Sat
						1 Star Party, Dusk at SteppingStone and the Observatory
2	3 Discussion Nite, ASTONOMY CLASS 9:00PM	4	5	6	7	8 OPEN HOUSE 7:30 P/M
9 1st Qtr Moon	10 Discussion Nite, ASTONOMY CLASS 9:00PM	11	12	13	14	15 General Meeting, 7:30, Joppa Hall, RM70
16 Full Moon	17 Discussion Nite @ Observatory, 7:30PM	18	19	20	21	22 Star Party, Dusk at SteppingStone and the Observatory
23 Last QTR Moon	24 Discussion Nite, ASTONOMY CLASS 9:00PM	25	26	27	28	

Harford County Astronomical Society

Astronomical League Observing Programs: HCAS Member Projects

Messier Club: Telescope	**[Cert #]**	**# of Objects/ (Award Date)**	**(110 objects required)**	
Completed:			**In Progress:**	
Richard Hagenston		110(2/90)	Wayne French	2
Woody Lower		110(5/90)	Doris Reese	12
Larry Hubble		110(5/91)	Lucy Albert	48
Ernie Webb		110(6/91)	Ernie Davis	60
Warren Hoover	[1586]	110(5/98)	Leo Hepner	68
Bill Geertsen	[1555]	110(6/98)		
Philip Schmitz	[1650]	110(3/99)		
Bill Morgan	[1649]	110(3/99)		
Steve Krall		110(5/99)		
Jerry Weger	[1662]	110(10/99)		

Messier Club: Binocular			**(50 or more objects required)**	
Completed:			**In Progress:**	
Philip Schmitz	[442}	50+ (1/01)	Frank Varisco	3
Bruce Wrinkle		79 ( )	Stu Chapman	19
Cathy Tingler		57 ( )	Bill Geertsen	35

Deep Sky Messier Club: Binocular **(60 or more objects required)**

Completed:			**In Progress:**	
Bruce Wrinkle		79 ( )	Cathy Tingler	57
Philip Schmitz	[120]	60+ (3/01)		

Double Star Observing Club: **(100 objects required)**

Completed:			**In Progress:**
Philip Schmitz	[74]	100(3/99)	
Bill Geertsen	[79]	100(4/99)	

Urban Observing Club: **(100 objects required)**

Completed:			**In Progress:**
Philip Schmitz	[21]	100(2/01)	
Bill Geertsen	[24]	100(4/01)	

Herschel-400 Club: **(400 objects required)**

Completed:			**In Progress:**
Philip Schmitz	[236]	400(10/01)	
Bill Geertsen	[267]	400(1/03)	

Arp Peculiar Galaxy Club **(100 of 338 Arp galaxies must be imaged with a CCD camera)**

Completed:	**In Progress:**	
	Philip Schmitz	50%

Herschel-II Club **(400 objects required)**

Completed:	**In Progress:**	
	Philip Schmitz	20%

Universe Sampler **(100 objects required)**

Completed:	**In Progress:**	
	Philip Schmitz	75%

Lunar Club: **(100 objects required)**

Completed:			**In Progress:**
Philip Schmitz	[258]	(1/01)	Cathy Tingler
			Bill Geertsen

Planetary Observers Club **(27 observing projects)**

Completed	**In Progress**	
	Philip Schmitz	50%

Caldwell Club: **(109 objects required)**

Completed:			**In Progress:**
Philip Schmitz	[8]	70(12/02)	

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There are several reasons for the Astronomical League Observing Programs (Clubs). Primary among them is learning of the night sky. For this reason, most of the Clubs have a restriction against using GPS, GoTo or PC guided scopes. For some, the competitive spirit of completing a program before a fellow observer comes into play. The thrill of the hunt for obscure, faint objects or just pushing your equipment and brain to their limits

appeals to many of the 'lone wolf' observers. The gregarious observers enjoy getting together and comparing notes, helping one another locate an object and telling jokes when the haze builds up.

As the list shows, HCAS members participate in many of the AL observing programs. There are nineteen AL programs available, ranging from easy (Lunar Club, Universe Sampler Club) to difficult (Herschel-II, Arp Peculiar Galaxy Club). There is an observing program for everyone and every interest.

All of the AL clubs provide us with the goal of completing a task once started. For some of us that is more than enough reason to go out on a cold night and stand staring into the night sky. God bless the understanding and tolerant people who put up with us through these quests.

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Please send any additions, corrections or questions to:
HCAS AL Coordinator Bill Geertsen izar@juno.com

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Astronomical League Website www.astroleague.org
Observing Clubs are found under "Astro Info" on the left hand side

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